Área Temática:	Biociencias y biotecnología
Nombre:	TOLL RIERA, MACARENA
Referencia:	RYC2022-036791-I
Correo Electrónico:	mtollriera@gmail.com
Título:	Evolutionary adaptations, from metazoans to bacteria

Resumen de la Memoria:

My research is focused on the study of evolutionary adaptations, specifically, the molecular mechanisms underpinning their origin as well as their evolution. Evolutionary adaptations facilitate the survival or reproduction of an organism in a given environment, and understanding their molecular basis is a fundamental question in evolutionary biology, which has implications for understanding bacterial resistance to antibiotics and the response of organisms to climate change.

During my PhD at the group of Prof. Albà (Universitat Pompeu Fabra) I used comparative genomic approaches to investigate the mechanisms of origin of new genes in primates (Toll-Riera et al, Mol Biol Evol 2009) and how proteins evolve over time (Toll-Riera et al, Mol Biol Evol 2012; Toll-Riera et al, PLoS Comput Bio 2012; Toll-Riera et al, BMC Evol Biol 2013). My PhD included a short stay at Prof. Plotkin's group (University of Pennsylvania).

During my Postdoc I transitioned from computational biology to experimental evolution acquiring skills in experimental techniques, microbiology and in the analysis of sequencing data. I did a first postdoc at the group of Prof. MacLean (University of Oxford), where I studied the genomic basis of evolutionary innovations in the pathogenic bacterium Pseudomonas aeruginosa by means of laboratory evolution and posterior sequencing of the evolved bacteria (Toll-Riera et al, PLoS Genet 2016). Additionally, I got involved in numerous collaborations to understand the fitness costs that plasmids impose in P. aeruginosa (San Millan*, Toll-Riera* et al, ISME J 2018; San Millan*, Toll-Riera* et al, Nat Commun 2015; San Millan, Peña-Miller*, Toll-Riera* et al, Nat Commun 2014) and how P. aeruginosa adapts to antibiotics (Qi, Toll-Riera et al, Proc Biol Sci 2016; Gifford, Toll-Riera, MacLean Evolution 2016). I did a second postdoc at Prof. Wagner's group (University of Zurich). There I continued my research on evolutionary innovations in P. aeruginosa using computational approaches to understand the role that mutational robustness has in facilitating innovations (Toll-Riera et al, PLoS Genet 2016).

In May 2016 I established myself as junior group leader at the University of Zurich funded through an Ambizione grant (Swiss National Science Foundation, 583,690€). Since November 2019 I lead the Evolutionary Microbiology group, hosted at ETH Zurich. The group is currently composed of two PhD students, one postdoctoral researcher and a master rotation student and is funded through a PRIMA grant (Swiss National Science Foundation, 1,445,870€) and an ETH Research Grant (229,878€). We study the molecular mechanisms that facilitate adaptation to environmental changes and what limits adaptation. We use an interdisciplinary and integrative approach, and we combine laboratory evolution, computational approaches, high-throughput sequencing and proteomics.

Obtaining a Ramón y Cajal fellowship would allow me to establish my research group in Spain and continue developing my research program focused on the study of evolutionary adaptations using experimental, computational and 'omics' approaches and model and non-model bacteria. My goal is to study: 1) Which are the limits of adaptation to high temperatures, 2) Chromosomal plasticity as a mechanism for rapid adaptation to environmental change and, 3) Genomics of cold-adaptation in bacteria.

Resumen del Currículum Vitae:

CURRENT POSITION
2019-present   Group Leader. ETH Zurich, Switzerland

PREVIOUS POSITIONS
2016-2019   Junior Group Leader. University of Zurich, Switzerland
2014-2016   Postdoctoral researcher. University of Zurich, Switzerland
2013-2014   Postdoctoral researcher. University of Oxford, UK
2011   Visiting PhD student. University of Pennsylvania, USA
2008-2012   PhD student. Universitat Pompeu Fabra, Spain
2007   Undergraduate researcher. Universitat Pompeu Fabra, Spain
2006-2007   Research technician. CEAB-CSIC, Spain
July 2004 Undergraduate researcher. University Karol Marchinkowski, Poland
2001-2004   Undergraduate researcher. Fundació Mona, Spain

ACADEMIC EDUCATION
2008-2012   PhD in Biomedicine. Universitat Pompeu Fabra, Spain
2007-2008   MSc in Human Biology. Universitat de Barcelona, Spain
2002-2007   BSc in Biology. Universitat Pompeu Fabra, Spain

AWARDED GRANTS AS PRINCIPAL INVESTIGATOR
2021-2024   ETH Zurich Research Grant (ETH Zurich, 229,878€)
2019-2024   PRIMA Grant (Swiss National Science Foundation, 1,445,879€)
2018   URPP pilot project Grant (University of Zurich, 8,799€)
2016-2019   Ambizione Grant (Swiss National Science Foundation, 583,690€)

FELLOWHIPS AND AWARDS
2011   FPU short stay (Gobierno de España)

2008-2012	FPU predoctoral grant (Gobierno de España)
2008	FI-Agaur predoctoral fellowship (Generalitat de Catalunya)
2008	Master studies Extraordinary Prize (Universitat de Barcelona)
2007	Master studies fellowship (Obra Social Fundació La Caixa)

PUBLICATIONS
- h-index: 17, 1,345 citations (Google Scholar)
- I have published 23 papers and 3 book chapters
- 83% of my papers are published in journals of the first quartile and 61% in journals ranked in the top 10% of their area
- My first author papers are published in renowned journals in the field (Science Advances, Nature Communications, PLoS Genetics, Molecular Biology and Evolution, ISME J, PLoS Computational Biology)
- I am first, second or last author in 19 out of the 23 publications in my CV

INTERNATIONALIZATION
- I have 10 years of research experience at international top-ranked universities
- I have an international network of collaborators (ETH Zurich, EMBL, CNB, University of Naples Federico II, University of Firenze)

INDEPENDENCE AND LEADERSHIP
- I run my own group since 2016
- I have raised more than 2 million €as the sole PI
- Currently supervising 2 PhD students, 1 postdoctoral researcher, 1 master rotation student. In the past I have supervised 1 master student, 2 rotation master students, 1 research assistant, 1 laboratory technician

SCIENCE COMMUNICATION
- My work has been selected for oral communication at 9 conferences
- I have been invited/keynote speaker at 3 conferences and at various Universities
- I participated in outreach events in secondary schools (Spain and Switzerland)
- My research has been featured in the radio, newspapers, and popular science magazines

OTHERS
- Tenure-Track Lecturer accreditation issued by AQU Catalunya
- I have taught at both undergraduate (Universitat Pompeu Fabra, ETH Zurich) and graduate level (University of Zurich, ETH Zurich)
- I serve as scientific reviewer for international peer-reviewed journals
- I served as external reviewer in PhD and master thesis (Spain, Italy)
- I was member of the jury of the Swiss Bioinformatics Graduate Paper Award 2021
- I am a member of AcademiaNet

Área Temática:	Biociencias y biotecnología
Nombre:	LYRA GOLLO, LEONARDO
Referencia:	RYC2022-035106-I
Correo Electrónico:	leonardo.l.gollo@gmail.com
Título:	Brain Network Organization and Dynamics

Resumen de la Memoria:

2012-2016: I completed my PhD in Physics applied to Computational Neuroscience in 2012 under the supervision of Prof Claudio Mirasso, at the IFISC (Institute for Cross-Disciplinary Physics and Complex Systems), after which I obtained a postdoctoral position in the team of Prof Michael Breakspear at QIMR Berghofer Medical Research Institute, Brisbane. There I led a series of projects aimed at understanding the role of connectivity in shaping the dynamics of brain networks. I took a reductionist approach, in which I characterised in detail the dynamics of network motifs, which are the building blocks of networks. This was a very productive period for a junior postdoc, and I had the opportunity to collaborate with researchers that are leaders in the field, such as Prof Olaf Sporns, Prof Alex Fornito, Associate Prof Andrew Zalesky, Prof Steven Bressler, and Associate Prof Martijn van den Heuvel. I expanded my expertise in computational neuroscience to incorporate human neuroscience, neuroimaging, and complex networks.

2016-2019: I obtained an NHMRC-ARC early-career fellowship ($604K AUD), which supported my independence. I was also successful in securing funding from an NHMRC Project Grant ($419K AUD), a Rebecca Cooper Foundation Project Grant ($100K), and a competitive Seed Funding from QIMR Berghofer ($50K AUD, success rate of 10.6%), and I started to build my own group, supervising students within my own research program, and adapting questions that could be answered in a limited timeframe. Despite limited access to students due to my location at a research institute, my growing reputation as a researcher and supervisor allowed me to attract over a dozen undergraduate students. Four of these students continued their studies, and completed an Honours degree under my supervision.

2020-present: As a Turner Institute Breakthrough Fellow, I moved to Monash University, which has a great research environment (ranked # 37 in Best Global Universities) and facilities to start my own lab (Brain Networks & Modelling Group). This move has cemented my research independence and provided a supportive, well-resourced environment to strengthen my Research Program. At Monash, I obtained an ARC Future Fellowship ($750K AUD), and an NHMRC Ideas Grant ($2M AUD), and I have supervised four Honours students in my group.

I have positioned myself as a leader in the rapidly developing field of connectomics, demonstrating a proven ability to undertake work that spans both methodological innovation and basic neuroscientific discovery. In this project, I will develop an integrated program that will apply novel techniques to understand fundamental questions concerning brain network organisation across the lifespan and how to optimally manipulate its activity.

Resumen del Currículum Vitae:

I have published 38 peer-reviewed papers: 35 journal articles, and 3 book Chapters. I was the first author in 15 of my journal articles, the second author in 9 papers, and the senior author in four journal articles, and I was also the single author of two articles, highlighting the leading contribution that I have made to my peer-reviewed papers. The large number of first, second and senior author papers demonstrate my ability to conduct, lead projects, and to supervise a research team. My research output shows a clear upward trajectory with respect to the quantity, quality, and impact of my publications: Many of them were published in high-ranking journals, including Nature Neuroscience, Nature Communications, PNAS, Progress in Neurobiology, eLife, Science Advances, Neurology, NeuroImage, and PLoS Computational Biology. These papers indicate my strong capacity to produce high-impact work.

My h-index is 23 (Source: Google Scholar – January 2023), and my work has received >3100 citations (>2000 since 2018). It means that 65% of my articles have at least 23 citations, including high-impact papers published in 2021, 2019, 2018, and multiple papers published in 2017. In fact, my papers are generally well cited, as all my articles published before 2019 have more than 10 citations.

Due to my global standing in the field, I am regularly invited to present my work at national and international conferences. I have presented over 60 times in more than 10 countries, and given fully funded presentations in France, Italy, Canada, Japan, Australia, and the Netherlands. I have presented my work as an invited speaker at major conferences such as OHBM (~3000 attendees), Neuro19 Japan (>1000 attendees), CNS (~700 attendees), BioMag (~600 attendees). I have also received fully funded invitations and the opportunity to present my work at a prestigious invite-only Biennial Whistler Workshop on Brain Connectivity. Moreover, I have organized 8 scientific events in Australia, South Korea, and Spain.

My proven track record in securing competitive grants (more than 3.9 million AUD in total) demonstrates my ability to attract funding to support my research. I have also received more than $60,000 AUD in awards and prizes during my research career, and I was the project director in four projects, totaling >1.5 million AUD.

My extensive editorial and reviewer responsibilities for high-impact journals and funding bodies include: Academic Editor for NeuroImage and PeerJ (handled over 40 papers); external Assessor for international funding bodies in Australia (ARC and NHMRC), the Netherlands (NWO), and Chile (ANID); reviewer of PhD and Honours theses, and papers for more than 30 journals (including Science Advances, Nature Communications, Brain, eLife, Biological Psychiatry, Cerebral Cortex, Journal of Neuroscience, Physical Review Letters, and Physical Review X).

I am the head of the Brain Networks & Modelling Group at the Monash University (ranked # 37 in Best Global Universities), and I have supervised over 30 people, including research assistants, students, and postdocs. I am an active member of 7 professional organizations, associations, and societies,

which I regularly contribute as attendee, reviewer, chair, and workshop organizer. My network of collaborators includes world-class researchers based in Europe, USA, Australia, and Brazil.

Área Temática:	**Biociencias y biotecnología**
Nombre:	LOBATO MÁRQUEZ, DAMIÁN
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Título:	Studying host-bacteria interactions to illuminate infection control

Resumen de la Memoria:

It is estimated that by 2050 antibiotic-resistant infections will kill more people than cancer. Studying host-pathogen interactions my goal is to reveal new targets that help develop novel therapies.

I completed my PhD working at the CIB, CNB and EPFL (2015), where I was trained in molecular microbiology. Here, I discovered new roles for toxin-antitoxin systems of the bacterial pathogen Salmonella during its intracellular adaptation to human cells (Sci Rep 2015, Toxins 2015, FEMS Microbiol Rev 2016) and developed an innovate system to measure plasmid stability in bacteria (Front Mol Biosci 2016; BioProtocol 2016; Methods Mol Biol 2020, all 3 papers as corresponding).

In 2016 I joined Imperial College London to be trained in cellular microbiology and focused my research on the study of the cell-autonomous immunity to Shigella. Here, two visits to Drexel University (2017) and ETH (2019) trained me in protein purification and cryoET, respectively, and allowed me to make the breakthrough discovery that host cytoskeletal septins sense physicochemical clues on the bacterial cell surface to trigger cell-autonomous immunity (J Cell Biol 2016; Cell Host Microbe 2018; Nat Commun 2021 -co-corresponding author-). My research also revealed new roles for septins in mitochondrial fission (EMBO Rep 2015; Autophagy 2015), glycolysis (Cytoskeleton 2018), cell death (Cytoskeleton 2022) and the haemostatic response (Blood 2022). We also discovered a new link between Wiskott–Aldrich syndrome protein and enhanced bacterial infections (Nat Commun 2017). As PI, funded by a competitive grant (ALBA 2018) I led a project focused on studying Shigella infection by cryoSXT (BioRxiv 2022). In 2022 my research vision was acknowledged by EU (I was shortlisted for an ERC StG Interview) and La Comunidad de Madrid, that awarded me an Atracción de Talento grant to start my independent research group at the CNB.

As a PI, I study the infection biology of Rickettsia, obligate intracellular bacteria that are spreading worldwide. Despite causing life-threatening infections, as well as the lack of treatments, the infection process of Rickettsia is poorly understood. I will employ my experience in infection biology to overcome the genetic intractability of Rickettsia, providing a novel toolbox to enable unprecedented understanding of Rickettsia lifestyle. Evolution has shaped the Rickettsia genome to retain genes only essential for infection and growth. This makes Rickettsia a unique model to discover core factors underlying successful bacterial infections. Considering that Rickettsia is one of the few bacterial pathogens that replicates in the cell cytosol (where many antimicrobial cell responses operate, including autophagy) my project can reveal unexpected and fundamental principles of host immunity. Rickettsia manipulates the cell to support its metabolism, yet the factors controlling bacterial replication are not well known. To manipulate the cell Rickettsia is thought to secrete effector proteins via a Type IV Secretion System (T4SS), but the role of the T4SS during infection is unknown. My aim is to understand what makes R. parkeri such a successful cytosolic pathogen and reveal new factors controlling bacterial pathogenesis. My project will enable breakthrough discoveries that can illuminate new targets to develop new treatments to combat Rickettsia infections.

Resumen del Currículum Vitae:

I have been independently funded at every stage of my scientific career (9 grants/fellowships attracting over 650K € in funding). This includes as PI (Atracción de Talento starting grant #2022-T1/BIO-23848; ALBA research grant #2019023307), as postdoc (Marie Curie #MSCA-IF-752022), as PhD (EMBO short-term Fellowship #ASTF 107-2014; FEMS meeting Grant; FPU #AP2009-0967), as MSc student (UAM Postgraduate Training Fellowship) and as BSc student (Research Assistant Fellowship; CICERONE Grant). This funding allowed me to work in 10 institutes situated in 4 countries: ALBA, CIB, CNB, CNIC, UCM (Spain), Drexel University (USA), ETH and EPFL (Switzerland), LSHTM and Imperial College London (UK).

As Principal Investigator, funded by a competitive grant (ALBA 2018), I led an independent research avenue at LSHTM focused on studying Shigella infection using cryoSXT (BioRxiv 2022). In 2022 I was shortlisted for an ERC StG Interview and awarded an Atracción de Talento grant (Comunidad de Madrid) to start my independent research group at the CNB.

My research work led to breakthrough discoveries in cell biology (the septin cytoskeleton promote mitochondrial fission, host cell glycolysis and cell death) and cellular microbiology (the host cytoskeleton recognises physicochemical clues on the bacterial cell to trigger cell-autonomous immunity). This highlights how the study of bacterial infections can lead to unexpected and fundamental discoveries in cell biology and immunity.

I am author of 19 publications (9 as first author and 4 as corresponding author) in international peer-review journals (2 more under review: mBio and PLOS Biol as corresponding author) and my h-index is 11. I have 4 publications with my PhD supervisors (Ramón Díaz-Orejas and Francisco García-del Portillo), 13 publications as a postdoc with Serge Mostowy (without any of my PhD supervisors) and 2 publications independent of any of my supervisors. In total I have 9 publications as first author and corresponding author in 4.

My research had a great impact on the scientific community, as reflected by 14 invitations to present my work at institutions, national and international conferences and the Stefania Spanò prize (UK Cellular Microbiology network 2020) I was awarded. The impact on my field is also reflected in the invitation to work as: Reviewer for a COFUND-MSCA fellowship (2019), 2 PhD upgrade panels, and Reviewer for several journals. In addition, I was invited by Front Cell Infect Microbiol to edit the special issue 'single cell analysis of host-bacteria interaction' (2021/23), and I am Editorial Board

Member at BMC Microbiology (Springer Nature). The relevance of my achievements track record is represented in the award of an I3 certificate (in recognition of an outstanding scientific career).

To disseminate results derived from my research to different audiences, I participated in several outreach programs, including the Wellcome Trust Research Enrichment (2020/22), Native Scientist (2017/18) and the Imperial College London Festival (2016/18). I was also invited to be part of the Honouring Marie Curie video (LSHTM 120th anniversary, 2019), and published outreach articles in Noticias SEM journal and review articles in Faculty Opinions. I supervised 2 postdocs, 1 PhD student and 2 MSc students. I also contributed to teaching at LSHTM (2021), UCM (2017/18) and UAM (2012/14).

Área Temática:	Biociencias y biotecnología
Nombre:	GARCIA MOLINA, ANTONI
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Título:	Systems Biology strategies to investigate stress responses in plants

Resumen de la Memoria:

I am a plant biologist with a scientific background and trajectory that consolidated me as a unique researcher capable of integrating molecular strategies with Systems Biology analysis to investigate responses to stress conditions.

Throughout all my scientific career I have been interested on how plant responds to adverse environments. I started my research as PhD student at University of València investigating responses to copper (Cu) and iron (Fe) miss-accumulation in the model plants Arabidopsis thaliana and Oryza sativa (hereafter Arabidopsis and rice). I focused on the functional characterisation of putative Cu high-affinity transport (COPTs) proteins in Arabidopsis in regards of Cu uptake, their crosstalk with other metals and how they could be engineered for biotechnological strategies in rice to alleviate Cu polluted soils.

During my first post-doc at Max Planck Institute for Plant Breeding Research, I continued investigating Cu homeostasis focused on the functional characterisation of the transcription factor SQUAMOSA PROMOTER-BINDING PROTEIN-LIKE 7 (SPL7), which acts as the master regulator for Cu deficient responses and my results led to the first working model for SPL7 activation under Cu deficiency. In my second post-doc at Technical University Munich, I started addressing stress responses from a systemic perspective. I acquired skills to conduct analysis on large-scale data and elaboration of networks. Thus, I shed light into the biological relevance of LOW SULPHUR UPREGULATED (LSU) proteins as hubs in Arabidopsis protein-protein interaction networks. LSUs counteract pathogen infection under several nutrient unbalances and represent new evidence that responses to combinatorial stress cannot be anticipated from those to each stressor individually. In my third post-doc at Ludwig-Maximilians University Munich I focused on investigation of the role of chloroplasts in acclimation to fluctuations in light intensity and temperature. I employed cutting-edge high-throughput platforms and Systems Biology analysis to complete the first comprehensive and holistic multi-omics map for molecular rewiring during acclimation and identified the central features. In addition, I investigated biotechnological approaches to improve plant growth under fluctuating light conditions.

I started my independence stage during my third post-doc thanks to the achievements of internal funds to set my own research line that consisted in the comprehensive characterisation of combinatorial responses to simultaneous Cu and Fe deficiency by means of system-wide analysis of transcriptomes, proteomes, and metabolomes. Currently at Centre of Research in Agrigenomics, I am working as independent researcher in the frame of a Marie Skłodowska Curie individual fellowship. I lead a project focused on metabolome-wise analyses on Arabidopsis plants exposed to multiple and diverse abiotic stress conditions to elucidate potential compounds that confer cross-tolerance in under subsequent pathogen infections.

In my attempt to consolidate me as group leader, the hallmark of the research line I propose is the investigation of plant systemic responses to unfavourable environments and translation into species of agronomical interest to increase crop resilience, a key priority at global level due to current climate change scenario.

Resumen del Currículum Vitae:

I am a molecular biologist with a strong bias towards Systems Biology interested on understanding how plants respond to adverse conditions caused by abiotic and biotic stressors. I was initially trained as a biochemist and biologist at the Universitat de València, where I completed PhD aimed at the functional characterisation of the copper transporters in Arabidopsis. Later, I continued my career as post-doc at three reference centres in Germany (Max Planck Institute, TUM and LMU), where I acquired advanced skills in monitoring physiological parameters, quantitative biology (transcriptomics, proteomics and metabolomics), confocal cell imaging, protein biology, chemical detection of elements, genetic manipulation of plants and pathogens, and bioinformatic tools for data analysis. Currently, I am integrated at CRAG thanks to a Marie Skłodowska-Curie Individual Fellow and working as an independent researcher due to the unfortunate decease of my supervisor Dr María Coca.

Specially, from my post-doc at TUM I started implementing my projects with two central aspects I am interested on: (i) the study of combinatorial stress as a phenomenon that involve molecular changes that cannot be anticipated by the responses to the stressors in isolation and (ii) the investigation of molecular changes in a holistic manner using Systems Biology. During my post-doc at LMU I consolidate myself as an expert in quantitative biology and high-throughput analysis in the frame of a transregional project aimed at investigating the role of chloroplast in plant acclimation. Moreover, I was awarded with a Bio-Mentoring grant to fund my own research projects and promote my training. I dedicated this fellowship for training in bioinformatic tools, assist to international conferences and start an independent line focused on the characterisation of combinatorial responses to the double deficiency in copper and iron in Arabidopsis. As a result, I combined my expertise in plant stress responses with a strong background in generation of high-throughput datasets and data analysis by Systems Biology approaches to address stress responses from an integrative perspective and select candidates using top-down strategies. My current project at CRAG is aimed at investigating metabolome-wide changes in plants expose to abiotic stressors to identify inducers of cross-tolerance to pathogens in Arabidopsis and other model plants.

My work rendered 21 publications - 10 of them as first-author, and 3 as corresponding author - in top-ranked journals (Nature Plants, Nature, Plant Physiology, Plant Journal) with more than 900 citations, what confers me an H-Index 15. As proof of the quality of my scientific trajectory I have achieved this year the "I3 accreditación" from Spanish Ministry for Science.

Besides my research, I have been involved in academic tasks including lectures and practical courses, supervision of bachelor and internship students (more than 400 hours), evaluations and outreach activities. I attended to reference conferences in Systems Biology and Plant Biology to present my data to the community and set my own network of collaborators for the future. Currently, I am organising a concurrent session at International Conference in Arabidopsis Research (ICAR 2023) and co-ordinating a Research Topic in Frontiers for Plant Science focused on Plant Systems Biology.

Área Temática:	Biociencias y biotecnología
Nombre:	DE MANUEL MONTERO, MARC
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Título:	Evolutionary processes generating and maintaining genetic variation

Resumen de la Memoria:

As a population geneticist, my goal is to delve into the complex dynamics behind genetic variation in populations. Through mutation, recombination, and the forces of selection and demography, accidental changes to genomes can become ingrained in populations, resulting in heritable differences. My research focuses on uncovering the intricate mechanisms at play in this evolutionary process.

I started my academic journey at the Universitat Pompeu Fabra (Barcelona), where I earned my BSc, MSc, and PhD with an extraordinary distinction. During my PhD under the supervision of Dr. Tomas Marques-Bonet, I focused on exploring the evolutionary history of chimpanzees and bonobos, our closest living relatives. In the main work of my PhD, I uncovered evidence of an ancient gene flow from bonobos into the ancestors of chimpanzees, a finding that draws similarities to the admixture events between archaic and modern humans. In addition, I discovered that the genetic population structure of chimpanzees has a correlation with geography, providing valuable insights for the conservation of this endangered species.

In my first postdoc, I co-led two projects that started during my stay at the lab of Prof. M. Thomas P. Gilbert in the University of Copenhagen. The first project aimed to unravel the evolutionary history of both extinct and extant lions. We were able to obtain complete genomes of two extinct cave lions, providing new insights into their relationship with modern lions and shedding light on the extremely low genetic diversity within Indian lions. The second project focused on identifying instances of positive selection in the highly specialised sled dog lineage. Our findings uncovered genetic adaptations related to survival in harsh arctic conditions, physical endurance, and the ability to thrive on a diet high in fatty acids.

As a postdoctoral researcher in the lab of Prof. Molly Przeworski at Columbia University, my focus is on exploring the evolution of germline mutation rates across various species of vertebrates. My recent work, published as co-corresponding and first author, has revealed that males exhibit higher germline mutation rates than females in 42 species of amniotes. While previous explanations for the sex-based disparity in mutation have pointed to replication errors in spermatogenesis, our study offers a new model that takes into account alternative mutagenic processes that are independent of cell division.

Throughout my career as a scientist, I have proven a track record of securing competitive funding and awards and presenting my work at numerous international meetings. My strong publication record showcases my research expertise, with 28 peer-reviewed articles in high impact journals such as Nature, Science, Cell, PNAS and eLife, resulting in an h-index of 19 and over 1,750 citations. I have also established a network of established national and international collaborators. My ultimate goal is to establish an independent research laboratory and continue to advance my research goals in the field of comparative genomics and mutation rate evolution.

Resumen del Currículum Vitae:

I began my scientific career at the UPF in Barcelona, where I obtained my PhD under the guidance of Dr. Tomas Marques-Bonet. My research focused on utilising genomic data to uncover the evolutionary history of our closest living relatives, the great apes. During my PhD, I was awarded a competitive FI doctoral fellowship from the AGAUR, and completed a 4-month research stay at the University of Copenhagen in the laboratory of Prof. M. Thomas P. Gilbert, supported by an EMBO short-term fellowship. My PhD work resulted in 14 publications, including 4 as first author (one of them in Science, 2016), earning me an Extraordinary PhD award.

As a PhD student, I actively engaged in mentorship and education by co-supervising two MSc students and two undergraduates. I also gained valuable teaching experience by instructing the subject of Advanced Bioinformatics at the BSc of Biotechnology at the UVic, designing a Problem Based Learning BSc module, and giving invited lectures at the UPF in the MSc of Bioinformatics and the BSc of Human Biology.

After completing my PhD in December of 2018, I remained in Barcelona for a 1-year postdoc to finalise two projects that I initiated during my stay at the University of Copenhagen. This led to two first-author publications in 2020: one characterising the evolutionary history of extinct and living lions (PNAS, 2020), and another identifying events of positive selection in the highly specialised lineage of arctic sled dogs (Science, 2020).

Currently, as a postdoctoral researcher in the laboratory of Prof. Molly Przeworski at Columbia University (New York, USA), I am investigating the evolution of germline mutation rates in vertebrates. I have been awarded the prestigious Human Frontiers Science Program postdoctoral fellowship, which includes $21,000 to establish independent research lines. My work recently led to a publication as co-corresponding and co-first author in eLife, showing that males have higher germline mutation rates than females across 42 amniote species. Additionally, during my time at Columbia University, I have mentored two graduate students while they completed their PhD rotation in the laboratory of Prof. Molly Przeworski.

I am a strong advocate for scientific outreach. Over the years, I have actively participated in talks at high schools (Quatre Cantons), initiatives to bridge scientific research and high school teachers (Escolab and Professors i Ciència), as well as volunteering and engaging in open discussion sessions (PRBB Open Day). Additionally, I have written an outreach article for the journal Mètode (Universitat de València), collaborated with journals like National Geographic, and given interviews to national media such as La Vanguardia and El País.

Throughout my career as a scientist, I have demonstrated excellence in research with a consistent record of competitive funding and awards, including 28 peer-reviewed publications in top journals such as Nature (2), Science (3), Cell (1), PNAS (3), and eLife (1), which have earned me an h-index of 19 and over 1,750 citations. I have also presented my work at 8 international meetings, establishing a strong network of national and international collaborations. My next objective is to establish an independent laboratory to further advance my research lines. The Ramon y Cajal Fellowship would enable me to accomplish this goal.

Área Temática:	**Biociencias y biotecnología**
Nombre:	PAROLO , CLAUDIO
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Título:	Antibodies, aptamers and DNA-scaffolds for the development of point-of-care biosensors

Resumen de la Memoria:

My whole research career has been focused on the application of my background in biotechnology for the development of biosensors for healthcare and environmental applications. Specifically, I have always worked with biosensing strategies that combine ease of use and low cost to make the final biosensor suitable for deployment at the point of care. Between those strategies, three stand out as the main pillars of my research: lateral flow assays (LFA), electrochemical aptamer-based (E-AB) sensors and electrochemical DNA-scaffold (E-DNA) sensors. Regarding LFAs, over the past 10 years I have consolidated my position as a leading expert in the field by setting up all the required facilities and established successful research lines in different research groups (Merkoçi's, McKendry's, Plaxco's and Muñoz's). My unique contribution in the field has been harnessing the properties of antibodies and enzymes together with those of nanoparticles to enhance the performance of LFAs without compromise their ease of use. As for the E-AB and E-DNA sensors, in 2015 I decided to join the Plaxco's group to fabricate biosensors that provide quantitative results with single-step operations thanks to the modular properties of DNA. I was and still am fascinated by these two technologies not only for their potential impact to society (monitor in real-time any biomarker of interest in undiluted samples), but also because they allow me to apply my biotechnological background to tune their analytical performance. Considering the quantity (over 50 peer-reviewed manuscripts) and quality (all in Q1 and D1 journals and >2500 citations) of my scientific production, my ability to finance my research (>650k €as principal investigator), my leadership (I have supervised >26 students) and my proven scientific/public engagement skills, I believe I have all the requisites to take a leading role in the Spanish and international research community as a Ramón y Cajal fellow.

Resumen del Currículum Vitae:

Scientific-technical achievements: I have built my research line on three main pillars: biotechnology, analytical chemistry and nanotechnology. Taking advantage of this multidisciplinary approach, I focused my work on the development of point-of-care diagnostics, mostly lateral flow immunoassays and electrochemical sensors. My scientific production includes over 50 peer-reviewed manuscripts all in D1 and Q1 journals (e.g., Advanced Functional Materials, Chemical Science, ACS nano, Biosensors and Bioelectronics, Nature Protocols, Chemical Reviews). As indication of the quality of my work and my role as emerging leader in the field, I have been cited over 2500 times with an overall h-index of 22 and an i-10 index of 33. Besides the written production, I have presented at over 28 conferences, including 16 oral presentations of which 8 have been as invited and 1 as plenary speaker. During my career I managed to finance most of my research, having been awarded as Principal Investigator with over 13 competitive projects for a total amount of over 650k € Finally, I have been in 5 different thesis committees, and I am currently a reviewer for over 10 Q1 peer-reviewed journals, 3 international conferences, for the European Commission and for scientific societies of France, Italy and Uruguay.

Contribution to society: My overarching professional goal is to apply my knowledge in biotechnology to create biosensing devices that can improve our well-being. Specifically, I have been working on the development of biosensors that rely on very simple operations and minimum costs, while providing the analytical performance required by the specific healthcare or environmental application. Following this path in 2021, I joined the Barcelona Institute for Global Health. Here, I have been working side-by-side with medical doctors to establish and lead a new research group working on the development of novel rapid diagnostics. Thanks to the potential impact of my research to society, my work at ISGlobal has been awarded with a 25k € innovation prize by the Hospital Clinic of Barcelona. Furthermore I have established strong collaborations with three private companies: Fuelium, Eurecat and GraphenicaLab.

Besides strictly technical contributions, I have also participated in several dissemination activities including the presentation of my research at public fairs, the organization of an exposition about paper-based tests at the London Science Museum and science engagement talks to primary and high-school students. Since 2019, I have been teaching Nanodiagnostic in the Master of Advanced Nanoscience and Nanotechnology of the Autonomous University of Barcelona and, more recently, I have been teaching Epidemiology 2 in the Master of Public Health at the University Pompeu Fabra. Finally, since 2021 I am in the organization committee of the Trends in Nanotechnology conference as well as of the Nanobiosensor school.

Leadership: In 2014 I was selected to participate at a 1k €course called "Leadership in Action". Since then I have always sought opportunities to refine my leadership skills. As a result, over the years I had the pleasure to supervise over 16 master/PhD students guiding all of them to tangible achievement (e.g., publications, fellowships). Especially during the last 2 years, I have setup my own research group within the International

Área Temática:	**Biociencias y biotecnología**
Nombre:	MIR SANCHIS, IGNACIO
Referencia:	RYC2022-035465-I
Correo Electrónico:	ignaciomirsanchis@me.com
Título:	Mobile genetic elements in Staphylococcus aureus

Resumen de la Memoria:

Bullet point summary

- PhD in CEU San Pablo, Valencia, Spain in 2012. Advisor Prof. José Penadés. Study of pathogenicity islands in S. aureus. Approach: microbiology and genetics.

- Postdoctoral training in The University of Chicago, USA. From 2013 to 2019. Advisor: Prof. Phoebe Rice. Study of Staphylococcal Cassette Chromosomal elements. Approach: X-ray crystallography and biochemistry.

- Group Leader in Department of Medical Biochemistry and Biophysics, Umeå University, Sweden. Funded by the Wallenberg Centre for Molecular Medicine. From 2019 to present. Study of mobile elements in S. aureus including lytic bacteriophages suitable for phage therapy. Approach: genetics, molecular biology, cryoEM and x-ray crystallography.

Resumen del Currículum Vitae:

Bullet point summary

Six Publications during PhD:
1- Nature, 2010
2- Molecular Microbiology, 2012
3- Molecular Cell, 2013
4- Plos Genetics, 2015
5- Nucleic Acids Research, 2017
6- eLIfe, 2017

Four publications during the postdoctoral training:
1- Nature Structural Molecular Biology, 2016
2- Structure, 2018
3- Proteins structure function and bioinformatics, 2019
4- eLife, 2020

One publication at current institution as PI:
1- Nucleic Acids Research, 2022

Currently supervising two PhD students.

Área Temática:	Biociencias y biotecnología
Nombre:	RUIZ ORERA, JORGE
Referencia:	RYC2022-036806-I
Correo Electrónico:	jorge_ruiz_orera@hotmail.com
Título:	Evolution, annotation, and characterization of open reading frames

Resumen de la Memoria:

My research career has been focused on the evolutionary and functional relevance of the 'hidden' parts of the human genome. While conserved protein-coding genes only comprise 1-2% of the human genome, one of the keys to human complexity lies in the overlooked molecular roles of the remaining 99% of our DNA.

For many years, I have investigated the emergence of de novo genes from ancestral intergenic regions and how these genes can acquire the needed mechanisms to be expressed and translated. This was the subject of my Ph.D., supervised by Prof. Dr. Mar Albà, which I defended in 2017 and was awarded the Doctoral School Special Prize. I am currently a Postdoctoral Researcher at the Max Delbrück Center for Molecular Medicine in Berlin (Germany). My postdoctoral experience includes research in the genomics of cardiovascular biology and disease under the supervision of Prof. Dr. Norbert Hübner. In close collaboration with clinical experts, I aim at elucidating the role of transcriptional and translational regulation in cardiac physiology and diverse cardiomyopathies by integrating state-of-the-art multi-omics technologies. Hence, my postdoctoral research experience has provided me with an excellent background in multiple biological and computational disciplines.

I have recently expanded my research into the field of cancer genomics by developing multilevel analyses of tissues and cell lines obtained from patients to ensure human relevance. Furthermore, I have co-founded an international consortium intending to characterize the hidden human proteome, and the Ramon y Cajal Programme will give me the ambitious opportunity to actively complete this long-term objective. Hence, I focus my present and future efforts on establishing a comprehensive dataset of non-canonical translations in human tissues and cancer, understanding the role of human- and primate-specific small proteins (denoted microproteins) potentially encoded by non-canonical translations, and delineating the translated transcriptomes in different conditions and in response to specific drug treatments. At this stage of my career, I feel my current academic track, my leadership skills, and my ongoing international and national collaborations will satisfy my long-term research goals of becoming an independent researcher.

Resumen del Currículum Vitae:

I am a Computational biologist with an academic background in Biotechnology and Bioinformatics. I completed my Ph.D. dissertation in Biomedicine with Prof. Dr. Mar Albà (GRIB, Barcelona) in 2017. As a predoctoral trainee, I pioneered the study of de novo genes and translated long non-coding RNAs, and my work resulted in the publication of five high-impact articles, three of which as the main author. My Ph.D. was funded by the Science Ministry and was awarded the Doctoral School Special Prize and the International Mention for a short-term research stay hosted by Prof. Dr. Diethard Tautz at the MPI for Evolutionary Biology (Plön, Germany) in 2015.

I am currently a Postdoctoral Researcher at the MDC in Berlin (Germany), under the supervision of Prof. Dr. Norbert Hübner, a referent researcher in the field of Cardiovascular Disease. My research track has provided me with an excellent background in multiple unique state-of-the-art computational disciplines. For example, I have developed computational methods for the analysis of large-scale multi-omics data. I have also established a method for the genome-wide identification of novel non-canonical human translations and microproteins, generating the first set of non-canonical translated sequences supported by GENCODE. My track record consists of 24 scientific articles. My independent and committed involvement is emphasized by ten first or co-first author, five second author, and two co-correspondence author contributions. Also, I have made a significant contribution to several ongoing collaborations with international research labs. I am currently involved in joint projects with several national and international researchers.

As a proponent of open science, I have actively promoted public open access and ensured research reproducibility by making all computational tools available in open repositories. Through participation in a one-year career development program at my current institute (Max Delbruck Center ASPIRE), I have enhanced my academic leadership skills and gained additional qualifications. I have mentored three Ph.D. candidates and formally supervised the work of two master students.

I regularly build upon my scientific knowledge through workshops and conferences. I am currently a member of The Society for Molecular Biology and Evolution and the newly formed Spanish Society of Bioinformatics and Computational Biology. I support community building, and I have developed my own independent networks in evolutionary biology, bioinformatics, and reference annotation communities. I have independently initiated and co-founded an international consortium to create a unified catalog of microproteins and non-canonical translations (Mudge et al. 2022, I am co-first and co-correspondence author). This consortium is currently supported by the main reference annotation databases and includes several world-recognized researchers in the fields of genomics, proteomics, and database annotation. This ambitious consortium pursues the long-term objective of characterizing the hidden proteome, a task that will require strong multidisciplinary skills, which I have collected during my academic track.

I have always been very motivated to pursue an independent research career in higher education or other Spanish scientific institutions. I am confident the Programme will be a key milestone to achieve this goal.

Área Temática:	**Biociencias y biotecnología**
Nombre:	MARTINEZ MERINO, MARIA LUISA
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Título:	Key Roles of Cell Competition: from development and aging to tumour formation.

Resumen de la Memoria:

Strikingly, organisms differing several orders of magnitude, morphological patterns keep them proportional. Indeed, these patterns can be controlled by morphogen gradients. TGF-beta family are conserved growth factors and the range of these morphogen gradients is proportional to the tissue length, i.e. they scale. While these proportions are robustly maintained in the developing/adult organism, the system can be hijacked leading to diseases such as cancer where these proportionalities, due to uncontrolled growth, are no longer preserved. Understanding how organs and tissues tune the scaling machinery during tumorigenesis remains a challenging biological problem and becomes a global health threat. Given the key role of morphogens as growth regulators and one of the most common cause of tumorigenesis (i.e. disrupted TGF-Beta signaling), my Research Plan will explore the biophysics of morphogen gradients in tumorigenesis using a powerful growth model, reference in higher organisms: the Dpp morphogen gradient in the Drosophila wing.

Like it happens in humans, cells show intrinsic competitive behaviours: tumoral cells are in a race to outcompete the host tissue. Cell Competition was found in Drosophila mosaics, where the so-called unfit cells were eliminated by apoptosis from the developing organ when confronted to the so-called fit cells. Furthermore, the difference between unfit and fit cells can be encoded by different levels of Dpp signaling. Different levels of Dpp signaling are reminiscent of the steepness of the gradient i.e. its decay length.

Recently I found a novel scaling mechanism, Death-mediated scaling: when the gradient is smaller than the organ, Cell Death trims the tissue to match gradient size. Death-mediated scaling is controlled by associations between Dally/Pentagone, scaling factors, and a key Cell Death factor, Flower. My work shows that Flower regulates gradient expansion by modulating the activity of Dally/Pentagone in gradient scaling. On the other hand, Flower fine-tunes Cell Death as the tissue grows and Flower associated with the scaling partners (Dally/Pentagone) inhibits its killing function. I also found that the levels of Flower, like those of Pentagone, scale with organ size. When the gradient scales up, Pentagone and Flower levels increase in parallel, keeping Pentagone/Flower titrated. Cross-inhibition of these two control branches provides scaling homeostasis.

Using state-of-the-art techniques in biophysics (FRAP, FLIM, nanobody internalization), molecular genetics and cryoelectron microscopy, I will unravel the molecular mechanisms of the Death-mediated scaling machinery, including Dally/Pentagone/Flower complex. My Research Plan will unveil the mechanistic bases underlying the connection between Cell Death and gradient scaling in TGF-beta-type signalling during tumorigenesis while giving answers to a major developmental biology question: gradient scaling.

Resumen del Currículum Vitae:

I am a Drosophila expert and I have always been passionate to understand how cells within tissues communicate to build up successful organisms. Indeed, during my PhD I made key discoveries in the Cell Competition field, showing for the first time the presence of Cell Competition as a physiological process during the elimination of supernumerary neurons in the developing Drosophila retina (Merino et al. 2013, Current Biology). The discovery of this phenomenon in physiological context led me to consider the possibility that Cell Competition could be a mechanism which mediates active cell-selection at the level of the whole organism during normal development. Interestingly, from this research, I discovered that Cell Competition indeed maintains tissue health, and prolongs lifespan, acting as a tumor suppressor mechanism in Drosophila (Merino et al. 2015, Cell and Merino et al. 2016 Trends in Cell Biology). During my PhD project, I produced three manuscripts and a review as first author in highly regarded journals in my community: Cell, Trends in Cell Biology and Current Biology. My published work has been evaluated as exceptional from F1000 and it has been repetitively nominated for the "Drosophila Image Award". Furthermore, my PhD research has been also awarded with the Lutz Zwillenberg Prize in 2015 in the University of Bern.

In my postdoc, I explored the mechanisms coordinating Growth and Cell Death in the developing tissues. After my PhD, I wanted to get the whole picture: how developing tissues orchestrate Growth and Cell Death signals to build up a successful organism. I pursued then a SystemsX postdoctoral fellowship to study these phenomena. My postdoc research shows that cell competition is reminiscent to what happens in wildtype during Dpp morphogen gradient scaling: it has been shown that the difference between unfit and fit cells can be encoded by different levels of Dpp signaling and this is reminiscent of the spatial decay of the gradient. If the gradient is not properly scaled i.e. if the gradient is shorter than the tissue, then a death program is triggered. Death-mediated scaling is a novel phenomenon, which I brought also to molecular mechanism in my work. Flower a Cell Death factor binds to the scaling machinery: Dally and Pentagone. Dally and Pentagone were found in the past to be involved on the spreading of Dpp to make the gradient as wide as the size of the growing tissue. Flower binding to Dally/Pentagone lead to their titration which is then used to surveil whether the tissue is as small as the gradient. If the tissue is larger than the gradient, apoptosis is triggered and the tissue does then become as small as the gradient. Focusing on scaling and cell death during development, it presents a holistic understanding of how Growth/Death are orchestrated in the developing tissue, providing for the very first time a rational explanation to the cell competition phenomenology. My postdoc work has been recently published in Nature Cell Biology as first and co-corresponding author (Merino et al. 2022, Nature Cell Biology). I have found a connection between Dpp Scaling and Cell Death that may uncover a novel molecular toolbox exploited by tumours (Merino et al. 2022, Nature Cell Biology and Merino et al. 2022, Trends in Cell Biology).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Biociencias y biotecnología
Nombre:	GUTIÉRREZ ESCRIBANO, PILAR
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Título:	Cellular functions of DNA motors in fungal pathogenesis

Resumen de la Memoria:

My research interests lie in the role of chromatin as an integration platform for environmental stimuli, particularly in the context of pathogenic organisms in which successful responses to adaptive pressures set the basis for host infection and the emergence of drug resistance.

This interest began shortly after joining Professor Correa-Bordes's group at University of Extremadura (Spain) as a PhD student, where I focused on the study of "Candida albicans" morphogenetic switch. We described how the yeast-to-hyphae transition, which is essential for virulence, relies on the crosstalk between evolutionary conserved CDK and NDR kinase pathways. During this period, I acquired solid scientific and technical skills. I also visited the group of Christophe d' Enfert at the Institut Pasteur (France) to analyse the role of these morphogenetic determinants on transcriptional regulation during biofilm formation, learning new methodologies applied to the study of fungal pathogenesis.

My interest in the molecular drivers of core biological processes led me to join the research group of Sir Paul Nurse at Cancer Research UK where I studied how CDK complexes order cell cycle progression in fission yeast as a postdoctoral researcher. Our work showed that meiotic events can be achieved by quantitative changes in the activity of a monomolecular CDK module without the absolute requirement for cyclin specificity. During this period of my career I developed my autonomy as a researcher in an unprecedented manner, assuming full responsibility for the design and execution of my projects and the eventual publication of my results while working in an environment that fostered diversity and intellectual curiosity.

Next, I joined the group of Professor Aragón (London Institute of Medical Sciences, Imperial College London-MRC) to study chromosome biology. My motivation was to broaden my technical knowledge in order to approach fundamental biological questions from an innovative perspective. This position allowed me to keep expanding my background in cell biology and genetics but also provided me with strong biochemical, proteomics and biophysical skills. I established novel protein purification strategies and developed new protocols to adapt the use of cutting-edge single-molecule technologies to the mechanistic study of Structural Maintenance of Chromosome (SMC) complexes during their interaction with DNA. During this time, I took responsibility not only in the development of technological tools but also in project concept, team management and student mentoring, further developing my leadership skills.

After a career break due to maternity, I resumed my scientific career in 2023 by joining the group of Professor Di Pietro at University of Córdoba (Spain) to work in the fungal cross-kingdom pathogen "Fusarium oxysporum". I intend to use this postdoctoral position as a transition period to acquire the right set of tools and secure external funding to develop my own research lines. I am intrigued about the role of DNA motor proteins in the regulation of genomic architecture and function in the distinct context of fungal pathogenesis. I am very excited by the potential translational impact of the mechanistic analysis of these processes and the added value that an innovative single-molecule strategy may bring to the field of fungal disease control.

Resumen del Currículum Vitae:

Postdoctoral researcher at the Department of Genetics of the University of Córdoba, studying fungal pathogenesis.

Prior to my formal scientific career, I graduated with a first-class degree and honours in Biology from University of Extremadura, Spain, in 2006 and was delighted to be awarded the University of Extremadura Prize for outstanding academic achievement throughout the course. I then stayed on at Extremadura studying "Candida albicans" morphogenesis under the supervision of Professor Correa-Bordes in a position funded by the FPU PhD scholarship programme from Ministerio de Ciencia e Innovación. In 2010, I visited the group of Christophe d' Enfert at the Institut Pasteur (France) to study biofilm formation with a mobility fellowship from the above mentioned programme. I successfully defended my PhD in December 2011, obtaining the maximum academic distinction and a European PhD mention, and publishing two research articles as first author in Q1 journals (Molecular Biology of the Cell, 2011 and PLoS Pathogens, 2012).

From 2012 to 2014 I was part of the research group of Sir Paul Nurse at Cancer Research UK, in a position partially funded by a postdoctoral fellowship from Fundación Ramón Areces. I studied how CDK complexes order cell cycle progression in fission yeast. Our results, providing the first experimental validation of the quantitative model for meiotic progression, were published in Nature Communications in 2015, a paper in which I served as the sole corresponding author.

In 2015, I joined the group of Professor Aragón (Imperial College London-MRC) where, after a challenging technical transition, I developed and adapted cutting-edge biochemical and biophysical methodologies to the mechanistic study of Structural Maintenance of Chromosomes (SMC) complexes. We obtained ground-breaking results, including the real-time observation and characterisation of the molecular functions of the cohesin and Smc5/6 complexes. My second postdoctoral stay has yielded, so far, eight publications in high-impact factor journals, two of which I signed as first author (Molecular Cell 2020 and Sciences Advances 2019), in collaboration with top groups in the field. During this time, I was awarded a Mentoring Commendation by the Athena SWAN Programme for my role overseeing and supporting the development and career progression of PhD students.

In 2020 I welcomed my first child starting a statutory twelve-month maternity leave after which I decided to take a career break to focus on my family. This period lasted another twenty-two months and included the birth of my second child. Although at this time I was not contractually bound to any scientific group, I continued providing technical advice and conceptual feedback to my collaborators, which is reflected in my co-authorship in two recent publications (Cell Reports, 2022 and The EMBO Journal, 2022).

In 2023 I joined the group of Professor Di Pietro at University of Córdoba which uses "Fusarium oxysporum" as a model to study fungal pathogenesis. I aim to gain technical expertise and secure external funding to develop my own lines. As an independent researcher I am keen on contributing to advancing the knowledge about fundamental aspects of genomic plasticity and virulence but also on exploiting the full potential of single-molecule technologies in the development of innovative antifungal strategies.

Área Temática:	**Biociencias y biotecnología**
Nombre:	MOYA RAMÍREZ, IGNACIO
Referencia:	RYC2022-037570-I
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Título:	Manufacturing of high added-value biomolecules: quality control and side products upgrading

Resumen de la Memoria:

During my 11 years as a scientist, the central topic of my research has been the manufacturing and quality control of high added-value biomolecules. For my PhD I implemented this focus point in two parallel research lines. Since Dr. García Román is an expert interfacial phenomena, the first of them aimed to valorise waste frying oils (WFO) by their enzymatic hydrolysis in emulsion. The most relevant approach that I followed was based on reverse (water in oil) microemulsions, entrapping lipases in the disperse phase to hydrolyse the WFO present in the continuous phase. This work demonstrated for first time the feasibility to upgrade WFO into high added value products such as free fatty acids, mono- and diacylglycerols in microemulsion systems. The second research line of my PhD focused on the use of olive oil mill waste (alperujo) as the sole carbon source for the culture of several microbial strains producers of biosurfactants. I found that the biosurfactants rhamnolipids and surfactin can be produced in cultures of Pseudomonas putida and Bacillus subtilis respectively, using alperujo as the sole carbon source. Therefore, this research opened the possibility for a novel valorisation route for alperujo. In a step forward, during my postodoctoral stage at the UGR I discovered positive interaction between enzymes and biosurfactants in microemulsions. These are considered as a promising environment to perform biocatalysis, and this finding showed that rhamnolipids can boost the activity and increase the lifespan of the lipases performing in microemulsions.

At Imperial College London, I initially worked on the heterologous production of biosurfactants and bioplastics in bacteria. Later, I focused on biosensors for the quality control of biomolecules and manufacturing processes. My main contributions during that time were two in vitro biosensors to test the integrity of mRNA molecules. I aimed to bridge the existing gap between the highly sophisticated methodologies needed to accurately assess the integrity of mRNA molecules, such as RNAseq, polymerase chain reaction-based methods or nuclear magnetic resonance, and the resources available for non-specialised end users of therapeutic mRNA. For that, I designed and produced a recombinant fusion protein capable of two functions: (i) recognise and bind specific region on a mRNA molecule, and (ii) transduce the binding to the mRNA to a colorimetric signal. I latter adapted this biosensor to detect the presence of 5' cap structures on mRNAs, so uncapped or degraded mRNAs could be detected in a single step. Likewise at ICL, I worked on whole-cell bacterial biosensors and their integration in co-cultures with mammalian cells by their encapsulation in hydrogel beads.

As Juan de la Cierva Incorporación fellow at UGR, my research focuses on improving the upgrade of all the carbon sources on present in any biomass side product using for that co-cultures of microorganisms, i.e., synthetic microbial consortia comprising two or more co-existing species which synergistically combine their metabolisms. For that, I am using microbial encapsulation to build co-cultures with a higher control over the populations of its members. I also aim to introduce biosensors in at least one of the co-cultured strains, in order to develop autonomously regulated systems capable to perform diverse pre-programmed tasks.

Resumen del Currículum Vitae:

I am Chemical Engineer and master's in Biotechnology by the University of Granada (UGR). In 2012 I was awarded with a 4-year fellowship (Proyectos Excelencia, Junta de Andalucía) to do my PhD in the same department, under the supervision of Dr. García Román. This gave me the opportunity to continue my formation in the field of biotechnology. We were interested in bioprocesses for the upgrade of plant and food-related wastes into added-value molecules, and in particular, into biosurfactants and emulsifiers. During that time, I also visited for three months the School of Biomedical Sciences (University of Ulster, UK) to work under the supervision of Prof. Ibrahim Banat, one of the world leaders in the field of biosurfactants. After defending my thesis in 2016 with a Cum Laude mark and an International Mention, I worked as postdoctoral researcher at UGR for one year thanks to an extension of my PhD project and to the UGR's postdoctoral program 'Contratos Puente' that I was awarded with. During this time, I had the opportunity to explore synergies between biosurfactants and lipases in emulsion systems.

I moved to the Imperial College London (ICL) in 2017, first as visiting researcher in the group of Prof. Paul Freemont, and later as Research Associate in Prof. Cleo Kontoravdi's and Prof. Karen Polizzi's groups at ICL. My research there focused on the development of biosensors for the quality control of biomolecules and biomanufacturing processes. The gene and protein engineering tools provided by the synthetic biology's perspective, together with the experience in encapsulation and biomolecule immobilisation, have highly enriched my scientific background during this period.

In March 2021 I returned to UGR as a Juan de la Cierva Incorporación fellow, and my mid to long-term goal is to work on the upgrade of plant-based subproducts using co-cultures of microorganisms. Since them I have been awarded with a grant from the program 'Transición ecológica y digigal (TED)' funded by the Ministry of Science and Innovation, and other from the 'Plan Propio' from the University of Granada, both as single PI.

During my career, I have participated in 9 research grants (funding of ~6.6 million €, PI in three of them). I have published 16 articles (first authorship in 8, corresponding author in 4), including high impact factor (IF) journals such as NAR (IF: 16.97) or Biosens. Bioelectn. (IF: 10.26). I am the author of 7 oral presentations (speaker in 6, invited in 2 of them) in conferences. I have international collaborations in UK, Czech Republic, Germany and Brazil. I have officially supervised 1 master student at UGR and 1 PhD student (as Assistant Supervisor) at ICL. I have been awarded with the positive evaluation for Contratado Doctor professor by ANECA. I am member of of BioProNET-UK network in bioprocessing since 2018 and the European Synthetic Biology Society since 2019.

Área Temática:	Biociencias y biotecnología
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Título:	Profiling multicellular spatial patterns in cancer

Resumen de la Memoria:

As a grad student, I became interested in cellular and molecular mechanisms of T-cell function in homeostasis and malignancy. In the laboratory of Dr. Manuel Reina (University of Barcelona, Spain), I focused on the study of T-cell receptor and integrin recycling. Using the leukemic Jurkat cell line as a model system, I identified roles for the cell surface proteoglycan syndecan-2 in critical T-cell processes including activation (Rovira-Clave*, Angulo-Ibanez*, et al., 2012) and adhesion (Rovira-Clave, et al., 2014). I also showed that the kinase ERK5 plays a dual role in the regulation of the cell surface levels of the TCR complex in T-cells (Rovira-Clave, et al., 2016). As a visiting researcher for a year in Dr. Gregory Emery lab (University of Montreal, Canada), I identified the co-chaperone CDC37 as a novel regulator of the NOTCH ligand Delta-like 1. Targeting CDC37 in stromal cells impairs pre-Leukemic Stem Cell survival in a mice model of T-ALL, suggesting that targeting the signal-sending cell on ligand-dependent NOTCH-mediated cancers is a promising approach. My doctoral work made me think more broadly about how distinct cells spatially distribute and the implications of cellular organization.

Thus, after completing my PhD in 2016, I reached out to Professor Garry Nolan at Stanford. He is a pioneer in the area of highly-multiplexed proteomics and transcriptomics imaging of tissues, a technology used to profile the type and state of nearly any cell in situ. After seeing some of the very early data from the MIBI, CODEX, and STARMAP imaging platforms, I realized the potential of these technologies to understand how multiple cell types spatially organize in tissues and was beyond excited about the prospect of applying my background in cellular and molecular biology to develop them. For over six years, I have taken a deep dive into highly-multiplexed imaging: the development of new chemical approaches, its analysis, and biological applications. I identified subclonal cancer cell patches that grow in size depending on their microenvironment in synthetically engineered small cell lung cancer tumors (Rovira-Clave*, Drainas*, Jiang*, et al., 2022), discovered interleukin-10-enriched HIV-induced multicellular microenvironments in rhesus macaque lymph nodes (Jiang*, Chan*, Rovira-Clave*, et al., 2022), subcellularly mapped at the nanometer scale the small molecule cisplatin into nuclear speckles (Rovira-Clave*, Jiang*, et al., 2021), discovered enhanced chromatin accessibility patterns in IL-18 primed NK cells compared to those primed with IL-12 (Rovira-Clave*, Bava*, Jiang*, et al., In revision), and developed a strategy for high-resolution multiplex spatial proteomics (Bai, et al., Rovira-Clave@, Nolan@, Jiang@, In revision). Overall, my studies revealed that the collective organization of distinctive sets of multiple cell types in tissues and molecules in cells can lead to certain multi-component spatial structures correlating with function. A major current limitation in the field is how to imply causation on those spatial structures to function. Implying causation will be crucial to better understand and control both cell and tissue function. The research program I envision to establish as an independent group leader has the goal to advance technologies for deep profiling and engineering of multiple cell types in in vitro 3D tissues.

Resumen del Currículum Vitae:

I am an instructor in the laboratory of Professor Garry Nolan in the Department of Microbiology and Immunology at Stanford University, where I develop and apply multiparameter technologies to study tissue biology in models of cancer and infectious diseases. In 2016, I received my PhD in Immunology from the University of Barcelona under the supervision of Dr. Enric Espel and Dr. Manuel Reina, and I trained in cancer biology studies as a visiting PhD student in the group of Dr. Gregory Emery at the University of Montreal. I have published 6 manuscripts as a first author and 6 as a co-author in journals such as Cancer Cell and Immunity. I have submitted for publication 1 more manuscript as a first author, 1 manuscript as a last author, and 1 as a co-author. I hold 3 granted patents and 1 provisional patent application. I have received 5 competitive fellowships, including the prestigious LLS Career Development Award and the EMBO postdoctoral fellowship. Together with Dr. Nolan, I received, and managed a $2.1M grant from the NIH to develop a multiplex serology assay and a $0.5M grant of the Moore Foundation to study nitrogen-fixing symbiosis. I have submitted an ERC starting grant that is pending of evaluation.

My areas of research include cancer, the immune system, and infectious diseases. My technical expertise includes highly multiplexed tissue imaging (spatial proteomics), single-cell assays, molecular biology approaches, cell culture, in vitro co-culture systems, engineered 3D tumors, murine models, genome editing, bioconjugation strategies, assay automation, and single-cell spatial data analysis. My research approach focuses on generating models of disease, profile them using multiscale and multimodal in situ measurements, and apply key technological advances to explore the model from a new angle. This strategy is unique to marry basic biology with technology transfer. My recent research efforts include the development of imaging technologies to subcellularly locate structurally unmodified drugs at the nanometer scale, track subclonal growth in situ, and co-detect multiple biomolecular species (RNA, DNA, and protein) to enable new understanding of spatial structures at the molecular, cellular and tissue levels with the long-term goal to improve disease management.

Área Temática:	Biociencias y biotecnología
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Título:	Paleogenomics

Resumen de la Memoria:

During my PhD and postdoctoral career, I have applied ancient genomics to archaeological humans. During the first project of my PhD I proved the genomic gene flow among Pleistocene human populations from Iberian and Italian Peninsula during the Last Glacial Maximum (26 to 19 ka ago). This scientific contribution was published in Current Biology (Villalba-Mouco et al. 2019) and involved 20 researchers from many different institutions. I collaborated in the description of the genetic history of the Iberian Peninsula (Olalde et al., 2019); Science; 5th author position author). This is the major aDNA study performed in the Iberian Peninsula that came out with the accumulative effort of several research institutions, including the Max Planck Institute (my institution during my PhD). My role in this project was the data production and analysis of a subset of individuals from several Chalcolithic and Bronze Age Iberian sites (see author contribution of the study). So far, the study analysed the biggest dataset (271 individuals) produced for the Iberian Peninsula.

I have developed my postdoctoral career in very prestigious research Institutions, two different Max Planck Institutes in Germany and the IBE from CSIC-UPF. I fully coordinated the three published postdoctoral projects that I carried out during my four years of postdoctoral experience. They involved researchers from more than 20 different institutions (Villalba-Mouco et al. 2021, Science Advances; Villalba-Mouco et al. 2022, Scientific Reports; Villalba-Mouco et al. 2023, Nature Ecology and Evolution).For all of them, I was the first and main corresponding author. All the research projects are linked to the research funded projects mentioned in my CVA, specially the ERC consolidator "PALEoRIDER" and Max Planck-Harvard Research Center for Archaeoscience in the ancient Mediterranean (MHAAM).

In my current position as a senior postdoc, I'm in charge of the coordination the ongoing paleogenomic projects from Max Planck- Harvard Research Center for Archaeoscience in the ancient Mediterranean (MHAAM), taking care of the data production and curation for the whole Iberian dataset generated under the MHAAM project. After curation, genomic data is distributed in subsets and some of them are analysed by myself or by other PhD students of the team. Apart from ministerial projects mentioned in section C3 of CVA, I also collaborate with Museums, Departments of Culture and companies dedicated to cultural development (e.g. PaleoyMas). Apart from these main projects, I have demonstrated my autonomy and experience by participating in other side projects outside of what were my post-doctoral contracts (Posth et al., 2023, Nature; Kocher et al., 2021, Science; Jaouen et al, 2022; PNAS; Yu et al. 2022, iScience).

I am actively searching for funding research applications. I applied for the Junior Leader Group position of la Caixa and I ranked the 4th position in my application panel. The first three researchers were selected for the final interview.

Please, see CVA and Scientific Memory for the extended information.

Resumen del Currículum Vitae:

My PhD focused on reconstructing past human interactions, population movements and subsistence strategies during Prehistory. I used the most advanced methods currently used in paleogenomics and population genomics research, such as Next Generation Sequencing (NGS) and the capture of 1240K informative SNPs of the human genome to recover genome-wide data from ancient individuals. Additionally, I integrated genomic results with human isotopic data which informs about diet and mobility. I obtained the PhD with maximum qualification 'Sobresaliente Cum Laude' and International Mention in October 2019. I received the Extraordinary PhD award in Science of Antiquity in 2020.

During my PhD, my major contributions in the field of Paleogenomics are:
1) Villalba-Mouco et al. 2019, Current Biology.
2) Olalde et al. 2019, Science.

During my postdoctoral research career, I have continued with the Paleogenomics research line at very prestigious research Institutions, applying new population genomic methods to bigger datasets and improving the retrieval of ancient DNA sequences from very old and degraded contexts.
Nov. 2019 to Dec. 2020: Postdoctoral research member in ERC consolidator PALEoRIDER at the Max Planck Institute for Science of Human History (MPI-SHH, Jena, Germany).
Jan 2021 to Dec. 2021: Postdoctoral researcher in Carles Lalueza-Fox group (Paleogenomics) at the Institut de Biologia Evolutiva (IBE CSIC-UPF, Barcelona).
Jan. 2022 to Present: Postdoctoral member at Max Planck Institute for Evolutionary Anthropology (MPI-EVA, Leipzig, Germany), in the Max Planck-Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM) group.

As a postdoctoral researcher, my major contributions in the field of Paleogenomics and Molecular Anthropology are:

1) Villalba-Mouco et al. 2023, Nature Ecology and Evolution.
2) Villalba-Mouco et al. 2022, Scientific Reports.
3) Jaouen, et al. 2022; PNAS. (Villalba-Mouco 2nd author)

4) Villalba-Mouco et al. 2021, Science Advances.

All the publications mentioned here are high impact factor journals located in Q1. In total, I have a H-index of 9 and a total of 582 citations (based on Google Scholar). All these studies have been presented in many national and international scientific conferences and invited talks, and highly diffused by the national and international press (e.g New York Times, National Geographic).

I have teaching experience (180h) during my PhD and 3h during my postdoctoral career (because I've been abroad). I am the formal PhD co-supervisor of the PhD candidate Marina Bretos Ezcurra who is based at the University of Zaragoza but does internships at the MPI-EVA. I have also supervised the internship of PhD student Pablo Carrión from IBE CSIC-UPF at the MPI-EVA. Additionally, I have transferred my knowledge to other researchers as a reviewer in scientific journals (e.g PlosOne and Archaeological and Anthropological Science or Nature Ecology and Evolution) and international PhD thesis.

Please, see CVA for the extended information.

Área Temática:	Biociencias y biotecnología
Nombre:	MARTINEZ VERGARA, HERNANDO
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Título:	Function and evolution of the nervous system

Resumen de la Memoria:

During my research trajectory, I have been exposed to interdisciplinary training (experimental and computational) in diverse fields, with a focus on the understanding of the nervous system from both an evolutionary perspective (PhD) and a functional one (Postdoc). During my next career step as an independent investigator, I aim to explore the functional principles of two evolutionarily-related structures in distant species, which would reveal the cellular and circuit basis that allow animals to learn.

The marine annelid Platynereis is an emergent animal model with a simple and yet comparable nervous system to that of vertebrates. During my PhD in EMBL, I brought this model to a stage in which multimodal systems-wide analyses are possible at cellular resolution [EvoDevo]. I developed a computational pipeline based on high-throughput imaging and built whole-body gene expression atlases, allowing systematic approaches for the molecular characterization of cell types. We used this to discover multiple developmental territories and mature neurons conserved between the annelid nerve cord and the vertebrate spinal cord [PNAS]. We used the atlas to analyze the spatial distribution of single-cell sequencing data, revealing transcriptional domains across an entire body plan [MBE]. We recently integrated the atlas with an ultrastructural EM dataset, rendering a combination of molecular and morphological information for all cells [Cell]. We characterized the associative centers of the annelid brain, and found a population of neurons molecularly related to interneurons in the mammalian striatum. The development of these resources for Platynereis has represented a tour-de-force in our ability to reconstruct the evolutionary path of the vertebrate brain [CON].

During my postdoc in SWC I have complemented my evo-devo and molecular training with behavioral and functional approaches in the field of systems neuroscience, studying the striatal circuits that mediate instrumental learning in mice. I have designed learning and behavioral paradigms, and used genetic and pharmacological manipulations, neuronal recordings and high-throughput imaging in order to identify the specific brain areas, striatal circuits, cell types, learning rules and computations involved in goal-directed and habitual behaviors. We have described the identification of a new type of dopaminergic signal [BioRxiv] that represents a key advance in our interpretation of how the basal ganglia influences behavior. For a long time, reports on dopamine that correlated with animal movement were at odds with the classical reward prediction error (RPE) computation of dopamine cells. We have shown that these movement signals represent another type of prediction error, which is not about the reward obtained but about the action that is eventually performed. We show that this value-free system works in tandem with the classic RPE system to shape learning, and that this relates to the underlying circuits and mechanisms by which animals make decisions (e.g. goal-directed vs. habitual behavior).

In my future independent research program I aim to explore the functional principles of animal learning by studying the molecular and physiological similarities between the annelid mushroom body and the olfactory tubercle in mice, two distant structures that might be evolutionary related.

Resumen del Currículum Vitae:

I graduated in Biotechnology in 2009 by the Universitat Autonoma de Barcelona in the top 10% of my class. During my studies, I collaborated in three different laboratories. First, as a summer student in the lab of Dr. Tranque in the Centro Regional de Investigaciones Biomedicas de Albacete, where I made primary neuronal cultures and studied astrocyte differentiation. In summer 2008 I received the scholarship 'Introduction to Research' to study cell-adhesion mechanisms under the supervision of Prof. Aragay in the Instituto de Biologia Molecular de Barcelona. During my last year of undergrad I obtained the 'Beca de colaboracion' and performed research on the regeneration of pancreatic beta cells in Prof. Bosch's laboratory.
After my undergrad, I did a one-year masters in Bioinformatics in the King's College of London, where I researched the genetic and phenotypic similarities between different types of cancer using network theory in the laboratory of Prof. Tsoka, graduating with Distinction.
I then obtained the scholarship 'Beca de la Caixa for studies in EEUU', which allowed me to do a two-year masters in Cell and Molecular Biology in SFSU, where I graduated with a GPA of 3.8/4. In the laboratory of Prof. Domingo, I researched the microRNA regulation of cellular dynamics during muscle development, where I published two papers, one as first author.

In 2012, I entered the PhD programme in the EMBL in Heidelberg, and did my PhD in the laboratory of Prof. Arendt, where I graduated in 2016 with Magna Cum Laude, and stayed another year as a postdoc. My research focused on the evolution of nervous system, and I generated whole-body gene expression atlases to molecularly-characterise neurons in the annelid Platynereis, an evolutionary powerful model. I then combined these atlases with different omics techniques, such as single cell sequencing and electron microscopy datasets. This has allowed us to describe the nervous system of this animal in unprecedented detail. I also pioneered behavioral and functional approaches to study the role of neuronal populations in this model. As a result of my research in the EMBL I coauthored 7 papers (2 under preparation) with two as first author, participated in 2 reviews and coauthoured 1 book chapter. During my PhD I also participated in multiple conferences, received additional scientific training, taught several courses and modules, and participated in science dissemination events as well as an organiser of a big scientific conference.

From 2018 I have carried my postdoctoral work in the field of systems neuroscience, as I wanted to complement my molecular training with a more functional approach to study the nervous system. I joined the Sainsbury Wellcome Center for neural circuits and Behaviour in London, as a joined senior research associate in the laboratories of Prof. Mrsic-Flogel and Dr. Stephenson-Jones, and I was awarded the EMBO grant. I study the neural circuits that mediate instrumental learning in mice, and I have recently published a preprint describing a new dopaminergic signal that reinforces repetitive behaviors in the posterior striatum. I recently presented this work in the international conference FENS. I have also collaborated with the International Brain Laboratory, coauthoring one paper, and I have participated in science outreach events and policy implementation working groups.

Área Temática:	Biociencias y biotecnología
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Título:	Gene Expression Regulation during Development and in Response to Stress

Resumen de la Memoria:

1. PhD training (CIB-CSIC, 2008-2016)

In the laboratory of Julio Salinas (CIB-CSIC), I identified and characterized a new family of proteins in plants, the LSMs. These proteins organized in two ring-shaped complexes that modulate different aspects of RNA biology as pre-mRNA splicing (LSM2-8) or mRNA decay (LSM1-7). Remarkably, both complexes play a key role in gene expression regulation to ensure proper plant development (Perea-Resa et al., 2012, Plant Cell) and response to stress (Perea-Resa et al., 2016, Plant Cell; Carrasco-López et al., 2017, NAR). In a side project, I revealed that prefoldins migrate from the cytoplasm to the nucleus in response to challenging conditions. There, they interact and promote the activity of E3 ubiquitin ligases to degrade transcription factors, an essential mechanism to develop an accurate response to stress (Perea-Resa et al., 2017, Mol Plant). In overall, the research performed during this stage provided me with expertise in post-transcriptional and post-translational regulation of gene expression and RNA biology.

2.Postdoctoral stage (MGH-Harvard Medical School, 2016-2020)

In the laboratory of Dr Michael Blower at the Molecular Biology Department of MGH-HMS, I developed two projects:

2.1 Regulation of transcription in mitosis: early in mitosis transcription is largely silenced except at centromeres. How transcriptional silencing happens and how/why centromeres escape from this general block was unknown. I started writing two reviews (Perea-Resa & Blower, 2017, Molecular and Cell Biology; Perea-Resa & Blower, 2017, Dev Cell). Next, my work revealed that the removal of cohesin complexes from condensing chromosomes is behind the general RNApol2 release and the specific retention of transcriptional activity at centromeres. Remarkably, this mechanism is essential for the correct segregation of chromosomes and for gene expression reprogramming between G2 and G1 (Perea-Resa et al., 2020, Mol Cell).

2.2 Removal of chromatin-bound RNAs in mitosis: early in mitosis chromatin-associated RNAs are mostly evicted from condensing chromosomes. The mechanisms and functional significance were unknown. In collaboration with Dr J Sharp, we discovered that SAF-A links RNA to chromatin in interphase. Early in mitosis, Aurora B phosphorylates SAF-A to mediate its release from condensing chromosomes and, as a consequence, the removal of RNAs, which is essential for proper chromosome segregation (J. Sharp et al., 2020, JCB).

3. Research Scientist/Instructor (Boston University, 2020-2022).

In this faculty position, I developed an independent research line aimed to understand the transmission of cohesin complexes across mitosis. I published my first article as corresponding author (Perea-Resa et al, Trends Cell Biol, 2021), mentored several PhD students, and worked as instructor of Cell Biology during three semesters.

4. PI (CBMSO-CSIC, 2022-)

In may of 2022, I joined the Genome Dynamics and Function department at CBMSO supported by the Talento excellence program. My independent research focuses on understanding the molecular transference of the transcriptional machinery through mitosis. I lead a group of 4 people (3xTFGs and 1 PhD student) and recently got the i3 certification. I have applied for national (Plan Nacional) and international (ERC StG) funding. Finally, I organize the departamental seminars at CBMSO.

Resumen del Currículum Vitae:

1. Research Career and current position:

I gained my bachelor' s degree in Biology at the Universidad Complutense de Madrid (UCM, 2004). I was in the top 5% of my promotion that permitted me to obtain a FPI grant to start a PhD in the laboratory of Professor Julio Salinas (CIB-CSIC). My thesis was submitted in an article format (UCM, 2015) and described the discovery of a new family of proteins in plants required for the correct development and response to stress. My PhD defense earned the top grade (Excellent cum laude). As a result of my PhD work, I published a total of 11 peer-reviewed articles, including 5 as a first author in top Q1 journals of the field (i.e., 2x The Plant Cell, Molecular Plant), book chapters and reviews.

For my postdoctoral stage (2016-2020), I decided to switch field and model. I studied chromosome organization and gene expression rewiring across the cell cycle at the Massachusetts General Hospital-Harvard Medical School under the supervision of Dr. Michael Blower. During this stage, I published 6 articles, 3 as a first author in Q1 journals (i.e., Molecular Cell, Developmental Cell).

After 4 years as research fellow, I was promoted as Research Scientist and Instructor at Boston University (2020-22). In this faculty position, I have developed my independent line of research and published 3 articles in Q1 journals (i.e., Molecular Cell, Journal of Cell Biology) one as a leader and corresponding author (Trends in Cell Biology). In this position I also did teach Cell Biology during three semesters.

After more than 6 years of postdoctoral experience, I gained a Talento excellence program funded by the CAM and CSIC. This program have allowed me to join the CBMSO-SO where I am starting my own laboratory as a junior PI. Currently, I lead a group of 4 people, 3TFGs and 1PhD, I pursuit national and international funding, and organize the departamental seminars.

2. Production and leadership:

My research have generated a total of 20 publications. I have established national and international collaborations, presented my work in more than 20 conferences and collaborated in the organization of meetings and journal clubs. Currently, I have a leadership role as a junior PI at CBMSO-CSIC, leading research projects and pursuing new independent funding from national (Plan Nacional) and international agencies (ERC). I lead a group of 5 people (3TFG and 1 PhD student) and have recently gained the i3 certification. Finally, I am the organizer of departmental seminars at CBMSO.

3. Mentoring and Teaching:

I have been actively compromised in teaching, mentoring and advisory tasks during both my PhD training in Spain and postdoctoral stay in USA. I mentored a wide range of students from prestigious universities of Spain (UCM) and USA (Harvard University and Boston University). I worked as instructor of Cell Biology during three semesters at the Boston University. Currently as PI at CBMSO, I am supervising 5 undergraduate students (3xTFG) and 1 PhD student.

Área Temática:	Biociencias y biotecnología
Nombre:	DOMINGUEZ MARTIN, MARIA AGUSTINA
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Título:	Study of the nitrogen metabolism, photosynthesis and photoprotection in cyanobacteria

Resumen de la Memoria:

During my scientific career, my research interests have been focused on understanding the regulation of two key environmental factors in cyanobacteria: as a key nutrient, nitrogen, and as a key factor, light. Cyanobacteria have a tremendous ecological role and diverse biotechnological applications. I have used different approaches, firstly, learning biochemistry, molecular biology, and physiology of cyanobacteria, and secondly, learning structural biology and spectroscopic techniques. The result of this combination is that I have a strong background in a diverse array of techniques that will allow me to answer and pursue big questions from different angles, being capable of describing a complete picture of my particular interest in photoprotection. Moreover, I am also interested in the application of photoreceptor proteins in synthetic biology. My scientific trajectory, illustrated by my interaction experience, broad expertise, and publication record, demonstrates my drive and commitment to be an independent female scientistic leading her research group.

My scientific career covered experience in 8 laboratories (including in Spain) in 6 different countries. I have created a big network of collaborations and known people in the field to help me develop my research, and apply for competitive funding together. I gained 6 competitive fellowships and 1 prestigious Marie-Curie Fellowship.

I have published a total of 22 peer-reviewed papers, I have contributed to international and national conferences, and I have given invited talks and seminars.

I also mentored students at different levels.

Currently, I am working on setting up my independent career. My research program will focus on understanding the light harvesting and photoprotection mechanisms in marine cyanobacteria. It will have two clear sections: one will be fundamental questions about it, and the second one will be bioengineer these proteins to repurpose them for their use in optogenetics and synthetic biology. For that goal, I have applied to two different National Grants (Consolidation Investigadora 2022 and Proyectos de Generation del Conocimiento 2022). I believe that due to my experience in the USA and in Europe, I consider myself a strong candidate to acquire European and National Funding, and to bridge between both continents.

Resumen del Currículum Vitae:

After completing my BSc in Biochemistry at the University of Córdoba (UCO) in 2008, I was awarded a European LLP/Erasmus fellowship during my masters at UCO to join the Nordlund lab (2008-2009, Stockholm University, Sweden). I started my PhD in 2010 under the supervision of Prof. Diez, and Garcia-Fernandez at UCO. During this period, I obtained an UCO fellowship for a research stay in the Burkovski's group (2012, FAU, Germany) and I obtained another grant (Proteomics Society, 2013) in order to do proteomic analysis in the Beynon's lab (University of Liverpool, UK) of Prochlorococcus under nitrogen starvation. In total, I published 8 peer review articles (7 Open Access and 2 from international collaborations) from my PhD, and my thesis was honored with "Sobresaliente Cum Laude" & International Mention in 2014. After my PhD, I studied RNA regulation of the nitrogen metabolism in marine cyanobacteria in the Hess lab (University of Freiburg, Germany) sponsored by FEBS and DAAD. In 2016 I joined the Kerfeld lab (MSU/LBNL, USA) financed by a Global Marie Skłodowska-Curie Fellowship with an interdisciplinary research program synergistically combining my expertise in marine cyanobacteria with structural biology and biophysical methodology to set up my independent academic career. My Postdoctoral results were published in 12 peer-reviewed articles (7 Open Access, and 10 from international collaborations). Most notably, I obtained the structure of a cyanobacterial phycobilisome in light-harvesting and photoprotective state, published in Nature (Domínguez-Martin et al 2022). I was invited to speak at recent conferences (International Photosynthesis Conference, 2022, New Zealand; and OCP workshop, 2023, Paris, France). Additionally, I gave invited talks at several international institutions, such as Biozentrum (2022, Switzerland), University of Tübingen (2022, Germany), University of Kaiserslautern (2022, Germany), University of Freiburg (2022, Germany), IBVF (2023, Sevilla, Spain), GMI (2023, Vienna, Austria) and Carnegie Institute (2023, Stanford, USA).

Over my career, I have supervised 2 master students, 4 undergraduate thesis, 3 laboratory technicians, and 1 National Science Foundation (NSF) undergraduate student. I'm co-founder and organizer of the UCO-BRSeminars. I'm currently Guest Editor at the JoVE journal, creating a special issue about cyanobacterial methods. Additionally, I was a Chair of the Gordon Research Seminar (GRS) for Photosensory Receptors and Signal Transduction (2022, Ventura, California, USA). I was awarded the I3 certificate (2023) and Contratada Doctor ANECA habilitation (2022), and I am currently serving as a member of the scientific committee at UCO. I participated throughout my career in many outreach activities such as Fascination Plant Day (2019, MSU, USA) and The European Research Night (2021 and 2022, Córdoba, Spain). I participated as well in the 11F in high-schools.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Biociencias y biotecnología
Nombre:	GARCÍA RODRÍGUEZ, NÉSTOR
Referencia:	RYC2022-036084-I
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Título:	Sensing and dealing with DNA damage during replication as a critical barrier for carcinogenesis

Resumen de la Memoria:

My research career has focused on understanding the molecular mechanisms that maintain the stability of the genome, specifically during the process of DNA replication.

During my PhD at CABIMER (Sevilla, Spain), I contributed to link alterations on manganese homeostasis with genome instability (JBC, 2012, JBC, 2015) and uncovered an unexpected role of RNA:DNA hybrids in origin-independent replication initiation within the ribosomal DNA locus (PNAS, 2015). During this time, I also carried out 2 international research stays (USA and France).

Afterwards, I moved as postdoc to the recognized laboratory of Prof. Helle Ulrich at IMB (Mainz, Germany). During this time, I conducted a self-dependent investigation that led to the discovery of a novel mechanism of checkpoint activation upon replication stress in yeast cells, which involves resection at ssDNA gaps behind replication forks (EMBO J, 2018). I also uncovered a new function of the helicase Pif1 in the mechanism of DNA damage tolerance, signing the article as corresponding author (NAR, 2018), and I investigated how DNA damage processing is coordinated with genome replication (Mol Cell, 2020). Furthermore, I established a fruitful collaboration (EMBO Rep, 2021) and I also produced a review article and a book chapter on the DNA replication and replication stress topics (Front Genet, 2016; Methods Enzymol, 2019).

In 2018, I was awarded with a highly competitive and renowned Marie Curie Fellowship to continue my work at CABIMER (Sevilla, Spain) in the lab of Prof. Pablo Huertas. During this time, I have collaborated with national and international teams, rendering a publication in eLife (2022), and two manuscripts currently under revision. Furthermore, I am preparing a manuscript on the role of EXO1 on checkpoint activation upon damaged template in human cells, as first and corresponding author.

Recently, I have been awarded with an EMERGIA research grant from the Junta de Andalucía that will allow me to establish my own research line on the mechanism of checkpoint activation and DNA damage tolerance during replication of damaged template on human cell lines. Increasing evidence points out that replication forks do not permanently stall upon encountering DNA lesions but re-start downstream of the lesion, thus generating single strand (ss)DNA gaps. Over the next years, my research efforts will be focused on the study of ssDNA gaps processing and its relevance on human diseases such as cancer.

Obtaining a RyC would allow me to reinforce and further develop my own line of research.

Resumen del Currículum Vitae:

I obtained my PhD in Molecular Biology and Biomedicine at the Andalusian Molecular Biology and Regenerative Medicine Centre (CABIMER) in 2012, working on the role of manganese homeostasis and R-loops on genome instability and DNA replication under the supervision of the Prof. Ralf Wellinger. During this time, I also carried out short research stays at the lab of Prof. Rodney Rothstein (Columbia University, New York City, USA) and Prof. Marc Blondel (University of Brest, Brest, France). The results generated during my PhD led to 4 first-author publications in journals such as JBC or PNAS, including the discovery of origin-independent replication initiation events mediated by RNA-DNA hybrids (R loops).
In 2013, I joined lab of Prof. Helle Ulrich at the Institute of Molecular Biology (IMB, Mainz, Germany) as a postdoctoral researcher. In Ulrich¿s lab, I participated in an ERC-advanced grant, studying how cells sense and deal with DNA damage during replication. During this period, I published 5 papers (3 as first author, one of them as co-corresponding author) in high-impact journals (The EMBO Journal, Mol Cell, Nucleic Acids Research or EMBO reports), and 1 book chapter (as corresponding author).
In 2018, I was awarded with a Juan de la Cierva-Incorporación fellowship that I had to decline in favor of a Marie Curie Individual Fellowship to continue my work at the lab of Prof. Pablo Huertas (CABIMER, Sevilla), where I am independently leading a project consisting of exploring how human cells respond to DNA damage during replication and its connection with carcinogenesis. During this time, I have collaborated with national and international teams, rendering a publication in eLife, and I have been awarded with a research grant EMERGIA from the regional government to start my own lab as PI.
The main scientific achievements during my career are the following:
· 11 publications (8 as first author, 1 as second) in top-ranked journals including Mol. Cell EMBO J, NAR, PNAS, eLife or EMBO Reports. 2 publications under revision. Total number of citations: 371 (Google scholar).
· Participation in 14 national or international conferences (5 oral communications, 9 posters). Co-author in 6 additional conferences.
· Extensive internationalization including 5 years postdoctoral experience in Germany, and short stays during my PhD in USA and France, which led to collaborative publications.
· Participation in 10 funded projects, including 2 internationals (ERC-advanced grant program and H2020-Marie Curie actions). One of them as principal investigator.
· Recently awarded with a 4-year grant from the research talent recruitment programme "EMERGIA" (Junta de Andalucía), including a contribution of 139.000 euros for research costs.
· Proven capacity to secure funding from international (Marie Curie) and national (FPI from University of Sevilla, Juan de la Cierva-Incorporación, AECC, EMERGIA) competitive calls.

· Peer-revision of scientific articles for NAR, Nature Communications, Yeast, Cells, Life, Biology, Pharmaceuticals and Biomolecules.
· Teaching during 7 academical years at the University of Sevilla and supervision of PhD and master students as well as 8 final-year projects of undergraduates. Co-supervising the doctoral thesis of María del Carmen Domínguez Pérez
· Participation in 5 outreach activities, including the European Researchers' Night 2019.

Área Temática:	Biociencias y biotecnología
Nombre:	GÁMEZ ARJONA, FRANCISCO MANUEL
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Título:	Plant molecular biology

Resumen de la Memoria:

My career progression encompasses several facets of molecular plant cell biology. I describe my best scientific achievements and key findings to date in the following paragraphs.

Study of the early stages of plant-pathogen interaction

In a recent work published in Science Advances (Gamez-Arjona et al., 2022), I made the unexpected discovery that cellulose degradation is not essential for fungal pathogen infection. These results improve our understanding of the effect of plant cell wall degradation on the outcome of host-microbe interactions. I am also the principal investigator in studies aimed at elucidating the plant hormone's role in fungal colonization's directionality and dynamics. We have gathered intriguing evidence that the plant hormones auxin and cytokinin might directly guide the pathogen during infection. Moreover, I am the project leader for "New ways to combat pathogens in agriculture: the significance of soil composition during Fusarium infection". Together with the PhD student Susanne Dora, we are aiming to determine whether the soil composition, particularly pH and nitrogen sources, may affect the vulnerability of plants to the plant pathogen F. oxysporum. In addition, using F. oxysporum as a model fungus, we demonstrated that when a fungal hypha comes into contact with a root, a unique proton pump activation causes apoplastic pH alterations and immediate plant growth retardation.

Plant molecular mechanisms involved in abiotic stress

I participated in a project where we demonstrated how the subcellular distribution of the calcium sensor protein (SOS3) changes in response to salt stress to coordinate the plant response, which includes flowering, by increasing SOS3 abundance in the nucleus to modulate GIGANTEA activity. Moreover, we made the first description of the nuclear targeting of a protein that is strictly dependent on stress-induced S-acylation. Besides, as a participant in RECUPERA 2020, I searched for rice lines with enhanced salt stress tolerance. Together with Dr. Magdy M. Mahfouz of King Abdullah University (Arabia Saud), we obtained CRISPR-Cas9 rice lines with increased salt tolerance. Lately, I have also gathered information on how the coordinated action of sodium transporters during salt stress allows the plant to regulate the long-distance transport of sodium and the partition between roots and shoots. Using cutting-edge microscopy (Spinning-Disk confocal microscopy), I have demonstrated that SOS3 positively regulates SOS1 trafficking to the plasma membrane during salt stress. Conversely, we found that SOS3 negatively affects the stability of HKT1, a sodium transporter involved in retrieving xylematic sodium during saline stress.

Starch synthesis biology

During my doctoral studies, I worked on a project to increase starch's transitory and long-term storage levels. We demonstrated how to increase the starch content in plants. In addition, I discovered that Starch Synthase 4 (SS4), which is essential during starch granule initiation, is located in discrete areas within the chloroplast and interacts with thylakoid proteins, such as fibrillins. This localization pattern is fundamentally distinct compared to other starch synthases, which also exhibit unique chloroplastic localization in vivo. These findings led to a better understanding of how the starch granule is initiated.

Resumen del Currículum Vitae:

My career focuses on the impact of environmental changes on molecular cell biology. After I got my degree in biochemistry in 2004, I started working as a research associate. I focused on the state of chromatin, especially the DNA near telomeric regions. As a next step, I began a PhD at the Institute of Plant Biochemistry and Photosynthesis in Seville (CSIC) under the supervision of Dr. Ángel Mérida Berlanga. During the course of my thesis, I obtained plants capable of producing more transitory and storage starch (Arabidopsis and potato, respectively). In addition, I contributed to the cell biology of starch synthesis by determining the in vivo localization of several of the most crucial enzymes involved in starch synthesis. Intriguingly, I provided evidence of interaction between starch synthesis enzymes and thylakoid-associated proteins, indicating that the initiation of starch granule formation occurs in specific chloroplast areas. This work led to four first-author publications. After receiving my doctorate, "Cum Laude" (2009-2013), I began working as a postdoctoral researcher in the lab of Dr. Jose Manuel Pardo at the Institute of Natural Resources in Seville (CSIC). I was awarded the highly competitive fellowship "Juan de la Cierva" for young researchers throughout this time. The topic of my study was the modulation of the SOS system during salt stress in Arabidopsis and rice. In addition, we have discovered particular amino acids in the Na+/H+ antiporter SOS1 sequence, which has allowed us to develop rice lines with increased salt tolerance. During this time, I was also awarded the "Jose Castillejo" fellowship to promote research mobility and study plant cell biology under salt stress in the lab of Dra. Clara Sánchez Rodríguez at ETH University (Zürich, Switzerland). We revealed that the biology of the calcium sensor (SOS3) is linked to flowering regulation and also affects the location of sodium channels. I am the co-first author of a publication resulting from this project. Afterwards, Dra. Clara Sánchez Rodríguez offered me the opportunity to collaborate with her on a project exploring the role of fungal cellulases in pathogen infection at the ETH. As project manager, I was able to secure competitive funding from the Vontobel foundation and ETH seeds to support my research throughout this period. This has been a prolific period in which I have published in high-impact journals, one as the first author. Also, I am the corresponding author of a review about the potential role of apoplastic pH as an integrator of plant signaling. I am currently researching the role of plant hormones and soil composition during fungal colonization. My professional accomplishments include 12 peer-reviewed publications (7 as the first author and 1 as the corresponding author, h-index 8) and presentations at international conferences. I actively participated in the transmission of knowledge and skills by teaching several biology subjects to graduate students and supervising 1 PhD student and 1 Master's student. As part of my leadership development, I have served as a referee for journals like Communications Biology. I am prepared for the full spectrum of academic group leader responsibilities that the Ramón y Cajal contract implies, as well as for building my research group and enhancing my profile as a world-renowned scientist.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biociencias y biotecnología**
Nombre:	NEGUEMBOR , MARIE VICTOIRE
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Título:	Unraveling the role of cohesin looping in the control of genome topology

Resumen de la Memoria:

My long-standing interest is understanding the interplay between genome organization and gene function. I have gained a solid research experience in molecular cell biology, epigenetics, and stem cell biology, along with extensive expertise in super-resolution (SR) imaging.

As a Ph.D. fellow (San Raffaele Univ, Milan 2010–2013), I worked on epigenetics and stem cells, focusing on rare genetic disorders. I discovered an epigenetic pathway driving myogenesis, and showed how its deregulation leads to muscular dystrophy (Neguembor et al J Mol Cell Biol 2013; Xynos, Neguembor et al J Cell Sci 2013). In my first postdoc (2013-2015, Milan), I identified a novel epigenetic axis (PPARg/Suv4-20h) that controls fat metabolism (Pedrotti, Caccia*, Neguembor* et al Sci Adv 2019).

In 2015, I joined CRG as a senior postdoc (Marie Curie and Juan de la Cierva incorporación fellow), and founded a research line on cohesin and genome topology, away from the lab's expertise (reprogramming, regeneration & chromatin). In parallel, as a visiting scientist at ICFO (2015-2017), I acquired strong expertise in advanced SR microscopy. In 2020, I became a staff scientist at CRG, where I currently lead a team of 5 scientists. Developing my own projects and through collaborations, I unveiled fundamental aspects of 3D genome folding and chromatin biology. Briefly, I identified:

1) transcriptionally-derived supercoiling as a driver of cohesin loop extrusion and genome folding (Neguembor et al Mol Cell 2021; Martin et al Star Prot 2021 #corresponding author [CA]);

2) how Pol II and nascent RNAs interact with chromatin at the nanoscale (Castells-Garcia et al, Nucl Acids Res 2022 #CA);

3) cohesin as a key regulator of X-chromosome reactivation during reprogramming (Generoso et al PNAS 2023 #CA).

4) I also developed two imaging methods (PoSTAC & MiOS) to visualize and model gene folding at the highest spatiotemporal resolution achieved to date (Neguembor et al Nucl Acids Res 2018; Neguembor et al Nat Struct Mol Biol 2022 # CA) and coordinated a collaborative project (IRBB, Harvard, UPENN) with 2 grants awarded.

Achievements to date:

i) 18 peer-reviewed publications and 7 manuscripts under review; of these, I am first author on 7 and corresponding author for 7;

ii) participated in 30 international conferences, and 18 as an invited/selected speaker;

iii) currently supervise 3 PhDs and 2 MSc; I have previously supervised 2 PhDs, 2 MSc & 2 summer trainees;

iv) obtained 2 competitive grants as coordinator (BIST Ignite 2017 & 2018) and 3 fellowships (incl. Marie-Curie & Juan de la Cierva);

v) teach as a university lecturer at Univ Internacional de Cataluña (UIC, Biomedicine Degree) and at CRG (Ph.D. courses, since 2019); I previously lectured at UPF (2019–2020).

I now aim to study how chromatin loops regulate genome topology and stability, via the regulation of topoisomerase 2 (TOP2) in homeostasis, and if/how loops promote the formation of DNA translocations driving cancer. I will develop new cutting-edge tools to visualize chromatin topology in vivo with diagnostic potential. The project will greatly advance our understanding of genome organization and how topological stress is controlled. My deep expertise acquired to date places me in an excellent position to develop this research line as an independent group leader with a worldwide impact in several fields.

Resumen del Currículum Vitae:

Ph.D. in Cellular & Molecular Biology in 2013 (San Raffaele Univ, Milan). Currently, I am Staff Scientist at CRG Barcelona, leading a team of 5 scientists, and Lecturer at UIC (Biomedicine degree). I study the role of the 3D genome organization in genome function and stability, using innovative super-resolution (SR) imaging.

During my Ph.D. and first postdoc, I identified two epigenetic pathways controlling myogenesis and obesity (Sci Adv; J Cell Sci; J Mol Cell Biol). I collaborated on projects on splicing and Polycomb inside and outside the lab (NSMB, PLoS Genet). I established an independent research line (metabolism) away from the lab's expertise (muscle), managing the project and a technician with full autonomy.

In 2015, I joined the Cosma lab at CRG as a senior postdoc. I founded a research line on cohesin function and 3D genome folding, away from the lab's expertise. I conceived, managed, and wrote grants in this area, making important contributions:

i) found transcriptionally-derived supercoiling is a driving force for cohesin loop extrusion and genome folding (Mol Cell, Star Prot);

ii) identified cohesin as a key factor for X-chromosome reactivation in reprogramming (PNAS);

iii) showed nucleosome dynamics regulate gene activity and cell identity (Cell Rep);

iv) revealed structural principles of nascent transcription in (SR) (Nucl Acids Res);

v) developed MiOS, a method to image and model genes in 3D and SR (NSMB). Multidisciplinary project I coordinated with two competitive grants awarded and international collaborations: Profs. Orozco (IRB), Lakadamyali (UPENN) and Wu (Harvard).

As visiting scientist at ICFO (2015-2017), I acquired advanced expertise in SR imaging and single molecule tracking. I developed PoSTAC, a CRISPR-based method to visualize endogenous genes at the highest resolution so far (Nucl Acids Res). I transferred the knowledge by setting up a STORM microscope at CRG.

Altogether, I demonstrated scientific maturity, independence, and leadership skills, as reflected in the indicators of research quality below:

- 18 peer-reviewed publications and 7 articles in review, with 7 as first; 7 as corresponding author;

- Competitive funding awarded: 2 grants as a Coordinator (BIST Ignite 2017 & 2018) - 2 Postdoc fellowship (Marie Skłodowska-Curie; Juan de la Cierva Incorporación), 1 PhD fellowship (Italian Ministry of Education);

- Took part in prestigious grants and consortia (ERC starting, Epigen, CellViewer FET-OPEN) with international collaborators and companies.

- Leadership: currently supervise 3 PhDs & 2 MSc students. I previously supervised 2 PhD students, 2 MSc & 2 summer trainees. Students obtained highest scores, competitive fellowships (La Caixa, FI, FSE) & publications (Mol Cell, NSMB, NAR, Cell Rep).
- Teaching Intro to Bioinformatics 2023 UIC; Integrated Biomedicine I & II 2019-2020 UPF; CRG Ph.D. courses since 2019. Certified Lecturer AQU.
- Dissemination: participated in 30 international conferences (18 as invited/selected speaker) & organized 5 international meetings (incl. EMBL partnership conference Heidelberg 2022) & PRBB international seminars.
- Active in outreach: 5 "PRBB Open Days" ; "Pint of Science" 2019 & Clubhouse 2023. Volunteer in Orfeu COVID19 test program.
- Reviewer for several journals, incl. Nat Meth, Nat Comm, Cell Res, eLife, Sci Rep;
- Scientific expert for ANR Grants evaluation 2022.

Área Temática:	Biociencias y biotecnología
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Título:	3D gene regulation in development and evolution

Resumen de la Memoria:

Linking genomic variation to the emergence of traits during evolution remains a major challenge in modern biology. Through my career, I have developed a multi-disciplinary expertise that positions me in an ideal spot to tackle this important issue.

I started my research career already during my bachelor, at the group of Prof. Jiménez at the University of Granada, Spain. This period helped me to familiarize with how to perform research in non-model organisms. Specifically, I investigated the intersexuality of female moles. Our studies in moles already highlighted that the intersexual phenotype was likely derived from regulatory changes of sex determining genes. Thus, I devoted my PhD to explore the involvement of miRNAs in sex determination. We performed the first profile of miRNAs transcription during the critical window of mouse sex determination, which revealed that several miRNAs display a dynamic and sex-specific expression. Key for the success of this project, was a collaboration that I established with the lab of Prof. Lovell-badge at the NIMR London, which I visited twice during my PhD. This led to my PhD graduation in 2011, which helped me to secure a "Contrato Puente" from the University of Granada to fund the transition to my postdoctoral period. My PhD work was fundamental to establish a novel research line to investigate the miRNA function in the lab. This successful research line continues nowadays, with studies where we demonstrate the relevance of miRNAs in fertility.

My specialization in sex determination and gene regulation was key to join in 2013 the lab of Prof. Treier at the Max Delbrück in Berlin. In this period, I acquired a great knowledge in gene cloning and mouse transgenesis. However, in 2014, I received an offer from the group of Prof. Mundlos at the Max Planck Institute in Berlin, to established and lead a novel area of research on Evolutionary Genomics, which largely matched my long-term professional goals. Therefore, I embarked myself on the ambitious project of sequencing the genome of the Iberian mole to gain insights into the genomic origin of their intersexuality trait. The results of this project were finally published in 2020 in the Science journal, where I am the single first author. Here, we developed an innovative phylogenomic pipeline to detect rearrangements in the genome that alters 3D gene regulation and are associated to specific phenotypes. This landmark publication demonstrated for the first time that changes in the 3D structure of the genome can be associated to the selection of a positive trait during evolution.

The research line in evolutionary genomics that I established was rather unique within the Max Planck Institute, which led me to be promoted internally as a group leader. In my group "Gene Regulation and Evolution", we investigate how genomic changes influence the evolution of traits, continuing with the mole as a research model. We combine 3D chromatin organization and single-cell methods in comparative studies, and employ advanced mouse transgenic methods for functional validations.

Resumen del Currículum Vitae:

My overall goal is understanding how genomic changes result in developmental phenotypes and evolutionary adaptation. I started my career in 2003, as a bachelor student in the lab of Prof. Jiménez at the University of Granada. At that time, I combined histological and molecular methods to characterize a unique trait among mammals: intersexuality in female moles. This period sparked my curiosity towards mechanisms of non-coding regulation. Thus, in my PhD project, I studied the role of microRNAs in mouse sex determination. During this period, I performed two visits to the lab of Prof. Lovell-Badge, at the NIMR in London, where the master gene of mammalian sex determination, Sry, was first discovered. This led to my graduation as Doctor Europeus (2011) and the publication of my first author paper, as well as nine other papers as coauthor.

For my postdoctoral period, I decided to specialize in genome editing and mouse transgenesis, for which I joined in 2013 the lab of Prof. Treier at the Max Delbruck in Berlin. There, I gained expertise in bacterial artificial chromosomes (BACs) recombineering, a technology that was essential for my further research. After one year, I accepted an offer from the lab of Prof. Mundlos at the Max Planck in Berlin, to establish and lead a novel area of research on Evolutionary Genomics. By combining genomics and gene regulation methods with transgenic approaches, we unraveled the molecular origin of mole ovotestes development. This project resulted in a landmark publication in Science (2020), where we sequenced of the mole genome and develop novel analytical strategies to identify the genomic changes associated to the intersexual phenotype. From this period, I also have two papers as first and second last author. In addition, I mentored six undergraduate students and three PhD students. Note that I also had two maternity leaves of around one year each.

My expertise led me to collaborate with international labs, to present and chair sessions at international meetings and institutions, and to serve as reviewer for scientific journals, grant agencies or participating in PhD committees. I mentored six undergraduate students and I am currently supervising two PhD students.

In autumn 2022, I got internally promoted at the Max Planck Institute to become a group leader in Evolutionary Genomics. Recently, we also deposited in a public repository the first manuscript of my group (Schindler 2022, BioRvix).

I previously demonstrated how mouse transgenics approaches can be successfully used to recapitulate evolutionary traits from other species (Real et al., Science 2020). As an independent group leader, I aim to lead an Evo-Devo lab that combines my expertise in 3D genomics and gene regulation with innovative synthetic biology approaches for functional validations. Towards this goal, we initiated a collaboration with Prof. Jef Boeke, a pioneer in synthetic biology, in which I am developing novel strategies for site-directed integration of BAC constructs, to replace large genomic regions in mouse transgenic models (>100Kb). Thus, in my future research I will use synthetic biology to model evolution in vivo, which I believe it would bring the evolutionary genomics field to the next level.

Área Temática:	**Biociencias y biotecnología**
Nombre:	FÀBREGAS VALLVÉ, NORMA
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Título:	Elucidation of molecular mechanisms used by plants in response to environmental stress

Resumen de la Memoria:

Elucidation of signaling and metabolic mechanisms used by plants in response to environmental stress

During all my scientific trajectory my goal has been to better understand how plants growth and adapt to environmental stress conditions. My interest in this topic started during my PhD, where I detected stress-related proteins in the BR receptor protein complexes through in vivo immunoprecipitation. In 2016, I used a multidisciplinary approach to discover new mechanisms used by BR signaling pathways to protect plants from water-deficit stress. In 2017, during my postdoctoral period at the Max Plank Institute, I designed my own project focused in understanding the metabolic responses in plants grown under water-deficit stress. While my previous experience was focused in plant hormone signaling, my future goal is to explore further molecular mechanisms used by plants in stress conditions. Thus, my main future research line will aim to elucidate signaling and metabolic molecular mechanisms used by plants in response to environmental stress in the context of the climate change.
My future research will uncover the function of LEA proteins and their molecular interactors as molecular integrators of signaling and metabolic responses, a hypothesis strongly supported by my preliminary data.

In a more long term goal, my lab will be focused on the elucidation of novel components of signaling and metabolic pathways in response to stress and their roles in plant adaptation to environmental transitions. Moreover, in the same direction, I also aim to evaluate the impact of the microbiome in plant stress responses. It is well known that plants exposed to abiotic stress are able to restructure their microbiome to alleviate stress and improve nutrition availability. In particular, I will focus in water-deficit stress conditions such as drought, high salinity and high temperatures, which are all threatening crops yield and food security. I will also use computational approaches to integrate proteomic, transcriptomic, metabolomic (multi-omics) and microbiome data with the aim of identifying hub molecular mechanisms and components to respond and adapt to stress conditions.

Taking in account my scientific background, my experience in protein co-immunoprecipitation, mass spectrometry, transcriptomics, metabolomics, molecular genetics, plant development, computational biology and my long-term interest in understanding the molecular mechanisms behind the stress responses in plants, I believe I am an excellent candidate to lead a multidisciplinary laboratory to elucidate how plants respond and challenge the environmental changes. My research will be mainly focused in the model plant Arabidopsis thaliana (Arabidopsis) and translated into the model crop Solanum lycopersicum (tomato).

In summary, the training experience I have acquired during my career positions me as a mature scientist in the field of plant stress signaling and plant metabolism. Ultimately, following my previous experience, I aim to translate my knowledge into biotechnology and agricultural industries proposing solutions to design more resilient plants able to cope with the environmental transitions, and to ensure food security in the context of the climate change.

Resumen del Currículum Vitae:

I'm a biochemist and PhD in molecular genetics with experience, independence and leadership in the elucidation of signaling pathways and their functions in plant growth and stress responses. During my career I have used biochemistry, molecular genetics, mathematical modelling, transcriptomics, metabolomics and developmental biology to study hormone signaling pathways and their role in plant growth and stress. Currently, I am developing systems biology and computational tools to describe environmental microbiomes. Thus, I have a unique background that will allow me to lead a multidisciplinary laboratory and to develop my own independent line of research, aiming to integrate multi-omic and microbiome studies to elucidate new molecular mechanisms used by plants in stress conditions. Ultimately, I aim to translate knowledge into agricultural industries offering solutions to design more resilient plants able to cope with the environmental transition.
I have generated an extensive and solid network of international scientists. I have published in high impact publications in top international journals such as Nature Communications, PNAS, Developmental Cell, Current Biology and Plant Cell., I have published 23 peer-reviewed scientific articles (74% in Q1) and one international patent. In 52% of these articles, I sign as first author and in four recent articles I sign as corresponding author, highlighting my role as senior scientist. My research work has been cited 1000 times, currently gathering an h-index 13. I have directly participated in 9 national and international research projects and attended 15 national and international conferences and I have been invited to four oral communications). My leadership capacities have been endorsed by direct supervision of 12 undergrad and 3 MSc projects.
Main achievements of my career:
1. Excellence and international PhD: I obtained the International PhD mention and the highest grade (Excellent Cum Laude).
2. Awarded with four competitive fellowships:
2020   Program Torres Quevedo (PTQ2018-009961)
2015   Short term European Molecular Biology Organization (EMBO, ASTF 422-2015)
2009   Short term mobility fellowship (BE) European Social Fund (BE1 00379)
2008   PhD fellowship (FI-2008) European Social Fund (2008FI 00372)
3. Excellence of my publications in high impact journals: Nature Communications, Current Biology, PNAS, Plant Cell, PLOS Genetics, Developmental Cell
4. Excellence of my international and interdisciplinary scientific network: Prof. Fernie (Max Planck Institute, Germany), a top edge scientist in plant metabolism, Prof. de Vries (Wageningen University, Netherlands) and Prof. Skirycz (Max Planck Institute, Germany) both biochemists experts in

proteomics and mass spectrometry, Prof. Ibañes (UB, Spain) and Dr. Formosa (MPIPZ, Germany) theoretical physicists and computational modelling, and Dr. Francino (UAB, Spain) and Dr. Cuscó (Fudan University, China), experts in microbiome, genomics and computational biology.

5. Experience in transference of knowledge between academic research and the private sector by directly contributing to the development and publication of an international patent. I am currently working in the R+D department of a spin-off company based at the UAB campus, where I am developing bioinformatics and computational skills to analyse the microbiome, of different environmental samples.

Área Temática:	**Biociencias y biotecnología**
Nombre:	BARRIO HERNANDEZ, IÑIGO
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Título:	Network based approaches to integrate genetic variation with other omics in the context of human disease

Resumen de la Memoria:

My scientific career has been prone to decipher molecular mechanisms controlling biological functions from different angles. It has been developed at international institutions for around ten years, forging international collaborations and learning from teams with different expertises. During my PhD at Blagoev group (SDU, Denmark) I studied cell differentiation using quantitative mass spectrometry. My main project described the first 24 hours of hMSC after osteoblastic differentiation, using protein and phosphosite dynamics to describe the signalling cascades controlling the process. Mastering data analysis allowed me to establish interesting collaborations expanding my understanding of molecular regulatory mechanisms. One example was my second first author paper which takes advantage of a new antibody to study the human ubiquitinome beyond its protein degradation role. During my postdoc at Beltrao group (EMBL-EBI) I increased my bioinformatics capabilities, I developed a network based approach that I applied to my main project involving human common variation (GWAS) and 1000 human diseases. The plasticity of this approach allowed me to collaborate with several international researchers in different contexts: prediction of protein-protein interfaces using Alfafold2, studying changes in thermal stability in host cells after SARS-CoV2 infection, comparing the host-virus interactome of three coronaviruses including SARS-SoV2 and improved locus to gene associations in an Alzheimer's disease metastudy.

Knowledge dissemination is of paramount importance in science. During my career I have shared my research in 8 international conferences as well as seminars as an invited speaker in relevant international institutions such as IRB Barcelona, CRG Barcelona, Navarra Biomed and EMBL-EBI. To make my research more accessible to the general public I have been in contact with journalists from my local newspaper (diario de Navarra) as well as radio (Radio Internacional Francesa).

Along my career I have exercised my independence by mentoring young researchers at different levels, establishing my own collaborations, being requested to review directly from journals, becoming postdoctoral representative at EMBL-EBI or taking care of the organisation of the projects I am part of.

All in all, I am now in a position which allows me to become an independent group leader with my own research line. My proposal builds on the network based approaches I mastered during my postdoc, aiming to develop a map of human disease using genetic variation integrated with other omics. I will then explore the possibilities of context specific interactome using node and edge level approaches and finally focus on neurological diseases (ND) and the role protein ubiquitination impairment has on its pathogenic mechanisms.

Resumen del Currículum Vitae:

In the year 2011 I received the Fellowship from Navarre for international master studies, to join the "Master in molecular bioscience" at University of Southern Denmark (SDU). There, I took interest in cell signaling and its involvement in biological processes and started my PhD with Blagoy Blagoev and Moustapha Kassem at SDU. Using mass spectrometry based approaches we were able to establish how mesenchymal stem cells (hMSC) commit to oseoblasts during the first 24 hours of the differentiation, being PRKD1 a key component. This work was published at Genome Research. I started to focus on bioinformatic analysis, allowing collaborations across the group and with other researchers, leading to 8 publications where I'm co-author. Part of this work is my second first author paper, published in Nature structural & molecular biology which explores the data gathered using a new antibody to study protein ubiquitination. Without sequence bias, we were able to identify one of the largest ubiquitinome in two different cell lines. We were also able to report and better characterise the elusive Nterm ubiquitination and described a group of proteins that can be ubiquitinated on almost every lysine, pointing to new signaling mechanisms. In 2017 I moved to Pedro Beltrao's group at EMBL-EBI, to improve my bioinformatic skills and focus on network based methods to better understand diverse biological processes. Using network propagation followed by community detection, I was able to study 1000 human traits using common variants from GWAS. This strategy allowed me to define pleiotropic modules, communities of genes that are tightly connected, enriched in common variants and shared across many traits. They are key to understanding the molecular mechanism of disease and relevant in therapeutic context, all this is part of a paper recently accepted in Nature Genetics. The plasticity of this approach allowed me to establish collaborations with international researchers, specially relevant are the ones studying host cells upon infection with SARS-CoV2, published at Science, Nature, Molecular systems biology and Nature Genetics.

The results of my research have been communicated in 8 international conferences. I have been invited to seminars as guest speaker at internationally recognized research institutes such as CRG Barcelona, IRB Barcelona, Navarra Biomed and University Antonio Nariño (Colombia). In the last few years I have become aware of the importance of knowledge dissemination to a broader audience. During my SARS-CoV2 collaborations I contacted a journalist from the local newspaper "Diario de Navarra" to communicate our findings, an interview at "Radio Francia Internacional" was arranged with the same purpose.

I have always been keen to teach and mentor future generations of scientists. During my PhD I did 300 hours of so-called dissemination knowledge, which included mentoring of first year degree students, teaching practical courses at master program level for professors Blagoy Blagoev, Jens Andersen and Martin R. Larsen and mentoring of the master student Ida Skovring. During my postdoc at Beltrao's group, I mentored the visiting predoc Sten VF Hansen (2019) and Rosana Garrido Cortes (lab predoc, 2019-2020). Finally, I have been invited to independently review articles at different publications (NAR, Life Science Alliance and iScience)

Área Temática:	**Biociencias y biotecnología**
Nombre:	CORNES MARAGLIANO, ERIC
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Título:	From molecular interactions to biomolecular condensate functions in gene regulation and disease.

Resumen de la Memoria:

Throughout my career, I have taken advantage of the model organism C. elegans to study RNA regulatory mechanisms essential for animal biology. From RNA-binding proteins to non-coding small RNAs, my work has uncovered a diversity of gene regulatory mechanisms implicated in animal development, reproduction, stress adaptation, and epigenetic inheritance. Importantly, since many essential human genes and pathways are conserved between humans and worms, my work has also contributed to the study of human disease-associated mechanisms, providing models for translational research. Over the last years I have developed, in collaboration with other research laboratories in Europe, an integrative approach combining biochemical, and imaging methods to study RNA biology in vivo, in the context of cellular differentiation during animal development.

Independent on the mechanism studied, a remarkably recurrent observation from my PhD and Postdoc works is the tendency of RNAs and RNA regulatory factors to self-organize and locally concentrate forming membrane-less organelles with emergent liquid-like properties, also known as biomolecular condensates. Their formation is a widespread cellular phenomenon, and a growing catalogue of condensates is associated with a plethora of cellular functions and human diseases, such as cancer or neurodegeneration. Given their complex and dynamic nature, the cellular mechanisms underlying condensate formation, functions and pathogenesis remain poorly understood.

My future research aims at exploring whether gene regulatory functions emerge from the higher-order organization of molecules into cellular biomolecular condensates and how this mechanism contributes to cellular differentiation, animal development and human disease. For this, I plan to set up an interdisciplinary approach using C. elegans as an in vivo developmental system. By combining advanced spatial -omic methods, biophysical measurements, genetic screening approaches, and super-resolution imaging I will i) characterize the molecular composition of germline condensates at high spatial and temporal resolution during germ cell differentiation ii) uncover conserved mechanisms promoting condensate dynamics essential for human fertility and iii) develop condensate modifying tools for the functional perturbation of germline condensates in vivo.

Given the high level of conservation of germline condensates in animals, the results of this project will uncover fundamental mechanisms of gene regulation and open attractive avenues to explore pathological processes from new perspectives. Importantly, as the connection between human mendelian diseases to condensopathies is becoming clearer, the envisioned development of condensate-modifying tools has high therapeutic potential, offering novel strategies for drug discovery. Altogether, the successful outcome of the proposed project will provide a pipeline to systematically characterize biomedically relevant condensates in an animal model, establishing C. elegans as a robust platform for human condensopathy research.

Overall, my over ten years of experience in fundamental and translational research using C. elegans as a model organism combined to my expertise in addressing developmental questions across multiple biological scales provide a strong foundation for successfully executing the proposed research plan.

Resumen del Currículum Vitae:

Bachelor of Biology and Doctor of Biomedicine from Universitat Pompeu Fabra, throughout my research career I have developed my research projects at prestigious national and international institutions. During my Ph.D. I received two individual fellowships (AIRE-CTP and TRANSBIO-SUDOE) to develop my thesis in collaboration with the Institut Européen de Chimie et Biologie in Bordeaux, France, earning a European Ph.D. mention. After my Ph.D., I had acquired sufficient background and autonomy to participate as an instructor in multiple international research courses about animal transgenesis, CRISPR, or Introduction to C. elegans as a research model, held at the University of Barcelona (UB) and the Center for Genomic Regulation (CRG).

For my postdoc, I joined the Institut Pasteur where I obtained a Pasteur-Roux postdoctoral fellowship. I set up and managed international and interdisciplinary collaborations, and as the first postdoc of a newly starting lab, I also supervised and guided the work of lab technicians, Ph.D, master, and summer students. In total, I have co-authored eleven research papers, four as first author, all published in renowned international scientific journals. I have also participated in two projects funded by the European Research Council. With the results generated during my postdoc, I opened new research lines, obtained a LabEx Revive fellowship and applied as principal investigator to open calls for project funding from the European Research Council and the Fundación LaCaixa.

I have had the opportunity to disseminate my work at 14 national and international conferences such as the C. elegans International meeting in Los Angeles (2019 and 2021) and more recently, the Cellular Mechanisms of Phase Separation at EMBL (2022). The presentation of my research plans at the VIII Spanish Worm Meeting (Oct 2022) generated significant interest in the Spanish community, resulting in invitations to present my work as invited speaker at the IBV in Valencia or the CABD in Seville. These interactions led to exciting prospective collaborative interactions and collaborations with established C. elegans labs at the national level.

In parallel to research activities, I have been a representative of the postdoctoral researchers of the Developmental and Stem Cell Biology Department for three academic years (2018 to 2020), participating in Institutional activities within the Department and the Institution. From the beginning of my career, I have consistently engaged in science communication activities in different countries, targeting elementary, high school as well as university students.

Área Temática:	Biociencias y biotecnología
Nombre:	CENADOR HERRERA, SALVADOR
Referencia:	RYC2022-038309-I
Correo Electrónico:	scherrera@outlook.com
Título:	Modelling regeneration, stem cells and inter-organ communication

Resumen de la Memoria:

My scientific career has been focused on studying tissue homeostasis, stem cell biology and inter-organ communication from the perspective of developmental biology and by making use of state-of-the-art genetic techniques.

I joined the laboratory of Dr. Gines Morata in 2007 at the CBMSO for my PhD studies where I studied, using D. melanogaster as a model: 1) the relation of cell competition and size control of the organs; 2) the regenerative responses of epithelia after inducing genetic ablations; and 3) the ability of cells to reprogram and acquire new cell fates during regeneration. From these projects, I obtained a PhD by the Universidad Autonoma de Madrid in 2013 and published three first-author papers (together with two reviews) in the journals Development, PLoS Genetics and eLife.

On 2014, I moved to the NYU School of Medicine (New York, USA), where under the mentorship of Dr. Erika Bach I applied my knowledge about regeneration to the field of stem cell biology. I found that in male gonads the dedifferentiation of cysts of germ cells into new stem cells is a regenerative response aimed to preserve the pool of stem cells and the fertility under chronic stress. For this project, I obtained two fellowships: the prestigious HFSP and EMBO fellowships). This work, for which I was the first author, was published on 2018 on the journal eLife. I have also investigated another regenerative response of the male gonad: the ability of niche cells to transdifferentiate into somatic stem cells for maintaining their population, and the connection of this response with aging and fertility. This project has resulted in another manuscript, of which I am the first author, published on Developmental Cell. During my postdoctoral stage, I have also published three reviews and participated on another research paper about cell competition.

On 2020 I received a "Junior Leader – Incoming" fellowship from the La Caixa Foundation that included funding for three years to stablish my own independent group at the CABD (Sevilla). So far, I have published a review as corresponding author on IJMS, a book chapter in press in Springer Protocols and a single-author research article to be submitted within the next three months to journals in the first decile. In this article I, demonstrate that pheromones secreted by female flies trigger an activation state on the stem cells of the male testis. This response is caused by an inter-organ communication signaling: Octopamine secreted by neurons and the JNK pathway ligand secreted by muscle cells.

The goal of my scientific proposal is understanding how inter-organ signals coordinate the stem cells of the gonads, the physiology and the behavior of male animals to optimize their reproductive success. Specifically, using fruit flies as a model, I aim to discover: a) how social interactions impact the gametogenesis of males; and b) if signals secreted by the stem cells of the testis affect the brain and physiology. For these objectives, I'll perform genetic and neuronal characterizations, transcriptomic studies and Deep Learning automated behavior analysis with algorithms developed by myself.

Resumen del Currículum Vitae:

CURRENT POSITION:
"LaCaixa Junior Leader Researcher" / Associated Researcher at Centro Andaluz de Biologia del Desarrollo, Sevilla, Spain (from November 2020)

PREVIOUS POSITIONS:
* 2014-2020: Postdoctoral Fellow at NYU School of Medicine, New York, USA
* 2013-2014: Postdoctoral Fellow. Centro de Biologia Molecular Severo Ochoa
* 2007-2013: PhD student. Centro de Biologia Molecular Severo Ochoa
* 2006-2007: Undergrad collaboration. Instituto de Investigaciones Biomedicas Alberto Sols

EDUCATION:
* 2013: PhD in Molecular Biology by the Universiad Autonoma de Madrid
* 2007: Grad in Biochemistry by the Universidad Autonoma de Madrid

PUBLICATIONS:
I have 12 publications in international journals. I have published six research papers, five of them as first author: one in Developmental Cell (IF: 13.2), two in eLife (IF 8.7), one in PLoS Genetics (IF 6.0) and one in Development (IF 6.9). Most of them were 2- or 3-author publications. Additionally, I have published six reviews, one of them as corresponding author, in journals including Developmental Cell (IF: 13.2), eLife (IF: 8.7), IJMS (IF: 6.2) and Development (IF: 6.9). According to Scopus, I have been cited 325 times and I have an h-index of 6.

CONFERENCES:
I have presented my work in several international meetings and conferences: 5 oral communications and 3 posters. I was a session chair at the 60th Annual Drosophila Research Conference organized by the Genetics Society of America.

FELLOWSHIPS AND AWARDS:

* 2020-2023: Junior Leader - Incoming Fellowship from the laCaixa Foundation. This fellowship is aimed to stablish an independent research group and includes a budget of 305,000 EUR (115,500 EUR as a grant for research costs)
* 2018-2019: Senior Postdoctoral Fellow Award from the KCSCB
* 2016-2018: Long-Term Fellowship from the HFSP
* 2015-2016: Long-Term Fellowship from the EMBO
* 2007-2011: JAE-Predoc from CSIC
* 2006-2007: Beca-Colaboracion from the Spanish Ministry of Education
* 2006: JAE-Intro from CSIC

FUTURE SCIENTIFIC INTERESTS AND GOALS:
My recent unpublished experiments on the fly gonadal stem cells are revealing an unexpected and unprecedented coordination between the stem cells and the behavior of the males. The health of these stem cells is capable of conditioning the mating and aggression behaviors of the animal. Conversely, the outcome of these two behaviors affects the biology of the stem cells of the male gonad. I hypothesize that the gonadal stem cells are acting as an endocrine organ orchestrating aspects of the physiology and brain function. It is my goal to understand the molecular and neurological basis of two-way coordination, as well as how the male gonads communicate with other organs (as the gut) in an inter-organ communication network. My results might have an impact in the fields of stem cell biology, reproduction and physiology.

Área Temática:	Biociencias y biotecnología
Nombre:	SMITH , JACOB ANDERSON GIFFEN
Referencia:	RYC2022-035133-I
Correo Electrónico:	jacob.smith@upf.edu
Título:	Decoding signal transduction: from posttranslational modifications to circadian clock control of inter-organ crosstalk

Resumen de la Memoria:

The influence of the circadian clockwork pervades all levels of cell biology. Whilst much progress has been made towards understanding the mechanisms that support clock function within individual cells, the organisation of the clock system at both the tissue and systemic level is not well understood. The need to address this is pressing- emerging evidence indicates that dysregulated circadian function at the local and systemic level contributes to the development of devastating disorders including diabetes, cancer, cardiovascular and myopathies. Importantly, we are now at an inflection point in the circadian field, where cutting-edge methodologies allow us to identify for the first time 1) the key nodes of circadian networks in vivo (as we have done/are doing with tissue-specific Bmal1- reconstitution under its endogenous promoter (Koronowksi et al, Cell-2019, Welz et al., Cell-2019, Greco1, Koronowksi1, Smith1 et al., Science Advances-2021, Smith1, Koronowski et al., bioRxiv 2022.02.27.482160) and 2) the signalling mechanisms and molecules that underlie this communication. My innovative research line focusses on this second point, capitalising on advancements in both snRNA-Seq and in vivo proteome-specific labelling to reveal the local and systemic signalling capacity of the skeletal muscle clock for the first time and test its functional relevance in the context of muscle disease. This is possible due to 1) establishment of a snRNA-Seq protocol that facilitates the simultaneous identification of all nuclei from the same muscle (Dos Santos et al, group of Pascal Maire), thereby allowing the impact of clock deletion in myonuclei on all cell types within the muscle niche to be revealed (HSA-Cre driven Bmal1-deletion, as I used previously) and 2) the development of a MetRS*-driven bioorthogonal labelling strategy (current collaborator Beatriz Alvarez, whilst in group of Erin-Schuman, Nature Protocols 2019) to achieve in vivo tissue-specific proteome labelling will allow us to circumvent the inability of previous serum proteomic approaches to determine the tissue of origin, allowing the impact of muscle clock deletion on myokine release into the bloodstream to be systematically determined in an unbiased manner. These fundamental discovery approaches will be accompanied with targeted experiments in mouse models of myopathies (ALS/DMD) to explore the pathological relevance of dysregulated muscle clock signalling. My initial line of research is comprised of 3 aims:

1. Define the role of the muscle-clock in cell-cell communication within the muscle

2. Identify muscle-clock regulated inter-organ signalling factors and tissue targets

3. Understand muscle-clock dependent paracrine and endocrine signalling in the context of muscle disease

Fundamentally, this will contribute missing mechanistic information on how circadian clocks coordinate biological processes both within and between organs whilst revealing the extent to which modulation of muscle clock endocrine/paracrine signalling holds therapeutic potential. Long term, the expansive nature of the discovery approaches I employ will not only spur research progression of my group, but that of the Spanish and international research communities- forging new collaborations and contributing to an emerging research field which is defining the role of inter-organ crosstalk in the context of disease.

Resumen del Currículum Vitae:

My scientific journey to date has focussed on understanding mechanisms of signal transduction at the cellular and systemic level. For my graduate studies with Prof. Antonella Riccio (University College London), I worked to understand the cellular mechanisms through which the gaseous signalling molecule nitric oxide (NO) regulates gene expression in cortical neurons. I identified the nuclear proteins that are modified by NO and found that modification of the chromatin-binding protein RBBP7 is a controls dendritogenesis (Smith et al, Sci Sig-2018). I also characterized the role of the chromatin remodelling complex NuRD during cortical development, revealing an ATPase subunit switch regulates corticogenesis (second author; Nitarska, et al, Cell Reports-2016). Collaborative efforts at UCL included characterization of a NO-producing subpopulation of mouse ES cells (middle author; Cencioni et al, Nature Comms-2018) and finding a key role for the HDAC3 in Schwann cell myelination (middle author Rosenberg et al, Cell Rep-2018). In 2018, I joined the Lab of Prof. Paolo Sassone-Corsi (University of California, Irvine), a world leader in the epigenetics, circadian biology, and metabolism. My research aimed to understand plasticity of the circadian clock system. Using mice in which the clock gene Bmal1 is expressed in a tissue-specific manner, I contributed to landmark studies revealing the autonomous actions of liver and skin clocks in vivo (second author; Koronowski et al, Cell-2019, middle author; Welz et al, Cell-2019). Through de novo introduction of a feeding-fasting cycle, in the absence of conflicting stimuli from other tissue clocks, we showed that the liver clock integrates feeding-fasting signals via the transcription factor CEBPB to control hepatic metabolism (joint first: Greco*, Koronowski*, Smith* et al., Sci Adv-2021). A key component of our study revealed that the skeletal muscle clock impacts circadian gene expression in the liver, representing a paradigm shift in our understanding of the clock network that I will explore in my research line. We also found that without a feed-fasting rhythm, peripheral clocks tick but are transcriptionally independent (co-first/co-corresp: Smith*, Koronowski* et al., under review Cell Rep). In parallel, I identified the role of the brain clock to cyclic metabolites in the blood (second author: Petrus, et al., Sci Adv-2022) and revealed antibiotics affect cyclic metabolism in the brain (first/corresp, Smith et al., Life Sci-2022). My interest in tissue communication led me to seek new tools to identify endocrine regulators. From UCI, I independently established a collaboration with tissue-specific proteome labelling expert Prof. Beatriz Casteleo (Complutense, Madrid) and established this technique in the Lab of Prof. Pura Muñoz (UPF, Barcelona) after the passing of Prof Sassone-Corsi. My focus is to build upon my experience and findings, leveraging new technologies and approaches to understand biological processes can be harnessed, modulated, or rewired for therapeutic gain. Here, I propose a translationally-relevant research line capitalising on advancements in snRNA-Seq and in vivo cell type specific proteome-specific labelling to reveal the local and systemic signalling capacity of the skeletal muscle clock for the first time and test its functional relevance in the context of muscle disease.

Área Temática:	Biociencias y biotecnología
Nombre:	JUAN MATEU, JONÀS
Referencia:	RYC2022-037793-I
Correo Electrónico:	jonasjoanm@gmail.com
Título:	Alternative splicing regulation and diabetes

Resumen de la Memoria:

My research career is focused on understanding the role of RNA post-transcriptional regulation in metabolic disorders, in particular the function of alternative splicing in pancreatic endocrine cells and its impact on the susceptibility and development of diabetes.

I have studied the role of several splicing regulatory RNA-binding proteins (RBPs) in pancreatic islet cells, focusing on understanding their role in processes controlling hormone secretion, stress-induced cell death and endocrine cell differentiation. These studies have pioneered the study of AS in pancreatic islets in the context of glucose homeostasis and diabetes.

My research showed that beta cell splicing is responsive to immune-induced stress, altering the function of pro-apoptotic pathways and contributing to beta cell impairment and death in the context of type 1 diabetes (T1D). We showed that this process is mediated by RBPs such SRSF6 that are responsive to pro-inflammatory cytokines and bind to T1D risk genes, acting as master regulators of beta cell survival. These studies provided the first functional links between alternative splicing and beta cell dysfunction. Investigating tissue-specific splicing programs in islets, I also identified that islet cells express a subset of neural RBPs that allowed them to partially co-opt neural splicing programs that play important roles in processes related to hormone secretion, and thus contribute to their functional specialization into sensing-secretory cells. Following this research line, I recently led a research project aimed to map specific or enriched splicing events in islet cells compared to other tissues. We identified more than 200 alternative exons enriched in islets, and found that the splicing landscape of islets is dominated by an evolutionary conserved program of microexons. Islet microexons represent a subset of neural microexons that are particularly sensitive to the levels of the RBP SRRM3. These microexons are mostly protein coding and codify for just 1-9 extra amino acids in genes related to insulin release and type 2 diabetes susceptibility. We showed that miss-regulation of islet microexons impairs insulin release and glucose homeostasis in mice, and found that genetic variants that alter microexon inclusion in humans are associated with T2D, highlighting the physiological relevance of islet splicing in glucose metabolism.

My future research will be focused in deepen our understanding about the functional and pathophysiological role of alternative splicing in pancreatic islets, with the ultimate goal to identify new therapeutic targets. I will study the cellular and molecular mechanisms by which inclusion of microexons or other alternative exons affect the differentiation and functional maturation of endocrine cells, and their impact on metabolic homeostasis. Moreover, I want to investigate the genetic determinants of splicing variability and their contribution to glycemic traits and diabetes susceptibility. To achieve this I will combine multiple complementary approaches spanning from splicing-switching functional screens, cell physiology assays, mouse models, genetics and functional genomics.

Resumen del Currículum Vitae:

I am biologist with expertise in both experimental and computational biology. Since the beginning of my scientific career, I have been interested in understanding how alterations in RNA post-transcriptional regulation affect tissue specific functions and contributes to human disease. During my PhD in the laboratory of Pia Gallano at Hospital Sant Pau in Barcelona, I studied the genetic mechanisms that contribute to the phenotypic variability observed in muscular dystrophies. One of the main topics of my PhD work was to study how a significant number of point mutations in the DMD gene alter the normal splicing pattern, leading to the generation of alternative RNA and protein isoforms. After my PhD, I moved to the laboratory of Decio Eizirik at the Free University of Brussels to pursue my interest on alternative splicing and its role in insulin-producing pancreatic beta cells, a yet understudied process. Importantly, at the Eizirik lab we provided the first evidences that beta cells have partially co-opted neuronal splicing programs by expressing a subset of neural RNA-binding proteins (RBPs) that play key roles in beta cell function by controlling important processes of the insulin secretory pathway. Moreover, my research also provided the first functional links between alternative splicing and beta cell dysfunction in type 1 diabetes. To expand this research line from a regulatory and evolutionary angle, I moved to the laboratories of Juan Valcarcel and Manuel Irimia at the Centre for Genomic Regulation in Barcelona. At the CRG my research focused on understanding the tissue-specific regulation of splicing in pancreatic islets and characterizing their functional and physiological role at the cellular and organismal level. During this period, my researched uncovered a novel and conserved program of microexons in islets cells. We showed that islet microexons are stimulus-responsive, modulate hormone secretion and that variation in their activity is associated glycaemic traits and type 2 diabetes in humans, providing for the first time evidences of the physiological relevance of islet splicing for glucose homeostasis.

The relevance of the laboratories in which I have developed my career in their respective research areas (genetics, islet biology and alternative splicing), and presenting my work in different scientific meetings covering these topics, have increased my international scientific network. During my PhD and postdoc positions I have published 16 articles, nine of them as first author, including top international journals such as Nature Metabolism and Nature Genetics. Importantly, I am first and co-corresponding author in four articles published during my postdoc work, highlighting my increasing role as senior author. I have also received diverse and substantial funds including two Marie Sklodowska-Curie Individual Fellowships, and recently, a grant as co-Principal Investigator.

In summary, I have a track record of solid scientific production at all stages of my career and have proven to be able to attract highly competitive funding. Also, I believe that the research line I want to investigate in the near future, focused on the role of alternative splicing at the interplay between tissue function and metabolic disorders, is strongly sustained by both my theoretical and technical multidisciplinary background gained during my scientific career.

Área Temática:	Biociencias y biotecnología
Nombre:	RODRIGUEZ GARCIA-RENDUELES, MARIA ELENA
Referencia:	RYC2022-037984-I
Correo Electrónico:	merodrigrendu@gmail.com
Título:	Estudio de los mecanismos moleculares implicados en cáncer de tiroides.

Resumen de la Memoria:

My career has been devoted to investigating thyroid tumorigenesis and tumor progression on a molecular basis and understanding the functional consequences of the key drivers of the disease. I have been focused on identifying potential targets and new approaches based on this dependency for new therapies. Last ten years, I have been working on the hippo pathway, deciphering its role in cancer and drug resistance to find a new therapy to overcome it.

My pre- and postdoctoral training have focused on investigating new events that cooperate with RAS/BRAF mutations in the initiation and progression of thyroid cancer, using different genetic, biochemical, and cell biology techniques. I obtained my Ph.D. degree from the University of Santiago de Compostela, where among others, I studied how TGFb switches from an apoptosis-promoting role in normal cells to an oncogenic role in papillary thyroid cancer cells. I received several awards, including an Extraordinary Doctorate Award and a Postdoctoral Fellowship from the Spanish Ministry of Education (2012). During my postdoctoral training at New York's MSKCC in Dr. Fagin's lab, my primary research focused on the study of NF2loss in cooperation with RAS mutations in thyroid cancer. Promoted to Associate Research Scientist in 2016, I investigated events other than NF2loss that induce aberrant YAP activation. I developed a cell microarray with +80 cancer cell lines and several GEMM. During this stage, I had the opportunity to independently develop my line of research and increase my professional network. The results of these years were published in Cancer Discovery (first author), JCI, Cancer Clinical Research, Cancer Research, or Oncogene (first author). I had two kids (2015&2018).

In 2019, like my peers, my research suffered a delay due to COVID, we need to recover our mice lines. I got a Talent Attraction grant (288.000E) from the Community of Madrid and my family moved to Spain in 2020.

Since Sep 2020, I am Principal Investigator at the IMDEAFood Madrid. My line of research continues the study of YAP activation in thyroid cancer and its role in response to treatments, including radioiodine. I have recently demonstrated that constitutive nuclear YAP is frequent in thyroid cancer, and they are dependent on this pathway for viability. I described the mechanism by which YAP induces resistance to BRAF inhibitors through NRG1 pathway. Molecular Cancer (first and corresponding author,41.444, #3/322 Biochemistry and Molecular biology category just after Nature Medicine and Cell; #7/246 oncology category). I am the corresponding author in a review that has increased my field of research and new collaborations. Since my incorporation, I have tutored a TFG (now doing the doctorate), and I am tutoring another. I have been a member of the thesis committee, I am a reviewer in several journals, I am part of the teaching staff of the master's degree in nutrigenomics at the International University of La Rioja, and I have been invited as a speaker to several seminars and congress. I have participated in workshops or programs related to women in science, young investigators, or education.

My goal is to establish a competitive research group. We are focused on deciphering YAP nuclear translocation after MAPK inhibition mechanism and the role of YAP in energy balance in CNS.

Resumen del Currículum Vitae:

I am an enthusiastic and creative scientist studying different molecular mechanisms in thyroid tumorigenesis and in disease progression, focused on identifying potential targets for new molecular-based therapies. I received my Ph.D. with honors in 2011 by USC. In 2012, I got a Postdoctoral Fellowship from the Spain Ministry of Education and joined MSKCC. There, I studied the oncogenic events associated with RAS mutations in thyroid cancers. Among other contributions, I discovered that NF2loss cooperated with oncogenic Hras to induce PDTC (Cancer Discovery). In 2016 I was promoted to Associate Research Scientist. In my independent project, I investigated inputs other than NF2loss that result in inappropriate YAP nuclear translocation. In 2020 I was awarded with "Atraccion de Talento, Mod1" and started my lab at IMDEA Food in Madrid (Sep 2020). Here, I study the role of YAP in thyroid tumorogenesis, progression, metastasis, and the response to monotherapy treatment and in the context of hypothalamic control of feeding. I have published 17 papers in the highest impact journals: Cancer Discovery, JCI, Oncogene or ClinCanRes. I have presented +40 works at national and international congress, two of them were selected as a short call oral communication at ATA, and I have been invited as a speaker in two different SGENM. I have mentored several students and TFGs. I am a reviewer in several journals.

Main contributions:

- 2015, Cancer Discovery (cover, highlighted in Editor's choice section of Science Signaling). First author. NF2loss promotes the expression of mutant RAS in advanced thyroid cancers by enabling the transcriptional activity of YAP. NF2loss sensitizes RAS-driven cancer to MEK inhibition. My results suggest YAP as a new therapeutic target in the treatment of thyroid RAS-mutant cancers.

- 2017, Oncogene. First author. p27 acts as a modulator of the dual effects of TGFb in normal and thyroid cancer. MEK/NFkB combinatory inhibition reduced p27 expression and potentiated apoptosis in thyroid cancer cells.

- 2022, Molecular Cancer, (41.444, #3/322 Biochemistry and Molecular biology category just after Nature Medicine and Cell, Featured in Todays Science Sparks and on the display screen at RockefellerResLab Library). First and corresponding author. YAP aberrant nuclear activation is frequent in thyroid cancer, independently to Hippo. This activation made thyroid cancer cell lines dependent on YAP activity. YAP governs a lineage-dependent NRG1 pathway-driven insensitivity to RAF kinase inhibitors.

Others:

-2022, International Journal of Molecular Sciences, review. Corresponding. Started new collaborations to study YAP in CNS-energy balance.

-Discovery and functional characterization of new driver mutations and rearrangements: SLC26A4(c.416-1G->A) in Pendred Syndrome families, PAX8-PPARg in patients with TSH mutation and ETV6-NTRK3 and AGK-BRAF in radiation-exposed pediatric thyroid cancer patients.

-Characterization of new drugs: Aplidin in primary ATC cell lines, Tipifarnib for HRAS-mutant thyroid tumors or Altiratinib in TRK-fusion driven cancer models.

-Collaboration with groups around the world to validate and generate a repository of all available human thyroid cell lines.
-Experience in teaching and mentoring.
-General quality indicators: Cited by:888; Citations/year (18-23): 100; h-13.
- In 2015 and 2018 I had two interruptions due to the birth of two children.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Biociencias y biotecnología
Nombre:	GALINDO GONZÁLEZ, LUIS JAVIER
Referencia:	RYC2022-035282-I
Correo Electrónico:	luisjagg92@gmail.com
Título:	Molecular evolution and cell biology of unicellular eukaryotes

Resumen de la Memoria:

My research career focuses on understanding the evolution of unicellular eukaryotes and their unique cellular features. Both my BSc studies in Biology (ULL, Tenerife) and my MSc on Evolutionary Biology (UCM, Madrid) were developed in Spanish universities. I was then awarded a ITN Marie Sklodowska-Curie fellowship (SINGEK) for PhD studies, thus, becoming part of a wide network of researchers from 12 top-level scientific institutions across Europe. During my PhD at the University Paris-Saclay/CNRS (France) I used single-cell methods to generate genomic data from new unicellular eukaryotes to then place them in the tree of life, while also performing comparative genomic studies to understand their unique features. Within my PhD I participated in a field campaign to Lake Baikal (Russia), and in one international stay at the Multicellgenome Lab (IBE-CSIC, Spain), after being awarded a competitive EMBO Short-Term fellowship. I published 6 manuscripts (SJR Q1 journals) from my PhD years. After getting my PhD title I did a 1-year postdoc at the University Paris-Saclay/CNRS, in which I collaborated with groups from the St. Petersburg University (Russia) and the American Museum of Natural History of New York (USA). Together, we characterize new lineages of unicellular eukaryotes, leading to two additional publications in which I was the leading author. I was then awarded a Marie Sklodowska-Curie IF postdoctoral fellowship, to carry out the project FungEye; currently being developed within the Protist group of the Biology Department of the University of Oxford (UK). I developed the idea, methodology and posterior implementation of this project that aims to characterize a novel light perception organelle in an emerging fungus model. The FungEye project is finance by the Horizon 2020 (EU), with a total budget of 212,933.76 euros. So far, two open access research manuscripts have been published and a review piece has recently been accepted (all in Q1 journals). During my current postdoctoral stage, I have stablished an ongoing interdisciplinary and international collaboration on fungal zoospore motility with the University of Chicago (USA). Additionally, I am the co-coordinator the project 'The microbial biodiversity of freshwater lakes in the South Pacific', in which I bring my expertise in sampling and field work. I have participated on outreach blog-web entries, talks and on the coordination of outreach activities. I have also given tutorials and seminar classes to first- and second-year students from the University of Oxford.

The main goal of my future line of research is to characterize novel light sensing systems in unicellular eukaryotes. My aims are: 1) To identify light-sensing genes/proteins from zoosporic fungi and novel unicellular eukaryotes that have shown a light sensing response to reconstruct the evolutionary history of these proteins. 2) To perform drug-inhibition functional assays on the studied organisms to determine how the light sensing pathway works. 3) To use state-of-the-art microscopy techniques to identify the associated cytoskeletal components, light-sensing organelles and co-localize key proteins. My intention is that the characterization of these new systems will also open new interdisciplinary collaborations in applied (e.g., biotechnology) and fundamental (e.g., ecology and evolution) research.

Resumen del Currículum Vitae:

As a researcher my main overarching goal is to understand the evolution of the eukaryotic form through the study of its unicellular representatives. I have a PhD in Life and Health Sciences from the University of Paris-Saclay (France) carried out within the frame of the SINGEK ITN Marie Sklodowska-Curie Fellowship. The results from my PhD achieved wide academic impact after the publication of our results on the discovery and characterization of an entirely new fungal phylum. I was then awarded a competitive EU2020 Marie Sklodowska-Curie Postdoctoral Fellowship to lead the FungEye project within the Protist group at the University of Oxford. The project recently gained a large scientific repercussion after our published study showed that the ancestor of fungi could sense light.

My academic track has led to several scientific contributions, including the publication of 13 scientific papers in high impact journals with 11 of them in the Q1 quartile (SJR ranking). I am first author in 8 of these publications, and co-corresponding in 2. My publications have been cited 155 times with a h index of 6 (29/01/2023) and have been published in open access journals and/or have been deposited in public repositories. Regarding my participation in scientific projects, I took part on a scientific cruise on Lake Baikal (Russia) in 2017 in which we sample the microorganisms from the lake, as part of an international collaboration project between the CNRS (France) and the Limnological Institute of Irkutsk (Russia). Additionally, I am co-coordinator and field manager of a research project form the University of Oxford/Merton College to study the microbial biodiversity of lakes in the South Pacific. I am currently leading together with Dr. Jasmine Nirody an interdisciplinary collaboration with the University of Chicago (USA) aiming to characterize motility on fungal spores. I have attended to 13 national and international congresses for which I gave an oral presentation in 10 (4 as an invited speaker). During my PhD, I was awarded a competitive EMBO Short-Term fellowship for a research stay at the IBE-CSIC (Spain).

I have been part of several outreach and dissemination activities, including three outreach talks and a lecture to high school students (France), participation in the MSCA European Researchers' Night 2018 (Barcelona, Spain), and part of the organization committee of an outreach exhibition about fungi (ULL, Spain). During the Scientific Week in Paris (France), I organised a botanical outreach activity.

I am an active member of a project about the microbial biodiversity of lakes in the South Pacific in which I participate as a field-work trainer/manager for the expedition. I have attended several courses on teaching and training. I have been part of the every-day training of master and PhD students on the groups I have been part of. I gave tutorials to students from 12 different Colleges and prepared and taught a seminar class to first year students from the University of Oxford. Recently, I have received the certificate of Profesor Ayudante Doctor (ANECA; Spain), and I am also qualified as a university lecturer-researcher under the French education system. I have also contributed to research as a Functional Magnetic Resonance Imaging (fMRI) technician at the Institute of Neurosciences of Alicante CSIC-UMH (Spain).

Área Temática:	Biociencias y biotecnología
Nombre:	GONZALEZ CARTER, DANIEL
Referencia:	RYC2022-036623-I
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Título:	Nanoparticle-mediated drug delivery

Resumen de la Memoria:

I obtained my Ph.D. (2008-2013) in cellular neuroscience in the Department of Brain Sciences of Imperial College London, U.K. with a full scholarship from the Mexican government (CONACyT) focusing on brain inflammation and the brain vasculature in the context of the neurodegenerative disorder Parkinson's disease. Following a post-doctoral position (2013-2017) at the Department of Materials where I examined the interaction of nanoparticles (in particular gold and silver nanoparticles, and carbon nanotubes) with the brain (in particular transport across brain endothelial cells and processing by brain macrophages) as potential drug-delivery vehicles, I took up a research associate position within the group of Prof. Kazunori Kataoka at the Innovation Center of NanoMedicine (iCONM), Kawasaki, Japan (2017-2021), to design polymeric nanomicelles as drug-delivery vehicles. Here, I won my first independent research funding from the Japanese Society for the Promotion of Science in the form of a JSPS 'Early Career Scientist' research grant. With this funding, I pursued two lines of research: firstly, I adapted the glucose transporter-targeting brain delivery strategy developed by Prof. Kataoka to encapsulate therapeutic antibodies against amyloid-beta within glucose-functionalized nanomicelles as a treatment strategy against Alzheimer's disease. In the second research line, I focused on establishing a completely novel brain-targeting strategy based on exploiting the physiology of brain endothelial cells (i.e., the blood-brain barrier) to generate artificial targets selectively on the brain vasculature. The research independence and project management skills I acquired in Japan allowed me to acquire my second independent research funding, in the form of a Junior Leader Research Fellowship from the 'La Caixa' Foundation. As part of this fellowship I am leading a 3-year research project to develop novel strategies to identify ligands which allow maximal generation of brain-specific artificial targets for nanoparticle delivery, and tuning nanoparticle characteristics to optimize transport across the blood-brain barrier to deliver therapies against neurodegenerative disorders.

Resumen del Currículum Vitae:

Through my research career I have won two international research grants as Principal Investigator, published 11 peer-reviewed research articles (excluding literature reviews), 6 as first author, of which 5 I have also been the corresponding author, with an h-index = 10 and total citations = 462, and registered an international patent. My increasing impact in the field of nanoparticle-mediated drug delivery is reflected by the year-on-year increase in citations to my published work, invitations to deliver lectures/seminars at international conferences and universities, and acting as peer-reviewer for high-impact journals (e.g., Science Advances, Nature Communications, ACS Nano, and Advanced Materials). In addition, I act as grant reviewer for the ' Postgraduate Fellowships Abroad' programme of the ' La Caixa' Foundation, and I am a member of the College of Experts of the funding charity Parkinson' s UK tasked with reviewing research grant applications. I also act as Guest Principal Editor and Guest Co-Editor for the journals Pharmaceutics (MDPI) and Frontiers in Bioengineering and Biotechnology, respectively.

I have experience in teaching M.Sc. and B.Sc. students in the U.K., Japan and Spain. I have welcomed 2 international M.Sc. students through an Erasmus+ scholarship to carry out a research internship (10-month) specifically within my research project. I am the thesis supervisor of an international M.Sc. student (Ms. Giulia Porro, University of Milan, Italy). In addition, I act as thesis evaluator for the Masters of Multidisciplinary Research in Experimental Sciences (MMRES) programme of the Barcelona Institute for Science and Technology (BIST).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biociencias y biotecnología**
Nombre:	ANDRÉS MIGUEL, MARTA
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Título:	El sistema auditivo eferente en mosquitos transmisores de enfermedades: del comportamiento de enjambre al control de enfermedades

Resumen de la Memoria:

Actualmente soy Investigadora Principal en el Ear Institute en University College London. Nuestra financiación principal procede de un proyecto UKRI Future Leaders Fellowship que me fue concedido en 2019 y de otras becas de menor cuantía. Estudiamos la neurobiología del sistema auditivo y el comportamiento de enjambre en mosquitos transmisores de enfermedades. Ya que ambos mecanismos son necesarios para un correcto apareamiento, buscamos encontrar nuevas dianas moleculares que pueden ser utilizadas para desarrollar herramientas genéticas y farmacológicas para controlas las poblaciones de mosquitos y reducir la transmisión de enfermedades. Esta es una línea de trabajo innovadora y con gran potencial por lo que hemos publicado nuestros resultados en revistas de alto impacto (e.g. Nature communications, Current Biology, Science Advances) y he sido invitada para dar presentaciones orales en diversos congresos y charlas en seminarios internacionales. Para llevar a cabo esta investigación multidisciplinar, en la que combinamos métodos de biología celular y molecular, fisiología, biofísica y estudios de comportamiento, he tenido una trayectoria investigadora en la que destacan la movilidad y la internalización, incluyendo una tesis doctoral bajo la supervisión de Laura Torroja e Inmaculada Canal en la Universidad Autónoma de Madrid, un postdoc en el laboratorio de Martin Goepfert (Alemania), un trabajo como investigadora en el Robert Koch Institut (Alemania), y una beca Marie Curie en el laboratorio de Joerg Albert (Reino Unido). Además, cuento con una amplia red de colaboradores internacionales que apoyan la realización de nuestra labor investigadora.

En mi laboratorio estudiamos el papel de distintos neuromoduladores en el control de la función auditiva del moquito de la malaria. En concreto, hemos descrito como la octopamina modula distintos aspectos auditivos que impactan la capacidad de apareamiento de los mosquitos, ya que la pareja reproductiva es reconocida por los sonidos producidos por el batir de alas. También estamos estudiando la función auditiva de la serotonina y su papel como mediador entre el sistema sensorial y el sistema circadiano. Por otro lado, estudiamos la base molecular del comportamiento de enjambre, que es completamente desconocida y que nos permitiría conocer más sobre la inducción endógena de este comportamiento y los estímulos sensoriales que lo promueven. Nuestra intención última es encontrar dianas moleculares para interrumpir la reproducción de los mosquitos mediante estrategias genéticas o farmacológicas. Siguiendo este enfoque, hemos descrito un receptor beta adrenérgico que por su implicación en el comportamiento de apareamiento podrían ser un candidato ideal para el desarrollo de insecticidas. Con la ayuda de la RyC, me gustaría trasladar mi laboratorio a España y continuar con esta línea de investigación. Planteo profundizar en nuestro conocimiento de la neurociencia de la audición y del comportamiento de enjambre y llevar a cabo proyectos de drug discovery para desarrollar compuestos que bloqueen los receptores candidato para interrumpir la reproducción en mosquitos. Además, me gustaría extender nuestra investigación a especies de mosquitos invasoras. Para financiar este trabajo, buscaré financiación adicional del Plan Nacional y proyectos ERC, Human Frontier Science Program o CaixaResearch.

Resumen del Currículum Vitae:

Realicé mi doctorado con una beca FPI-UAM en la Universidad Autónoma de Madrid bajo la supervisión de Inmaculada Canal y Laura Torroja aplicando técnicas de biología celular y genética para estudiar el desarrollo embrionario de los órganos sensoriales de la mosca de la fruta Drosophila melanogaster. La tesis, defendida en 2012, recibió una mención europea y fue publicada en Genetics. En 2013 me trasladé como postdoc con Martin Goepfert, en la Universidad de Goettingen (Alemania) para realizar una investigación pionera en la que descubrí un sistema auditivo eferente en mosquitos, un hallazgo relevante publicado en Current Biology. Otros trabajos de este periodo fueron publicados en Neuron. Compatibilicé esta investigación con el estudio a distancia de un MSc en Enfermedades Infecciosas por el London School of Hygiene and Tropical Medicine, para el que trabajé en el grupo de Sarah Moore en el Ifakara Health Institute (Tanzania) en un proyecto para el control de la malaria residual publicado en Malaria Journal.

Motivada por avanzar mis conocimientos en salud pública, en 2016-2017 trabajé en el Robert Koch Institute (Alemania) en el establecimiento de un sistema de vigilancia molecular de la tuberculosis creando redes con diferentes actores en salud pública. El trabajo fue publicado en PLOS One, European Respiratory Journal y BMC Public Health.

Basándome en mi trabajo postdoctoral, en el año 2017 recibí una beca Marie Curie de la Comisión Europea para adquirir nuevos conocimientos sobre la biofísica de la audición en mosquitos en el laboratorio de Joerg Albert en University College London (UCL, Reino Unido). En 2019, recibí un proyecto UKRI Future Leaders Fellowship (£ 1,236,330) para explorar estas ideas que me permitió convertirme en investigadora principal y liderar mi grupo de investigación, el Mosquito Molecular Neuroscience lab en UCL (neuromosquitolab.org). Estudiamos como distintos neuromoduladores controlan el comportamiento auditivo de mosquitos trasmisores de enfermedades, y las implicaciones para su apareamiento y control. Tenemos diferentes manuscritos en preparación y dos artículos en revisión requiriendo minor revisions en Frontiers y Nature communications. Para apoyar nuestra línea de investigación hemos recibido financiación adicional (e.g. UCL Internal Small Grant, Flexible Support Awards), la ultima una beca UCL Global Engagement Fund que permitirá a una investigadora postdoctoral del Institut Pasteur de Bangui en República Centroafricana visitar nuestro laboratorio y adquirir conocimientos para estudiar el comportamiento auditivo de los mosquitos en ciudades africanas. La innovación de nuestra investigación ha sido reconocida con multitud de presentaciones orales en congresos internacionales y seminarios. He promovido también la creación de un consorcio de investigación entre UCL y la University of Leicester del que soy coordinadora. Entre nuestros colaboradores se encuentran Sarah Moore (Tanzania), Matthew Su de la University of Nagoya (Japan), y Rushika Perera de University of Colorado State (USA). Participo como revisor en diferentes revistas y paneles de evaluación de proyectos. Además, enseno en un programa de grado y dos de postgrado en UCL y estoy coordinando la creación de un módulo de postgrado sobre Enfermedades trasmitidas por vectores en UCL.

Área Temática:	**Biociencias y biotecnología**
Nombre:	MUÑOZ FÉLIX, SOFÍA
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Título:	Interplay between local chromatin structure and cohesin function

Resumen de la Memoria:

During my PhD at the laboratory of Yolanda Sánchez Martín at the IBFG in Salamanca (2009-2014), I studied how Rho GTPase-mediated signalling pathways regulate polarized growth. I discovered that fission yeast Rgf1, a specific GEF for Rho1, changes its localisation from the cellular cortex to the nucleus if DNA replication is stalled, and that Rgf1 nuclear accumulation is part of the mechanism by which the replication checkpoint promotes survival under replication stress. I also characterised the function of fission yeast Gef3, an activator of Rho3 whose localisation depends on the septin ring, with a role in late cytokinesis.

For my postdoc (2015-2021), I joined Frank Uhlmann's laboratory at the Francis Crick Institute in London to study how cohesin, a master regulator of genome organisation, is loaded onto chromosomes in the context of chromatin. I discovered that nucleosomes inhibit cohesin loading and that chromatin remodelling is required for cohesin loading onto chromatin. In addition, the RSC chromatin remodeller acts as a chromatin receptor that recruits Scc2-Scc4 by a direct protein interaction. Furthermore, I supervised a Master Thesis to extend my findings about the role of chromatin remodellers in cohesin loading to another model organism and recently, I discovered that the cohesin loader stimulates RSC chromatin remodelling activity. Moreover, I took part in several collaboration projects leading to a productive track-record.

After seven years at the Francis Crick Institute, I got a competitive senior postdoc position at the laboratory of Avelino Bueno at the Cancer Research Institute in Salamanca (December 2021) to study ubiquitylation-mediated processes in DNA damage tolerance and to reinforce my teaching and leadership skills.

I intend to start my own research line focused on the interplay between local chromatin structure and cohesin function. I aim to understand how chromatin remodellers, the principal determinants of the local chromatin structure, regulate the function of cohesin and to investigate how the cohesin loader and cohesin itself affect nucleosome positioning and gene regulation. Additionally, I propose to study the role of cohesin in the maintenance of genome stability by understanding the role of cohesin dynamics at stalled replication forks.

Resumen del Currículum Vitae:

I pursued my PhD (2009-2014) at the IBFG in Salamanca studying how Rho GTPase-mediated signalling pathways regulate polarized growth. To carry out my PhD, I got a JAE-Predoc fellowship. I discovered that fission yeast Rgf1, a specific GEF for Rho1, changes its localisation from the cellular cortex to the nucleus if DNA replication is stalled, and that Rgf1 nuclear accumulation is part of the mechanism by which the replication checkpoint promotes survival in the presence of chronic replication stress. I also characterised the function of fission yeast Gef3, an activator of Rho3 whose localisation depends on the septin ring, with a role in late cytokinesis. The results of my thesis were published in two first-author and two collaboration publications and presented at several conferences. For my postdoc, I joined Frank Uhlmann's laboratory at the prestigious Francis Crick Institute to study how cohesin, a central regulator of many chromosomal activities such as sister chromatid cohesion, DNA damage repair and transcriptional regulation, is loaded onto chromosomes in the context of chromatin. For this postdoctoral stage (2015-2021), I obtained the postdoctoral fellowship awarded by the "Ramón Areces" Foundation, that I rejected in favour to the EMBO-Long Term Postdoctoral Fellowship and I took part of several excellence international projects (two ERC Advanced Grants and a Welcome Trust Investigator Award). I found out that a chromatin remodeller, RSC, plays a dual role in cohesin loading onto chromatin. RSC acts as a chromatin receptor that recruits the cohesin loader by a direct protein interaction independent of chromatin remodelling and, subsequently, chromatin remodelling provides nucleosome-free DNA that is the required substrate for cohesin loading. This work was a major contribution to the field and was published in the prestigious journal Mol Cell. Afterwards, I carried an independent research line inside Uhlmann's laboratory: I supervised a Master Thesis to extend my findings about the role of chromatin remodellers in cohesin loading to another model organism, that led to a paper in which I am corresponding author, and, in addition, I found out that the cohesin loader stimulates RSC chromatin remodelling activity, an outstanding discovery of broad interest in the field. This work, in which I am first and corresponding author, has been recently published in Nat Commun. Working in the Francis Crick Institute has considerably enhanced my networking and collaborations. I had the opportunity to take part in several collaborative projects that were published in broadly read journals such as Nat Commun or Curr Biol. Additionally, I presented my work in international conferences once a year and as an invited speaker in several research institutes. After seven years at the Francis Crick Institute (December 2021), I got a competitive talent attraction fellowship to come back to the University of Salamanca at the laboratory of Avelino Bueno as a senior postdoc to study ubiquitylation-mediated processes in DNA damage tolerance. During all my trajectory I have gained teaching and supervising experience with undergraduate students, or supervising PhD students during my postdoc, acquiring leadership capabilities that I am now reinforcing by teaching at the Biotechnology degree, directing one TFG and co-directing two TFM and one TFG.

Área Temática:	**Biociencias y biotecnología**
Nombre:	GINER LAMIA, JOAQUIN
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Título:	Unraveling the Mechanisms of Microbial Adaptation to Environmental Stress Conditions

Resumen de la Memoria:

My research career has been dedicated to studying the stress response mechanisms of bacteria, and since 2018 I have combined it with functional and comparative analysis of metagenomic data.

In August 2006, I started my PhD under the supervision of Dr. Francisco J. Florencio at the IBVF, supported by an Excellence Scholarship from Junta de Andalucía. During my thesis, I studied the mechanisms of metal resistance in cyanobacteria. After finishing my PhD in 2012, I spent 2 more years working at Florencio's lab. During this period (2006-2013), I published 5 papers: 3 as first author (PlantPhysiol, PlosOne, and MicrobiologyOpen) and 2 as a co-author (PlantSignalBehav, Life).

In September 2014, I started my first postdoc at the System Biology and Bioinformatic Laboratory group at University of Algarve (Portugal) led by Dr Matthias E. Futschik. In this laboratory, I continued working on cyanobacteria elucidating the regulon of transcriptional regulator NtcA, in the early response to nitrogen starvation. I also started an independent research line to study the role of exoproteome in metal homeostasis and established a collaboration with Dr. Paula Tamagnini (IBMC; Porto, Portugal). In June 2015, I spent 1 month in this group. During this period, I published 5 papers: 3 as first and corresponding author (NAR, Front.microbiol and Bioprotoc) and 2 as co-author (SciRep and F1000R)

In April 2017, I started my 2nd postdoc at the Laboratory of Intracellular Bacterial Pathogens at CNB (Madrid) led by Dr. Francisco García del Portillo, where I worked on two main lines: the genomic analysis of Salmonella isolates from infected patients (supported by the SALMOIBER-CYTED network) and the stress response of the Salmonella cell envelope. During this time (2017-2018) I published 4 papers: 1 first and corresponding author (BMCgenom); 1 first author (NAR) and 2 second-author (FEMSLetters, Genomes Announc.).

2018-to date, I was hired as Assistant Professor at Universidad Politécnica de Madrid and I joined the Comparative Genomics and Metagenomics group of Dr. Jaime Huerta-Cepas at CBGP. My line of research is mainly focused on the functional annotation of unknown gene families from metagenomic data. The results obtained in the last line of research have allowed me to receive the award for the best communication of the 2019 SEM Congress, and to publish 4 articles, 1 in Nature, 1 PNAS, 2 in NAR (one as corresponding author) and to have another under revision as second author in Nature. Last year, I have started my own research line thanks to obtaining my first international research project as principal investigator to study the impact of anthropogenic pollution on microbial communities in the Mar Menor. My ultimate aim is to unravel the adaptive mechanisms that allow the establishment of resistance microbiomes (RM) in environments with severe environmental perturbation such as those affected by anthropogenic pollution. Additionally, I am currently leading another project that characterizes the RM of soils and sediments in the Guadiamar River region, which were affected by the Aznalcóllar mining incident and remain highly contaminated with metals. Finally, I am currently awaiting the evaluation of a third project to investigate the ecological role of extracellular vesicles in the adaptation of microbial communities to environmental conditions in the Mar Menor.

Resumen del Currículum Vitae:

I obtained my degree in biological sciences from Universidad de Sevilla in 2006. During this time, I worked for 2 years (1 year with the support of a MEC fellow) in the Department of Microbiology. Later, I started my PhD. under the supervision of Dr. Francisco J. Florencio at Universidad de Sevilla and the Institute of Plant Biochemistry and Photosynthesis (IBVF-CSIC-US). I investigated the mechanisms of copper resistance in the cyanobacterium Synechocystis sp. PCC 6803, supported by an excellence grant from the Junta de Andalucia. After my PhD, I joined the research group of Dr. Matthias E. Futschik at the University of Algarve (Faro, Portugal) associated with the Center for Marine Science (CCMAR) as an FCT Fellow (2014-2016). I used transcriptome analysis to study the nitrogen homeostasis system controlled by NtcA in Synechocystis. In parallel, I also investigated the role of exoproteome in metal homeostasis in cyanobacteria. During this time, I completed a short stay in the group of Paula Tamagnini at the Institute of Molecular and Cellular Biology (IBMC) in Porto (Portugal). in 2017, I joined the Laboratory of Intracellular Bacterial Pathogens at the CNB (Madrid), directed by Francisco García del Portillo, where I worked on two main topics: the genomic analysis of Salmonella isolates from infected patients and the stress response of the Salmonella cell envelope. In 2018, I was hired as an Assistant Professor at Universidad Politécnica de Madrid and joined the Comparative Genomics and Metagenomics group of Jaime Huerta-Cepas at CBGP.

Current research lines: i) the functional assignment of (meta)genomic data and ii) the investigation of mechanisms that promote microbial adaptation to environmental perturbations.

I have published 20 articles in journals such as Nature, PNAS, or NAR (5 corresponding authors, 9 first authors, and 5 second authors; 13 in Q1 and 5 in Q2) that have been cited more than 640 times and have an H-index of 12 (Google Scholar). I have a second-author article under second review in Nature.

Principal investigator of an international project from PADI-FOUNDATION to study the effects of anthropogenic pollution on the sediment-associated microbiota of the Mar Menor.

I have participated in 11 R&D projects, 3 of them international (1 as PI), and in the international network SALMOIBER-CYTED. I have presented 33 communications at national and international conferences (11 oral presentations and 31 posters). I co-organized 3 bioinformatics meetings in Madrid (BioinfoCAM 2019, 2021, and 2022), 2 international courses (Introduction to R programming Faro, 2015 and #EuroMicroMOOC, 2018), and 1 international hackathon (2022). Project evaluator of DEVA (Junta de Andalucia).

My research career has been focused on: i) metal homeostasis in cyanobacteria ii) the transcriptional response to environmental stress in bacteria and iii) Comparative and functional (meta)genomic.

I have taught over 750 hours of teaching (Universidad de Sevilla and UPM). Currently, Im teaching various subjects related to Bioinformatics and Genomic at UPM. I have supervised 7 MSc and 3 BSc students(Universidad de Algarve and UPM).

Prizes
-Best communication of SEM2019 meeting. (Congreso Nacional de la SEM Málaga 2019)
-Finalist of Article of the year EBRO Foods-IBVF 2012 prize (Giner-Lamia J, et al. 2012. PlantPhysio)
-Best Article of Biology Faculty 2021 Universidad de Sevilla. (García-Cañas R, Giner-Lamia J, et al. 2021.PNAS)

Área Temática:	**Biociencias y biotecnología**
Nombre:	CLEMENTE PÉREZ, PAULA
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Título:	Characterization of new proteins involved in OXPHOS biogenesis

Resumen de la Memoria:

Mitochondria are the primary site for cellular ATP synthesis, in the process known as oxidative phosphorylation (OXPHOS), carried out by the four complexes of the respiratory chain and the ATPase or complex V. For their generation, the OXPHOS complexes require the coordinated expression and assembly of subunits encoded in the nuclear (nDNA) and mitochondrial genomes (mtDNA). Given the importance of mitochondria for the generation of cellular energy, it is not surprising that defects in the mitochondrial function are the cause of devastating disorders. Mitochondrial diseases compose a group of genetically heterogeneous disorders presenting with a wide spectrum of different symptoms and clinical manifestations, engaging everything, from a single organ/tissue to multiple systems.

Despite their importance, hundreds of nuclear-encoded mitochondrial proteins, including many of those necessary for OXPHOS biogenesis, remain poorly characterized or entirely uncharacterized. Therefore, the identification and characterization of new proteins involved in the biogenesis of the complexes is of great importance, not only to improve our understanding of basic mitochondrial biology, but also to find new candidate genes involved in human disorders. During my scientific career I have characterized the function of several proteins involved in different steps of the generation of the OXPHOS complexes, from processing, maturation and degradation of the mitochondrial RNAs to the assembly of the subunits to form a functional complex.

The mitochondrial genome encodes 13 subunits of the complexes of the respiratory chain. These polypeptides need to be assembled together with the subunits encoded in the nuclear genome, to form the functional enzymes. This process requires the concerted action of a number of assembly factors. During my PhD I studied complex IV assembly and I characterized the function of hCOA3, an assembly factor, which coordinates translation of COX1 subunit with the early steps of the assembly to form a functional complex IV.

The transcription of the mitochondrial genome generates polycistronic precursor RNAs, and their expression is mainly regulated at the post-transcriptional level. During my postdoc in Karolinska Institutet, I have studied how processing, polyadenylation, translation and degradation of the mitochondrial mRNAs are regulated, to ensure the correct expression of the polypeptides that will form the OXPHOS complexes. I studied the mitochondrial poly(A) polymerase, MTPAP, and the mitochondrial degradosome formed by the helicase SUV3 and the polynucleotide phosphorylase PNPase.

My line of research as an independent researcher consists of the study the function of proteins of the endonuclease-exonuclease-phosphatase superfamily, that I identified and localized to mitochondria. The first protein of this family that I characterized is ANGEL2. Our work using Drosophila and mice has allowed us to identify ANGEL2 as a mitochondrial RNA phosphatase, involved in the removal of 3' phosphates from mitochondrial RNAs prior to polyadenylation. This is the first time this RNA modification has been described in mitochondria, and it has allowed us to define an essential step in the processing of mitochondrial RNAs in all metazoans from Drosophila to humans.

Resumen del Currículum Vitae:

My interest in mitochondria started when I joined Prof. Rafael Garesse's lab at Universidad Autónoma de Madrid (UAM) as an undergraduate student. I continued to pursue my PhD in Molecular Biology, Biochemistry and Biomedicine under his co-supervision with Prof. Miguel A. Fernandez-Moreno, graduating in 2012. During these years, I studied the biogenesis of the complexes of the respiratory chain, with a special focus on the translation and assembly of the OXPHOS system, using Drosophila melanogaster and human cell lines as model systems. My PhD project described the function of COA3, an essential factor for the early steps of complex IV assembly. During my PhD, I was a visiting student at the Department of Neurology in the University of Miami, to join Prof. Antoni Barrientos lab, a leading expert in complex IV research. My work resulted in the publication of 5 papers, one of them as first author. My PhD was fully supported by funding obtained in competitive calls.

To continue my studies of mitochondrial pathophysiology, in 2012, I joined Anna Wredenberg's group in the Division of Molecular Metabolism at Karolinska Institutet (Sweden), an internationally recognized institution in the study of mitochondria. During my 5 years as a postdoctoral researcher, I focused on the study of mitochondrial RNA metabolism, from transcription, processing and polyadenylation to translation and degradation using D. melanogaster and mice as model systems. I described a new function for the helicase SUV3 in the processing of mitochondrial transcripts. My work also allowed us to describe for the first time the function of the mitochondrial mRNA poly(A) tails and how they are essential to maintain the 3' integrity of the mRNAs. These projects resulted in the publication of 3 articles, two of them as first author, and the selection for oral presentations at international conferences.

The division of Molecular Metabolism has a close collaboration with the Center for Inherited Metabolic Diseases at Karolinska University Hospital and during these years I also participated or leaded the study of several Drosophila, cellular and mouse models of human mitochondrial disorders, resulting in the publication of 6 additional articles.

In 2018, I became an assistant professor in the Division of Molecular Metabolism in Karolinska Institutet opening a new research line to study the function of a new family of deadenylases that I identified and localized to mitochondria. Our work using Drosophila and mice has allowed us to identify ANGEL2 as a mitochondrial RNA phosphatase, involved in the removal of 3' phosphates from mitochondrial RNAs prior to polyadenylation. This is the first time this RNA modification has been described in mitochondria, and it has allowed us to define an essential step in the processing of mitochondrial RNAs in virtually all metazoans. The work, of which I am corresponding author, has been published in Nature communications. During my assistant professor position, I have supervised two master students and a postdoctoral researcher.

In January 2023, I joined the lab of Prof. Miguel A. Fernández Moreno (Department of Biochemistry, UAM), as a senior researcher funded by "Ayuda María Zambrano para la atracción de talento internacional", to continue my research on mitochondrial RNA processing and maturation, establishing my own research line within the group.

Área Temática:	Biociencias y biotecnología
Nombre:	ORTGIES , DIRK
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Título:	Synthesis, characterization and biofunctionalization of near-infrared luminescent nanoparticles and their development as contrast agents and sensors for various optical bioimaging techniques

Resumen de la Memoria:

In the 21st century nanoparticles have gained prominence as tools of interdisciplinary research that present excellent characteristics as nanosensors and diagnostic agents, first and foremost due to their improved surface-to-volume ratio and stability when compared to classical stains, dyes and biomarkers resulting in enhanced surface interactions with the object of interest (cell, tissue, receptor etc.). This has advanced over the last decade into the field of nanomedicine, which intends to improve and/or complement existing biomedical strategies. As an example, optical in vivo imaging has with the help of nanomedicine made a resurgence as a diagnostic technique due to the advent of luminescent nanoparticles (LNPs), which are excited in and emit near-infrared (NIR) light in the so-called NIR transparency windows where tissues become partially transparent.

After my PhD I started developing a research line that aims to design, optically characterize, and apply different LNPs as multifunctional tools and contrast agents for optical imaging techniques in a biomedical context. I demonstrated that towards this goal first autofluorescence of tissues needed to be addressed. This can include time-gated imaging techniques that also enabled multiplexed imaging in the NIR windows, thereby adding another advantage to nanoparticle-based imaging approaches. LNPs can also readily be functionalized and my research includes targeted LNPs that were employed in cardiovascular imaging for the in vivo infrared imaging of myocardial infarction. Furthermore, I demonstrated the capability of various LNPs to also act as contactless nanothermometers that enabled temperature measurements inside tissues and in situ due to their joined employment with heating agents. In this manner direct temperature control was possible and the difference between the in situ temperature and the surface temperature was clearly demonstrated.

Overall, the guiding principle for my investigation of nanoparticles as contrast agents for optical bioimaging techniques has been the design of suited LNPs together with their surface functionalization allowing their use as contrast agents and nanosensors in a wide spectrum of applications, ranging from nanothermometry in photothermal therapy and magnetic hyperthermia via technical approaches like time-gating and multiplexing to in vivo cardiovascular imaging of infarcted hearts. I propose to continue in that direction for the next years with a project that combines these aspects, namely time-gating, multiplexing and cardiovascular imaging. Together with a functionalization based on the widespread sartan class of drugs this will allow to bring optical infrared imaging of the heart and myocardial infarction to the next level, enabling improved targeting of the AT1R receptor.

In summary, my research lines after the PhD and my interdisciplinary career have me ideally qualified for the development of time-gated autofluorescence-free imaging as a bioimaging technology that will enable an improved resolution, better signal-to-noise ratio and through multiplexing an improved analysis of the affected tissues in the myocardium during and after a heart attack.

Resumen del Currículum Vitae:

I was born and raised in Germany where I took up studying chemistry after having shortened High School by a year. I obtained a Bachelor of Science (2006) and Master of Science (2008) in Chemistry with a focus on organic and medicinal chemistry from the Universität Leipzig. Both theses received the highest mark. In Leipzig I also obtained the first teaching experience as a teaching assistant in the advanced organic laboratory course. The first semester of my Master's was spent as ERASMUS exchange student at the Universidad de Burgos in Spain, taking e.g. classes on mathematical analysis and design of experiments in Spanish.

I began my PhD studies in 2009 with a stay at Texas Tech University (Lubbock, TX, USA) investigating the use of oxyallyl cations for organic synthesis and gaining teaching experience in general and organic chemistry lab courses in English. My PhD thesis work was centered on the development of desulfinative palladium-catalyzed coupling reactions and supervised by Prof. Pat Forgione in the Department of Chemistry & Biochemistry at Concordia University in Montréal, QC Canada, where I also obtained more than 1000 hours of teaching experience in beginner to advanced organic and spectroscopy laboratories and co-supervised 5 undergraduate students during their research projects or Bachelor's thesis. My PhD thesis was defended in January 2014 and overall gave rise to 4 first author publications and the grade average of my PhD was a perfect 4.3 out of 4.3. During my time as a PhD student at Concordia I was also elected twice as president of the chemistry graduate students and the graduate student representative in the departmental appraisal committee.

Since 2014 I am continuing my international career as a postdoc in Spain in the interdisciplinary Nanomaterials for BioImaging Group at the Universidad Autónoma de Madrid (UAM), contributing as a chemist to a group of physicists, biologist and medical researchers. I established a chemical synthesis lab enabling the group to synthesize their own luminescent nanoparticles and also to functionalize the surface of nanoparticles of interest. During my Juan de la Cierva – Formación scholarship I worked principally on the synthesis and characterization of hybrid nanostructures for multifunctional applications in imaging, sensing and therapy. In 2018 I was awarded a Sara Borrell Fellowship at the Instituto Ramón y Cajal de Investigación Sanitaria (IRYCIS) Madrid with a focus on continuing the work with nanoparticles in a biomedical context, which includes current investigations in optical imaging of myocardial infarction with functionalized nanoparticles. This also led to my first research project grant as principal investigator for the detection of hypoxia in biological tissues with nanoparticles. Until now my postdoctoral investigations have resulted in 28 publications, 1099 citations, 4 book chapters, 7 invited talks and a h-index of 17. I have obtained valuable teaching experience in Spanish with lab courses on experimental techniques in physics, the physics for chemists problems course, and master¿s classes on biomedical imaging and cardiovascular imaging. I have supervised 4 master¿s theses, 2 undergraduate theses and co-supervised two PhD students, the first defended in January 2022. Since December 2020 I am an assistant professor at the UAM's Materials Physics Department.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biociencias y biotecnología**
Nombre:	SACRISTÁN LÓPEZ, CARLOS
Referencia:	RYC2022-037440-I
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Título:	Mecanismos de Segregación Cromosómica

Resumen de la Memoria:

Faithful chromosome segregation during cell division is fundamental to propagation of all life. Nonetheless, mistakes in chromosome segregation are quite common in human cell divisions. Such mistakes lead to aneuploidy, an abnormal number of chromosomes. Aneuploidy is widespread in cancers and it contributes to tumor evolution and therapy resistance. Understanding the mechanisms by which cells prevent chromosome segregation errors is essential to uncover the origins of aneuploidy in cancer.

Correct segregation of the genetic material requires the physical connection between spindle microtubules and chromosomes. These connections are mediated by large protein complexes known as kinetochores, which assemble on specialized loci known as centromeres. My research has focused on studying the regulation and structure of the kinetochore and the centromere, and the consequences of the malfunctioning of these vital structures.

To guarantee chromosomal stability, kinetochores generate the Spindle Assembly Checkpoint (SAC), a surveillance pathway that delays anaphase onset in response to unattached kinetochores. SAC responsiveness depends on the tight monitorization of microtubule attachments by Mps1, the kinase that orchestrates the SAC. I discovered that Mps1 and microtubules bind to the same kinetochore complex. This determines that Mps1 can bind and activate the SAC cascade while the kinetochore remains unattached. When stable kinetochore-microtubules interactions are formed, microtubules competitively displace Mps1 from the kinetochore, thus leading to SAC inactivation. Therefore, this simple mechanism explains how Mps1 senses microtubule-kinetochore occupancy (Hiruma*, Sacristan* et al., Science 2015). In addition, I have contributed to reveal various aspects of the dynamics of SAC signaling activation (Chen et al., Curr. Biol. 2019) and silencing (Etemad et al., J. Cell Sci. 2019).

In the earliest phases of mitosis, kinetochores transiently build a large outer layer of proteins known as the fibrous corona (FC). I demonstrated that transient assembly of the FC is driven by oligomerisation of RZZ (Rod/Zwilch/Zw10) protein complexes. Oligomerisation is stimulated by the mitotic kinase Mps1, and it involves interaction of RZZ with the dynein/dynactin adaptor Spindly. This interaction also sets the stage for disassembly of the FC at later stages of mitosis by dynein motor activity. I showed that defects in FC disassembly cause persistent errors in chromosome-spindle interactions that lead to chromosome segregation errors (Sacristan et al. Nat. Cell Biol., 2018).

My current and future research is focused on the structure of the centromere. Functional kinetochore assembly during mitosis requires the compaction of centromeric chromatin into a higher-order organization. My recent data shows that this organization consists of two chromatin subdomains. This bipartite organization divides the kinetochore into two functional subdomains, each able to bind a distinct microtubule bundle. In divisions of cancer cells, the two subdomains are frequently uncoupled, causing erroneous attachments and chromosome segregation errors (Sacristan et al. BioRxiv, 2022). Future work will address the structural details and assembly mechanisms of the bipartite centromere, and the causes and consequences of defective regulation of centromeric chromatin in cancer cells.

Resumen del Currículum Vitae:

My researcher trajectory started as a university student at the Faculty of Biology in the University of Salamanca thanks to three competitive fellowships (JAE 2006, JAE 2007 from CSIC, and an introduction to research fellowship from the Ministerio de Educación, 2007) that allowed me to work as a research interim in the laboratory of Prof. César Roncero at the Instituto de Biología Funcional y Genómica.

In 2008, and financed by a competitive FPU fellowship from the Ministerio de Educación y Ciencia, I started my thesis in the same lab to address the intracellular trafficking of the Chitin synthase III in Saccharomyces cerevisiae. In 2012, I obtained my PhD in Biochemistry from the University of Salamanca with Cum laude honors, and my work resulted in three first/co-first author publications. Through this time, I also worked as a visiting scientist in the laboratory of Prof. Per Ljungdahl at the University of Stockholm, Sweden; and in the group of Dr. Roland Wedlich-Söldner, at the Max Planck Institute of Biochemistry, Germany. This last visit was funded by an EMBO short-term project.

Interested in the mechanisms that safeguard genome integrity, in 2013 I joined the lab of Prof. Geert Kops, a world leader in chromosomal instability. His group belongs to the Hubrecht Institute (Utrecht, The Netherlands), which ranks as one of the top research institutes worldwide in the field of stem cells and development. My postdoctoral research has focused on understanding the regulation and structure of the kinetochore, the molecular machinery that mediates chromosome segregation during cell division. In this field, I have made two very impactful contributions. I discovered a fundamental mechanism that explains how the formation of kinetochore-microtubule attachments is coupled to Spindle Assembly Checkpoint silencing, a crucial step required for mitotic exit (Science, 2015), and I revealed the mechanism and functional relevance of the dynamic adaptations of the size of the fibrous corona, an important module of the kinetochore involved in microtubule capturing (Nature Cell Biology, 2018). This last research was funded by a grant from the Dutch Cancer Society, of which I was co-applicant.

I am currently developing my independent line of research in which I combine super-resolution microscopy and Next Generation Sequencing-based methods to reveal the structural and mechanistic determinants of the centromere, the specialized region of chromosomes that assembles the kinetochore. My final aim is to understand how structural alterations in centromeric chromatin contribute to chromosomal instability in human diseases. On this topic, I am in the process of publishing an article as co-corresponding author in which I pioneer at revealing a higher-order organization of centromeric chromatin during mitosis (under review in Cell).

During these years, I have published 11 peer-reviewed articles (10 original articles, 1 review). I am directing the thesis of three PhD students and I have supervised five master' s students. I have been constantly involved in teaching (bachelor' s and master' s), and I have participated in science outreaching activities, such as the Open Day of the Hubrecht Institute and the U-Talent program from the University of Utrecht, whose purpose is to promote scientific careers between secondary school students.

Área Temática:	Biociencias y biotecnología
Nombre:	SANTOS LOPEZ, ALFONSO
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Título:	Understanding the evolution of antibiotic resistance

Resumen de la Memoria:

I am an evolutionary biologist interested in pathogen evolution, focusing primarily in the evolution of antibiotic resistance. Since November 2022, I lead my own research thanks to the Junior Leader "La Caixa" grant in the Centro Nacional de Biotecnología. I have so far published 15 papers in international peer-reviewed journals and 2 in pre-print servers (h-index 12, 563 citations). I am corresponding author of 2 papers (eLife and Evolution, Medicine and Public Health) and first author in another 4 papers (eLife, 2x Antimicrobial Agents and Chemotherapy; and Environmental and Applied Microbiology), and of a primer published in PLoS Biology. All my papers but one have been published in Q1 journals -4 in D1-. Also, I have published one article in a Spanish newspaper (El Confidencial) and an outreach article in The Conversation.I have made more than 70 contributions to conferences (28 as lead author) in national and international meetings. Additionally, I have been invited to give 3 talks. Further, I have released a patent with the supervisor of my first postdoc.

I have contributed cutting-edge work on the evolution of Antibiotic Resistance (AMR).

During my career, I have designed and executed simple but sound experiments to study evolution of AMR mediated by point mutations or by plasmids. My experiments are unique for four main reasons: i) I sequence and analyse whole evolving populations which allows to track the whole evolutionary dynamics picture of each experiment -most laboratories sequence just single clones-, ii) I have developed a model to study the evolution of AMR in biofilms -used by at least 5 other groups after the publication of my research- iii) I have analysed both the roles of the environment, the genetic background, point mutations and mobile genetic elements in the evolution of AMR and iv) nowadays I am working with clinical isolates making the results of my research much more relevant from a public heath perspective.

I have participated in very ambitious projects funded by the Spanish Government, the European Union and the NIH. In my postdoc in the University of Pittsburgh I led the National Institute of Health project in Vaughn Cooper's lab aimed to predict the emergence of AMR. Since November 2020, I am Principal Investigator of a prestigious Marie Skłodowska Curie Individual Fellowship (H2020-MSCA-IF-2019, REPLAY-895671).

I have robust and very successful record at mentoring people for the stage of my career. I have co-tutored 2 Masters Final Project and Degree Final Project. Nowadays, I am co-tutoring a thesis with Alvaro San Millan in the UAM. Further, In the University of Pittsburgh, I have mentored 1 undregraduate student, 3 Ph.D students, and 2 Ph.D M.D. students. Finally, as a teacher, I was demonstrator for the Veterinary Degree at UCM of Microbiology and Immunology (96 hours) and for Infectious diseases (65 hours).

Resumen del Currículum Vitae:

- Current position: Junior Leader "La Caixa" at Centro Nacional de Biotecnología, Madrid. (Nov 2022-Nov 2025)
- Principal Investigator of two international competitive grants: Junior Leader "La Caixa" (292.500€ Nov 2022-Nov 2025, Centro Nacional de Biotecnología) and ESCMID Research Grant (19.960€, Apr 2021-Apr 2022, Hospital Universitario Ramón y Cajal)
- Marie Sklodowska-Curie Fellow in the Hospital Universitario Ramón y Cajal. 2020-2022.
- NIH-NIAID postdoctoral associate in the University of Pittsburgh, USA. 01/2017-09/2020. 3 years and 9 months
- Ph.D. student in the UCM, Spain, funded by the Subprogram of International Projects by the Ministry of Sciences and Innovation and by a European Commission FP7 project. 09/2012-12/2016. 4 years and 3 months

- H-index: 12. Citations 560 (Google Scholar).
- JCR papers: 15 (14 in Q1 -Quartile 1- journals). Corresponding author in 2 papers (1 D1 -Decile 1- journal , 1 Q1). First author in 6 (5 in Q1, 1 in Q2). Second author in 2 (2 in Q1).
- Lead author in high impact journals such as eLife (x2), Evolution, Medicine and Public Health, PLoS Biology (Primer), Applied and Environmental Microbiology and Antimicrobial Agents and Chemotherapy (x2). Middle author in Nature Ecology and Evolution and mBio among other journals.
- Preprints: 1.
- 2 Outreach publications 2 (The Conversation and El Confidencial).
- More than 70 contributions to congresses/meetings/symposia. 28 first author.
- Invited as a speaker in 3 seminars.
- 1 Patent approved, US20220332777A1, USA.

- Co-director of 1 Ph.D. student, UAM (2021/-)
- Co-director of 2 Master's Project, Veterinary Degree, UCM (2014 and 2017)
- Co-director of 2 Degree Projects (Veterinary Degree, UCM, 2016 and Biological Sciences Degree, UCM, 2022)
- Mentor of 3 Ph.D. and 2 M.D.-Ph.D. students in the University of Pittsburgh.
- Demonstrator for the Veterinary Degree at UCM of Microbiology and Immunology (96 hours) and for Infectious Diseases (65 hours).
- Teaching for the Graduate Program in Microbiology and Immunology, University of Pittsburgh (1 hour).
- Mark Honors in my Final Degree Project (9,7/10).

Área Temática:	**Biociencias y biotecnología**
Nombre:	BARANOVA X, NATALIA
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Título:	Biofilm(ing)Matrix: dynamics and functions of biofilm glycans

Resumen de la Memoria:

Microbial biofilms cause major societal problems, including antibiotic resistance. One of the reasons why biofilm infections are difficult to eradicate is because of the gel-like matrix surrounding bacteria. The matrix provides a communication media for bacterial cells, supports antibiotic resistance and serves as an invisible shield against phagocytosis by immune cells. Although glycans are the major structural components of the biofilm matrix, their integral analysis is lacking. The goal of this project is not only to provide a mechanistic understanding of how biofilm glycans contribute to host-pathogen interaction and bacterial communication but also to shed light on how bacteria modify their biofilms to adapt to the environment or invade their host. A combination of quantitative bottom-up reconstitution, machine learning prediction and high-resolution microscopy provides an exciting opportunity to elucidate the detailed biophysical mechanism behind biofilm matrix assembly. The controlled biomimetic biofilm matrix will enable the investigation of the mechanochemical communication in biofilms; and will provide a defined interface to monitor the recognition of the biofilm matrix by immune cells down to a single-molecule level. Using machine learning prediction, I will develop a multidimensional imaging-based approach to map the spatial distribution of glycans in biofilms. Given that most microbial infections are biofilm-related, bacterial glycans can be potential targets for novel antimicrobials. This makes the investigation of their role in the persistence of biofilm infections of urgent importance to fight our next global threat - antibiotic resistance.

Resumen del Currículum Vitae:

My research expertise covers the field of synthetic and glycan biology, with an emphasis on bacterial glycan biology. My previous work aimed to reconstitute and quantify dynamic properties of the cellular assemblies that are difficult to study directly in living cells: the hyaluronan-rich mammalian cell coat (PhD work at CIC biomaGUNE/Spain with Prof. Ralf Richter, 2008-2013), as well as peptidoglycan synthesis machinery and its link to the bacterial cytoskeleton (PostDoctoral training at Institute of Science and Technology/Austria with Prof. Martin Loose, 2015-2020). By rebuilding these molecular networks, I was taking into account the presence of relevant boundary conditions: confinement to a fluid lipid membrane, crowding, dimensionality of biochemical reactions provided by actively reorganizing cytoskeleton, or by carbohydrate polymers on the cellular surface. To quantify the dynamics of these molecular assemblies, I used a wide range of biophysical approaches and, where possible, watched how these assemblies were re-organized in real-time by TIRF microscopy. Advanced image analysis of the single-molecule allowed me to assess the role of the individual molecular component accounting for the behaviour of the entire molecular network.

In the frame of my EMBO/HFSP fellowships (2015-2019) at the Institute of Science and Technology Austria I developed a novel real-time assay to monitor the activities of peptidoglycan synthases. This assay provides a great potential to screen for novel antimicrobials. Since 2021 I have been developing my ideas focused on the role of cell surface glycans in host-pathogen interactions, particularly during the innate immune response at University of Vienna/Austria in the group of Prof. Christoph Rademacher.

Área Temática:	Biociencias y biotecnología
Nombre:	KIN , KORYU
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Título:	Elucidating the mechanisms and the biases in the evolution of multicellualr complexity

Resumen de la Memoria:

My academic career started at the University of Tsukuba in Japan where I did my master's research in the field of invertebrate evo-devo under the supervision of Prof. Hiroshi Wada. I characterized the gene expression patterns of various transcription factors and signaling molecules which might have led to the evolution of bivalve molluscs from univalve ancestors.

I pursued a doctoral degree at Yale University in the US with Prof. Günter P. Wagner as my mentor. My PhD project involved studying the evolution of new cell types, which was a conceptually novel subject at the time. My conceptual or methodological contributions include the elaboration of the "cell type tree" concept, as well as the development of methodologies to understand the history and the mechanisms of cell type evolution using transcriptomic data. On the empirical side, I studied the evolution of endometrial stromal fibroblasts (ESF) and decidual stromal cells (DSC), which are the cell types responsible for proper formation of placenta in eutherian (placental) mammals. I showed that short-tailed opossums, Monodelphis domesitca, lack DSC but have ESF, overturning the previous belief that they have none. I also identified genes involved with the evolution of ESF through comparative transcriptomics of six different mammals. Lastly, I reconstructed one of the first phylogenetic trees of cell types for ESF and DSC and identified multiple novel genes important for their differentiation.

In my postdoc at the University of Dundee in the UK, I studied the evolution of new cell types in the Dictyostelid social amoebas in the research group of Prof. Pauline Schaap. The Dictyostelid is a group of amoebas which alternate between solitary and multicellular ("social") stages in their life cycle. In my research, I have focused on the evolution of a cell type called cup cell, which only exists in a major phylogenetic group called Group 4, that includes the model species, Dictyostelium discoideum. First, I collected and analysed cell-type specific bulk RNA-Seq data from D. discoideum, which led to the identification of more than 700 genes expressed specifically in cup cells. Furthermore, I studied a cup cell specific transcription factor gene called cdl1a through molecular phylogenetics and functional analyses. Overall, I could successfully establish that cdl1a is a product of Group 4 specific gene duplication and that the subsequent functional diversification of cdl1a was necessary for the evolution of cup cells.

Currently, as a "la Caixa" Junior Leader at Institut de Biologia Evolutiva in Barcelona, Spain, in collaboration with Prof. Iñaki Ruiz-Trillo, I am studying Capsaspora owczarzaki, one of the closest relatives of animals, to explore the origin of size regulation and cell differentiation in metazoans. Capsaspora has a multicellular stage in its life cycle where they form cellular aggregates. I am trying to evolve larger and more stable aggregates of Capsaspora, with two main research questions in mind: 1) whether they can evolve bigger at all; 2) whether incipient cell differentiation can evolve. I perform the artificial selection experiments both in normal oxygen and in hypoxic conditions (2% O2, an oxygen level similar to the Precambrian level) in order to pursue the relationship between the evolution of multicellularity and environmental factors.

Resumen del Currículum Vitae:

I did my master's research at the University of Tsukuba in Japan under the supervision of Prof. Hiroshi Wada. This two-year master's research resulted in my first first-authored paper. Thanks to that accomplishment, I was awarded a Graduate Dean's Award from Univ. of Tsukuba and a prestigious Ishizaka Foundation Scholarship to study abroad.

With the PhD scholarship, I moved to the US to do my PhD at Yale University with Prof. Günter P. Wagner as my mentor. My PhD project involved studying the evolution of new cell types. I elaborated the "cell type tree" concept, as well as proposing a series of new methods to analyze RNA-Seq data, which became a standard in the field and the papers have been highly cited. On the empirical side, I studied the evolution of endometrial stromal fibroblasts (ESF) and decidual stromal cells (DSC), which are the cell types responsible for proper formation of placenta in eutherian mammals. The combination of my conceptual and empirical works culminated in a work published in Cell Reports, where I reconstructed one of the first phylogenetic trees of cell types for ESF and DSC and identified multiple novel genes important for their differentiation.

In my postdoctoral stay in the group of Prof. Pauline Schaap at the University of Dundee in the UK, I developed my independence and leadership through obtaining two prestigious postdoctoral fellowships in succession: EMBO long-term fellowship and JSPS Overseas Research fellowship. Furthermore, I helped designing a new line of research, which resulted in the award of ERC Advanced grant to the Schaap lab on the topic of the evolution of somatic cell types in Dictyostelid social amoebas. I played a leading role in designing and implementing a project for studying the evolution of cup cells, which is a novel cell type in a major group in Dictyostelia. One of the major accomplishments was the discovery of gene duplication of a transcription factor that contributed to the evolution of cup cells. This work, which was published in Current Biology, was one of the first papers which provided a mechanistic insight for the evolution of cell types through experimental data, representing a major contribution to the field.

In 2020, I moved to Barcelona to work as a "la Caixa" Junior Leader in Institut de Biologia Evolutiva. Here I have expanded my expertise in the evolution of multicellular complexity into the origin of metazoa, working on the experimental evolution of Capsaspora owczarzaki to study the origin of metazoan body size regulation and cell differentiation, in collaboration with Prof. Iñaki Ruiz-Trillo. Here I am consolidating my leadership role by having co-supervised a MSc student and by currently co-supervising a PhD student.

I have extensive teaching experiences, starting from my PhD where I accumulated nearly 200 hours of teaching experience for undergraduate courses, followed by my participation in undergraduate education during my postdoc. During my career, I have presented my research results at 21 conferences and seminars, including a few invited talks as listed below. I have written a few articles for general public in Japanese and have participated in various public engagement activities in all countries that I have stayed. Lastly, as a demonstration of professional maturity, I have served as a peer reviewer for numerous journals as well as for book chapters.

Área Temática:	**Biociencias y biotecnología**
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Título:	Uncovering the Mechanisms of T Cell Activation in Autoimmune Diseases and Tumor Microenvironments

Resumen de la Memoria:

My primary research focus is on understanding the molecular mechanisms driving T cell activation in autoimmune diseases and the tumor microenvironment. I have a particular emphasis on the interplay between autophagy and metabolic epigenetic remodeling, which are critical processes in T cell activation and play a crucial role in the development and progression of these diseases. Through my research, I aim to deepen our understanding of these mechanisms and identify potential therapeutic targets.

I started my scientific journey studying RhoE regulation by the PI3K/AKT(PKB) pathway, honing my cell signaling and molecular/cell biology skills. During my postdoctoral training at Albert Einstein College of Medicine, I focused on T cells and tolerance, studying the role of autophagy in Th1 cell activation and T cell fate regulation. My work showed for the first time the role of Chaperone Mediated Autophagy (CMA) in T cell function and how autophagy modulates T cell metabolism.

Currently, I lead my own research group as Assistant Professor at the University Medical Center Utrecht, where we investigate T cell activation in both tumor microenvironments and autoimmune diseases. Our team focuses on understanding the molecular mechanisms regulating T cell activation and differentiation, such as autophagy and cell metabolism. We collaborate with other groups and institutions to broaden our perspectives and find new ways of addressing these complex diseases.

I have a strong publication record in major international scientific journals, with several articles as corresponding author. I have been invited as a speaker at prestigious research institutions across the US and Europe, highlighting the impact and significance of my research. I have received grants from two research foundations to continue my research, enabling me to mentor 3 PhD candidates.

In conclusion, I have developed into a multidisciplinary scientist with a strong background in molecular and cellular biology, specifically in the characterization of the molecular mechanisms involved in T cell activation. My expertise in immunology, metabolism, and epigenetics has enabled me to have a deep understanding of the metabolic and autophagic pathways in T cell activation, both in vitro and in vivo, under physiological and pathological conditions. Through my research, I aim to advance our understanding of these complex mechanisms and their implications for potential therapeutic interventions.

Resumen del Currículum Vitae:

The primary focus of my research career has been in the field of molecular and cellular biology, with an emphasis on the characterization of molecular mechanisms involved in the activation of immune cells, particularly T cells, and the understanding of the effects of their malfunctioning in pathological situations like autoimmune diseases and tumor microenvironments. Over a decade of experience and training at prestigious research centers, including the Albert Einstein College of Medicine and Universitair Medisch Centrum Utrecht (UMC), has equipped me with a broad range of methodological skills and a strong background in experimental procedures. My work has focused on biochemical methods, proteomics analysis, transgenic animal models, metabolomic and epigenomic analysis, and more.

Recently, I was promoted to Assistant Professor and established my own research group at the UMC Utrecht, where I have the opportunity to further develop my own lines of research. Our team is focused on understanding the molecular mechanisms that regulate T cell activation and differentiation in tumor microenvironments and autoimmune diseases, with a specific emphasis on autophagy and cell metabolism. By investigating these mechanisms, we aim to identify therapeutic targets to improve patient outcomes and advance the field of immunology. Additionally, my team is working on developing new techniques and technologies to study these mechanisms more deeply and gain a deeper understanding of the underlying biology. We collaborate with other groups and institutions to broaden our perspectives and find new ways of addressing complex diseases.

My research has been recognized by the scientific community through numerous awards and invitations to speak at conferences and universities around the world. I have published my findings in high-impact journals. Furthermore, I have established collaborations with leading scientists in my field, and I am regularly invited to serve as a reviewer for grant proposals and manuscripts.

In addition to my research work, I am committed to mentoring and training the next generation of scientists. I have supervised several undergraduate and graduate students. Through my research and mentorship, I aim to inspire and train the next generation of scientists, and to contribute to the advancement of our understanding of the molecular mechanisms involved in the activation of immune cells.

Overall, my research career has been dedicated to the characterization of molecular mechanisms involved in the activation of immune cells, with a focus on T cells. My extensive background in experimental procedures and my expertise in biochemical methods, proteomics analysis, transgenic animal models, metabolomics, and epigenomics have enabled me to make significant contributions to our understanding of T cell activation and differentiation. As an Assistant Professor, I am now leading my own research team and continuing to work towards improving patient outcomes and advancing the field of immunology.

Área Temática:	Biociencias y biotecnología
Nombre:	PITTOLO , SILVIA
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Título:	Crosstalk between brain monoamines: ligands and receptors, cell types and brain regions

Resumen de la Memoria:

Dr. Silvia Pittolo has a Bachelor degree in Medical Biotechnology and a Master degree in Neuroscience from the University of Trieste, Italy. She did her PhD in Biomedicine with Prof. Pau Gorostiza at the Institute for Bioengineering of Catalonia in Barcelona, Spain, where she characterized novel allosteric small molecules to control neurotransmitter receptors with light (Pittolo et al. Nat Chem Biol. 2014). She showed the photoactivation of one of these molecules with two-photon light (Pittolo et al. PNAS 2019), opening up the possibility to control receptors at high spatial resolution in brain slices. She then moved to the University of California, San Francisco, where she worked with Dr. Kira Poskanzer studying how dopamine influences the activity of an understudied glial cell type, astrocytes. There she pioneered astrocyte imaging in the prefrontal cortex ex vivo and in vivo, and found striking differences with astrocytes of sensory cortex, as well as discovered a novel interaction between dopamine and adrenergic receptors by combining two-photon microscopy with optical uncaging of molecules and pharmacology (Pittolo et al. Cell Rep. 2022). Currently she is a Marie Curie Fellow in the laboratory of Prof. Martin J Lohse at the Max-Delbrück-Center for Molecular Medicine in Berlin, Germany, where she uses FRET biosensors to uncover, at the receptor level, the molecular mechanisms that govern the functional crosstalk between dopamine and adrenergic receptors that she and colleagues described. Dr. Pittolo has lived and worked in 5 different countries and 2 continents, and all her international experiences expanded her horizon as a researcher but also as a person. Dr. Pittolo has presented her findings at several international meetings, also as an invited speaker. She has received a number of fellowships and awards recognizing her work, and she has been part of different scientific committees and initiatives, all of which supports her scientific independence and leadership capapilities. In her independent laboratory, she wants to leverage previous work that shows that dopamine can interact promiscuously with receptors for norepinephrine in astrocytes of the rodent prefrontal cortex. Her overarching research goals are to understand why certain neurotransmitter receptors display exquisite selectivity for their target receptors, whereas others can bind off-target receptor classes while mediating important biological functions in organisms. She wants to use a combination of optical techniques to investigate the cellular and molecular basis of this crosstalk in different cells and areas of the brain, to ultimately understand how this affects the action of drugs that target monoamine receptors.

Resumen del Currículum Vitae:

Dr. Silvia Pittolo is a Marie Sklodowska-Curie Actions fellow at the Max Delbrück Center in Berlin, where she investigates receptor signaling dynamics. Previously, she was a postdoctoral fellow at the University of California, San Francisco, where she studied how astrocytes sense dopamine in the brain. She holds a PhD in Biomedicine from the University of Barcelona, specializing on the photo-activation of small molecules for high-precision pharmacology. She received the prestigious Marie Sklodowska-Curie fellowship from the European Union within the Horizon 2020 framework program to work towards understanding how ligand presentation governs signaling dynamics using astrocytes as a model cell. Over her 12+ years of pre- and post-doctoral training, Dr. Pittolo contributed to 11 articles published in international peer-reviewed journals, her work was cited over 450 times and has an h-index of 10. The career trajectory of Dr. Pittolo stands on several years of interdisciplinary projects and international experiences, which have provided her with skills to work in diverse and inclusive teams. As a PhD student, Dr. Pittolo used single-cell screening assays to test tens of light-activated drugs, to remotely control neuronal receptors in a non-invasive way. Possible applications ranged from remote control of neurons in vivo for research purposes to treatment of retinal dystrophies in clinical settings. As a postdoctoral fellow in the laboratory of Dr. Poskanzer at UCSF, by combining two-photon microscopy and fiber photometry with optical sensing of chemicals and uncaging of molecules in brain tissue, and advanced methods for image analysis, Dr. Pittolo discovered a novel interaction between dopamine and adrenergic receptors in astrocytes of the rodent prefrontal cortex. Her findings opened a whole new set of research questions that she would love to answer in her own, independent laboratory. Dr. Pittolo is also co-inventor on a patent, has served the scientific community as a peer-reviewer, a conference co-host, and external evaluator for university degree programs. She is committed to mentoring the next generation of scientists and science communication and outreach as major responsibilities of researchers towards society. Dr. Pittolo is now an experienced postdoc with a good publication record, an interdisciplinary research experience, an international professional network, and a demonstrated ability to acquire funding, all of which demonstrate she is ready for a successful start as an independent researcher.

Área Temática:	**Biociencias y biotecnología**
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Referencia:	RYC2022-035365-I
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Título:	Exploring protein homeostasis under endoplasmic reticulum stress

Resumen de la Memoria:

Internalization: I am a Senior Scientist in molecular & cell biology at the University of Cambridge (UK). During my 16 years in academia, more than 10 at the University of Cambridge, I have been exposed to an academic environment of excellence and have engaged in relevant national and international collaborations (USA, Italy, Denmark).

Research interest: My research career converges in the study of serpinopathies, a class of diseases that occur as a result of mutations in serine protease inhibitors (serpins). My PhD combined molecular and biochemical approaches to study functional and pathological consequences of post-translational modifications of antithrombin (SERPINC1), the main endogenous anticoagulant whose deficiency is causative of deep venous thrombosis. In 2010, I joint the University of Cambridge as postdoctoral researcher to continue my studies on alpha1-antitrypsin (SERPINA1). The variant Z in this gene is causative of COPD in 3% of the population, due to its self-polymerisation and retention in the endoplasmic reticulum (ER) of hepatocytes. During this period, I secured funding from the European ALTA Award as PI and generated a cell models that mimics intracellular retention of Z-alpha1-antitrypsin occurring in COPD patients. These models have increased our understanding of the mechanisms sensitising to unfolded protein response (UPR) and characterised the ER morphological changes caused by polymerogenic variants. This resulted in multiple publications including one as co-authored report in Nature. Given the biological relevance of these models, I carried out collaborations with other academic institutions and the industry sector that led to drug screening programs by GSK and BioMarine Therapeutics. As team leader at DefiniGen, I set up a disease-cell model laboratory to generate an alpha1-antitrypsin deficiency cell model using iPSC and their reprogramming to hepatocytes. My motivation to address key biology questions on the activation of the UPR via protein misfolding made me to return to academia. Under the umbrella of Prof. D Ron and funded by the Wellcome Trust (£3.5 millions) I lead with a high level of independence and leadership a new research area using unbiased gene discovery tools, genome-wide CRISPR screen, to identify genes involved in the retention/release of intracellular polymers. I am currently leading a new project focused on the identification of new regulators of the UPR.

Career goals: Despite four academic interruptions, including two maternity leaves, I have a high productivity with 43 publications, international conferences, a patent and industry experience. I have demonstrated leadership and capacity to deliver high impact science. I have evaluated doctoral projects for acceptance to their defence and I have been the external examiner of a PhD candidate. I am also reviewer for peer-reviewed journals, and a scientific consultant for multiple biopharma. I have co-supervised 3 PhD students. My publication output in serpins and ER stress has brought the attention in the field, and I have been invited to give lectures at international conferences (EMBO, ISTH). My goals are to continue developing myself as a competitive and independent researcher and to develop new multidisciplinary research and collaborations to further increase my competences and establish my own group in Spain.

Resumen del Currículum Vitae:

Education and current position: I am a senior investigator at the Dept. of Clinical Biochemistry in the University of Cambridge (UK). I obtained my degree in Biology at the University of Murcia, Spain (2005). I carried out my PhD at the Dept. of Oncology/Haematology at the University of Murcia and in the Centre for Cardiovascular Research in Aarhus (Denmark). In 2009, I completed my PhD, awarded with honours.

Research and leadership: In 2010 I joined the University of Cambridge (UK) as a postdoctoral fellow to carry on my research on serpins focused now on alpha1-antitrypsin and its associated liver and lung diseases. This work involved important collaborations with biopharma as GlaxoSmithKline (GSK, ranked 1st world-wide) and BioMarin Pharmaceutical, as well as multidisciplinary academic collaborations (Albert Einstein College in New York, Anne McLaren Laboratory for Regenerative Medicine in Cambridge or University of Rome). In 2014, I took an academic break to join the start-up DefiniGEN, where I set up a functional laboratory and led translational programs aimed to generate iPSC disease-cellular models for drug discovery. Although I have continued as a scientific consultant at DefiniGEN until recently, I returned to the University of Cambridge in 2015, to establish a new research program focused on the identification of new targets involved in conformational diseases and endoplasmic reticulum stress using unbiased genome-wide CRISPR screening.

My publication record has a h-index of 24 with 2,196 citations (Scholar) and 43 peer-reviewed JCR articles in top journals including Nature. I have participated as speaker in national & international scientific conferences with more than 30 presentations among posters and oral communications and, 4 invited symposia. I have attracted funding at all stages of my career including a PhD fellowship from the Health Institute Carlos III (Spain) and a postdoctoral European Alpha-1 Antitrypsin Laurell's Training award project grant (ALTA) as principal investigator (£50,000). I also attracted other prestigious ones (Spanish Sara Borrell). More recently, I secured funding as a named investigator from the British Medical Research Council (£2 millions) and Wellcome Trust (£3.5 millions). I have generated and licensed different reagents to GSK, BioMarine Therapeutics and other academic groups across European universities, such as genetically engineered cell lines and a sgRNA CRISPR/Cas9 library to target the hamster genome. I have also patented an antibody for research and clinical use. I have also participated in different outreach activities: an interview for the Newsletter of the University of Cambridge to cover the findings described in one of my recent publications and an interview on Spanish National TV (La Sexta) on the topic "Fuga de Cerebros" ("Escape of Talent").

Transfer of knowledge through mentoring and teaching: Currently, I am mentoring a research assistant (starting PhD next academic year). I have previously co-supervised four post-graduate students including a Master's and three PhD students. I have been an examiner for a Doctoral Thesis (University of Murcia) and my expertise has been sought as an international reviewer on manuscripts for peer-reviewed journals.

Área Temática:	**Biociencias y biotecnología**
Nombre:	REYNA LLORENS, IVAN ALEJANDRO
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Título:	Photosynthesis regulation and synthetic biology

Resumen de la Memoria:

My career has been mainly focused in understanding the molecular mechanisms governing the regulation of photosynthesis. After a prolific PhD and two Postdoctoral stays I started my group at CRAG in Barcelona. My group aims to integrate genomics, phenomics and synthetic biology tools to 1) understand how different plant lineages adapt their photosynthetic machinery to cope with stress and to use this information as a principle for improving CO2 fixation. This is very relevant as rising heatwaves and drought are severely affecting the capacity of crops to retain water and capture CO2 through photosynthesis having direct consequences to crop yield. In the most common form of photosynthesis (C3 photosynthesis), CO2 is fixed by the enzyme Rubisco to form a three-carbon skeleton (C3) that will serve as intermediary in the biosynthesis of sugars via the Calvin cycle. However, Rubisco is not just capable of carboxylation but also oxygenation, especially at high temperatures. This produces a toxic compound that needs to be metabolized in the process of photorespiration. It has been estimated that the efficiency of C3 photosynthesis is reduced at least 30% due to photorespiration. Some plant lineages have evolved Carbon Concentrating Mechanisms like C4 photosynthesis and the Crassulacean acid metabolism (CAM) to cope with photorespiration and water loss through transpiration. While C4 species are extremely efficient at CO2 fixation but vulnerable to severe drought, CAM plants are less productive but very capable of coping with significant drought. From an evolutionary perspective, plant lineages with any form of Carbon Concentrating Mechanism have co-opted to either evolve C4 or CAM. Yet, a combined C4 and CAM pathway in which the plant benefits from the drought stress capabilities of CAM while relying on the CO2 fixing capacity of C4 was considered impossible, given the mutually exclusive reactions of each cycle. An exception to this can be seen in the genus Portulaca where C4 species can trigger CAM when droughted. Despite the potential of Portulaca to learn about metabolic flexibility and to use it as a knowledge for crop improvement, the molecular enablers that allow for C4-CAM to exist in this clade remain elusive. My research aim is then to identify the basic molecular determinants of the C4-CAM switch using de Portulaca clade as experimental system, and to leverage this knowledge to transfer CAM features to C4 species outside the Portulaca genus. To do so, I have established a strategy that combines my previous expertise in photosynthesis with my knowledge in plant physiology, genomics and synthetic biology. I expect that my work will contribute to both the C4 and CAM sub-fields of photosynthesis research. At the same time my research will provide a quantum leap to our understanding on how two incompatible metabolic pathways can be designed, built and integrated in multicellular organisms which is broadly applicable to other areas of crop engineering.

Resumen del Currículum Vitae:

My research is focused on understanding different aspects of photosynthesis regulation by combining molecular physiology, synthetic biology, genomics and bioinformatics. After a Masters in biochemistry at UNAM (Mexico) I did a PhD at the University of Cambridge with a full scholarship to study the regulatory basis of the highly efficient C4 photosynthesis. One of the main outcomes of my work was the first experimental proof of the existence of "duons"; functional DNA binding motifs present in exons that also encode for amino acids. These motifs are necessary for driving cell specific gene expression of C4 genes. This work earned me the H.E Woodman Prize for the best PhD thesis in plant genetics from the University of Cambridge and publication in PNAS. Following my PhD, I stayed in the same group as a Postdoctoral fellow to develop genomic approaches to increase crop yield through photosynthesis. One of my main outcomes was the publication of a tissue specific genome-wide regulatory landscape for C4 and C3 grass leaves in The Plant Cell. In parallel, I sought to establish an independent project with the scientific goal of developing a system for high-throughput phenotyping of plant genetic circuits for which I published a paper as corresponding author in PLoS ONE. In 2020, I moved to the National Institute of Agricultural Botany (NIAB) in the UK, for a second postdoc developing bioinformatic methods for dissecting the evolution of gene regulatory elements associated with biological nitrogen fixation. In September 2021, I successfully applied to start my own group as a Junior Group Leader at the Centre for Research in Agricultural Genomics (CRAG) in Barcelona. At CRAG, I lead the Synthetic biology and Photosynthesis group where my aim is to combine genomics and synthetic biology approaches to learn about the evolution and regulation of plant metabolism. In my role as Group Leader, I published an Insight piece about the metabolic flexibility of the C4-CAM Portulaca. Also, I co-organized the 1st conference in Plant Synthetic Biology in Barcelona and I was invited as guest editor by the Journal of Experimental Botany for the publication of a special issue and one review. So far, I have secured €73,000 in grants distributed in 2 independent and 2 joint grants. One of them, an SGR grant from the government of Catalonia (AGAUR) to support the activities of emerging research groups. During my career I have published 12 papers in high-impact journals, 6 of them either as first or corresponding author. I have participated as an evaluator for multiple research projects in the UK, Argentina and Mexico, as reviewer for two "Q1" scientific journals and I am part of the editorial board of a new Synthetic Biology Journal. In terms of supervision and mentorship, I am the thesis director of one PhD student, a Masters student and I supervise a lab technician. I am also the mentor of one PhD student. My participation in teaching activities include the organization of a bioinformatics course in the processing and analysis of RNAseq data.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	MORAL QUIROS, PEDRO
Referencia:	RYC2022-036793-I
Correo Electrónico:	pmquiros@gmail.com
Título:	Mitochondria, aging and clonal hematopoiesis

Resumen de la Memoria:

Most of my scientific career has been dedicated to the study of mitochondrial biology and the aging process. I graduated in Biochemistry in 2006 at the Universidad de Oviedo, with the award to the best academic record, and joined the lab of Prof. Carlos López-Otín, where I completed my PhD with summa cum laude and International PhD mention. In my PhD I studied the functional relevance of mitochondrial proteases in cancer and metabolism by generating and characterizing two mouse models deficient in OMA1 and LONP1. My host lab had an extensive experience in the study of proteases in cancer and aging, but there was no previous experience in mitochondrial biology. Therefore, I had to open a new line of research, being the only member of the group working in that field. I did a short stay in the lab of Prof. Thomas Langer (University of Cologne, Germany), establishing a collaboration by which we defined the concept of mitoprotease (mitochondrial protease) and characterized the mitodegradoma as the set of mitoproteases. During my PhD, I also contributed to the study of mouse models of aging; the identification of a mitochondrial supercomplex assembly factor; and the functional characterization of genes involved in cancer, among others. In 2014, I started my postdoc by joining the lab of Prof. Johan Auwerx (EPFL, Switzerland) with a long-term EMBO fellowship to study genetic factors that control mitochondrial function and metabolism. As a result, I demonstrated that mitochondrial stress in mammals is mediated by ATF4, which regulates cellular metabolism and energy demands. Further, I contributed to define the different forms of mitonuclear communication and the crosstalk of mitochondria and epigenetics. I also collaborated on several projects of mitochondrial stress and longevity and on the study of lipid species with key metabolic functions using multilayered and omics analysis in a mouse population. In 2017, I returned to López-Otín' s lab as senior researcher to work on mitochondrial and aging projects, leading a revision about mitohormesis and aging, analysing omics data to prove that methionine restriction extends healthspan in progeroid mice, and co-supervising a study showing that faecal microbiota transplantation extends healthspan and lifespan of progeroid mice. In 2019, after 4-months of career break to take care of my newborn, I joined the lab of Prof. George Vassiliou (Sanger Institute, UK) to complete my postdoctoral training in bioinformatics by studying haematological cancers and clonal haematopoiesis (CH) –a process in which an expansion of individual blood stem cells and their progeny occurs. By using the UK Biobank data, I identified somatic mutations in NPM1 –the most commonly mutated gene in adult acute myeloid leukaemia– in blood samples months before de novo leukaemia, and co-led a genomic study to investigated the causes and consequences of CH in more than 200k individuals. Also, I collaborated in the description of a new method to identify somatic mutations using RNA-Seq; the demonstration that CH is not associated with COVID-19 disease; and the identification of genes that participate in the leukaemogenic transformation. In 2021, I obtained a Miguel Servet contract, which has allowed me to join the ISPA as a Group Leader, where I continue studying CH and its relationship with haematological cancers and human diseases.

Resumen del Currículum Vitae:

I am computational biologist, formed as molecular biologist, with 16 years of experience in research, 7 as PhD student, 7 as postdoctoral researcher and 2 as group leader. I have received scholarships during all my bachelor to pursue my graduate in Biochemistry, obtaining the award to the best academic record, and then have been fortunate to get all possible pre and postdoctoral competitive fellowships, including the FPU fellowship to carry out my PhD, and the prestigious EMBO long-term fellowship during my first postdoctoral stay. Also, I have obtained several competitive research contracts during my PhD and postdoc, as well as a position as Graduate Teacher (Ayudante LOU) at the University of Oviedo during the last two years of my PhD. I have completed 3 high-quality and fruitful postdoctoral stays: one at the École polytechnique fédérale de Lausanne (EPFL; Switzerland), under the supervision of Prof. Johan Auwerx for 2 years and 7 months; other in Spain, at the University of Oviedo, with a CIBERONC contract and under the supervision of Prof. Carlos Lopez-Otin, for 1 year and 5 months; and finally, another at the Wellcome Trust Sanger Institute/University of Cambridge (UK), under the supervision of Prof. George Vassiliou for 2 years and 2 months. Since April 2021, I am Group Leader at the "Instituto de Investigación Sanitaria del Principado de Asturias" (ISPA; Oviedo, Spain).

Since 2008, I' ve authored 39 publications (including Nat Medicine, Nat Genetics, Science, Cell and Nat Rev Mol Cell Biol) that have been cited more than 3,330 times (h-index: 24, Google Scholar: 27). I am first/co-first author of 12 publications and corresponding author in 4: 2 jointly with my PhD/postdoc supervisors and 2 independently of them. I am PI of a research project (PI-SALUD-2022) and co-applicant in an international cancer project. I also participated as team member in other 5 projects. I have presented two research posters and been invited to give two talks in 4 different International Symposiums. I am member of the SEBBM; reviewer of Genome Med, Aging, and Exp Neurol; grant reviewer of the National Science Centre (Poland) and the ISCIII (Spain); and have been guest editor of Philos Trans R Soc Lond B Biol Sci. I have more than 200 hours of teaching experience, a certified academic triennium and the i3 certification. Also, I am positively evaluated by ANECA as assistant and associate professor. Currently, I am co-supervising a TFG on the "Analysis of cooperating genes in myeloid neoplasms" .

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	WCULEK , STEFANIE
Referencia:	RYC2022-036400-I
Correo Electrónico:	stefanie.wculek@irbbarcelona.org
Título:	Studying the biology of innate immune cells in health and disease

Resumen de la Memoria:

Dendritic cells (DCs), macrophages and neutrophils are our first-line immune defense against infections. However, those myeloid cells are vital for maintenance of tissue homeostasis and, upon deregulation, can drive diseases such as cancer, obesity or autoinflammation. I used experimental mouse model systems to study the role of myeloid cells in health and disease and validated my findings in human settings. My research shows that the modulation of the innate immune system holds great potential for therapy of non-infectious pathologies.

My work during my university degree contributed to unravel inflammatory processes in skin diseases and cancer. In my PhD work, I described the pro-metastatic role of neutrophils. I uncovered a novel mechanism by which those myeloid cells aid tumor and metastasis initiation and developed a successful therapeutic strategy in pre-clinical models. The research line that I started was continued in the laboratory and resulted in several follow-up publications.

In my early postdoc work, I developed a new and effective cancer immunotherapy consisting of adoptive transfer of anti-cancer DC subsets. My results form the basis of clinical trials by our collaborators of the EU-funded H2020 consortium PROCROP. Furthermore, this technique allows me to study the detailed functions of specific DCs present in vivo. I am co-supervising a PhD student to continue this research line, who is currently preparing a follow-up manuscript.

Driven to explore novel avenues in immunology in my senior postdoc work, I specialized on the immunometabolism of myeloid cells in vivo and established national and international collaborations in this field. I uncovered the distinct metabolic dependencies of tissue macrophages that are conditioned by their homing organ and targeted those in a pre-clinical mouse model to specifically impair adipose tissue macrophages and ameliorate obesity. Moreover, I am preparing a manuscript on the metabolic regulation of DC responses in cancer. Hence, my data highlight the relevance of myeloid cell metabolism for non-infectious diseases such as cancer, obesity and age-related diseases. There are still few scientists focusing on immunometabolism, which aims to tailor immune cell function towards clinically favorable outcomes, and less so in the context of the diversity of myeloid cell populations in distinct tissues in vivo.

Recently, I was selected to become a group leader at the IRB Barcelona in February 2023. My group will study functionality and metabolic adaptions of myeloid cells, such as DCs, macrophages and neutrophils, in different tissues and the relevance for health and disease. My specific research questions are: (1) What are the metabolic adaptions of DCs and neutrophils to their distinct homing tissues and are they important for their persistence or function and how? (2) Is the aberrant function of aged DCs, macrophages and neutrophils tissue-dependent and is metabolic dysfunction involved? (3) Can the tissue-dependent metabolic vulnerabilities of DCs, macrophages and neutrophils be exploited therapeutically?

Overall, my training equipped me with comprehensive knowledge of numerous pre-clinical disease models and a solid background in immunology, immunometabolism and biology of non-infectious diseases – which will be vital to succeed in my future research aims.

Resumen del Currículum Vitae:

I obtained a strong background in innate immunity, inflammation and the biology of age-related diseases such as cancer and obesity throughout my scientific trajectory. My track record (h-index 13, 9 first author and 18 total publications, of those 15 with open access and 3 co-corresponding author publications, 130 co-authors, >2500 total citations) shows my scientific productivity and recognition as research professional in those fields. Moreover, I established valuable international collaborations with industry, experimental and translational scientists during my training in 6 different laboratories in 4 countries. With this preparation, I thrive to establish myself as independent researcher in Spain.

I completed my studies in Molecular Biology at the University of Vienna (Austria) with the highest honors in 2011. Then, I moved to the London Research Institute for my PhD training with a highly competitive fellowship of Cancer Research UK. The main scientific achievements of my PhD resulted in 2 first author papers in Nature and iScience. I obtained my PhD from the University College London in 2016 and was runner-up for the Portecorvo Prize for the best PhD thesis of Cancer Research UK. My research work formed the basis for an ERC Consolidator grant and was followed up within my PhD laboratory and beyond (>600 citations).

I funded my early post-doctoral stage starting in 2016 at the Centro Nacional de Investigaciónes Cardiovasculares (CNIC) in Madrid (Spain) by winning an European Molecular Biology Organization (EMBO), MCSA (Marie Curie)-CNIC COFUND and Juan de la Cierva-Formación fellowship. I co-lead a work package within the international European H2020-funded project "PROCROP", which is an international consortium formed by 3 hospitals, 2 science centers and one industrial partner from a total of 4 countries. My pre-clinical work gave rise to a first author publication in the Journal for ImmunoTherapy of Cancer in 2019 (>60 citations) and a first author review by invitation in Nature Reviews Immunology in 2020 (>800 citations). Moreover, my research is currently followed up by a PhD student that I co-supervise and was underlying the design of the treatment strategy for clinical trials in cancer patients.

In 2020, I obtained the highly competitive Postdoctoral Junior Leader fellowship from the "La Caixa" Banking foundation. This support of myself and my research allowed me to start pursuing my semi-independent research line at the CNIC. I specialized on the immunometabolism of innate immune cells and founded numerous collaborations in this field. My work resulted in a first author publication in Immunity as well as first author reviews by invitation in Cellular and Molecular Immunology and Frontiers in Immunology (>90 citations). My co-corresponding authorship on those 3 articles highlights my emerging scientific independence. Moreover, my research line is continued in my postdoc laboratory by a PhD student that I co-supervise. Recently, in a highly competitive process, I was selected as junior group leader to join the Institute for Research in Biomedicine (IRB) Barcelona (Spain) in February 2023. The "Ramón y Cajal" fellowship will allow me to dedicate my career to the basic and translational investigation of myeloid cells in health, disease and therapy.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	AFFO , SILVIA
Referencia:	RYC2022-036321-I
Correo Electrónico:	saffo@clinic.cat
Título:	Deciphering, dissecting and reprograming CAF heterogeneity during cholangiocarcinogenesis towards the development of efficient combined therapies

Resumen de la Memoria:

My dedication to liver diseases started 13 years ago when I enrolled into the Medicine PhD program at University of Barcelona under the mentorship of Dr Ramon Bataller and Dr Pau Sancho Bru. There, using translational studies and transcriptome analysis, I identified new mediators of hepatic inflammation, injury, and fibrosis in alcoholic hepatitis, and I got familiar with hepatic stellate cells (HSCs), the major source of myofibroblasts in the liver. After defending my international doctorate at University of Barcelona and motivated to learn more about the intersection of liver fibrosis and cancer, in March 2014 I moved to Columbia University (NY, USA) to pursue my postdoctoral studies in the laboratory of Dr Schwabe supported by Spanish funding first, and by American funding during the following years. There, starting to investigate the role of HSCs in different models of liver fibrosis, I got interested in investigating the role of HSCs in cholangiocarcinoma (CCA), a highly primary desmoplastic tumor of the liver. Using transgenic mice, several intrahepatic CCA (iCCA) models, and lineage tracing experiments, I found HSCs as the major cell source of CAFs in this tumor. Thanks to this new finding, I uncovered the overall tumor promoting role of CAFs in iCCA. Moreover, optimizing CAFs and stromal cells isolations and purification for single cell RNA sequencing studies, I was able to further investigate CAF heterogeneity and crosstalk in human and murine samples of iCCA. Using ligand-receptor prediction models of interaction, I found that tumor cells interact the most with CAFs in iCCA and, once identified HGF, HAS2 and COL1A1 as the most interesting HSC-derived CAF mediators, I specifically deleted them in HSC-derived CAFs and I investigated their role in iCCA. While HGF and HAS2 were found to be pro-tumorigenic, COL1A1 did not show any pro-tumorigenic activity, despite reducing tumor stiffness in different models of iCCA thus, changing an old paradigm connecting tumor stiffness with tumor growth. These findings were published in Cancer Cell in 2021 and were of inspiration to develop my new research line. Indeed, several unpublished data pointed towards the presence of transcriptomically heterogeneous tumor cells as well as heterogeneous CAF subtypes, interacting differently within the tumor microenvironment (TME). Awarded with the Marie Curie Individual Fellowship and la Caixa Junior Leader Incoming funding, I started to build my new group as Junior Researcher in Barcelona and I started to investigate and manipulate the unexplored interactions of heterogeneous populations of tumor cells, including potential cancer stem cells with the TME in iCCA. Supported also by the funding from the Ministry of Science and Innovation of Spain (PID2021-124694OA-I00), I am currently exploring the complexity of heterogeneity in iCCA, with the goal to explore new therapeutic targets for this deadly disease. With my new research line, I aim at keep investigating the complexity of heterogeneity in iCCA and to dedicate more to deciphering, dissecting and reprogramming CAFs and their interactions with stromal cells during cholangiocarcinogenesis, with the ultimate goal to contribute identifying novel combined therapies aimed at targeting not only tumor cells, but also the complexity of its TME using a precision medicine approach.

Resumen del Currículum Vitae:

After my studies in Italy; looking for new challenges and growth opportunity, I moved to Barcelona, IDIBAPS, to perform my doctoral studies at University of Barcelona, under the mentorship of Dr Bataller and Dr Sancho Bru. There, I was granted with a 4-years doctoral fellowship, including the cost of the international master in Liver Diseases. Using translational studies, I identified mediators of hepatic inflammation, injury, and fibrosis in alcoholic hepatitis, as reflected by 3 first-author original papers (2 in Gut, IF:31.79; one in PlosOne IF:3.75). Motivated to learn more about the intersection of liver fibrosis and cancer, after obtaining my international PhD in 2014, I moved to the US, where I joined Dr Schwabe laboratory at Columbia University in NYC, supported by a 1-year grant from the Spanish Association for the Study of the Liver. Funded by the American Liver Foundation and the Cholangiocarcinoma Foundation postdoctoral awards, I started to investigate cancer-associated fibroblasts (CAFs) in liver tumors. After receiving the prestigious Research Scholar Award from the American Gastroenterological Association, my first independent funding, I transitioned in 2017 to associate research scientist, leading my project aimed at identifying the origin and role of CAFs in intrahepatic cholangiocarcinoma (iCCA). During my stay in the US, I published as co-author in prestigious journals including Nature, JCI, Gastroenterology, Journal of Hepatology and Nature Protocols. As first author I published 2 original articles (Cancer Cell IF:38.58; Science Translational Medicine IF 17.95) and one review (Annual Review of Pathology: Mechanisms of Disease IF 32.35). In the US, I participated to several national and international conferences, I consolidated new collaborations, and I mentored PhD students, postdoctoral fellows, and technicians. After being awarded with the competitive La Caixa Junior Leader Fellowship in 2021, I joined IDIBAPS in Barcelona, Spain, as Junior Researcher. Here, I hired a PhD student and started to build my research line and group, further supported by funding from the Ministry of Science and Innovation of Spain (PID2021-124694OA-I00), providing more time- and fund-protection and allowing to expand my group. I am senior author of an invited -book chapter and a -review in Hepatology (IF 17.29) describing the heterogeneity, crosstalk and targeting of CAFs in CCA. I am now thesis director of 2 PhD students, and mentor of 1 international PhD student in Germany. Moreover, I have been invited as member of the PhD tribunal to 3 theses in Spain. I am member of the European CA18122 COST action aimed at generating a European interdisciplinary CCA network; and I recently applied to the prestigious ERC-2022-Starting call for European funding, where my proposal is on the reserve list for possible funding if additional budget becomes available. I am member of international societies, and reviewer for international journals and funding programs including the French ANR, La Caixa fellowship and the Spanish National Research Agency. To conclude, I believe that my background, leadership, and dedication to liver diseases are essential features to pursue my goal to become an independent and recognized research group leader.

Área Temática:	**Biomedicina**
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Título:	Nanotechnology in biomedicine, cancer metabolism, and metastasis biology

Resumen de la Memoria:

Last decade, it has become clear that metabolism is an emerging hallmark of cancer. As the disease progresses, tumor cells undergo dynamic phenotypic changes, which require metabolic adaptations to meet their changing requirements. Recent works demonstrate that the metabolic properties of tumor cells change as cancer progresses. In this regard, my research has contributed to the emerging view of tumor metabolism as flexible and context-specific. Tumor cells reprogram their metabolism toward energy and biomass production to sustain a high proliferative state but adapt to challenging metabolic conditions (as I show in Altea-Manzano et al. Mol Cell 2022) and to transition to different cell states (as I show in Rossi*, Altea-Manzano* et al. Nature 2022). Moreover, nutrients available in the local environment can influence tumor metabolism and growth. This becomes particularly crucial as they encounter new environments when colonizing distant organs (as I show in Altea-Manzano et al. Nat Cancer 2023). As a result, my research has significantly contributed to proving that metabolic processes play an important role in the aggressiveness of certain cancers.

Aside from fulfilling metabolic pathways important to cell growth and survival, some metabolites can also regulate many biological processes by acting as a source for protein post-translational modifications (PTMs). In fact, I have observed that tumor cells can benefit from regulatory signaling activated by metabolites such as protein glycosylation or acetylation. In this new line of research, I will focus on an unconventional and poorly understood PTM exclusively driven by the fatty acid palmitate named palmitoylation. My work aims to investigate the molecular mechanism of palmitoylation in biological processes using metastasis as a disease model.

Palmitate, which is an important constituent of a typical western diet, has been recently identified as fuel for metastasis-promoting pathways (Altea-Manzano et al. Nature Cancer 2023 and others). However, why palmitate has such a unique pro-metastatic effect compared to other fatty acids with similar metabolic fates remains elusive. Strikingly, I discovered that palmitoylation is essential for metastasizing breast-cancer cells. Unexpectedly, I found that palmitoylation 'erasers', enzymes that remove the modification, are essential to sustain pro-metastatic effects of palmitate during metastatic colonization. Based on my preliminary data, I hypothesize that, in palmitate-rich conditions (e.g under high fat diet), erasers act as a rate-limiting release step, allowing palmitoylated proteins to engage in pro-metastatic signaling. Thus, I will investigate how the dynamics of palmitoylation promote metastasis by focusing on the erasers, whose role in metastasis remains largely unexplored. Specifically, I will: 1) define how erasers activate pro-metastatic signaling events 2) investigate how high fat diet influences eraser activity in metastasis; and 3) assess how palmitoylation modulates cell plasticity and cell state transition. I will address this by integrating multi-omics, molecular biology, and mass spectrometry techniques with clinically relevant in vivo metastasis models. Ultimately, my research will fill the knowledge gap by understanding how palmitoylation promotes physiological and disease mechanisms and its link with high fat diet.

Resumen del Currículum Vitae:

My multi-faceted background and skillsets in metabolism, cancer cell biology, nanotechnology, and metastasis, as well as my professional development in both academia and biotech companies, have enabled me to become a competitive skilled investigator in the field of cancer research. I have also gained strong international research experience in some renowned laboratories worldwide (United Kingdom, California-US, Spain and Belgium). In the last five years, I have achieved interdisciplinary and patient-oriented background research, as my recent publications in Nature, Nanomedicine, Nanoscale and Molecular Cell demonstrate. The excellence of my work has been recognized by high-impact factor peer-reviewed publications (13 research articles in international journals, including 8 first-author articles and 1 co-last author paper), selected lectures at international conferences (11 contributions to international congresses, including 3 talks as invited speaker and 5 oral communications), as well as been awarded highly prestigious funding (EMBO short-term fellowship, Marie Skłodowska Curie Individual Fellowship, Beug Foundation's Prize for Metastasis Research). Importantly, citations of my publications have exponentially risen in the last two years, which reflects an increased impact of my work on the field. In addition, I have been involved in dissemination and public engagement activities for different audiences. I have designed and developed new R&D projects (as part of a collaboration with the biotech NanoGetic S.L.), established multiple high-profile collaborations, and mentored and supervised junior technicians, Master's and PhD students with independence.
All of this has allowed me to establish extensive expertise in the topic of cancer metabolism, metastasis formation, and drug targeting which constitutes a unique niche to successfully develop my independent research. For the next five years, my goal is to apply this expertise to dissect the non-canonical regulatory mechanisms of metabolites in metastasis. Ramon y Cajal fellowship will make a difference towards my professional ambition in establishing myself as a leader in the new frontiers of cancer knowledge.

Área Temática:	**Biomedicina**
Nombre:	MARTINEZ JIMENEZ, FRANCISCO
Referencia:	RYC2022-037005-I
Correo Electrónico:	franchesko01@gmail.com
Título:	Large-scale cancer immunogenomics

Resumen de la Memoria:

After completing my BSc in Computer Science in 2011 (UCM, Madrid) I became interested in applying computational and mathematical approaches to address biomedical problems. Therefore, after completing a MSc in Computational Biology (UCM, Madrid) I joined Marc A. Martí-Renom's group in the CRG/CNAG in Barcelona to perform my PhD. In my PhD I partnered with both academic and private international institutions focused on elucidating the molecular targets and mechanisms of resistance of preclinical drugs for human diseases. My PhD studies led into 6 peer-reviewed publications (4 as first author) and my PhD thesis was granted with excellent cum laude. Moreover I presented my work in multiple national and international conferences.

After my PhD, in 2017 I joined Nuria Lopez-Bigas group at IRB Barcelona where I focused my research on understanding how somatic mutations in cancer genomes drive tumorigenesis. Over my postdoc, I first co-coordinated the most comprehensive analysis of cancer driver genes across human cancers, which resulted in the release of the intOGen resource (https://www.intogen.org/) (Francisco Martínez-Jiménez et al. Nature Reviews Cancer, 2020; with ~15,000 users per year, >430 citations in two years). The wealth of data collected in intOGen enabled the development of a machine learning framework (named BoostDM) that identifies the tumorigenic role of all coding variants across gene-cancer type pairs (Ferran Muiños*, Francisco Martínez-Jiménez* et al. Nature, 2021; Premi Ciutat de Barcelona for Life Sciences category 2021). Aside from the identification of cancer driver genes I further contributed to the elucidation of their mechanism of tumorigenesis, revealing that around 10% of cancer driver mutations interfere with the Ubiquitin Mediated Proteolysis System (Francisco Martínez-Jiménez et al., Nature Cancer, 2020). During this time I presented my work in multiple international conferences (e.g., ESMO2019, EMBL Cancer Genomics 2019), I received the MSKCC Emerging Leaders in Computational Oncology 2020 award and I mentored two master students and two bachelor students.

Thanks to my experience with large-scale cancer genomics analysis, I was recruited by Edwin Cuppen in Sep. 2020 where I co-coordinated the harmonized analysis of the world's largest cohort of whole-genome sequenced (WGS) cancer genomes (>7,000 tumor-normal paired WGS of primary and metastatic tumors). We used this dataset to perform a cancer-type specific comparison of the genomic differences between primary and metastatic tumors across more than 20 cancer types (Francisco Martínez-Jiménez et al. 2022 bioRxiv, 1st author, 3rd rounds of reviews in Nature). I also leveraged the aforementioned dataset to study the impact and prevalence of genetic immune escape alterations across primary and metastatic tumors (Francisco Martínez-Jiménez, et al. bioRxiv 2022, 1st author and co-corresponding, Nature Genetics in press). In this perior I have continued working in previous international collaborations (e.g., with Yardena Samuels, jointly patent recently filed) or contributed to establish new ones (e.g., Hartwig Medical Foundation Australia).
In February 2023, I joined the VHIO in Barcelona as Junior Group Leader of the Computational Immunogenomics team where we will study multiple facets of tumorigenesis and its interplay with the immune system.

Resumen del Currículum Vitae:

In 2012 I pursued a MSc in Computational Biology (UCM, Madrid), which allowed me to join the Marc A. Martí-Renom group in the CRG/CNAG in Barcelona to perform my PhD. In my PhD I focused my research on mechanisms of resistance to targeted therapies in human diseases (Francisco Martínez-Jiménez et al., PLOS Computational Biology 2013 and 2015; Francisco Martínez-Jiménez et al, Scientific Reports, 2016). Overall, my PhD studies led into 6 peer-reviewed publications (4 as first author) and my PhD thesis was granted with excellent cum laude.

After my PhD, in January 2017, I joined the Nuria Lopez-Bigas laboratory at IRB Barcelona. The focus of my research was to understand how somatic mutations in cancer genomes drive tumorigenesis. Over that period, I co-coordinated the most comprehensive systematic analysis of cancer driver genes across more than 66 cancer types. The results of this analysis were published in 2020 (Francisco Martínez-Jiménez et al. Nat. Reviews Cancer, 2020) and are publicly available at intOGen (https://www.intogen.org/). IntOGen is currently a reference resource for cancer researchers worldwide (~15,000 users per year, >400 citations in two years). We then leveraged this resource to develop a machine learning framework (BoostDM) that identifies the tumorigenic role of all coding variants across gene-cancer type pairs. This study, for which I am co-first author, was published in Nature in 2021 and received the prestigious award Premi Ciutat de Barcelona for Life Sciences category (Ferran Muiños*, Francisco Martínez-Jiménez* et al. Nature, 2021). A recently granted European project (CGI-clinics, €10 millions) aims to implement BoostDM in clinical practice. Finally, I also conducted an independent research line focusing on the impact of cancer alterations in the Ubiquitin Mediated Proteolysis system (Francisco Martínez-Jiménez et al., Nature Cancer, 2020).

In October 2020 I started as senior postdoc in the group of Prof. Edwin Cuppen at UMC Utrecht. I first participated in the harmonized analysis of more than 7,000 whole-genome sequenced tumor samples from primary and metastatic patients. We then leveraged this dataset to perform a cancer-type specific comparison of the genomic differences between primary and metastatic tumors across more than 20 cancer types. This work is currently in 3º round of reviews in Nature (Francisco Martínez-Jiménez et al. 2022 bioRxiv). I also leveraged the aforementioned dataset to study the impact and prevalence of genetic immune escape alterations across primary and metastatic tumors (Francisco Martínez-Jiménez, et al. bioRxiv 2022, 1st author and co-corresponding). This study has been recently accepted for publication in Nature Genetics.
In my research career, I have given multiple oral presentations in international conferences, I have been invited to review articles from in top journals (e.g., Nature, Nature Genetics, Nature Cancer) and I have recently joined the EACR Review Panel.

During the last six years I have also independently supervised three master students, two bachelor students and I have attended multiple courses of leadership and mentoring.

The independence and maturity of my research track is illustrated by my recently appointed position as Junior Group Leader of the Computational Immunogenomics team at the Vall d'Hebron Institute of Oncology (VHIO) in Barcelona.

Área Temática:	Biomedicina
Nombre:	BARRIGA DE VICENTE, FRANCISCO MARTÍN
Referencia:	RYC2022-037389-I
Correo Electrónico:	fbarriga@vhio.net
Título:	Functional Dissection of Tumor Heterogeneity

Resumen de la Memoria:

The unifying theme of my research has been centered on dissecting tumor heterogeneity.

Graduate work:

During my PhD, I focused on non-genetic intra-tumor heterogeneity by analysing the presence of intestinal stem cell features on colon cancer. By isolating, profiling, and functionally testing distinct phenotypic subsets of cells, we identified that colon cancers were organised in a hierarchical structure reminiscent to the normal intestine. After this initial study, I focused on the biology of the poorly studied RNA binding protein Mex3a. I identified that this gene labels a subset of slow-proliferating and highly resistant intestinal stem cells, which was the first evidence of functional heterogeneity in the Lgr5+ intestinal stem cell compartment. Importantly, Mex3a+ cells exist also in advanced colon cancers and are responsible for the resistance to chemotherapy. Overall, my work on non genetic heterogeneity highlighted the interplay of distinct cellular phenotypes that drive tumor progression and therapy resistance, and nominates specific cellular populations as relevant targets for drug development.

Postdoctoral work:

During my postdoc, I complemented my previous training by focusing on genetic tumor heterogeneity. For this I studied the role of copy number alterations, which alter gene dosage of up to hundreds of linked genes, yet whose contribution to cancer biology remains poorly defined. I developed an approach called Molecular Alteration of Chromosomes with Engineered Tandem Elements (MACHETE), which enables the rapid and flexible engineering of megabase size deletions. As proof of principle we studied the loss of chromosome 9p21.3 in models of pancreas cancer and found that co-deletion of the tumor suppressors CDKN2A/B with a cluster of 16 type I IFNs promoted immune evasion, metastasis, and resistance to immunotherapy. This study set the basis for my current proposal to start as an an independent investigator, and for which I have been awarded European funding.

Overall, my research on cancer heterogeneity (both genetic and non-genetic) sets the stage to launch my independent career. My research group will focus on further understanding the complex biology of copy number alterations in pancreas cancer, where we will initially focus on mechanisms of tumor immune evasion, genetically driven intra-tumor heterogeneity, and cancer genome evolution.

Resumen del Currículum Vitae:

My scientific achievements to date are reflected in the diverse nature of both my individual and team-based work within cancer and stem cell biology: I have isolated and characterized mouse and human intestinal stem cells, generated novel mouse models that uncovered stem cell heterogeneity, helped develop a genetic model of colon cancer in Drosophila, and identified drivers of initiation and progression. More recently I have developed genome engineering approaches to dissect the role of copy number alterations in pancreas cancer, which will be the major focus of my independent research group. Highlighting my interest in teamwork, I have also actively collaborated in the development of in vitro and in vivo models to study stem cell biology and model cancer.

Overall, my work to date has led to three first author publications, with a total number of 20 original research articles. I have been cited 2436 times so far, with a current h-index of 13 (Source: Google Scholar). Beyond the already published papers, from my work in as a postdoc in the Lowe lab I currently have one manuscript in preparation that we will submit by the end of the year: "Organ-specific Effects of Smad4 in Metastatic Pancreatic Cancer". Beyond publication metrics, my work reflects three major qualities that I believe strengthen me as a scientist: creativity (reflected in the methods I've developed), flexibility (showing my work across different disciplines of cancer research) and collaboration. I have also been able to secure independent funding throughout my career: one PhD fellowship, two postdoctoral fellowship, one transition to independence award, and an ERC Starting Grant.
In summary, I believe my track record highlights that I can be a suitable candidate for the prestigious Ayuda Ramon y Cajal, which will undoubtedly put me in a privileged position to launch my independent cancer research program.

Área Temática:	**Biomedicina**
Nombre:	GUIXA GONZALEZ, RAMON
Referencia:	RYC2022-037062-I
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Título:	Investigating the molecular mechanism of brain GPCRs using multiscale simulations

Resumen de la Memoria:

My research focuses on understanding the molecular mechanism of G protein-coupled receptors (GPCRs), with a particular focus on how neuronal membranes regulate their function. GPCRs are the largest family of membrane proteins in the human genome and the target of more than 40% of the currently approved drugs. GPCRs have an extremely relevant role in cell signaling and, among several other implications, their malfunctioning is linked to brain disease. As a result, GPCRs are one of the most relevant target of neurological and neuropsychiatric disorders, including several neurodegenerative diseases.

My research has three main research branches:

Lipid-mediated modulation of GPCRs: one frequently overlooked aspect of membrane proteins, namely that they function in permanent contact with membrane lipids. While this intimate contact is sometimes merely structural, membrane lipids can regulate the function of key neuroreceptors like GPCRs. During my PhD, I studied the interplay between GPCRs and omega-3 polyunsaturated fatty acids (PUFAs), and discovered that the omega-3 PUFA DHA controls the formation of GPCR oligomers in neuronal membranes. During my initial postdoctoral studies, I continue my work on the interaction between lipids and brain GPCRs, and reported for the first time that membrane cholesterol can occupy the interior of GPCRs. I have continued investigating the role of PUFAs in the brain, in fact, very recently, we have published a potential mechanism by which PUFAs enhance the antipsychotic efficacy of certain dopamine D2 receptor drugs in the brain.

Molecular mechanism of GPCR activation: I have made significant contribution to the field of adhesion GPCRs (aGPCRs) activation. aGPCRs are a class of receptors that remain poorly understood despite being directly involved in several human diseases, including the nervous system. The endogenous ligand of these receptors is a peptide sequence tethered to the protein and partially released upon self-cleavage. I have contributed to this field by demonstrating that intrinsic protein flexibility could modulate autoproteolysis by exposuring of the otherwise buried tethered agonist in aGPCRs. Furthermore, I have investigated the GPCR activation mechanism of other GPCRs by contributing with MD simulations to solve new GPCR structures, or to couple with experimental data from different techniques.

Development of computational tools: I have actively contributed to the development of novel computational tools in the field of GPCRs. Specifically, I have aimed to develop tools that foster interdisciplinary collaboration by leveraging the use of MD simulation data, making it more accessible to researchers in other fields. One landmark project of this type that I have co-led is the GPCRmd platform (http://gpcrmd.org) and GPCRmd consortium. GPCRmd is a dynamical counterpart of the Protein Data Bank that has provided the first universal view into the molecular dynamics of GPCRs.

Three main research questions will now drive my future research: (1) What is the molecular and structural basis behind the GPCR-mediated modulation of neuronal function by polyunsaturated lipids? (2) Does membrane lipid composition across subcellular organelles determine GPCR function? (3) Does brain lipid composition play a role in the activation of adhesion GPCRs?

Resumen del Currículum Vitae:

I am a computational biochemist, expert in molecular dynamics (MD) simulations of biomolecular systems, with a particular focus on G protein-coupled receptors (GPCRs), and how cellular membranes regulate their function.

I earned my PhD degree from Pompeu Fabra University (Barcelona), with Summa Cum Laude and European Mention. During this period, I successfully applied for funding to perform a total of 6 months research visits to world-class research laboratories. Thus, in 2012, I gained extensive knowledge in coarse-grained simulations of membranes and membrane proteins in the lab of Prof. Ilpo Vattulainen in Finland. Likewise, I visited the lab of Prof. Marta Filizola in the US, where I gained my first skills in enhanced-sampling simulations. My PhD work resulted in the publication of 10 articles. More importantly, I contributed to the field with two important findings: (a) I showed that polyunsaturated lipids control the formation of GPCR oligomers in neuronal membranes (Guixà-González et al. 2017 Sci. Reps.), and (b) I reported for the first time that membrane cholesterol can occupy the active site of GPCRs (Guixà-González et al. 2017 Nat. Comms). Furthermore, I developed a tool to automate the analysis of membrane and membrane-protein simulations. This software has been downloaded nearly 8,000 times, and the manuscript has received almost 200 citations (Guixà-González et al. 2017 Bioinformatics).

During my postdoctoral training at the Charité - Universitätsmedizin Berlin (Germany), I discovered a hitherto unknown mechanism for the spontaneous exposure of the autoproteolytic site in adhesion GPCRs (Guixà-González et al. Mol. Cell. 2021). After an intense period of teaching experience as research assistant professor in the Autonomous University of Barcelona, I moved to the Paul Scherrer Institute in Switzerland. Here, I first published my first co-corresponding article (Rodríguez-Espigares, I. et al. 2020 Nat Methods), where I devised and co-led the successful implementation of the first platform for the online sharing, visualization and analysis of MD simulations of GPCRs, which promoted the foundation of the GPCRmd consortium. Furthermore, I have recently provided a putative mechanism for the ability of specific brain lipids to enhance the antipsychotic efficacy at the dopamine D2 receptor (Jobin et al. 2023 Mol. Psychiatry). I am also the co-corresponding author of the latter work

Partly thanks to my extensive mobility, with a total of 6 years abroad spent in 5 different countries, I have built a large network of collaborators, including renowned experts in the field like the Nobel Prize in Chemistry 2012, Prof. Brian Kobilka (Stanford)

I have contributed to my research field with 33 papers, several of them published in high impact journals including Nature (IF:70), Cell (IF:67), Nature Methods (IF:48), Molecular Cell (IF:19), Nature Communications (IF:18), Nucleic Acid Research (IF:17.0), Science Advances (IF:14), or Molecular Psychiatry (IF:13). Around one third of my research output corresponds to papers where I am either first (7) or corresponding (3) author. As of 02.2023, my work has received 1100 citations (Google Scholar). I have co-authored three review papers and three book chapters. I have supervised students, and directed one MSc and one BSc thesis.

Área Temática: **Biomedicina**
Nombre: CASTILLO DIEZ, SANDRA
Referencia: RYC2022-035574-I
Correo Electrónico: sandra.d.castillo@gmail.com
Título: Understanding the genetic and molecular landscape of endothelial-intrinsic disorders towards modelling and therapeutic intervention

Resumen de la Memoria:

I performed my PhD studies in the CNIO (Madrid) and IDIBELL (Barcelona) in the laboratory of Dr. Sanchez-Cespedes. For my PhD I combined high throughput technologies with computational biology to identify amplicons with a concomitant increase in gene expression in lung cancer. With this, I identified novel oncogenes and assessed their contribution to cancer onset and progression. During my postdoc in the laboratory of Prof. Vanhaesebroeck in London I made a key discovery finding that venous malformations are caused by oncogenic PIK3CA mutations. Through this, I generated the first genetic mouse model of this disease which allowed me to perform pre-clinical studies and test PI3K pathway inhibitors. In addition, I had a key role in the discovery that PI3K overactivation in cancer leads to centrosome amplification and tolerance to spontaneous genome doubling leading to irreversible genomic changes.

Back in Spain, I joined the laboratory of Dr. Graupera at IDIBELL and stablish a new research line aimed at the study of vascular disorders. Our work has led to understand the developmental and molecular contexts required for the pathogenesis of PI3K-driven vascular malformations. With this, we uncovered a longstanding question in the clinic, why PI3K-driven vascular malformations only occur during development, and why they worsen upon certain conditions. I am currently leading several projects aimed at the biological understanding of vascular-related disorders: (i) I have discovered that sustained PI3K overactivation in endothelial cells leads to a DNA methylation and transcriptomic rewiring that results in progressive extracellular matrix changes over time; also, this might be key in lympho-venous specification. (ii) By analysing biopsies from patients, I have found that somatic loss of PTEN in endothelial cells causes vascular malformations in PHTS/Cowden syndrome patients. (iii) We have generated the first mouse model of GNAQ-related vascular malformations and generated biological knowledge allowing drug screening and pharmacological studies for this very rare disease.

My plan for the next 5-year period is to develop my independent research line aimed at the biological understanding of rare diseases caused by oncogenic signalling in the endothelium towards preclinical modelling and therapeutic intervention. This includes several projects:
(a) Between 20-50% of vascular anomalies (including vascular malformations and tumours) are of unknown aetiology. With this project, I am applying multilayer networks coupled with variant calling approaches to decipher novel genetic and molecular drivers of these rare vascular anomalies. This will lead to the identification of new vulnerabilities for the development of therapeutic approaches.
(b) We will confront endothelial fates towards malformation versus malignancy. Similarly, we will confront the impact of the same oncogenic mutation in endothelium (leading to vascular malformations) versus epithelium (leading to cell transformation and malignancy).
(c) I propose that highly vascularized tumours mimic the pathogenesis of developmental vascular malformations. Thus, I aim to understand the intrinsic genetic and molecular traits of endothelial cells in these tumours. This will contribute to define a specific subgroup of patients that might mostly benefit for targeted antiangiogenic therapies.

Resumen del Currículum Vitae:

My PhD work in the laboratory of Dr. Sanchez-Cespedes (CNIO, Madrid; IDIBELL, Barcelona) provided important new insights in cancer genetics by identifying new oncogenes altered in lung cancer (Hum Mol Genet, 2009; J Pathol, 2010; Cancer Res, 2012; Expert Opin Ther Targets, 2012; Int J Cancer, 2013); because of this I was awarded with the best thesis from the University of Barcelona. During my PhD, I obtained an EMBO Short-Term Fellowship to work in the laboratory of Prof. Lovell-Badge (NIMR-MRC, London, UK) to explore the biology of cancer stem cells.

For my postdoc I was awarded with an EMBO Long-Term Fellowship to work in the laboratory of Prof. Bart Vanhaesebroeck in London (Queen Mary University and University College London, UK; 2012-2017). There, I explored the role of PI3K signalling in disease using state-of-the-art mouse models. My studies uncovered a new role of PI3K in vascular anomalies by discovering that oncogenic PIK3CA mutations cause venous malformations. This provided proof of concept for the use of PI3K pathway inhibitors in patients with vascular anomalies having a high translational impact in the clinic. My findings were published in the high-impact journal Science Translational Medicine with me as first and corresponding author (Sci Transl Med, 2016). This positioned myself as an international reference in the field of vascular anomalies, leading to academic and industry international collaborations. In addition, I was invited to write a review to provide an update on the classification of vascular anomalies and explore the role of PI3K signalling pathway in these diseases (J Pathol, 2016). During my postdoc we also discovered that PI3K overactivation leads to centrosome amplification, aneuploidy, and tolerance to spontaneous genome doubling leading to irreversible genomic changes in cancer (Nat Commun, 2017).

In 2017 I joined the laboratory of Dr. Graupera in IDIBELL (Barcelona) funded by a Beatriu de Pinós Fellowship and the prestigious Marie Sklodowska-Curie Individual Fellowship. Our studies have led to understand the developmental and molecular contexts leading to PI3K-driven vascular anomalies (Nat Commun 2018, Curr Opin Hematol 2019; EMBO Mol Med, 2022; as co-last and corresponding author).

Recently, I have been awarded with a Junior Leader Retaining fellowship from "la Caixa" Foundation to start my independent research lines aimed at the study of the genetic and molecular landscape of vascular-related disorders towards disease modelling and therapeutic intervention. For this, I have also been awarded as co-principal investigator in a project grant from the PTEN Research Foundation (UK) and I am a network partner on the EU MSCA-ITN Network Pipgen. Also, I am co-principal investigator of several research agreements with pharma companies to assess the impact of novel inhibitors for developmental vascular disorders (Arqule/Merck, Venthera, AstraZeneca, Artham Therapeutics and Vaderis). I have co-directed 5 master students

and 4 PhD students (ongoing) and gave lectures in the MSc. in Advance Biomedical Imaging (UCL, London, UK) and MSc. Biomedicine (University of Barcelona).

Área Temática:	**Biomedicina**
Nombre:	HADDAD TOVOLLI, ROBERTA
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Título:	Appetitive behaviours in the female brain: unravelling the underlying neurocircuits

Resumen de la Memoria:

Throughout my scientific career, I focused my research on mouse diencephalic development (Front Neuroanat, 2015; Front Neurosci, 2012; JOVE 2013) and on how maternal nutritional habits affect the development and wiring of the progeny's central nervous system, predisposing the offspring to metabolic and neuropsychological dysfunctions that ultimately lead to altered eating behaviours (AJP, 2023; Front Neurosci, 2017; Mol Metab, 2020). Since 2021, I am leading a new research line devoted to investigate the neuronal mechanisms controlling food preferences in pregnant females and their offspring (funded by a MSCA-IF) at the Neuronal Control of Metabolism Laboratory led by Dr. Marc Claret. I have recently revealed the neurobiology and molecular basis of gestational food cravings, a distinctive dietary behaviour associated with a plastic and dynamic modulation of the mesolimbic dopaminergic connectivity (Nat Metab, 2020). As a Junior Researcher, my current objective is to dissect the relation between common female physiological states (e.g., oestrous cycle, gestation), cell-specific molecular drivers of reward-driven feeding behaviours and its metabolic and neuropsychological consequences in both females and their offspring. My latest achievements have called the attention from both the scientific community (Research Highlights in Nat Metab and Nat Rev Neurosci, #7 Altmetrics Nat Metab 2022) and the general public (over 40 news headlines) which highlights the innovative and extremely relevant potential of my research.

I have extensive international experience (Germany, Brazil, Spain). Besides, I regularly act as a reviewer (journals and grants) and participate in outreach activities. I have matured my communication skills by constant dissemination of project results (workshops/lectures to the academic public; participation in scientific meetings and talk invitations; high-impact publications). My intrinsic leadership and disciplined skills led me to train students (1 tech, 1 BSc., 1 Master and 2 PhD), which provided me with a great sense of responsibility and mentorship.

My scientific experience, ascending academic trajectory and successful track record reflect my innovative thinking and ability to lead projects in various research fields (neuronal development, metabolism, maternal programming and eating behaviour) as well as to successfully plan and execute cutting-edge science in a highly collaborative manner while securing competitive funding. In addition, my intrinsic leadership led me to acquire group/project management skills necessary to reach my scientific maturity, making me outstandingly qualified to become a future reference within my research field.

I own a very proactive personality, and I strongly believe that an active collaboration and continuous communication between different groups are essential to construct exciting science. This can be translated by my broad network of collaborations with renowned researchers.

The program will crucially contribute to the advance of my professional maturity and to my consolidation as an outstanding scientist in the field of Systems Neuroscience, with particular focus on the female neuronal control of appetitive behaviours and maternal programming. It is of my strong belief to have the necessary innovative thinking and long-term aspirations required for a successful Ramon y Cajal Researcher.

Resumen del Currículum Vitae:

I am a biologist (University of Sao Paulo, Brazil, 2004-2007) with more than 10 years of academic research experience in the field of hypothalamic development, maternal programming, metabolism, and neurobiology of female feeding behaviours. I pursued a Diplom (master equivalent) in Biology (University of Tübingen, Germany, 2009-2010). I hold a PhD in Neuroscience (2014) from the University of Heidelberg, Germany. After a postdoc in the laboratory of Prof. Dr. Licio A. Velloso (University of Campinas, Brazil, 2015-2018) and in the laboratory of Dr. Marc Claret (IDIBAPS, Spain, 2018-2021) I became a Junior Researcher at the IDIBAPS in Barcelona.

I have an exceptional productivity, ability to communicate in collaborative and multidisciplinary settings. I have a strong educational background in molecular biology, mouse genetics, neurosciences and metabolism. I am author of numerous papers in reputable scientific journals (including Nature Metabolism, Cell Metabolism, Molecular Metabolism, Nature Communications, JCI) and have multiple contributions in national and international research meetings.

General quality indicators of scientific production
Number of articles in peer-reviewed journals: 21 (+3 under review and 3 in preparation)
Articles in D1/Q1: 12/13
Number of 1st author articles: 8 (4 in D1) (+1 under review and 1 in preparation)
Number of corresponding author articles: 4 (+2 under review and 1 in preparation)
Review papers: 3 (+1 under review)
Total number of citations: +400
H-index: 11

Mobility: Bachelor in Brazil, Master in Tübingen (Germany), PhD in Heidelberg (Germany). As a postdoc, 1 year and 5 months in Brazil and 4 years in Spain.

Communications in National and International Conferences: 7 invited talks, 3 oral communications and 10 poster presentations.

Trainees: two PhD students (one in progress, one between 2015-2018), one master student (in progress), a technician (2021), and one Bachelor student (2015-2016).

Participation in Competitive Research projects: 4 Projects as Principal Investigator (+1 research grant application under revision), 1 as Co-PI.

Fellowships and Grants
- Marie Curie Individual Fellowship (H2020-IF-2019) (2021-present) (European Commission) 160.932,80€
- Individual Postdoctoral Fellowship FAPESP (2015-2018) (Brazil) 169.557,84R$
- Individual Postdoctoral Fellowship BEPE-FAPESP (2016-2017) (Brazil) 83.300,80R$ + 43.726,37US$
- PhD fellowship from the German Academic Exchange Service (DAAD, 2010-2014) (Germany) 52.500,00€
- Co-PI Principal Investigator CNPQ (Brazil) 30.000,00R$
- Collaborator in ERC-Co (MITOSENSING) 2,5 million€, OCRC (FAPESP, Brazil) over 10 millionUS$
- Micro Travel Grant for the II Kavli NSI Workshop in Tissue Clearing held by the Rockefeller University (MCAA European Commission)

Evidence of Esteem
- Peer-reviewer for international journals (Front Neurosci, JCI, Biol Psych, Cell Metab)
- Member of MCAA alumni association (Brazil Chapter and Spain and Portugal Chapter)
- Media coverage of my last research article (Haddad-Tovolli 2022 Nat Metab), interviews on national and international TV, radio, journals, news, and blogs. Altmetrics of 322, #7 of Nature Metabolism papers 2022.

Área Temática:	**Biomedicina**
Nombre:	RUIZ SÁENZ, ANA
Referencia:	RYC2022-036636-I
Correo Electrónico:	anitalquimia@gmail.com
Título:	Overcoming resistance to anticancer therapies

Resumen de la Memoria:

I am an experienced researcher fascinated by the complexity of cell signaling and how tumor cells exploit this advanced circuitry to undermine the efficacy of anti-cancer therapies. Therefore, throughout my career I have combined fundamental and translational research to uncover new vulnerabilities involved in cancer progression and target them.

During my PhD I used biochemical approaches and state-of-the-art microscopy to identify and characterize new cytoskeletal protein interactions involved in cell migration. I obtained an EMBO fellowship to learn sophisticated live-imaging microscopy at the Erasmus Medical Center in The Netherlands and published 6 research articles, 2 of them as first author in the Journal of Cell Science.

In 2013 I moved to the University of California San Francisco (UCSF) to investigate the molecular mechanisms underlying resistance to anti-cancer therapies in breast and colorectal cancers. Integrating excellent research, collaboration and valorization, I published 11 research articles. These interdisciplinary projects incorporate CRISPR-Cas9 technology, 3D cultures, xenograft models and high throughput approaches and revealed: (1) new vulnerabilities on therapy-resistant colorectal tumors using an innovative platform for mapping kinase activity (Ruiz-Saenz et al., Nature Cancer (in press); (2) a novel strategy to target HER3 in HER2-amplified breast cancers (Ruiz-Saenz et al.,Oncogene 2015); (3) the potential of HER2 to overcome HER3 requirement for tumor development (Ruiz-Saenz* et al., Cancer Research 2018–*co-corresponding author; Ruiz-Saenz et al.,J Clin Oncol 2018), (4) new molecular mechanisms undermining effective treatment of HER2-amplified breast cancer (Campbell MR, Ruiz-Saenz et al., 2022) and, (5) new insights into the mode of regulation of SRC in cancer (Ruiz-Saenz et al., Mol Cancer Res 2021; Spassov DS, Ruiz-Saenz et al., Cell Reports 2018). As part of my training, I participated in the preparation of 3 NIH grant proposals awarded to my postdoctoral supervisor and collaborators.

In 2019 I stablished my own research group at Erasmus MC in The Netherlands. My research line aims to decipher the role of glycosylation in the efficacy of targeted therapies integrating clinical data, advanced cancer-immune co-culture models (Vincken and Ruiz-Saenz, STAR protocols, in revision, corresponding author) and 3D high content live-imaging. To support this research I obtained funding from the prestigious Marie Skłodowska-Curie Actions program and from the Dutch Research Council. The results of this project are being prepared for 2 research articles in which I am corresponding author and have led to a project agreement with Astrazeneca to expand our findings to a new and promising therapeutic agent.

My international experience at UCSF and Erasmus MC has enabled me to establish fruitful collaborations with international experts in different fields and allowed me to disseminate my research findings in multiple science-communication platforms, including more than 25 (inter)national meetings and the open access online educational platform iBiology. I have also supervised 15 students and research assistants including the direction of 2 PhD students (ongoing). In this scenario, the Ramón y Cajal program will be instrumental to pursue my research line and support the next steps in my career as independent researcher.

Resumen del Currículum Vitae:

My long-term goal is understanding the factors underlying the efficacy of targeted anticancer therapies to provide a mechanistic basis for the optimal use of these drugs in the clinic.

After graduating in Biochemistry from the Autonomous University of Madrid (UAM) in 2006, I was awarded a FPI predoctoral fellowship and an EMBO fellowship to complete a PhD at the Centro de Biología Molecular Severo Ochoa and learn sophisticated live-imaging microscopy at the Erasmus Medical Center in The Netherlands. This work resulted in 2 first-author publications in J Cell Sci and 4 additional publications. In 2011, I obtained my PhD in the UAM graduating with Sobresaliente Cum Laude.

In 2013, I was awarded a Ramón Areces Postdoctoral Fellowship and joined the laboratory of Prof. Dr. Moasser at the University of California San Francisco (UCSF). My work revealed new vulnerabilities on therapy-resistant colorectal tumors and provide new insights into the resilience of HER2-amplified breast cancers and how to tackle them. All this work has been published in 11 research items, including 4 research articles as leading and/or co-corresponding author in relevant journals in the field such as Nature Cancer, Cancer Research and Oncogene. I also participated in the preparation of NIH grant proposals awarded to my postdoctoral supervisor and collaborators.

In 2019 I stablished my own research group as principal investigator and currently Assistant Professor at Erasmus MC in The Netherlands. My main line of research addresses the impact of tumor glycosylation on the efficacy of targeted therapies using advanced 3D co-culture immune-cancer models. The results of this project are being prepared for publication and part of them already in revision in an article in which I am corresponding author. This work is supported by competitive funding that I obtained from the prestigious Marie Skłodowska-Curie Actions program and the Dutch Research Council. Importantly, I recently partnered with Astrazeneca to develop a new project using a promising therapeutic agent.

As group leader, I am currently directing 2 PhD thesis, a TFM and a TFG. I have also supervised 4 MSc and BSc students and 7 research assistants. I was selected for 2 Scientific Leadership & Management Skills courses in the US and The Netherlands and I am lecturer of the Molecular Medicine MSc program at Erasmus MC.

I have presented my research findings at 24 international and 7 national conferences, including 12 as selected or invited speaker. I received 3 best talk and poster awards and 88% of my research is Open Access (Impactstory). I have coordinated and actively participated in numerous outreach activities, including fundraising events, symposiums, seminars and science communication events. I also collaborate with the open-access platform for science communication iBiology, serve as reviewer for scientific journals and the Dutch Research Council and I am an active member of 4 scientific organizations.

My research career in 3 different countries has led to 18 publications and provided me with valuable technical, personal skills and collaborations that I will leverage to deepen the understanding of cancer progression using novel approaches with the ultimate goal of contributing to design more effective drug combinations and identify new biomarkers for personalized treatments.

Área Temática:	Biomedicina
Nombre:	CUTANDO RUIZ, LAURA
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Título:	Study of the cerebellum under physiological and pathological conditions

Resumen de la Memoria:

My main career plan is to devote myself to academic research in the field of Neurobiology, and more particularly on studying the cerebellar physiology. I have been exploring the cerebellum in physiological and pathological conditions for more than 15 years. During my Master and PhD at Neurophar Lab (UPF, Spain) I have studied the effects of cannabis consumption in the cerebellum. To do so, I secured a PhD position by obtaining the PhD Fellowship Fondo de Investigación en Salud (PFIS) (ISCIII). In addition, during the PhD internship of 5 months I performed at Dr. Kano Lab (Tokyo University, Japan) I evaluated the effects of endocannabinoids in the performance of cerebellar-dependent tasks, and particularly on the motor coordination. I performed this internship thanks to obtain 3 competitive travel grants. In 2016, I joined Dr. Valjent Lab for my 1st postdoc thanks to attain a postdoctoral fellowship from the French Ministry of Research. In this lab, I primarily worked in a project aimed to characterize the presence and role of cerebellar D2R. In addition, I also analyzed the mechanism of action by which psychostimulant drugs modulate cerebellar activity through a noradrenergic-dependent mechanism, and the role of cerebellar aquaporin-4 in edema formation. In 2020 I joined Dr. Quintana Lab (UAB) for my 2nd postdoc, where I am still currently working thanks to obtain a Marie Curie Individual Fellowship. The main aim of Dr. Quintana lab is to study the mechanisms underlying neuronal susceptibility in primary mitochondrial diseases. Indeed, I am working in two projects aimed to analyze the cerebellar mitochondrial alterations in Leigh and Rett Syndromes. This research experience is giving me the opportunity to acquire new knowledge and skills in mitochondrial physiology.

All the work performed in my research career gave rise to 12 articles (4 as first author, 1 as corresponding author) and 1 book chapter, with an ample scientific coverage as shown by the 380 citations I accumulated. In addition, I have learnt communication skills by presenting my results in more than 30 conferences, in numerous outreach activities and talks for lay audiences and in several medias (including newspapers, radio interviews or TV shows). Moreover, I had also the opportunity to build up my leadership qualities by mentoring 16 ungraduated, Master and PhD students and by teaching at various universities (UAB, UPF, TecnoCampus, UOC). I contributed to 10 national and international research projects as a team member. In one of these projects, I exerted as a P.I in (157 K €). During the 15 years of my research career, I acquired advance skills in molecular biology, pharmacology, animal behavior, histology/anatomy, and in state-of-the-art techniques such as the RiboTag approach, transcriptomics, iDISCO, DiOlistics, AAV generation or MitoTag approach.

Hence, with all this formation, the future line of research I would like to lead will be focused on studying the cerebellum under pathological circumstances, such as in mental disorders by paying a special attention to the mitochondrial function. I truly believe I have the expertise and confidence to lead new innovative projects on the cerebellar pathophysiology. Thus, being awarded with the Ramon y Cajal grant will represent a unique opportunity to consolidate myself as an independent researcher in the cerebellar field.

Resumen del Currículum Vitae:

As ungraduated student, I performed summer internships at Dr.Rigol Lab (2005, IDIBAPS, Barcelona, Spain) and at Dr. Puente-Maestu Lab (2006, Gregorio Marañón Hospital, Madrid, Spain). I studied a BSc of Biology (2003-2008) at Pompeu Fabra University-UPF (Barcelona, Spain) and a MSc in Neuroscience (2008-2010) at University of Barcelona (Spain). From 2010-2015, I performed a PhD in Biomedicine by working at Neurophar Lab (UPF). For my PhD internship, in 2014, I moved to Tokyo University (Japan) for 5 months. In July 2015, I completed my PhD with International Mention and Great Honors (Cum Laude). In 2016 I moved to Montpellier (France) to perform my 1st postdoc at Dr. Valjent Lab (Institute of Functional Genomics) where I worked for 4 years. At late 2020, I returned to Barcelona to perform my 2nd postdoc at Dr. Quintana Lab (Autonomous University of Barcelona-UAB, Spain), where I am currently holding a postdoctoral position.

During my PhD and postdocs, I obtained 4 competitive fellowships, including a Postgraduate fellowship from La Caixa Foundation, a PhD fellowship from "Fondo de Investigación en Salud (PFIS)" (ISCIII), a Postdoctoral fellowship from "Labex EpigenMed" (French Ministry of Research) and a Postdoctoral Marie-Curie Individual Fellowship (Horizon Europe). I also attained 3 travel grants to fund my PhD internship at Tokyo University, including the "Boehringer Ingelheim", the "Cannon Foundation" and the EMBO travel grants. In total, I have participated in 10 research projects (total funding of over 1 million €) funded by the Spanish and French Governments, as well as the European Commission via Horizon H2020. I am the principal investigator (PI) in one of these projects (MSCA-IF-2020) with a total budget of 157K €and the co-leader of another one funded by AFSR of 15K €(P.I. Dr. Valjent). My publication record includes 12 peer-reviewed articles (4 as first-author, 1 as corresponding author) and 1 book chapter. 3 of these articles were published at the high-impact journals Nature Neuroscience, JCI and PNAS. In addition, I have 3 publications under preparation (1 as first-author and 2 as last-author). All publications are indexed in Web of Science and published at journals in the 1st quartile (Q1) as shown in SJR. Overall, I have an h-index of 9 and a total number of 380 citations (Google Scholar).

My work has been presented in +40 national and international conferences worldwide by myself and my collaborators. Specifically, I attended to 30 conferences, where I performed 8 oral presentations, one of them awarded with the Best Oral Communication Prize. Moreover, I performed 1 invited talk (2019), and I chaired a conference session (2015). I have participated in +10 dissemination and outreach activities including talks at universities, high schools, etc., and I contributed to scientific media dissemination by writing press releases and participating in TV shows and radio interviews. My communication abilities were also important for the teaching duties I performed at UPF, UAB, UOC and Tecnocampus Mataró (17 ECTS, approx. 500h). In 2020, I hold the accreditation of "Acreditació Professor Lector" from the AQU. Finally, I served as a reviewer for the journal Metabolic Brain Disease. Furthermore, I also had the opportunity to widen my leadership qualities by mentoring 9 ungraduated, 4 Master and 2 PhD students and 1 technician.

Área Temática:	**Biomedicina**
Nombre:	GAÑÁN GÓMEZ, IRENE
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Título:	Deconstructing MDS pathogenesis and drug resistance

Resumen de la Memoria:

I, Irene Gañán Gómez, have been an Instructor (junior research faculty appointment) in the Department of Leukemia at MD Anderson Cancer Center (MDACC; Houston, USA) since 2019. I have an interdisciplinary background as a biomedical researcher, with a degree in Pharmacy (2008), a PhD in Cell Signaling (2013) and substantial postdoctoral training in translational leukemia research (2014-2019).

My research trajectory started with the investigation of the mechanisms eliciting leukemic cell resistance to cytotoxic therapies (2008-2013) and subsequently evolved into the detailed study of hematopoietic stem cells (HSCs) in myelodysplastic syndromes (MDS), with a focus on the cellular and molecular mechanisms driving disease progression as well as response to standard therapies in MDS patients. My most important contribution in the MDS field was the discovery that MDS are maintained by aberrant HSC differentiation hierarchies originated by distinct HSC subtypes, which drive MDS progression to leukemia after relapse to standard therapies. Upon transformation, MDS HSCs are transcriptionally rewired and become selectively addicted to specific survival pathways, which can be targeted with different therapies. Indeed, I found that patients' aberrant HSC architectures are biomarkers of drug response after relapse to frontline treatment. Moreover, on the basis of the corresponding HSC hierarchies, I was able to validate a therapeutic alternative for a group of MDS patients, which led to the opening of 3 clinical trials at MDACC.

My current line of research is aimed at identifying therapeutic targets that allow prevention or early-intervention strategies in MDS patients. Through the study of the HSC compartment in patients with premalignant stages of MDS, I found vulnerabilities in the HSCs that can be leveraged to eliminate them before or at the onset of the disease. My results have led to the opening of a clinical trial in MDS patients at MDACC and warrant further trials in premalignant stages. In this line, I am currently investigating how MDS clones escape immunosurveillance at the onset of MDS, in order to harness the immune response to eradicate MDS HSCs before they overpopulate patients' bone marrows and poor prognoses become inevitable.

My work has resulted in more than 30 peer-reviewed publications in prestigious scientific journals (such as Nature Medicine and Leukemia), as well as in the funding of several junior investigator awards (MDACC Kimberly Patterson Fellowship in Leukemia Research, 2016; MDACC Leukemia SPORE Career Enhancement Award, 2019-2020) and substantial grants (key investigator in several funded grants totaling more than 12 M €). I am also a reviewer in several Q1 journals such as Leukemia, Journal of Experimental & Clinical Cancer Research, Aging and Nature Medicine. Through my studies, I have specialized in HSC biology and acquired technical skills that are essential in this field, such as proficiency in cell isolation, flow cytometry, next-generation sequencing, animal modelling and ex vivo culturing, among others. My chosen career path has also conferred me significant expertise in translational research as well as independent thinking and leadership skills, acquired through my involvement in every step of the scientific method in all my projects and through my day-to-day interaction with collaborators and mentees.

Resumen del Currículum Vitae:

As a PhD candidate (2009-2013), in the Department of Systems Biology at (UAH, Madrid, Spain), I studied the role of antioxidant protection as a mechanism of chemoresistance (Ganan-Gomez et al. 2015). My PhD studies were supported by an Introduction to Research Activity award (UAH, 2009) and a Research Staff Training Award (Council of Science and Technology, Castilla-La Mancha, Spain, 2009-2013). I also obtained two Jose Castillejo Travel Awards (Council of Science and Technology, Castilla-La Mancha, Spain, 2010-2011) that allowed me to intern for several months in the laboratory of Dr. Guillermo Garcia-Manero in the Department of Leukemia at MD Anderson Cancer Center (MDACC; Houston, Texas, USA). There, I participated in several projects studying the role of epigenetic regulators and oxidative stress in myelodysplastic syndromes (MDS) (Wei, Gañán-Gómez et al. 2011; Gañán-Gómez et al. 2013) and I unveiled the role of microRNAs in the modulation of cell fate in MDS pathogenesis (Gañán-Gómez et al. 2014). I obtained my PhD with honors in 2013.

In 2014, I started a Postdoctoral Fellowship at MDACC to pursue translational research. While maintaining my interest in innate immune/inflammatory signaling in MDS (Gañán- Gómez et al. 2015), I focused on the study of hematopoietic stem cell (HSC) biology, mentored by Dr. Simona Colla. My studies showed that MDS patients could be stratified into two biologically distinct subtypes in which disease progression was driven by the expansion of distinct HSC populations. I successfully identified and validated key molecular targets in MDS progression and proposed different therapeutic approaches to target HSCs in each of the two MDS subtypes. My work was recognized with the Kimberly Patterson Fellowship in Leukemia Research award (MDACC Endowed Fellowship Award Program, 2016) and published in Nature Medicine (Ganan-Gomez et al., 2022). My main contribution is the notion that a specific subset of MDS patients could benefit from therapy with the pro-apoptotic drug venetoclax after failure to standard therapies, which provided the rationale for the opening of 3 clinical trials of venetoclax-based therapy in MDS at MDACC.

My ongoing research is aimed at addressing whether MDS can be intercepted at their early stages to prevent disease evolution. This project was partially funded by a Career Enhancement Award (MDACC Leukemia SPORE Program, 2019-2020). My results, unraveling the stem cell mechanisms driving premalignant stages of MDS, have provided a novel therapeutic target, interleukin-1β (IL-1β) signaling, for the early treatment of MDS. Those results were presented at the 2021 meeting of the American Hematology Association (Ganan-Gomez et al. 2021), led to the opening of a clinical trial of the IL-1β inhibitor canakinumab in patients with MDS at MDACC (manuscript in preparation).

In addition to my research work, in the past 5 years I have participated in the training of other young investigators by assisting in the supervision of undergraduate and graduate students, as well as postdoctoral and clinical fellows. I have also served as an evaluator for the international certification of a PhD thesis (Belen Sánchez Gomez, UAH, 2022) and reviewed scientific manuscripts for Leukemia, Oncotarget, Journal of Experimental & Clinical Cancer Research, Aging and Nature Medicine.

Área Temática:	**Biomedicina**
Nombre:	MARTÍNEZ TÉLLEZ, BORJA MANUEL
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Título:	Towards exercise-mimicking pills for combating cardiometabolic diseases

Resumen de la Memoria:

My research revolves around the molecular mechanisms that explain the cardiometabolic benefits of exercise training and cold exposure in humans with chronic diseases. My expertise relies on how brown fat and gut microbes, via lipid metabolism, modulate cardiometabolic health, whereas my long-term goal is to use these findings as the foundation for precision medicine, namely using -omics profiles to personalise health treatment and to diagnose the presence of chronic diseases early.

During the PhD studies, I performed the most comprehensive human randomised controlled trial that elucidated the role of exercise training in brown fat activation in 90 adults (Nat. Comm. 2022). Here, I discovered that the cardiometabolic benefits of exercise are not explained by brown fat activation but might be explained by the contribution of other organs. Until January 2022, I was appointed as a junior postdoctoral researcher at Leiden University Medical Center, one of the better hospitals in the Netherlands and Europe. Using different lipidomic and transcriptomics approaches, I identified novel plasma signatures that can be used as markers for the early identification of cardiometabolic diseases (2 manuscripts at EBioMedicine 2022). I also unravelled that skeletal muscle is responsible for producing oxylipins and endocannabinoids during exercise training in humans. Together with my 2 Dutch PhD students, we discovered that cold exposure increases plasma levels of even fatty acids in humans and mice. We demonstrated that these effects are fully mediated by white fat lipolysis since an intralipolysis blocker ultimately reverts the elongation of even fatty acids in plasma. We also unveiled that beta 2 is the primary receptor driving human brown fat thermogenesis (Cell Rep. Med. 2023). Together with my 2 Spanish PhD students, we discovered a human gut bacterium that increases by 30% muscular strength in mice in the absence of exercise via the production of amino acids (patent filled). Thanks to this discovery, I have just submitted an ERC-StG 2023 proposal (MIRACLES; SEP-210903055) and a Proyecto de Generación de Conocimiento 2022 (DEBATE; PID2022-141442OA-I00). In short, I have supervised 5 PhD theses and am supervising one more thanks to the project that I got as PI. Due to my commitment to Open Science and reaching a broader audience, I have co-created two outreach companies, software, and various registers to the intellectual property agency that are freely available. Recently, I got a Maria Zambrano fellowship at the University of Almeria (January 2022), where I am starting my own independent research group.

Altogether, it will allow me to start my ambitious new research line. Award of this Ramón y Cajal fellowship will pave the way for equipping me with the necessary resources and protected time to kick-start my own ambitious, interdisciplinary research program at Almeria University. This award will be an essential step towards securing my research group and establishing myself as an independent research leader, unveiling how exercise and cold exposure could improve cardiometabolic health via gut microbes and brown fat in preclinical and clinical models.

Resumen del Currículum Vitae:

Scientific career: During his PhD studies, Dr Martinez-Tellez conducted one of the most comprehensive studies in brown adipose tissue (BAT) and demonstrated that the cardiometabolic benefits of exercise training in humans are not explained by BAT metabolism but by the involvement of other organs/systems (Martinez-Tellez, Nat Commun 2022). In 2018, Dr Martinez-Tellez started his postdoctoral period at LUMC. He immediately set up his independent research line focused on unravelling the role of BAT and gut microbiota in cardiometabolic health. Dr Martinez-Tellez revealed that: i) beta-2 is the main adrenergic receptor activating human BAT (Straat, Cell Rep Med 2023), and ii) cold exposure orchestrates a unique lipidome response (i.e., omics analyses; Straat, EBioMedicine, 2022). These findings suppose a paradigm shift in the field and open the development of new therapeutic targets for BAT activation. Additionally, he discovered a human gut bacterium that increases by 30% muscular strength in mice in the absence of exercise training (patent filled). Thanks to this groundbreaking data, Dr Martinez-Tellez has applied to the ERC − Starting Grants (MIRACLES; reference: SEP-210903055). All these scientific-technical achievements are exemplified by 90 scientific articles (i.e., 26% D1, 69% Q1; 24-GS). In addition, Dr Martinez-Tellez co-founded two start-up companies (The Voice of Science SL and MetHub SL).

Internationalization: Dr Martinez-Tellez spent 20% of his PhD's time abroad (8 months in LUMC and 1 month in NIH, USA), whereas he spent his postdoctoral period abroad (LUMC; Nov 2018-Dec 2021: 38 months). Additionally, Dr Martinez-Tellez is currently doing an internship at Yale University (USA, Dr Brooks Leitner), where he is learning how to perform bioinformatic analyses in Open Access repositories (Jan-Mar 2023, 3 months). Meanwhile, Dr Martinez-Tellez is visiting researcher at the LUMC travelling every 3 months to perform experiments with his Dutch PhD student. Due to its international recognition, he currently has very active and fruitful international collaborations with researchers from The Netherlands, Sweden, Canada and USA. He has reviewed manuscripts for prestigious journals, including Nature Medicine or Diabetes Care. He has also participated in review boards of different countries [i.e., Auckland Medical Research Foundation (Australia) or WCRF International Regular Grant Programme (UK)].

Leadership, PhD supervisions and independence: As an independent researcher, Dr Martinez-Tellez has received funding to lead 4 projects (see C.3). Dr Martinez-Tellez has co-supervised 5 PhD theses and is co-supervising another PhD thesis at LUMC. Moreover, he has been invited to international conferences to present his pioneering data on BAT and gut microbiota. Dr Martinez-Tellez has published 15 manuscripts (~20% of the total publications) without his PhD supervisors. He is currently setting up his own research group with two future Spanish PhD students applying to different PhD grants.

Vision: Dr. Martinez-Tellez applied for the RyC Junior fellowship last year, but despite receiving positive feedback, he was placed on the waiting list due to a lack of a prestigious publication. However, with recent publications in Nat. Comm. 2022 and Cell Rep. Med. 2023, he believes that the RyC fellowship will help him establish himself as an independent PI.

Área Temática: **Biomedicina**
Nombre: DAZA MARTIN, MANUEL
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Título: Understanding the molecular basis of DNA repeat instability in neurological disorders

Resumen de la Memoria:

To maintain genomic stability and prevent disease progression DNA needs to be accurately repaired when is broken or damaged. Certain DNA sequences are more prone to breakage than others and can also get expanded or contracted. Some of these breakage-prone sequences are repetitive and are scattered across the genome with no apparent function. However, other repetitive sequences have been heavily associated with neurodegenerative diseases such as Fragile X syndrome, myotonic dystrophy, Huntington disease or Friedreich's Ataxia. These diseases are catalogued as expansion repeat disorders and are genetically unstable.

Understanding if novel repetitive sequences are physiologically relevant or associated with disease has been challenging, since genomic screens performed in a disease context could not accurately map repeat location across the genome, repeat length or tissue prevalence. However, novel genomic and computational methods, such as GangSTR and Expansion Hunter, have now strikingly been able to produce enough coverage to assign genomic location, repeat length and sequence characteristics. These studies interestingly suggest that complex neurological disorders such as autism, Amyotrophic Lateral Sclerosis (ALS), schizophrenia or bipolar syndrome could be associated with the prevalence of novel repetitive sequences. However why or how remains poorly understood. My long-term goal is to understand the molecular mechanisms by which such repetitive sequences can contribute to disease onset.

I thus propose an innovative multidisciplinary approach that combines, state-of-the-art cell biology and biochemistry techniques to elucidate if repetitive sequences recently implicated as a risk factor for common neuropsychiatric disorders disorders, such as bipolar disorder and schizophrenia, are a source of genomic instability and can drive disease progression. To do so, I intend to establish new cellular models that will allow me to study these repetitive sequences in an isolated manner. Altogether, the results generated from this proposal should lead to important discoveries on how neuropsychiatric disorders progress, potentially having long-term impact in patient treatment and diagnosis.

Resumen del Currículum Vitae:

I completed my Master's studies in molecular biomedicine at the Universidad Autonoma of Madrid and did my Master's project in Prof. Isabel Merida's laboratory at the Spanish National Center for Biotechnology (CNB-CSIC), where I studied the contribution of DGK to breast cancer development. Some of the scientific findings I made were included in a paper published in Oncotarget (Torres-Ayuso et al. 2014), where I'm second author.

After my Masters, I was awarded a prestigious CRUK PhD studentship at the University of Birmingham (UK) under the supervision of Prof. Jo Morris. During my PhD I investigated a long-standing question in the DNA repair field: how BRCA1 protects stalled replication forks and whether this specific role differs from its function during homologous recombination (HR) repair. My thesis work uncovered that the ability of BRCA1 to protect nascent DNA after replication stalling is regulated in an unexpected fashion through BRCA1 conformational change. In addition, for the first time I characterized a separation of function mutation in BRCA1 required for fork protection but not for HR. This study, in which I am the first author, was published as an article in Nature (Daza-Martin, M. et al. 2019) and was the subject of a self-commentary published in M&CO (Daza-Martin, M. et al. 2019). With this work, I was selected to give a talk at the 2018 GSN conference in Cambridge and was awarded best poster presentation and PhD student talk prizes. My thesis findings provide solid evidence on how BRCA1 modulates fork protection and its potential impact on cancer development and these findings are now being used by other research groups.

After my PhD, I decided to join Dr. Gideon Coster's laboratory at the Institute of Cancer Research (ICR) in London. As a postdoctoral researcher I investigated how the replication machinery deals with repetitive sequences. During my postdoctoral work I have master the use of a world-class landmark biochemical approach that enables faithful DNA replication in the absence of a cellular matrix using purified recombinant factors. My work recently published in Nature Communications (Casas-Delucchi, CS. and Daza-Martin, M. et al. 2022), where I am a joint first author, provides an exciting glimpse into how the replisome behaves as it encounters repetitive DNA and sets the grounds for better understanding of disease progression. This study has had a major impact in both the DNA replication field and the repeat instability field and I have been selected to present it at an international conference in Canada and at a national one in Birmingham.

As part of my postdoctoral studies, I have also established a complete new line of research to study if repetitive sequences are a source of DNA damage in human cells. This new research line has granted me complete independence from my current supervisor and has strengthen my scientific profile to pursue an independent researcher career.

My career ambition is to become a principal investigator and establish my own research laboratory. Obtaining a "Ramon y Cajal fellowship" will grant me the opportunity and the autonomy to conceive, design and manage my own project and budget and will serve as an excellent platform to return to Spain as an emerging group leader to study if repeat instability is associated with neurological disorders.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	PLA MARTIN, DAVID
Referencia:	RYC2022-035551-I
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Título:	Mitochondrial homeostasis and disease mechanisms

Resumen de la Memoria:

During my scientific career, I had the opportunity to conduct research in several centres in Spain and in Germany. Among them, IBV-CSIC, CIPF in Valencia (Spain), the CIBER of Rare Diseases in Spain, CECAD - University of Köln, and at the Institute of Physiology - Uniklinik Köln. Recently, I have been admitted as a member of the Cologne Molecular Medicine Center as a junior group leader.

My research history comprehends the study of mitochondrial function, the different aspects of this organelle within the cell and how its dysfunction leads to human pathologies.

Initially, my research was focused on the pathological mechanisms of GDAP1 deficiency, a protein related to Charcot-Marie-Tooth neuropathy (CMT). GDAP1 is a mitochondrial membrane protein, originally related to mitochondrial dynamics. However, its function was on debate and the mechanisms linked to CMT disease unknown. During my time as a PhD student, we provided new insights on the cellular function of this protein. We linked GDAP1-CMT to Ca2+ dysregulation, we proved the effect of GDAP1 mutations on mitochondrial distribution and Ca2+ and, we described the first genetic modifier influencing GDAP1-CMT.

During my early postdoctoral time, I was focused on understanding mitochondrial function and how mitochondria adapt to metabolic changes or stress. We described the first RNA-binding protein for nuclear-encoded mitochondrial proteins, known as CLUH. We discovered that CLUH stabilizes mRNAs encoding mitochondrial proteins. In addition, we found that CLUH adapts mitochondrial metabolism to nutrient accessibility by controlling mTORC1 function and mitochondrial turnover. Hence, we conclude that CLUH orchestrate an adaptive metabolic response supporting a metabolic shift by activating mitochondrial turnover and biogenesis.

As a senior researcher and recently, as a group leader, I have been focused on understanding how mitochondrial DNA (mtDNA) damage leads to tissue dysfunction. Recently, we described a new mechanism where mutated mtDNA is eliminated through endosomes, avoiding the activation of an exacerbated immune response and/or uncontrolled mitophagy. Based on these new results, I would like to continue studying the molecular basis of endosomal-mitophagy. I would like to develop a new mouse model to study the link between mtDNA damage and movement disorders. In addition, I would like to exploit the modulation of endosomal-mitophagy to counteract the development of mtDNA relates diseases. My program is directed to describe basic mechanisms and guide our findings to translational approaches which, in the future, may help the understanding and development of therapies for mitochondrial human diseases and aging.

Resumen del Currículum Vitae:

Shortly after I finished my Master¿s studies at the University of Valencia, I was granted with a fellowship from the Minister of Science (FPI).Hence, in 2007, I started my PhD in the Institute of Biomedicine of Valencia – CSIC, under the supervision of Dr. Palau. During my PhD studies, we clarified the role of GDAP1, a protein involved in Charcot-Marie Tooth (CMT) neuropathy. Our research was presented in several international conferences, both as poster and oral presentations. Successfully, we were able to publish different manuscripts where we described: i) novel functions for GDAP1; ii) the phenotype for a new mouse model related to GDAP1 deficiency; iii) the first genetic modifier influencing GDAP1-CMT, named JPH1 or Junctophilin, and iv) the effect of GDAP1 pathological missense mutations on mitochondrial distribution and Ca2+.

In 2014, I started an international postdoctoral work in Cologne, Germany. During my work in the Cologne Excellence Cluster of Age-related Diseases (CECAD), I explored the post-transcriptional regulation of mitochondrial function. Thus, we characterized a new regulator of mitochondrial metabolism named CLUH and described its role in stabilization of mRNAs for mitochondrial proteins. Noteworthy, we demonstrated also the link between CLUH and the master regulator of metabolism mTORC1.

In 2017 I initiated a new role as a senior postdoc which led to my recent inauguration as a group leader. My research has been directed on the study of mtDNA instability, how it affects aging and disease progression. During this time, I built up my own research line, based on the study of mitochondrial quality control, mtDNA, inflammation, and tissue degeneration. Recently, in a new publication, we have described a new mechanism controlling mtDNA turnover, which counteracts the activation of the immune response and exacerbated mitophagy, occurring upon mtDNA damage. All these publications would not have been successful without the help from my collaborators, in Cologne but also international.

My academic profile is illustrated by the increasing sum of students I have been mentoring in the last years. I have successfully supervised 2 master and 3 bachelor theses. At this moment, I am supervising two master students and I am co-directing a PhD student, who will graduate in 2023.

As a member of the University of Cologne, I am involved in teaching for biology, biochemistry and medicine. I teach in Master Modules for Medical Biochemistry and Molecular Medicine at the University of Cologne, providing seminars on mitochondrial disorders, Ca2+ homeostasis and Techniques to study mitochondrial function. I also collaborate in the organization of the Master¿s module: Mitochondria and Neurodegeneration, and in practical courses on Nerve-muscle communication for the medical students in Physiology. As a senior researcher, I have been granted with different funding programs. Precisely, I was granted with the Köln Fortune grant in 2019 and 2022. In 2020 I got an Independent Research grant for the DFG and, recently, I was awarded with the Career Advance Program from the Cologne Molecular Medicine Centre (CMMC), where I have started my own lab.

Área Temática:	**Biomedicina**
Nombre:	SANCHEZ MARTINEZ, DIEGO
Referencia:	RYC2022-036727-I
Correo Electrónico:	diegosanmar@msn.com
Título:	ADOPTIVE CELL THERAPY TO ELIMINATE RELAPSE/REFRACTORY TUMORS

Resumen de la Memoria:

ADOPTIVE CELL THERAPY TO ELIMINATE RELAPSE/REFRACTORY TUMORS

Immunotherapy was designated as the medical breakthrough of the year in 2013 by the journal Science. This outstanding therapy allows the recovery of cancer patients who have no other options and require palliative care. During my PhD, I started my career, which has been extended in two post-doc stages, always joined to cancer immunotherapy, and searching new alternatives to relapse/refractory tumors.

I have studied the anti-tumor function of the immune system during the last 12 years, focusing on the role of both immune cells T and NK cells. I have developed adoptive immunotherapy protocols for allogenic NK cells that has shown great effectiveness at the preclinical level in recognizing and eliminating hematological and solid tumors from adult with poor prognosis (Sánchez-Martínez, et al., Int Journal Biochemistry&Cell Biology, 2014; Sánchez-Martínez, et al., Oncoimmunology, 2015; Sánchez-Martínez, et al., Front Immunol, 2016; Lanuza, et al. 2018, Oncoimmunology, 2018; Sánchez-Martínez, et al., Theranostics, 2018; Tania Calvo et al., Scientific Reports, 2020). In fact, the first clinical trials developed with these cells have demonstrated effectiveness and safety in adult leukemias (Locatelli, et al., Front. Immunol., 2013; Bjorklund, et al., Clin. Cancer Res., 2018; Velardi, et al., Curr. Opin. Hematol., 2012; Veluchamy, J.P., et al., Front. Immunol., 2017) Recent studies of pediatric patients with allogeneic transplantation suggest that NK cells could be useful for the treatment of refractory tumors or after relapses. Modification of NK cells to increase their selectivity against tumour cells would improve their ability to specifically kill tumour cells, minimizing potential toxic effects.

The generation of T lymphocytes isolated from the patient and genetically modified to express a receptor that recognizes a tumor antigen, known as CAR-T lymphocytes, has shown effectiveness in adult and childhood tumors (Newick, et al., Annu. Rev. Med., 2017; Handgretinger, R., et al. Blood, 2016). The first generation of CARs consisted of a ScFv corresponding to a specific mAb against the tumour antigen (Ag), that was bound to a protein domain containing a motif that triggers T cell cytotoxic response (Milone, M. C. et al., Mol. Ther., 2009; Park, J. H. & Brentjens, R. J., et al., J. Clin. Oncol., 2015). CAR-T cell therapy has emerged as an impressive tool for successful in treating pediatric patients with advanced refractory B cell malignancies which do not respond to other therapies, remaining incurable. However, the CAR T-cell field is still in its infancy. Many challenges remain in improving the safety and efficacy of novel CAR-T cell therapy, including toxicity and antigen escape.

Cytotoxic cells have the potential to eliminate chemotherapy-resistant cells. Thus, T-cells and NK cells can be properly activated and expanded to treat and kill tumor cells which have escaped to the classical treatments. I published along my research some relevant papers describing new protocols of activation/expansion and showing novel alternatives, culminating in two patents (EP19382104.8/EP20382175.6) and one of them in the first-in-human clinical trial of CD1a-CAR (EudraCT number 2021-002333-42) under "Orphan Drug Dessignation" (EU/3/21/2535) to treat relapse/refractory T-cell leukemia/lymphoma.

Resumen del Currículum Vitae:

I am an immunology researcher working on immunotherapy and chemotherapy-resistant tumors since my PhD. I obtained my Ph.D. in 2015 under Dr. Julián Pardo supervision in the Department of Biochemistry and Cellular and Molecular Biology of the University of Zaragoza (Spain). During this training period worked in apoptosis, NK cells and hematological tumors. I published three articles in international highly reputed journals as first author during this period. Later, I did my first post-doc at the IRBM (U1183) in Montpellier (France), under the supervision of Martin Villalba where I had the opportunity of translating my research experience into the development and mechanistic characterization of new immunotherapy protocols combining monoclonal antibodies and adoptive NK cell transfer to treat drug resistant hematological and solid tumors. Here I published another first author paper (D1) during this 1.5-year postdoc. Then, I joined Dr Pablo Menendez¿s lab at the Institute Josep Carreras (IJC) in Barcelona where I have been working over the last five years on the development of new CAR (Chimeric Antigen Receptor) T-cells for acute leukemias and specially T-ALL. The robust background this group offers in immunology, hematology and molecular and cellular biology have allowed me to get a great research experience in hemato-oncology and adoptive cellular immunotherapy. I know consider myself a performer on CAR development and functional testing, allogeneic therapies, biochemical assays, mouse models and leukemia-initiating cells, in vivo imaging and genome editing. Over these years I have published three first author papers including a BLOOD paper (impact factor, 25.5, 81 cites at 06-02-2023) and another one as senior author. Besides, I also participated in other projects signing as co-author in several papers, related to immunotherapy and hematological tumors, in journals like J ImmunoTher Cancer andLeukemia. Importantly, the CD1a CAR (Patents as co-inventor: EP19382104.8/ EP22382174.5) developed by myself has been licensed to One Chain Immunotherapeutics (OCI, IJC spin-off) being critical for its foundation. In addition, CD1a CAR has entered in phase I trial in 2023 (EudraCT No.: 2021-002333-42) after the recent approval from AEMPS, and also it has received orphan drug designation (EU/3/21/2535) by European Union and funding from the last call of "Proyectos de colaboración publico-privada" (CPP2021-008508). Besides, I have been an advisor to OCI,

immersed in other immunotherapy projects, allowing me to know " bench to bedside" process.
Moreover, I am co-inventor of another patent about our CARCD22 (EP20382175.6). At present,
I am supervising and co-directing a talented PhD student, Néstor Tirado. Last year, I have
been awarded with a project from Merck Foundation to develop a new dual CAR for Ewing
sarcoma (solid pediatric tumor) and we receive the Rafael Hervada Foundation prize. Recently,
I have incorporated to IIS Aragón with a CIBER contract. I hope my solid CV together with my
technical, leadership and training abilities will allow me to lead my own research and become
soon an independent leader.

Área Temática:	**Biomedicina**
Nombre:	RAMIREZ LABRADA, ARIEL GASPAR
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Título:	Winning combination: biomarkers, immunotherapy, cell death, in that order, or maybe not.

Resumen de la Memoria:

My research interest has been fostered by several years of dedication and determination. I am a well-organized and highly motivated person who enthusiastically approaches every new challenge. I have an extensive record of training in immunology and cancer research. This training record and my ability as a creative and independent scientist make me an excellent candidate for this Program. I have a strong education (two master's degree, a PhD degree, and Post-Doctoral in the USA) and an extensive experience in different research labs, national and international, with a vast network of colleagues that allow me close collaboration to carry out ambitious projects.

My pre-doctoral and post-doctoral researchers have focused on some of the commonest cancer types: Multiple Myeloma, Diffuse Large B-cell Lymphoma (DLBCL), and some rare ones, such as childhood leukemia. I have always tried to address the unmet needs of a significant subset who succumb to these diseases despite significant advances in their therapies. I am highly motivated by the vital need for new therapeutic strategies for cancer patients to improve outcomes. These reasons make me well-suited as a candidate for this Program.

In this project, I propose to design a strategy to find new ways of driving CAR on cancer cells in a precise way and, thus, eliminate them without damaging healthy tissues. The success of CAR-mediated therapies depends on the binding affinity and specificity of a CAR to its associated antigen. This binding interaction facilitates the effector response designed to eliminate malignant cells, but traditional CARs are limited to antigens (proteins, sugar residues) expressed on the surface of the target cells. For this, the most cutting-edge technologies will be used to develop TCR-like CAR NK cells. Nonetheless, tumor cells usually escape from the immune cells and thereby gain the opportunity to develop and invade. In solid tumors specifically, the TME promotes mechanisms involved in immune evasion, including reduced immune recognition through the expression of cytokines (e.g., VEGF, IL-10, TGF-b;) or immunoregulatory molecules (e.g., IDO and B7 family checkpoint molecules), that lead to the induction of an immunosuppressive tumor environment and enhance tumor resistance or survival. To overcome this immunosuppression, some receptors will be genetically edited to improve CAR NK cytotoxicity.

On the other hand, developing cancer immunotherapy biomarkers is a big challenge. It will strengthen our understanding of heterogeneity in therapeutic response and permit the prediction of signature patterns that could improve outcomes and minimize therapeutic resistance in CAR-cell therapy. The combination of biomarker research and CAR-NK cell therapies will contribute to creating a safer and more robust system to prolong the survival of patients.

Resumen del Currículum Vitae:

I was awarded the "Fundación Carolina" scholarship to do a Master at Francisco de Vitoria University, and University of Zaragoza/Santander Bank scholarship to do the Ph.D. I studied several kinds of cell death as intrinsic and extrinsic apoptosis, and I introduced the study of cell death associated with autophagy and cell death by necroptosis in the lab. Thanks to my work, I signed as the first author and co-author on several scientific articles, and I presented my research findings at the 20th Euroconference on Apoptosis in Rome.

My first postdoc stay was at the Sylvester Comprehensive Cancer Center-Univesity of Miami, to decipher the LMO2 role in DLBCL pathogenesis. I found a direct link between LMO2 expression and defects in DNA repair in diffuse large B cell lymphomas (DLBCLs). I identified LMO2 expression as a biomarker for DNA repair defects in lymphomas, showing that high expression of LMO2 results in homologous recombination (HR) dysfunction that phenocopies BRCA1 and BRCA2 mutations (BRCAness) observed in other tumors. I also demonstrated that this LMO2-dependent HR dysfunction could be exploited for synthetic lethality using PARPi, showing that expression of LMO2 predicts sensitivity to PARP inhibition in combination with genotoxic therapy. This new role of LMO2 protein opened a new area of research on the role of LMO2 and related LIM-only proteins in DNA repair, cancer therapy, and the LMO2 role in B cell maturation to accommodate the physiological forms of DNA damage when their immunoglobulin genes undergo active DNA modifications to acquire higher antigen affinity and different antibody effector functions. I published this work as the first author in Cancer Cell (2019), one of the most prestigious journals. This work was also presented at the ASH Annual Meeting 2016 and 2018

In my second postdoc at IIS-Aragon, I have been working on three research lines: i) Studying the mechanism of PD1 expression on NK cells. This work helps to understand how PD-1 expression is regulated on NK cell membrane, which will help to design more efficient NK cell-based cancer immunotherapies. ii) Searching for biomarkers in cancer to predict immunotherapy responses and prognostic outcomes in patients with COVID19 Infection. Here we studied circulating immune cell subpopulations as promising prognostic biomarkers and provided an analysis of the major circulating T and NK cell subsets involved in cancer and COVID19 Infection, and iii) Developing CAR-NK cells against mutated calreticulin in myeloproliferative neoplasms. Thanks to these works, I have published 2 papers as the first author and other 2 papers as the corresponding author. I have also been awarded 2 projects as Principal Investigator (PI).

I have also directed 2 degree projects, I am directing 3 doctoral theses, I have 4 contracts with companies as PI, one of them a Know-How License Agreement, and I created a nanotoxicity and immunotoxicity unit at the IIS-Aragon. I am a member of the University of Zaragoza's biosafety committee and an evaluation committee Member of the call for Collaborative Projects in Catalonia within the framework of the Complementary Biotechnology Plan 2022. I am a lecturer as collaborating professor in a Cancer Immunotherapy Master's degree at the University of Zaragoza.

Total Publications: 27, 1 as the first author in a high-profile journal (IP: 38.585). First Decile: 4. First Quartile: 22. First author: 5. Corresponding author: 3. H index: 13.

Área Temática:	Biomedicina
Nombre:	MARQUES TORRREJON, ANGELES
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Título:	Quiescence neural stem cell in brain tumors

Resumen de la Memoria:

My extensive career in the field of neurosciences, in the study of NSCs and GBM, has allowed me to acquire the necessary knowledge, skills and abilities to develop a new line of research in synergy with my entire scientific career. Therefore, after obtaining the 'Maria Zambrano' research contract, I have begun my own research line on GBM at UJI.

Today, most cancer studies focus on stopping the proliferation or metastasis of tumors, but do not focus on the problematic part of tumor quiescence, the inexhaustible source of tumor-generating cells. My main challenge is to convert laboratory and clinical observations into improvements for the health and survival of GBM patients.

Glioblastoma (GBM) is an incurable, very aggressive and infiltrative brain tumor. The prognosis for GBM, the most common primary brain tumor in adults, is extremely poor: the current standard of care provides a median survival of 14 months (Stupp et al., 2005). Since 2005, the prognosis hasn't improved. Tumor recurrence after surgery, radiotherapy, and chemotherapy is inevitable and is thought to be due to the presence of cells with NSC characteristics called Glioma Stem Cells (GSCs) (Gimble et.al 2019). Tumors include these cells, which have the capacity for self-renewal and differentiation and can initiate tumors in transplantation. It is often difficult to distinguish terminally differentiated astrocytes from quiescent NSCs based on morphology and expressed markers, as they are phenotypically extremely similar. Understanding the control of quiescence and eradicating this cell population could improve the prognosis of GBM. By stopping the regrowth of cancer stem cells, we can make tumors less aggressive. Therefore, it is vitally important to further explore cancer stem cell quiescence in human tumor samples, as dormant GSCs resist current therapies and are responsible for relapse. There are some indications from single cell profiling studies of GBMs that quiescent stem-like populations might be widespread within the tumor, comprising a significant proportion of the total tumor cell population and likely contributing to the resistance to cytotoxic therapies. This is also suggested by the limited Ki67+ cells in many tumors' histological sections and various label-retaining techniques used to identify normal slow-cycling adult stem cells.

In the last few years, I have been very interested in understanding the process of quiescence (reversible cell cycle exit) in brain tumors. The survival of residual quiescent GSCs shows GBM recurrence and relapse after current treatments (Stupp et al., 2005). Some studies suggest that quiescent state is an active reversible G0 phase that requires maintenance and regulation (Cheung and Rando, 2013). It is vital to understand molecular processes that control the maintenance and exit from GSC quiescence and then be able to rationally design future GBM therapies that suppress regrowth of the tumor: Why can these cells survive therapies? What proportion of tumor cells are quiescent and then reactivated after anti-mitotic therapy? What epigenetic and transcriptional controls ensure they retain stem cell-like properties? In established tumors, what is the proportion of cells in the tumor that exist in quiescence state? How do these cells react to therapies? Are they always located in a specific niche?

Resumen del Currículum Vitae:

From the early stages until now, my research career has been recognized with awards, distinctions, and leading publications of high impact factor (Journal of Neuroscience, Nature Neuroscience, Cell Stem Cell, Disease Models and Mechanisms, Nature Communications, Frontiers in Cell and Developmental Biology). In my early stages, I contributed to uncover the mechanism of self-renewal and multipotency regulation in adult neural stem cells. I came up with the idea of using a shRNA screening based on the size of the neurosphere that was essential in the scientific field to the understanding of the different populations of neural stem cells. I was recognized as the 2013 Young Neuroscientist Researcher by the Federico Oloriz Institute in Granada. Then, I got independent funding through an EMBO fellowship to move to the University of Edinburgh, where I stayed for more than 7 years. I consider myself an expert in the field of neural stem cells and brain tumors, since have had the opportunity to study in detail the biology of such a deadly brain tumor. My fine-tuning of the CRISPRCas9 system in vivo and ex vivo has proved essential in the field, providing a better approach to tumor formation. Last year, I moved back to Spain with a 'Maria Zambrano' contract to attract international talent, financed by the European Union–NextGenerationEU. In January 2022, I moved to the Oncogenoma research group (coordinator Dr. Conrado Martinez-Cadenas) of the Department of Medicine at the Jaume I University (UJI) in Castellon. Recently, I have been awarded with 2 grants as principal investigator.

One of the greatest achievements I have accomplished this year has been to establish very important collaborations in my line of research. I have direct collaborations with the Neurosurgery department at the Castellon General University Hospital (Dr Luis G. Gonzalez). After each glioblastoma brain resection, we obtain part of the biopsy and establish cell lines and ex vivo human cell culture. Also, I am collaborating with the Department of Chemistry (Professor Francisco Galindo, UJI) to test their new synthetized compounds in our glioblastoma cell lines in order to accelerate drug discovery. Recently, I have started a new collaboration with a private company, Scientia Bio Tech, to start novel therapies with non-ionizing radiation in brain tumors after the company's successful results in other aggressive tumors. Internationally, I am actively collaborating with my past mentor Professor Steve Pollard at the University of Edinburgh (top world expertise in brain tumors), Dr. Noelia Urban at IMBA in Vienna, Professor Amparo Acker-Palmer at Goethe Universitat in Frankfurt, and Professor Isabel Farinas of the Universidad de Valencia. With this research line, more knowledge about quiescence cells in glioblastoma will be generated, and this will help understand their resistance to therapy. Also, I hope to be able to find or come close to new therapies for the treatment of glioblastoma (drug screening and non-ionizing radiation) that will delay relapse in brain tumours.

I am currently supervising 7 undergraduate students, one PhD student and training a postdoc.

Presently, I am editor in two journals, Frontiers in Oncology (Q1) and Life (Q2). I am an active reviewer of several journals, PhD thesis and end-of-degree dissertation committees.

I have been participating in different outreach activities at the university level ("Brain Maze, Amaze Your Brain") at the University of Ed

Área Temática:	**Biomedicina**
Nombre:	DIEZ PALACIO, IBAI
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Título:	Neuroimage-genetic associations to study risk and resilience of neurodegenerative and neuropsychiatric disorders

Resumen de la Memoria:

I first began with neuroscience research in 2013 at the newly created Computational Neuroimage Lab, Biocruces Bizkaia Health Research Institute. I was the first member of the lab, and as such self-taught about neuroimaging, created the required pipelines and code for analyses, and led collaborations and grant writing for innovative projects between the hospital and industry. My research was focused on developing precision medicine tools and new analytical approaches to take full advantage of the available neuroimaging data. In 2015 I defended my international PhD thesis in neuroimaging methods, with three months stay in University of Ghent (Belgium) and University of Bari (Italy). In 2016 I was awarded with a Bizkaia Talent fellowship for a six-month training period at Harvard Medical School. During this training, I started working on developing techniques to relate neuroimaging findings with underlying molecular mechanisms using publicly available postmortem brain transcriptome datasets. Due to my skills and hard work, I was offered a postdoctoral fellowship at Harvard Medical School. Since 2018 I have been working at Harvard Medical School – Massachusetts General Hospital, a top institution in the field, first as a postdoctoral fellow and then as junior faculty (Instructor) after 2020 - leading to my independence as researcher. Now my case is being reviewed for a promotion to Assistant Professor.

Part of my research has focused on developing new methodological approaches to study the spreading of Alzheimer' disease (AD) in preclinical and clinical stages. This research has been performed using novel PET tracers to measure tau and amyloid-beta protein accumulation in the brain (hallmarks of AD) and postmortem transcriptome datasets. These results have provided important insights on the potential early biomarkers and mechanisms which facilitate the propagation of Alzheimer disease in the brain. My other major line of research in this period has focus on disentangling the underlying neuropathophysiology of functional neurological disorder (FND), a neuropsychiatric condition whereby individuals exhibit symptoms such as muscle weakness, tremor, seizures, paralysis, blindness, etc. without presenting any apparent structural damage to the brain or nervous system. Despite the high prevalence it is a poorly known condition, usually miss diagnosed or not properly treated, and research is in its infancy compared to other neurological disorders. My research has been key to better understand the underlying neural mechanism of FND and contributed to our international effort to characterize the disease.

For my actual independent research, I am studying neuroimage-genetic associations of risk and resilience of neurodegenerative disease, and also of psychopathology after childhood maltreatment. I will fusion same subject neuroimaging and whole exome/genome sequencing to study how genetic risk to develop pathology impacts brain molecular, structural and functional properties. I will also apply unsupervised clustering to define disease subtypes. Then I will identify participants at risk but unaffected, to search the genetic factors protecting them. Additionally, I will use genotyping with postmortem brain tissue transcriptomic to characterize the implicated biological processes related to risk and resilience.

Resumen del Currículum Vitae:

I am a junior faculty, Instructor of Radiology at Harvard Medical School – Massachusetts General Hospital with advanced neuroimaging, genetic, biomedical and computational expertise. I completed my Bachelor of Engineering (2003-2009), a Master's degree in computer engineering and intelligent system (M.Sc. 2009-2010), and an international PhD program (2010-2015), in the faculty of Medicine in the University of Basque Country, Spain. I was awarded several highly competitive fellowships for predoctoral and postdoctoral research, including receiving funded research stays at Ghent University (Belgium), University of Bari (Italy) and Massachusetts General Hospital (Boston, USA). I have 10 years of research experience – 5 of them at Harvard – on developing cutting-edge neuroimaging and genetic methods and pipelines for multimodal research in neurodegeneration and neuropsychiatric disorders. My research background combines a wide range of imaging techniques, including Positron Emission Tomography (PET) and functional and structural Magnetic Resonance Imaging (MRI) analyses, particularly focused on developing connectomics methods to study how the brain is organized and altered in complex brain disorders, such as Alzheimer Disease (AD). My research led to important insight into neuroimage-genetic signatures of AD spreading, and to a pathophysiological characterization of functional neurological disorder (FND), a highly prevalent and ignored disorder in the intersection between neurology and psychiatry. My research quality and hard work has paved out with more than 55 peer-reviewed publications in some of the highest impact journals in the area, such as Nature Medicine (IF 87.24), Science Translational Medicine (IF 19.34), Nature Communications (IF 17.69), JNNP (IF 13.65), Molecular Psychiatry (IF 13.44), PNAS (IF 12.78), etc. The results of my research have been cited more than 1,128 times (h-index: 19). Most of the publications are openly accessible to the scientific community and are adapted for the general public and disseminated through media releases and social media; (many on the top 5% of all research outputs scored by Altmetric, an indicator of the attention that the study has received in press and social media). I am actively participating in several international projects with a leading role in the neuroimaging-genetic analyses; I am participating in more than 5 NIH funded projects, and I have 4 projects under evaluation as PI. I also have a strong and active network of international collaborators in more than 10 countries, to better characterize the pathophysiology of FND and to disentangle the progression of AD. I am also engaged in innovative technological development projects with public and private companies to develop predictive/precision medicine tools and to evaluate brain neuromodulatory system to promote brain plasticity. As part of my faculty appointment at Harvard I mentor research assistants, data analyst, and pre- and post-doctoral students and I also am invited lecturer for Neuroimage in the Master of Biomedical Engineering at Basque Country University. Additionally, I am a reviewer on several JCR peer-reviewed journals, such as: Scientific Reports, Science Bulletin, NeuroImage: Clinical, Brain and Behavior, PLOS ONE, Brain Connectivity, and many others.

Área Temática:	**Biomedicina**
Nombre:	VALDÉS , RAFAEL
Referencia:	RYC2022-036929-I
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Título:	Development of novel computational tools and analysis of multi-omics data to decipher the molecular mechanisms underlying human health and disease

Resumen de la Memoria:

My main research line has been the development of novel computational tools and analysis of multi-omics data to decipher the molecular mechanisms underlying human health and disease. In particular, the major focus of my thesis was on Cancer Genomics, as part of the Spanish International Cancer Genome Consortium project for the genomic study of Chronic Lymphocytic Leukemia (CLL). During these years, by applying my background in Engineering and Molecular Oncology, I developed novel bioinformatics tools to analyze DNA and RNA sequencing data from CLL patients. In particular, we developed a novel methodology to identify copy number alterations from capture sequencing data. Moreover, the integration of these genomic and clinical data, allowed me to identify novel somatic variants in non-coding regions implicated in CLL pathogenesis, including mutations in the 3' UTR of NOTCH1 and the PAX5 enhancer. Similarly, in a cohort of patients with mantle cell lymphoma, we were able to analyze and describe the top 25 significantly mutated genes. On the other hand, I could also study other genetic disorders, such as hereditary diseases. In particular, we analyzed genomic sequencing data from families with hypertrophic cardiomyopathy, identifying a novel gene, FLNC, involved in the development of the disease and associated with a higher risk of sudden cardiac death. During the last year of my Ph.D., I worked in the emergent field of the gut microbiome and its role in aging. Analysis of 16 rRNA sequencing data, revealed a microbiota dysbiosis in progeria that we were able to functionally validate in vivo. At the end of my Ph.D. I contributed to 19 high-impact articles (3 first-author articles).

After finishing my Ph.D., I moved to the industry and worked for DREAMgenics as a computational scientist and Chief Scientific Officer. During these years, I could collaborate with different research laboratories and contributed to 5 different publications related to the genetic characterization of blood tumors, such as leukemias and myelomas.

Due to my growing interest in microbiome studies, I returned to academia and obtained a postdoctoral position at Weizmann Institute of Science to study the role of microbiome in multiple gastrointestinal diseases. I already published several first-author articles describing the effects of probiotics in the human gut microbiome, designing a novel phage therapy for the treatment of inflammatory bowel disease and developing a novel computational method to analyze longitudinal ' omics data. To date, these postdoctoral years resulted in 7 publications (3 co-first papers).

My line of research will combine the main research areas of my Ph.D. and my postdoctoral activity: understanding the interaction between microbiome and cancer, which could potentially lead to the development of novel therapies for cancer treatment. In particular, the aim of my new line of research will be the microbiome contribution to the mutational processes active in cancer, particularly colorectal cancer.

Resumen del Currículum Vitae:

I obtained a Ph.D. in Biomedicine and Molecular Oncology, a Master' s Degree in Biomedicine and Molecular Oncology, and a Degree in Industrial Engineering at University of Oviedo. During my Ph.D., under the supervision of Dr. Carlos López-Otín and Dr. Xose S. Puente, I have been part of an international project for the genomic study of Chronic Lymphocytic Leukaemia (CLL). In this context, I applied my background in Engineering and Molecular Oncology to design novel bioinformatics tools for the detection of somatic variants. In particular, I developed an algorithm to identify copy number alterations from capture sequencing data. Moreover, I led the integration of DNA and RNA sequencing data with clinical information from hundreds of CLL patients, allowing the detection of novel functional mutations in non-coding regions. In addition to my main research, I decisively contributed to other projects, including the identification of mutations in FLNC responsible for familiar Hypertrophic Cardiomyopathy. In my last year as a Ph.D. student, I also worked the promising field of the gut microbiome, leading all the computational aspects of a study that pursued understanding the microbiome' s contribution to aging. We identified a specific microbiota dysbiosis in progeria patients and we functionally validated by fecal microbiota transplantation. As a result of the multiple computational methods developed during my Ph.D., two algorithms were patented and are currently being exploited for genetic diagnosis. Moreover, I taught 28 hours of laboratory and computational classes at University of Oviedo.

In 2017, I obtained a Torres Quevedo Fellowship and started working as Bioinformatics Scientist at DREAMgenics, where I could complement my experience in the industry and collaborate on multiple projects with hospitals and research institutes. Moreover, I participated in management as Chief Scientific Officer, coordinating scientists and software developers to create bioinformatics pipelines and perform genomic analyses for research groups. Under my supervision, the results of our analyses were included in 5 articles.

In 2020, I received " La Caixa" postdoctoral fellowship to continue my career as a scientist at the Weizmann Institute of Science under Prof. Eran Elinav supervision. Here, I started several projects to study the role of the microbiome in different gastrointestinal pathologies. To this aim, I developed novel computational methods to analyze and integrate multi-omics data. Moreover, I complemented my computational skills with experimental design of in vivo and in vitro models. To date, these postdoctoral years resulted in 7 publications (3 co-first papers): we described the effects of probiotics in the human gut microbiome, we designed a novel phage therapy for the treatment of inflammatory bowel disease, and we developed a novel computational method to analyze longitudinal ' omics data.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	ESCALANTE RODRIGUEZ, AUGUSTO
Referencia:	RYC2022-035586-I
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Título:	Neural circuits of itch sensation

Resumen de la Memoria:

I studied Biology in the Universidad de Málaga (Spain, 2004). My interest in the nervous system sparked during that time, particularly the study of the long cables connecting the individual neurons to form circuits and networks. Guided by this interest, in 2005 I joined the laboratory of Prof. Dr. Eloisa Herrera at the Instituto de Neurociencias (CSIC-UMH, Alicante) to develop my PhD studies. My predoctoral research was supported by 3 different competitive PhD fellowships. We demonstrated that Zic2 controls axon midline avoidance in the spinal cord and thalamocortical neurons (Escalante et al., 2013). Even further I was able to show that Zic2 induces axonal ipsilaterality by repressing the genetic program that leads to contralateral spinal projections. The results of my thesis work were published in the journal Neuron and awarded the Young Basic Neuroscientist Award from the Instituto de Neurociencias Federico Olóriz (Granada, Spain) in 2014 and the Premio Alberto Sols to the best scientific work in 2015. I was also involved in two more projects in the laboratory. In the first one, we studied the role of the transcription factor Foxd1 as a determinant of temporal identity in the mouse retina (Carreres et al., 2011). In the other study, we analyzed the role of retinal spontaneous activity in the regulation of axon guidance. (Benjumeda, Escalante, Law et al., 2013).

My postdoctoral work focused on the development and function of spinal circuits in the laboratory of Prof. Dr. Rüdiger Klein (Max Planck Institute of Neurobiology, Munich). Thanks to my supervisor that gave me the freedom of choosing, designing and leading my own research project, I was able to develop a multidisciplinary and independent approach that lead to a publication where I am the first and corresponding author (Escalante and Klein, 2020). My research led to the identification of a subset of spinal inhibitory neurons, defined by the expression of the transcription factor Ptf1a, which loss causes mechanosensory information to incorrectly activate the spinal itch circuit resulting in the development of an extreme chronic itch phenotype. We described how this phenotype is dependent on the presence of mechanosensory stimuli and movement of mice, which relates to the validated observation that human patients suffering from chronic itch will suffer from contact-triggered itch rashes elicited by contact with their own clothes (Escalante and Klein, 2020).

The focus of my research work during the next following years will be the identification of the mechanisms and circuits of pruriceptive information processing in the central nervous system. In order to dissect and understand itch sensation both in physiological and pathological conditions, we will combine transcriptomic analysis, circuit tracing viral strategies and brain activity mapping with mouse models of clinical chronic itch diseases (atopic dermatitis, psoriasis, allergic contact dermatitis, xerosis, etc). Our research line will lead to the identification of cell types and brain areas involved in pruriceptive sensory information processing which, together with a detailed transcriptomic analysis, will inform the screening and design of specific pharmacological treatments with therapeutic potential.

Resumen del Currículum Vitae:

I studied Biology in the Universidad de Málaga (Spain, 2004). For my PhD, I got 3 different competitive PhD fellowships (Fundación Severo Ochoa, Generalitat Valenciana and FPU from Ministerio de Educación y Ciencia) to join the laboratory of Prof. Eloísa Herrera at the Instituto de Neurociencias (IN, CSIC-UMH, Alicante). My thesis work revealed the transcriptional regulation underlying the specification of axonal ipsilaterality at the dorsal spinal cord (Escalante et al. NEURON 2013). The results of my thesis earned the Young Basic Neuroscientist Award in 2014 and the Alberto Sols award in 2015. I am also co-first author in another work where we study the role of spontaneous activity in axon guidance (Benjumeda, Escalante, Law et al. J NEUROSCIENCE 2013) and participated in another work also published in this classical Neuroscience journal (Carreres et al. J NEUROSCIENCE 2011).

In 2013 I joined the laboratory of Prof. Rüdiger Klein (Max Planck Institute of Neurobiology, Munich) where I lead my own research project that was published as an article describing the identification of a novel spinal cord neuronal subpopulation that is responsible for extreme chronic itch. I am the co-corresponding and only author in this article together with my supervisor (Escalante and Klein, CELL REPORTS 2020).

At the end of 2018, I got a Juan de la Cierva Incorporacion and a Junior Leader Fellowships from La Caixa Foundation (as Principal Investigator in the project) to develop a new line of research at the IN focused on the study of itch sensation. In parallel, I have established fruitful collaborations: I participate in an article from Dr. Herrera¿s lab, (Fernandez-Nogales et al., ADVANCED SCIENCE 2022) and have written 2 review articles: on novel methods and approaches in neural development (Escalante et al. FACULTY OPINIONS 2020) on the transcriptional regulation of axon guidance (Herrera and Escalante, FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY 2022). I also collaborate with Dra. Esther Serra Baldrich (Chief in the Unit of Cutaneous Immunoallergic diseases, Hospital Sant Pau, Barcelona) to combine our complementary basic and clinical expertise in the field of itch (Escalante and Serra, under review). In addition, I wrote an invited book chapter about the neural circuits controlling itch sensation (Escalante, A. 2022. Permanyer).

I have supervised 2 TFGs (2019, 2020), 1 TFM (2021) and 1 PhD student (ongoing) and I am a lecturer in two master programs (Universidad Miguel Hernandez and Universidad de Barcelona). I am a scientific consultant in the pharmaceutical companies AbbVie (previously Abbot Laboratories) and Sanofi-Aventis. I have participated in the organization of 2 congresses (SEBD2020 and IWCP2021) and I directly manage the IN social media platforms for which I created 2 years ago the #SciencePhoto_IN scientific photography contest as a succesful way to engage the general public in the academic and scientific world through the images created by IN researchers. I have also participated in the Open Doors Days at the Max Planck Institute for Neurobiology and the Brain Awareness Week at the IN, especifically last year organizing and presenting the conference "Comunicar la Ciencia en la Era Digital". Finally, in December 2022 I obtained the Profesor Ayudante Doctor (ANECA) and Certificado I3 (Ministry of Universities) accreditations.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	RIOS GARCIA, MARCOS
Referencia:	RYC2022-036513-I
Correo Electrónico:	marcosrios3@gmail.com
Título:	Cell metabolism

Resumen de la Memoria:

During all my research career, I have focused on the study of the dependence of cancer cells on specific metabolic pathways. From the very beginning of my PhD as a FPU fellow (where I was working in the role of AMPK activation in glioma models), I showed my skills to dominate complex techniques (e.g. cell fractioning, metabolic labeling, cell free assays and recombinant DNA technologies) and develop creative approaches to different research problems. Indeed, I demonstrated that oncogenes activate AMPK making glioma cells highly dependent on extracellular lipids, contrarily to what was believed at the time. My thesis work was published in 2 first-author articles in the top journals Cancer Research and EJC.

As a junior postdoc, I continued my training to become an independent researcher by leading a collaborative DKFZ-Bayer join project at Prof. Herzig's lab. The resulting outputs' intellectual property was purchased by Bayer. I continued my postdoctoral research at Helmholtz Center in Munich with a focus on cell metabolism rewiring during metastasis in breast cancer. In this project, I was able to describe an unknown mechanism of breast cancer metastasis and recurrence by defining the metabolic enzyme ACC as the mayor player. These data were published in Cell Metabolism, and highly impacted the research on tumor and cell biology fields (e.g. more than 160 citations, beginning of new collaborations with Dr. Hellmut Augustin, Dr. Nawroth). Moreover, during my time as postdoc, I was in charge of teaching master and PhD students and providing advice and help to junior and senior postdocs.

In 2018, as a senior postdoc I started a new project led by myself, on the study of mitosis from a metabolic point of view. In 2019, I was granted the competitive fellowship Juan de la Cierva-Incorporación to be hosted at Prof. Lopez' lab (CiMUS, USC). From Spain I continued my project started at Helmholtz, which resulted in a first and corresponding author manuscript in Advanced Science, demonstrating my leadership and my ability to coordinate projects between two labs (Prof. Herzig's and Prof. Lopez'). I am also supervising four PhD students working in new lines of research introduced by myself at CiMUS in hypothalamic regulation of tumor aggressiveness and cancer cachexia. Beyond all that, I also have generated different research tools for the lab, (such as purified proteins to perform AMPK kinase assays or virus generation for in vivo experiments) as well as for my own research in two new projects studying the role of mitotic proteins in terminally differentiated neurons and the role of perilipin-2 in hepatic tumor initiation. In 2022, moved by my interest in exploring the role of metabolic proteins in replication stress, I joined Prof. Stewart's lab at Birmingham University (UK) to gain expertise in the field of replication stress. From my work at Prof. Stewart's lab, I am co-share first author in a manuscript on the role of DONSON methylation in replication fork stability (submitted to Molecular Cell).

In summary, my long-term career shows a coherent, well defined and innovative research line focused on cancer cell metabolism and metabolic vulnerabilities.

Resumen del Currículum Vitae:

During my career, I have searched and reached the highest standards of research, refined techniques, leadership abilities, independent thinking and maturity as a way to scientific independence. All of that is supported by my achievements as a PhD student and during my extensive postdoctoral experience in recognized research centers (DKFZ, Helmholtz Munchen, CiMUS and Birmingham Cancer and Genomic Institute). These can be summarized as follows. I published 10 articles in high IF journals, accumulating a total of 390 citations (Google Scholar, January 2023) with an average impact factor of 14. Tree of them as a first author (Cell Metab, IF:31; Cancer Research, IF:13; and EJC, IF:10) and 1 as first and corresponding author (Advanced Science, IF:17). Moreover, I am a co-author in 6 articles (Molecular Metabolism, IF:8; Arthritis Rheumatol, IF:15; Nat Metab, IF:19; Diabetologia, IF:10; EMBO Rep, IF:9 and EMBO Mol Med, IF:14). Furthermore, I have 2 submitted manuscript one as co-first author (Mol Cell) and one as co-author, and 3 manuscripts in preparation as coauthor. I have presented my research in more than 10 congresses and 3 invited talks at internationally recognized research centers. I have participated in 8 competitive projects as a researcher, and I was granted two prizes to my research. I have secured my own funding for most of my career via highly competitive fellowships at the PhD and postdoc level (PhD Xunta de Galicia, FPU and JdCI). Moreover, I also obtained 3 competitive postdoctoral contracts, and research funding by transferring to the Bayer company the intellectual property I have generated.

I have contributed to the research lines of the groups I was working with by supporting ongoing projects, introducing new research techniques and approaches, and introducing new research lines.

I showed leadership by mentoring PhD students such as Dr. Chan, Dr. Sundaram at Helmholtz, or Maria Silveira and Amanda Rodriguez, working in two ongoing projects proposed by me, in a research line I introduced at CiMUS.

I have demonstrated self-initiative and I was able to establish my own research lines in the study of the crosstalk lipid metabolism-mitosis (Advance Science 2022) or the role of mitotic proteins in non-proliferative cells.

I have collaborated with junior postdocs, senior postdocs, PI's, and industry, thus building an excellent international collaboration network.

I have accumulated 330h of teaching experience.

In summary, I have demonstrated my leadership, independence and internationalization, all of that, supporting my capabilities and maturity to become an independent researcher.

Área Temática:	**Biomedicina**
Nombre:	SIRVENT BERNAL, SOFIA
Referencia:	RYC2022-035603-I
Correo Electrónico:	sofiasirvent@gmail.com
Título:	Unravelling molecular mechanism governing Dendritic cells and Langerhans cells function to develop novel therapeutic strategies for allergy and other inflammatory immune-mediated diseases

Resumen de la Memoria:

My research core lies in the study of three different lines of investigation in the context of immunology. 1) Pollen and plant food allergens: For this line of investigation I identified and structural and immunologically characterised 2 new mustard allergens (Sin a 3, Sin a 4) involved in mustard allergy crossreactivity with other pollen and plant and 2 new masked allergens in kiwifruit seeds (Act d 12, Act d 13) that are usually not present in the commercial kiwifruit extracts used for diagnose kiwifruit allergy. This research generated a patent for the mustard allergen Sin a 3 sequence, exploited by the pharmaceutical company ALK Abello, has been presented in several international an national conferences and generated 12 scientific articles published in peer reviewed Q1 journals in which I am first author and co author. 2) Design of new vaccines targeting Dendritic cells. This research work was done in collaboration with the pharmaceutical company Inmunotek S.L. and demonstrated the potential use of allergoids conjugated to nonoxidized mannan as next-generation suitable vaccines for allergen-specific immunotherapy (AIT). These findings represented the first proof of concept for this next-generation vaccines for AIT. Remarkably, this new vaccine strategy has recently demonstrated efficacy and safety in phase II clinical trials, and are currently being assayed in several phase III clinical trials. This work has been presented in several international and national conferences and has been published in a high impact peer reviewed Q1 journal in which I am first author. 3) Inducing tolerance in allergy. Using functional analyses and in silico modelling of primary human LCs, we delineated core transcriptional programmes underpinning tolerance or immunity and dictating outcomes of T cell responses. Using a human in vivo allergen challenge model we observed that inflammatory versus tolerant outcome of immune stimulation depends on baseline activation of LCs, keratinocytes and T cells, indicating existence of a pre-programmed system state. Importantly, we discovered a period of intense development of the human cutaneous immune system during neonatal life highlighting a "window of opportunity" for programming immune tolerance. I have presented this research results in international conferences as oral communications and published in 6 renowned peer reviewed journals as first author and co author.

These different research lines described above show my initiative and achievements in undertaking investigations in the field of immunology at national and international level. My scientific work has focused on the application of science from bench to bed, contributing to potentially improve the diagnosis and management of mustard and kiwifruit allergic patients, to demonstrate the efficacy and potential of new vaccines against allergy, and increasing the comprehension of the immunological and cellular mechanisms of the skin immune system by combining detailed functional analysis in in vitro experimental systems with bioinformatic analysis of molecular networks, contributing to the identification of LC and its tolerogenic potential role in the skin as candidate for future treatments against inflammatory skin diseases such as atopic dermatitis.

Resumen del Currículum Vitae:

I have an European PhD in Biochemistry and Molecular Biology awarded with the Extraordinary PhD Award and my research core lies in the study of three different lines of investigation in the context of immunology. 1) Pollen and plant food allergens 2) Design of new vaccines targeting Dendritic cells. 3) Inducing tolerance in allergy. These different research lines described above show my initiative and achievements in undertaking investigations in the field of immunology at national and international level. My scientific work has focused on the application of science from bench to bed, contributing to potentially improve the diagnosis and management of mustard and kiwifruit allergic patients, to demonstrate the efficacy and potential of new vaccines against allergy, and increasing the comprehension of the immunological and cellular mechanisms of the skin immune system by combining detailed functional analysis in in vitro experimental systems with bioinformatic analysis of molecular networks, contributing to the identification of LC and its tolerogenic potential role in the skin as candidate for future treatments against inflammatory skin diseases such as atopic dermatitis.

Over the last 17 years I was awarded with 2 predoctoral grants from public institutions (including a FPU grant) and 5 post doctoral contracts funded by pharmaceutical companies and a private charity foundation. I participated in applications for funding through public calls as a member of the research team and I am a co author of a national patent. I have worked with several international scientific groups (University of Pittsburgh, University of Cape Town, University of Vienna and University of Southampton), collaborations that have contributed to the high impact of my publications as a first author or co author and have helped me to create an international network of scientific cooperation.

I have a great deal of varied experience in immunology and molecular biology from protein isolation and characterisation to cell biology, human in vivo and in vitro experimentation and bioinformatic skills to analyse complex sequencing data that are reflected in the publication of 23 scientific articles in peer reviewed Q1 journals. This expertise is further demonstrated by the fact that I have been asked to review scientific articles in peer reviewed journals (Q1) and invited to give lectures in the master programs of the University of Southampton and University Complutense of Madrid.

I assisted to the Supervisory skills workshop at the University of Southampton and passed the UCM Pedagogical Aptitude Course (CAP 2005/2006) which helped me to adequately supervise junior research students who finished their projects with high qualifications and have continued their research career as postdoctoral fellows or working for pharmaceutical companies.Throughout my scientific career I have presented my research outcomes in several international and national conferences in the form of poster or oral presentations.

I contributed to disseminate our research results to a wider audience by using social media (Facebook page and a Twitter account for the Systems immunology Group), a web page (https://www.southampton.ac.uk/ita/index.page) and contributed to the public science engagement by organising a School Immunology competition in Hampshire (UK).

Área Temática:	**Biomedicina**
Nombre:	MAITRE , LEA
Referencia:	RYC2022-036475-I
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Título:	The Early-life Exposome: Biomolecular mechanisms of Environment and Health

Resumen de la Memoria:

My research strived to identify early biomarkers of child and woman health and their environmental determinants. I have developed novel biomarkers of fetal growth and analytical strategies to incorporate them in large environmental health studies to identify preventable risks factors. I am the fourth most published researcher in the world in Exposome research (source: app.dimension.ai), a new paradigm to encompass the totality of human environmental (meaning all non-genetic) exposures from conception onwards, complementing the genome. I published 52 original peer-reviewed publications since first publication in 2014 (47 in first quartile, 35 in first decile), plus two book chapters and a h-index of 21 (Scopus). I am first author of a manuscript recently published in Nature Communication (IF 17.7) on the multi-omics signatures of the human early life exposome.

My academic training was highly international. I studied biomedical sciences, specializing in biochemistry and graduated from the University of Lyon 1, France in 2010, top of my class (out of 144 students). As part of my degree, I carried out a research project at the Karolinska Institute, Stockholm, Sweden. In 2010, I was awarded a competitive a 4-year PhD studentship from the UK Medical Research Council. During my PhD at Imperial College London, UK, in Elaine Homes and Jeremy Nicholson's lab, world pioneers in metabolomics, I developed new technologies based on Nuclear Magnetic Resonance (NMR), to identify pregnant women at risk of low birth weight and premature birth using non-invasive urine samples. I conducted the first large scale metabolomics study in pregnant women and identified novel biomarkers for fetal growth, related to steroid hormone metabolism. This work was featured in two scientific publications, as first author, in a D1 journal (BMC Med IF 11.15) and was extensively covered by the general press in the UK, US, Spain and Latin America. In parallel to my research applied in clinical chemistry, I trained in epidemiology and advanced biostatistics following a master at the School of Public Health at ICL. In the last year of my PhD, I was already teaching biostatistics to medical students and advanced regression modelling in R to the master program.

As a result of my expertise in metabolomics, epidemiology and advanced statistics, I was invited to the EU funded HELIX study (2013-2018) as a scientific coordinator in ISGlobal (Spain). This project was one of the first large scale project to be funded on the Exposome with partners from 11 countries (PI: Martine Vrijheid). I especially managed the cross-disciplinary nature of the project and was instrumental in setting up the complex database that has been the foundation for many publications, a task that involved spending a large effort on coordination. I led the publication of the cohort profile in BMJ Open and found novel and reproducible metabolic associations across pregnancy periods for widespread chemical pollutants (Env Sci Tech 2018). These findings contributed to further understanding of maternal-fetal health, and health across the life-course. During this period, I also co-authored a number of articles with international collaborators in high-impact clinical journals (IF>14) (e.g. J Am Coll Cardiol, Hepatology, Lancet Planetary Health).

Resumen del Currículum Vitae:

In 2020, I was awarded the Postdoctoral Juan de la Cierva – Incorporación Fellowship from Ministerio de Economía, Industria y Competitividad and the Sarah Borell (ranked first nationally in Spain). Additionally, I initiated the Exposome hub in ISGlobal, setting up a new way to collaborate and communicate through monthly seminars, conferences with speakers around the world and working groups. As part of my director role, I organized a 3-day online conference (May 2021), the Exposome Data Challenge, with more than 308 registered participants from five continents and 27 presentations from leading universities. This resulted in a consortium report published in Env Int (IF: 13.35, D1, 1st authorship). I was invited to present this innovative workshop as a keynote format at the ONE- Health, Environment, Society EFSA Conference in June 2022, Brussels, particularly for its open data science aspect.

My expertise in the exposome field is further evidenced by 5 keynote invitations across the world (USA, Belgium, Italy, France), 20 oral and poster presentations at various conferences after abstract selection and teaching in doctoral schools such as the Atlantic exposome summer school ALEXS 2022 in Rennes, France. In addition, I also review manuscripts in more than 20 academic journals and reviewed grant proposals for the French National Research Agency (ANR), the Belgian Science Policy Office (BELSPO), The Research Council of Norway and the U.S.-Israel Binational Science Foundation in 2021-2022. I have also been participating in other European projects related to early-life exposome and chemical exposures, the LifeCycle (PI: Vincent Jaddoe, Netherlands), OBERON (PI Karine Audouze, Paris) and recently ATHLETE (PI: Martine Vrijheid, Spain). I am now developing new lines of research, at the crossroad of epidemiology and toxicology. In Nov 2021, I initiated a collaboration with the Université de Paris- Inserm U1124 - T3S team, Systems toxicology and did a 3-month research stay where I had the chance to train on Adverse Outcome pathways (AOPs).

I also have a strong dedication to teaching and training. I currently supervise two PhD students, have supervised 7 master student thesis which has already led to one high impact publication in BMC Med. and another one under review in Env. Int., of which I am last author. I designed the first course in Spain on Exposome Concepts and Innovative Tools, coordinating several teachers across ISGlobal disciplines and designed several new courses for universities: e.g. Metabolomics for the Master of Omics data analysis at UPF. Finally, I gained extensive experience in grant writing: I participated in the successful renewal of HELIX (ATHLETE, H2020, €12m, role: task leader);obtained funding as a PI by Fundació La Marató de TV3 for exposome research in mental health patients (300,000€), and as a co-PI to measure the Impact of Maternal-Fetal Steroid Metabolome Exposure on Child GROwth and Neurological Outcomes (IGRO) (PI21/01269 ISCIII - FIS 2020 - 121.000€) and an Industry PhD partnership CIFRE –co-director (96,000€ 2021-24).

Área Temática:	**Biomedicina**
Nombre:	GROTHE , JAN MICHEL
Referencia:	RYC2022-035261-I
Correo Electrónico:	mgrothe@us.es
Título:	Neuroimaging in Neurodegenerative Dementias

Resumen de la Memoria:

Formally educated in physics and biology, I obtained my PhD ('summa cum laude') in 2014 from Rostock University Medical School (supervisor: Dr. Teipel) for my studies on a novel MRI biomarker for detecting and tracking cholinergic basal forebrain atrophy in the transition from normal aging to Alzheimer's Disease (AD). These studies resulted in 4 first-authored publications, all of them in D1 journals (e.g. Grothe et al. Biol Psychiatry 2012; Grothe et al. Alzheimers Dement 2014), and I was also awarded the prestigious "Steinberg-Krupp Alzheimer Research Award for Young Investigators" for this work.

From 2014 to 2020 I worked as a post-doctoral researcher at the German Center for Neurodegenerative Diseases (DZNE), where I got trained in advanced computational analysis of a large variety of multimodal MRI/PET neuroimaging modalities, and worked with combined neuroimaging and deep phenotyping data of several large-scale observational cohort studies. Some of my principal contributions include the development of a highly cited PET-based method for staging regional amyloid-beta deposition (Grothe et al. Neurology 2017a; 285 citations), and combined imaging-genetic studies yielding novel insights into the genetic underpinnings of neurodegenerative pathology accumulation in the aging human brain (Grothe et al. Neurology 2017b; Grothe et al. Brain 2018). I have also led technological developments, including an internationally standardized method for automated hippocampus volumetry (Wolf,..,Grothe. Alzheimers Dement 2017) and a software toolbox for partial volume correction in PET images (Gonzalez-Escamilla,..,Grothe. Neuroimage 2017). In addition, I have extended my initial research focus on AD to the study of other neurodegenerative and psychiatric cognitive disorders, particularly Parkinson's disease (e.g. Grothe et al. Biol Psychiatry 2017; Ray,..,Grothe et al. Brain 2018).

My postdoctoral research involved international training and close collaborations with multiple renowned research institutions, most notably a collaborative research project with Harvard Medical School (Dr. Sepulcre) for which I received independent funding as PI and which led to a publication as second author in Nature Medicine (Sepulcre, Grothe et al. 2018; IF=30.641). Since 2019 I also hold a co-affiliation as Senior Research Associate in the Molecular Neuroimaging Group (Dr. Schöll) at the University of Gothenburg, where I supervise research studies examining regional patterns of pathology accumulation in PET data and their relation to novel fluid biomarkers of AD pathology (e.g. Grothe et al. Neurology 2021).

In 2020 I joined the Movement Disorders Group (Dr. Mir) at the Institute of Biomedicine of Seville (IBiS) as a 'Miguel Servet' Senior Researcher and head of the Neuroimaging Section. In this position, I am establishing an independent line of research focused on using multimodal neuroimaging data for studying the neuronal correlates of cognitive decline in PD and other Lewy body diseases. I am currently PI of two overlapping research grants to support my research, and in some of my most recent studies I could describe distinct effects that different neurodegenerative pathologies exert on regional neuroimaging patterns and how these may be used for aiding differential dementia diagnosis (Grothe et al. Alzheimers Dement 2022; Silva-Rodríguez,..,Grothe. J Nucl Med 2023).

Resumen del Currículum Vitae:

Scientific Productivity and Excellence
Since my first publication in 2010, I have published 136 research articles in international peer-reviewed journals, including 21 articles as first author and 27 articles as senior author that have been published in some of the leading journals in the field, such as Brain, Biological Psychiatry, Alzheimer's & Dementia, and Neurology (29 publications as main author in D1 journals). I have also co-authored articles in very high impact journals such as Lancet Neurology (IF=59.9; Teipel et al. 2015) and Nature Medicine (IF=87.2; Sepulcre, Grothe et al. 2018; Vogel et al. 2021). In addition, I have first-authored 3 book chapters in internationally published books. Eleven of my papers as main author have been cited over 100 times, and my most cited paper has been cited 285 times (Grothe et al. 2017). My current H-index is 44, with a total of 6,359 citations.

The wide international recognition of my work is also reflected by frequent invitations to present my research at international conferences, workshops, and seminars, and I have already given >50 oral presentations in these contexts, including the Opening Plenary of the Alzheimer's Imaging Consortium 2015 in Washington D.C. I have also organized scientific symposia at the Alzheimer's Association International Conference (AAIC, 4x), and I am frequently invited to chair scientific sessions at this and other international conferences.

My research has been awarded with the German 'Steinberg-Krupp Alzheimer Research Award for Young Investigators' (2014), the 'AAIC Postdoc Poster Prize' (2016), and the 'AD/PD Junior Faculty Award' (2019), and I have received numerous travel fellowships of international conferences.

Leadership and Recognized Expertise
In 2016 I acquired my first major grant as PI to lead a collaborative research project with Harvard Medical School, and since then I have received continuous and overlapping funding to support my research, including the ISCIII 'Miguel Servet' fellowship as well as two currently active research grants (ISCIII and Junta de Andalucía) that I lead as PI.

During my time at the DZNE I was the principal supervisor of a PhD student, who was financed by my research grant, and I also (co-)supervised four MD students. In my current position at the IBiS I am leading a team of one postdoc, three PhD students, a research assistant, and a neuropsychologist, and I have obtained competitive pre-doctoral (PFIS) and post-doctoral ('Sara Borrell') fellowships in the capacity as group leader. I also continue to mentor post-doctoral researchers at the DZNE and in my co-affiliated lab at the University of Gothenburg.

In 2022 I was elected as an Editorial Board member of the journal Neurology (D1), and I am also an Associate Editor of the journal Frontiers in Aging Neuroscience (Q1). Moreover, I am an ad-hoc peer-reviewer for several of the leading journals in my field, such as Lancet Neurology, Science Translational Medicine, Nature Communication, JAMA Neurology, etc. (peer-review of >60 research articles). In addition, I have reviewed research project proposals for national and international funding bodies, and I am an annual abstract reviewer for national and international conferences. Of further mention is my service as external PhD thesis committee member at national (5x) and international (1x) Universities.

Área Temática:	**Biomedicina**
Nombre:	ROMACHO ROMERO, TANIA DEL MAR
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Título:	El tejido adiposo en el centro de la diana terapéutica

Resumen de la Memoria:

My research focuses on pharmacological research in diabesity complications. I explore the impact of adipose-derived factors called adipokines upregulated in diabesity such as visfatin/Nampt and IL-1beta. During a FPU stay at Prof. Trayhurn's group in Liverpool, my interest was prompted towards adipose tissue. In 2012 I joined Prof. Eckel¿s lab, who had just demonstrated that dipeptidyl peptidase 4 (DPP4) was an adipokine upregulated in obese and insulin-resistant patients. At the German Diabetes Center I focused in:
- Metabolic phenotyping of an adipose-specific DPP-4 KO showing reduced hepatic insulin resistance under chronic high fat diet challenge via IGF-1 (Marie Curie FP7; Romacho et al 2019 AJP "Best paper Selection").
- Characterization of the deleterious vascular effects of DPP4 via the PAR2 receptor. (DAAD-MICINN Action).
- PAR2 as a link in between obesity AT inflammation and atherogenesis (industry collaborations led by me).
During my Juan de la Cierva postdoc at UAM I investigated:
- How novel anti-ageing factors such as Ang-1-7 and klotho counteracted the deleterious actions of Ang-II and IL-1β through Nrf-2/HO-1 axis (Romero et al., Aging Cell, 2019, last and corresponding author).
- How visfatin/Nampt-impairs endothelial function in vivo in mice via TLR4 and NLRP3 inflammasome (Romacho, Scientific Reports 2020, Q1 first author).
As Head of the Core Lab of the komIT Center at the German Diabetes Center I:
- Validated a novel first-in-class drug candidate for the diabetic complication NAFLD (funded with an EFRE EU project and a postdoctoral grant from Fundación Martín Escudero).
- Established novel cell culture strategies for the study of inter-cell crosstalk and drug validation in diabetic complications (funded by Eureka-Eurostars Programme).
Collaborating with FARMAVASM (UAM) The role of DPP4 as a promotor of vascular senescence (Valencia et al, Journal of Hypertension 2022), from a TFG co-directed by myself.
Now as a María Zambrano fellow at Universidad de Almería I am establishing my own lab. At the ChroCoDiL Lab we aim to:
- Determine whether microplastics exposure alone or as carrier of a pesticide mixture among the most frequently found acetamiprid (AC) and azoxystrobin (AZ) promote adipose dysfunction resulting in insulin resistance.
- Explore the potential role of the pro-inflammatory and oxidant response to MPs and its underlying mechanisms triggering AT insulin resistance.
- Analyse the effects of several inhibitors will be analysed to identify therapeutic targets to treat or prevent metabolic derangements caused by microplastics and new generation pesticides carried by them.

Resumen del Currículum Vitae:

Obesity and type 2 diabetes are challenges that require new therapeutic strategies. Therefore I am studying adipose tissue in inter-organ crosstalk to develop therapies for main complications, like cardiovascular (CV) diseases and non-alcoholic fatty liver disease (NAFLD). I have characterized the therapeutic potential of blocking the adipokines visfatin, DPP-4 and IL-1β in vascular ageing and inflammation. Through pharmacological blockade and KO models I characterized the therapeutic potential of these adipokines and identified other novel targets such as the NLRP3 inflammasome and the GABAA receptor to treat and prevent CV diseases and NAFLD. Through excellent funding as Marie Curie, Juan de la Cierva and María Zambrano I have published 30 papers and hold 3 patents for nutritonal programming of adipose tissue and a patent for novel first-in class treatment for NAFLD under evaluation. As current María Zambrano fellow at UAL, I am establishing my own lab. At my previous position as Head of the komIT lab (2019-2022), at the German Diabetes Center I led a team of 2 postdocs, 1 PhD student, 1 Master student and 1 technician. This 2 years resulted in several papers, 1 patent under evaluation and the spin-off CureDiab. I did a postdoc at FARMAVASM in UAM (2017-2019) with a Juan de la Cierva Incorporación fellowship where I participated in 2 public-funded projects, an ongoing Clinical Trial, 1 contract with GlaxoSmithKline, 3 papers, 1 MD and 1 Master Theses. In 2018 did a short stay at Universidad de Chile to set up several techniques at Prof. Díaz-Araya's with Santander-UAM CEAL project. This resulted in 3 papers, one as CA. At the end of this period I obtained Excellent evaluation, theI3 Certificate for Excellence Research for global trajectory and last 5 years (2015-2019) and Accreditation to "Profesor Contratado Doctor". In 2012-2016 I did a postdoctoral stay at the DDZ, Germany where I obtained a Cajamadrid and Marie Curie Intra-European Fellowship. I obtained funding as PI such as ADDIO and Training and Feasibility and continued collaborating with FARMAVASM in several projects (MICINN-DAAD). As scientific coordinator I led 2 industry projects with Mead Johnson and 2 with Sanofi, respectively. These projects resulted in the release of 3 patents, 6 papers, and 1 Diploma, 1 Master and 2 PhD Theses supervised by myself. In summary I have participated in more than 15 public-funded projects, 3 as PI. I have 30 articles (27 in Q1; 2 in Q2 and 1 Q3), 8 as first author, 3 as shared senior and 4 as corresponding author, 3 book chapters co-authored and 2 invited reviews, 1 of which as first author, resulting in H-Index: 22 with 1,683 cites. I have supervised 2 PhD Theses and 1 ongoing, 3 Master Theses 1 ongoing and 2 Diploma/MD theses. My research was awarded the DZD award Best Talk ADA 2015, Young Investigator Award, Spanish Society of Pharmacology 2014 and "Best PhD" UAM 2012. I collaborate with Prof. Carmen Martínez (INSERM, Montpellier), Prof. Erusalimsky (Cardiff Metropolitan University) and Prof. Juergen Eckel (CureDiab). I am evaluator for the Spanish Research Agency since 2017, Life Sciences Pannel, National Science Center of Poland, April 2014. I am Associate Editor Frontiers in Physiology-Metabolism and reviewer for American Journal of Cardiology, CV Diabetology, Scientific Reports. During my PhD I obtained a FPU (2007-2011).

Área Temática:	**Biomedicina**
Nombre:	GARCIA LUIS, JONAY
Referencia:	RYC2022-037883-I
Correo Electrónico:	JonayGL@gmail.com
Título:	Chromatin structure and metabolism

Resumen de la Memoria:

During my scientific career, I have studied how chromatin is organized and regulated inside the nucleus. I first started studying chromosome segregation during my final year project C. elegans meiosis as an undergraduate student at Sheffield University in the UK. During my PhD at F. Machín lab (Spain), I continue studying how the DNA damage repair mechanisms affect chromatin structure and the impact it has on the fidelity of chromosome segregation using S. cerevisiae as a model organism. Here I uncover the critical activity of structure-selective endonucleases in the final steps of chromosome segregation in mitosis. To gain further insight into factors implicated in chromatin structure and genome stability I did my postdoc in L. Aragon' s laboratory (UK) to study SMC complexes. During this time, I gained experience in cutting-edge techniques that allow me to study how SMC complexes' activity is regulated in the context of chromatin. I found that the SMC complex "cohesin" requires chromatin remodelers to fold the genome correctly with implications on chromosome segregation fidelity and transcription regulation. At this time, the emerging new roles of the Smc5/6 complex as a guardian against parasitic DNA caught my attention and opened new avenues to explore SMC functions and establish my own niche of research. As a result, I was awarded a Juan de la Cierva Incorporación to investigate the role of Smc5/6 in regulating HIV episomal proviral DNA in the lab of Dr A. Valenzuela, an expert in early HIV infection. Here I have gained independence and secured funding to develop this line of research leading two projects as a PI. Following this line of research, I aim to explore the crosstalk between parasitic DNA and the host cell mechanism to silence them.

Resumen del Currículum Vitae:

Throughout my scientific career, I have produced 15 papers (10/15 in Q1, 6/15 D1), 6 of them as a first author (4/6 in Q1, 3/6 in D1). I have produced high-quality publications independently of the lab that has hosted me. As a PhD scholar, I have participated in 3 research projects funded by the ISCIII. I have participated in 20 congress communication (11 of them international) 6 of which have been selected for a talk. I have co-supervised 2 master thesis. I am currently co-supervising two undergraduate final-year projects and one PhD student, and I am leading two competitive projects as a Principal Investigator. Drawing upon my extensive experience in the field of chromatin metabolism and structure, I have established a solid publication track record through collaborations with international colleagues. My expertise in the field of DNA damage repair and chromatin structure with special emphasis on the SMC complexes has laid the foundation for my current line of research focused on the regulation of parasitic extrachromosomal DNA in health and disease. Overall, I have obtained the expertise and scientific maturity required to transition to a fully independent position.

Área Temática:	**Biomedicina**
Nombre:	GONZÁLEZ ALVAREZ, RAQUEL
Referencia:	RYC2022-037918-I
Correo Electrónico:	raquel.gonzalez@isglobal.org
Título:	Optimizing the control of malaria and HIV infection among pregnant women from sub-Saharan Africa: from clinical trials to implementation science

Resumen de la Memoria:

I began my research career in global health in 2005 as a medical resident of Preventive Medicine and Public Health at the Hospital Clínic of Barcelona. My interest in tropical medicine and in working to improve the health of the most vulnerable populations led me to complete research internships in Morocco, Kenya and Mozambique. My experience in these countries, working in studies to control malaria, the paradigm of poverty-related diseases, constituted a turning point in my personal and professional life.

In Mozambique I coordinated a community-based survey among breastfeeding women, which constituted the first detailed description of the human milk microbiota in low-income countries and the first study on the gut microbiota in healthy African infants (Gonzalez R et al, Plos One 2013). From 2008 to 2015, I acted as technical coordinator of two multicenter clinical trials funded by the European and Developing Countries Clinical Trial Partnership. The aim of these projects was to improve the health of African women and their infants by evaluating the efficacy and safety of the antimalarial drug mefloquine for Intermittent Preventive Treatment during pregnancy in five sub-Saharan countries. I presented the results of these studies at the World Health Organization (WHO) Expert Review Group meeting on malaria in pregnancy in Geneva in July 2013. These findings guided global recommendations on preventive strategies of malaria in pregnant women (Gonzalez R et al, Plos Med 2014). Additionally, the trial conducted among HIV-infected women led to an unexpected finding, namely the first report of an association between the use of an antimalarial drug (mefloquine) during pregnancy and an increased risk of mother to child transmission of HIV among African women.

In the last five years I have continued developing my research to innovate in the control of malaria (Gonzalez R et al Cochrane 2018) and HIV infection, two of the most important global infectious diseases, among women from sub-Saharan Africa (SSA). Since 2018, I am coordinating a multicentre randomized placebo-controlled trial to evaluate the safety and efficacy of the antimalarial drug dihydroartemisinin-piperaquine for intermittent preventive treatment (IPTp) of malaria among HIV-infected pregnant women in Mozambique and Gabon (Gonzalez R et al, BMJ Open 2021). This project aims at improving maternal and infant health of the most vulnerable women to malaria, those HIV-infected who paradoxically are currently the less protected (Gonzalez R et al, Plos Med 2016).

I have recently also expanded my research horizons from clinical research to implementation science. The TIPTOP project that I am coordinating is implementing community distribution of IPTp in four SSA countries to optimize its coverage and improve maternal health (Pons-Duran et al, Int J Epidemiol 2021 and Gonzalez R et al, Lancet Global Health 2023- in press).

As medical epidemiologist specialized in global infectious diseases, since the onset of the COVID-19 pandemic I have coordinated several research projects to contribute to the understanding of the disease and improve its control among pregnant women. These studies include clinical trials (Trials 2020) and large cohort studies of pregnant women from SSA, where the indirect effects of the pandemic on maternal health services have been described (Lancet Glob Health 2020).

Resumen del Currículum Vitae:

In September 1995, I started my Medical Degree at the Universitat de Barcelona. In 1999 and 2001, I was recipient of two Erasmus Fellowships to study at the Seconda Università degli Studi di Napoli (Italy). During my degree I also did clinical internships at the Universidade Federale de Santa Maria (Brazil) and the University Hospital Skejby Sigehus of Aarhus (Denmark). I graduated in Medicine in June 2001 at the Universitat de Barcelona. I obtained a Master in Public Health from the Universitat Pompeu Fabra (Barcelona, Spain) in 2004 and started working on clinical research. In 2005, I was recipient of the Spanish Society of Vaccinology's Fellowship for a training abroad and spent six months at the US Centers for Disease Control and Prevention where I gained expertise in epidemic surveillance. I graduated as specialist in Preventive Medicine and Public Health in 2007 at the Hospital Clínic of Barcelona where I started collaborating with the Barcelona Institute for Global Health (ISGlobal) and with the Centro de Investigaçao em Saúde de Manhiça (CISM) in Mozambique.

After completing my medical residency in Preventive Medicine and Public Health, I was awarded the competitive three years "Rio Hortega" Fellowship from the Spanish Ministry of Health to develop further my research career. I was then based two years at the CISM, where I improved my knowledge and skills on clinical research and Global Health. In 2015, I defended my PhD thesis entitled "Burden, control and impact of malaria and HIV in women of reproductive health from southern Mozambique" at the Universitat de Barcelona and obtained a "Excellent cum laude" qualification as well as the International Doctorate Mention.

Since 2012, I collaborate with the Global Malaria Program of the World Health Organization providing technical inputs and updating the guidelines for prevention of malaria in pregnancy. For the past 15 years I have worked as study field coordinator, project manager and investigator of several epidemiological studies in Tetouan (Morocco), Manhiça (Mozambique) and Nairobi (Kenya), focusing my research on poverty-related diseases such as malaria, HIV and maternal health.

Since 2017, I work as Assistant Research Professor at the Barcelona Institute of Global Health (ISGlobal) and I am affiliated as senior research to the CISM (Mozambique).

I am lecturer at the Master of Global Health (Universitat de Barcelona) at the Epidemiology and Extended Epidemiology courses and I am the coordinator of the Maternal and Reproductive Health Course. I am also Associated Professor at the Faculty of Medicine of the Universitat de Vic, where I coordinate the Global Health course. From 2013, I have supervised 10 Master Final projects at different Universities (Master of Global Health & Master of Clinical Research - University of Barcelona, Master of Public Health - EHESP-France- Master of Public Health - Universitat Pompeu Fabra- Barcelona and Uthrech University- The Netherlands) and directed one PhD thesis (Clara Pons- University of Barcelona, 2021). Currently I am supervising two PhD students at the Universities of Bordeaux and Barcelona.

In 2021, I obtained the "Habilitation à Diriger les Recherches" Diploma from the University of Paris to supervise PhD thesis in France.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	BARROSO GONZALEZ, JONATHAN
Referencia:	RYC2022-036374-I
Correo Electrónico:	jbarroso@cnio.es
Título:	DNA damage signaling pathways associated with genome instability, cancer development, and progression.

Resumen de la Memoria:

I graduated in Biological Sciences at the University of La Laguna (ULL), where I started performing research activities as an undergraduate student. As a Ph.D. student at ULL, I identified and characterized key cellular proteins, including lipid kinases, actin-binding proteins, and membrane dynamic proteins, hijacked by HIV-1 to promote cell fusion, entry, and productive infection. My graduate work led to multiple publications in recognized international peer-reviewed journals such as "The Journal of Biological Chemistry", "Molecular Biology of the Cell" or "Retrovirology". I finished my Ph.D. "Summa Cum Laude" also "with distinction" in 2012 with a thesis entitled "Molecular mechanisms involved in HIV-1 infection". In my first postdoc at the University of Pittsburgh, I uncovered the role of the multifunctional sorting protein PACS-2 in cell cycle regulation and cell survival in response to DNA damage, results published in "Cell Reports" and "Cell Death and Differentiation". In my second postdoc, also at the University of Pittsburgh, I studied the process of DNA damage signaling in cancer cells that use the Alternative Lengthening of Telomeres (ALT) pathway to maintain their unlimited proliferation. There, I identified proteins and DNA repair mechanisms required for telomere maintenance (results published in "Cell Reports"), including the identification of the essential factor RAD51AP1 (two articles published in "Molecular Cell"), and the DNA mismatch repair complex MuTSalpha (MSH6/MSH2) (article published in "Cell Reports"). We have also elucidated the role of poly-ADP ribosylation during DNA repair signaling at telomeres in ALT cells (article published in "Nature Structural and Molecular Biology"). Finally, my work was also fundamental to elucidating the role of the Shu complex-associated protein network in homologous recombination-mediated repair (results published in "Nucleic Acid Research"). In 2021, I joined the Spanish National Cancer Research Center (CNIO, Madrid, Spain) with a competitive fellowship for "post-docs trained in the UK/USA" from "Banco Santander" to study the mechanisms regulating the repair of aberrant DNA topoisomerase 2 (TOP2) activity. In 2022, I was awarded the "AECC Investigador 2022" by "Asociación Española contra el cancer (AECC)" with a research project aiming at the development of potent and specific inhibitors of the TDP2 repair enzyme to enhance cancer cell sensitivity to TOP2 poisons, with a focus on ATM-deficient tumors.

In summary, my scientific career has focused mainly on identifying and characterizing the mechanisms driving cancer cell survival and progression, with special attention to studying the proteins and their posttranslational modifications in the regulation of DNA damage response signaling and repair pathways. My qualifications are supported by 10 years of postdoctoral experience, multiple publications in high-impact factor journals, participation in multiple research projects, assistance at numerous congresses, mentoring and supervisor skills, and the research fellowships I have competitively received. Therefore, I think I am a strong candidate to make substantial contributions to Cancer Research as a "Ramón y Cajal" fellow, and this will constitute the final step I need to become a fully independent researcher.

Resumen del Currículum Vitae:

EDUCATION/QUALIFICATIONS:
2021-Present: Postdoctoral research assistant. Topology and DNA breaks group. Spanish National Cancer Research Center (CNIO). Madrid. Spain.
2015-2020: Post-doctoral associate. Department of Pharmacology and Chemical Biology. School of Medicine. The University of Pittsburgh. USA.
2012-2015: Post-doctoral associate. Department of Microbiology and Molecular Genetics. School of Medicine. The University of Pittsburgh. USA.
2007-2012: Graduate student. Ph.D. Summa Cum laude "with distinction" in Biomedicine. Department of Physical Medicine and Pharmacology. School of Medicine. The University of La Laguna, Spain.
1999-2005: Biological Science degree. Major in Molecular and Cellular Biology, and Biomedicine. The University of La Laguna. Spain.

RESEARCH QUALITY INDICATORS:
- 18 published articles in JCR-indexed journals. 16 out of 18 articles in their area's first quartile (Q1). 8 peer-reviewed articles as the first author, 1 first author's review, and 1 first author's view. Cumulative impact factor of 138.922: Molecular Cell (IFs 19.328 and 15.584), Cell Reports (IFs 9.423, 8.282, and 8.358), Cell Death and Differentiation (IF 8.3), Nature Structural and Molecular Biology (IF 11.98), Nucleic Acid Research (IF 11.147), Retrovirology (IFs 5.236 and 4.767), Molecular Biology of the Cell (IF 5.861), Journal of Biological Chemistry (IF 5.328 both), Journal of Immunology (IF 6), Journal of Cell Science (IF 6.144), Frontiers in Microbiology (IF 4.076), Communicative & Integrative Biology (IF 2.310), Molecular and Cellular Oncology (IF 1.47). H-index of 13 and 697 total citations.
- 35 contributions to national and international meetings, including the best poster prize in the 4th Regional Translational Research in Mitochondria, Aging, and Disease Symposium in 2014 (Pittsburgh, USA).
- Researcher in 12 research projects in Spain and USA.
- Awarded in 2020 with a competitive fellowship for post-docs trained in the UK/USA from Banco Santander, and awarded in 2021 with the competitive grant "AECC Investigador 2022". Moreover, I have received three grant-associated fellowships and a competitive fellowship from the "CajaCanarias foundation" for Ph.D. students.
- Mentored high school and college students at the University of Pittsburgh (USA). Ongoing co-director of Alba de Haro Hernando's Ph.D. thesis at CNIO.
- Organizer of two conference events at the University of Pittsburgh: The "Julius Youngner Lecture series" and the "Bridgeside Research Forum".
- Predoctoral stays: the Immunology Service at the University Hospital "La Princesa" (Madrid); the Immuno-Molecular Biology Service at the University Hospital "Gregorio Marañón" (Madrid); the Retrovirology unit at the University Hospital "Germans Trias I Pujol" (Badalona).
- External Evaluator of an International Ph.D. thesis at the University of La Laguna (Spain). Regular evaluator for MDPI-associated journals. Positively Evaluated as "Profesor Ayudante Doctor". Evaluator of "CNIO Lab Day" conference in 2022.

- Technical expertise in biochemistry, cellular, and molecular biology approaches including state-of-the-art genome editing-associated technologies, the study of protein post-translational modifications, the investigation of protein-DNA interactions by next-generation and genome-wide approaches, and high-throughput genetic and small molecule screenings of cell sensitization.

Área Temática:	**Biomedicina**
Nombre:	GOMEZ SUAGA, PATRICIA
Referencia:	RYC2022-035146-I
Correo Electrónico:	patriciagomezsuaga@hotmail.com
Título:	Molecular and cellular mechanisms underlying neurodegeneration

Resumen de la Memoria:

My research career focuses on the study of molecular and cellular mechanisms underlying neurodegeneration.

During my PhD, funded by a JAE-Pre award, I studied the role of a Parkinson's disease (PD)-associated protein, LRRK2, in vesicle trafficking. My studies described a new role for LRRK2 in autophagy and endocytosis and they included two stays abroad in world-leading labs (Prof. Woodman at Manchester University, UK and Prof. Cecconi at the University of Rome, Italy. I published 11 highly cited manuscripts (6 first author) in renowned scientific journals and a book chapter (as first author).

In 2014, I moved to King's College London (KCL, UK) at Prof. Miller's lab, expert in neurodegeneration. I worked on different aspects of ER-mitochondria signalling in neurodegenerative diseases and I led projects providing new evidences for the role of ER-mitochondria communication in major cellular events, including autophagy and synaptic function. Here, I published 11 papers in top-ranked scientific journals (11Q1, 5D1) 4 as first author.

In 2018, I obtained a Fellowship and PhD Studentship (2019) from the Motor Neurone Disease Association (MNDA, UK), which allowed me to independently focus on my own research interests at KCL and to lead my own research project in C9orf72-associated amyotrophic lateral sclerosis (ALS) and frontotemporal dementia (FTD). In 2019, I also obtained funding from a KCL/Wellcome Trust program to hire a research assistant (PI). We demonstrated damaged ER-mito signalling in the most common form of familial ALS/FTD. I also obtained 3 collaborative awards as co-PI from ARUK for pilot studies, which allow me to establish new collaborations with other groups at KCL. One of the collaborative pilot studies (ARUK 2018) produced preliminary data for a full research grant, where I am a formal collaborator. These studies have been recently submitted for publication.
   Overall, I obtained over 370.000 £ in the UK from different funding bodies from 2018.
I also co-supervised a PhD student in her studies of ER-mito contacts in post-mortem tissue of ALS/FTD patients, at Miller's lab. She defended her thesis in 2020 .These studies were recently published in a manuscript where I am co-corresponding author. At KCL, I still co-supervise a PhD student for investigating the impact of pathogenic C9orf72 on different cellular processes, including autophagy.
In summary, during this Junior PI period (2018-2022), I have published 3 manuscripts where I am corresponding author (3 Q1, 1 D1), any of them were evaluated for the JdC Incorporación call.

In 2021, I moved to the University of Extremadura with a JdC-Incorporación contract. I coordinate a new research line in repeat-expansion diseases, including C9orf72-ALS/FTD and myotonic dystrophy type 1 (DM1). I also participate in several ongoing research projects in PARK group, having already collaborated in two collaborative papers publications. Here, I co-supervise a PhD project on DM1, adapted from my MSCA Individual Fellowship application, which was awarded with the Seal of Excellence of the European Commission, in 2020(scored 87.80%). Regarding this award, I recently obtained an ISCIII-HEALTH for MSCA Seal of Excellence fellowship.

In summary, during my research career, I have acquired an extensive expertise in the regulation of major cellular events involved in neurodegeneratio

Resumen del Currículum Vitae:

I have published 27 manuscripts (11 as 1st author and 3 as corresponding author) in high-impact factor journals (21Q1, 9D1) in the field of neurodegeneration. I demonstrated ability to independently get financial support (3 Fellowships, a PhD studentship, funding for a research assistant, small grants); to stablish collaborative networks (obtaining collaborative awards and publications) and to set an independent research line, showing productivity and impact across all my past appointments (h-index 21, 1,740 accumulated citations SCOPUS).

During my PhD, funded by a JAE-Pre award, I published 11 highly cited papers (6 first author) in renowned scientific journals and a book chapter (as 1st author).My thesis, under the supervision of Dr Hilfiker (Granada, CSIC) had European mention and the Extraordinary Award 2014.

In 2014, I moved to King's College London (KCL, UK), at Prof. Miller's lab, where I published 12 papers in top-ranked scientific journals (12Q1, 5D1), 4 as 1st. and 1 as corresponding author.

In 2018, my work was recognized by obtaining a very competitive fellowship from the Motor Neurone Disease Association (MNDA, UK), which allowed me to independently focus on my own research interests at KCL (PI, Including a research budget of £90.000).
I also obtained a PhD Studentship from the MNDA (2019) and a grant from KCL/Wellcome Trust to hire a research assistant (2019), in order to lead my own research project in C9orf72-associated ALS/FTD.
We demonstrated damaged ER-mito signalling in the most common form of familial ALS/FTD and we keep on investigating the impact of this damaged on different cellular processes. Part of this project has been published in 2 manuscripts (2 Q1, 1D1, e.g. Aging Cell), where I am corresponding author (one as first and the other as last author).
I also obtained 3 collaborative awards as co-PI from ARUK for pilot studies (2018, 2019 and 2020 calls), which allow me to establish new collaborations and publications.

In 2021, I moved to the University of Extremadura with a JdC-Incorporación contract (scored 100/100). Here, I coordinate a new research line and a PhD thesis. The PhD project, is adapted from a MSCA Individual Fellowship application that was awarded with the Seal of Excellence of the European Commission. Regarding this, I recently obtained an ISCIII-HEALTH for MSCA Seal of Excellence fellowship.
I also obtained a small grant from the Young International Brain Research Organization.

I have presented my research at international meetings (18, 6 talks).
Additionally, I have participated in teaching and mentoring activities, contributing to the training of next generation neuroscientists. From 2014 to 2020 I lectured in the Clinical Neuroscience MSc program and supervised until successful completion a PhD student (2020), 5 MSc thesis (2015, 2016, 2017, 2018, 2019), and 2 undergraduate students in summer internships.
I currently co-supervise 2 PhD students (KCL and UEx) and during 2021/2022 course I co-supervised a TFG student at UEx.

As a charity-funded researcher in the UK, I had the responsibility to communicate our research outcomes to lay audiences regularly. I have been very committed to these public engagement organizing citizen science initiatives and events at KCL, such as the European Researchers' Night and Open days at KCL.

Área Temática: **Biomedicina**
Nombre: LEANDRO GARCIA, LUIS JAVIER
Referencia: RYC2022-037346-I
Correo Electrónico: luisjavierleandrogarcia@gmail.com
Título: Epigenetic disruption in the progression of advanced thyroid cancer

Resumen de la Memoria:

Over the previous stages of my scientific career, I have already shown to possess qualities that will allow me to establish an independent research group. During my PhD and Postdoc training, I successfully published several first-authored papers. I also participated in collaborations, inside and outside the host institutions that I was working, that led to several publications that I co-authored. I have a good-quality publication record with a total number of 43 scientific publications (among them, one Review and one Book Chapter). 32 of them in Q1 (78%) with a total of 2252 citations. 10 of them as First Author: 8 in Q1 (80%) and 3 in D1 (30%), with a total of 574 citations. The most relevant publications as first author: Cytoskeleton (2010) with 195 citations, Endocrine Related Cancer (2010) with 168 citations, and Cancer Discovery (2021), with an outstanding IF of 39.397, with 20 citations up to date. As a Coauthor: Nature Genetics (2010), IF of 35.530 with 370 citations, Lancet Oncology (2010), IF 17.760 with 213 citations, and Nature Communications (2023, in press), IF of 17.690. Currently my H-index is 23.

In addition, I had the chance to mentor several undergraduate students and technicians and I have expanded my independent researcher skills by an extensive formation offered by the "Scientific Education & Training Office" during my period at MSKCC. I attended several professional development seminars in important topics: Funding, Science Communication, Networking, Time and Project Management, Leadership, Undergraduate Science Teaching or Transitioning to Research Independence. I have reached a stage in my career that allows me to apply all the previously acquired experience to undertake more scientifically mature tasks.

My ultimate goal in the research of human thyroid cancer is to improve the low survival of the patients affected by the most aggressive and lethal forms of the disease. The most common endocrine neoplasms arise from the follicular epithelial cells of the thyroid gland. Whereas most thyroid carcinomas are clinically indolent, patients with advanced forms have a short survival and account for approximately a third of all deaths caused by this disease. There is an urgent need of better therapies for these patients. Different chromatin-remodeling genes are mutated in approximately 40% of the most advanced carcinomas, suggesting that epigenetic deregulation may be a key process in tumor progression. My line of research will provide the first comprehensive exploration of the chromatin landscape of the human thyroid cancers of follicular origin and its link to the progression of these tumors. A better understanding of these events may unveil new vulnerabilities that could be exploited in the clinical practice for the therapeutic benefit of these patients.

Resumen del Currículum Vitae:

Luis Javier Leandro García has a degree in Biology (2004) and Biochemistry (2008) and a PhD in Biochemistry, Cell Biology and Biomedicine (2012) by the Autonomous University of Madrid (UAM). He completed his doctoral thesis on the pharmacogenomics of paclitaxel, a widely used microtubule-binding agent for the treatment of several types of cancer, at the Spanish National Cancer Research Centre (CNIO) under the supervision of Dr. Cristina Rodríguez and Dr. Mercedes Robledo. In 2014, he moved to New York to develop his postdoctoral training at the Memorial Sloan Kettering Cancer Center (MSKCC) in the group of Dr. James Fagin. During this period, he focused his research on murine models of initiation and progression of thyroid cancer. He came back to CNIO in 2019 to continue his work studying the genetic and epigenetic mechanisms responsible for the most aggressive forms of thyroid cancer in humans.

Área Temática:	**Biomedicina**
Nombre:	RUBIO NAVARRO, ALFONSO
Referencia:	RYC2022-037484-I
Correo Electrónico:	arubionavarro@gmail.com
Título:	Inflammation and metabolic disorders

Resumen de la Memoria:

After finishing my Degree in Pharmacy by the University of Granada in 2011, I moved to Madrid to study a Master in Pharmacological Research at the Autonomous University of Madrid. I carried out my master's thesis under the supervision of Dr. Oscar Lorenzo (Department of Medicine) investigating the Role of sitagliptin and GLP-1 in the cardiac hypertrophy induced by Type 2 Diabetes (T2D). In 2012, I joined the Vascular, Renal and Diabetes Laboratory (IIS- FJD-Autonoma University of Madrid) under the supervision of Prof. Jesús Egido and Dr. Juan Antonio Moreno. In 2013, I was awarded a Conchita Rabago Fellowship to pursue a PhD. During this period, I explored the underlying inflammatory mechanisms of renal and vascular pathologies. Specifically, I studied the role of CD163-macrophages avoiding pro-inflammatory and pro-oxidant deleterious effects associated to heme accumulation in the context of 1) abdominal aortic aneurysm and 2) rhabdomyolysis- induced acute kidney injury. I also developed a method to phenotypically characterize the kidney macrophages in vivo. Additionally, I made key contributions to better understand the pathophysiological processes of kidney damage associated to patients with intravascular hemolysis. In addition, my expertise in renal diseases and inflammation gave me the opportunity to collaborate with other research groups and clinicians increasing the impact of my scientific career.

In 2017, I joined Dr. Lo's laboratory at Weill Cornell Medicine in New York as a postdoctoral researcher. My research focused on understanding the initiation and progression of metabolic diseases such as Diabetes Mellitus. In my main project, I explored the obesity-induced effects on changes in β cell heterogeneity and gene expression using single-cell RNA sequencing technologies. In this sense, I identified and functionally characterized a specific subset of β cells with increased metabolic activity and enhanced insulin secretion which distribution is perturbed in T2D in mice and humans. This work has the potential to alter how we think about β cell dysfunction in T2DM allowing the development of novel therapeutic approaches to preserve this β cell subset. Additionally, I have also actively collaborated with the projects of other lab members and external collaborators. During this period, I have gained expertise in the fields of metabolism and pancreas biology and learned new techniques, including proteomics, single-cell technologies, and big data analysis.

In 2021 I was awarded a Maria Zambrano grant for the attraction of international talent to continue my career at the University of Granada. This research grant has provided me the opportunity to open up my own line of research and complete the expertise necessary to become an independent researcher. I am now focusing my research on how pancreatic cancer promotes endocrine dysfunction inducing hyperglycemia and Diabetes Mellitus. I am convinced that innovation in this field requires holistic and multidisciplinary approaches to produce novel therapeutic and preventive strategies in the benefit of cancer patients. To accomplish this new line of research I will integrate the multidisciplinary experience and technical expertise in the fields of metabolism, inflammation and pancreas biology acquired during my scientific career.

Resumen del Currículum Vitae:

My research experience is nurtured by multidisciplinary training acquired in three different laboratories: PhD Student (Vascular, Renal and Diabetes Laboratory at IIS-Fundación Jiménez Díaz-Autonoma University of Madrid, Spain. 2012-2016); Junior Postdoc (Dr. James Lo's Laboratory at Weill Cornell Medicine in New York, USA 2017-2022) and Senior Postdoc (Laboratory of Advanced Therapies: Differentiation, Regeneration and Cancer, University of Granada, Spain).

During my scientific career, I have authored 28 publications in scientific journals (8 of them as first-author / 1 as corresponding author) and disseminated my results in 24 in national and international scientific meetings. (H-index: 23 (Google Scholar); 1384 citations (Google Scholar); Cumulative impact factor (WOS/JCR): 185. 29). I have participated in 13 funded research projects at the national and international levels. I have been able to obtain employment contracts and I have also been granted with predoctoral and postdoctoral fellowships

I have also communicated my research to a wider audience through communication activities such as workshops for health workers, students and the general public. I have also contributed to meetings with associations of patients with diabetes and cancer. Currently, I am a member of the research group CTS-963 at the University of Granada, the research unit Modeling Nature, MNat and the Health Research Institute ibs.GRANADA.

In 2022 I tutorized a Master Student (Student: Pablo Martín; Title: Generation of six KRAS isogenic human cancer cell lines as new pancreatic cancer study models) and currently tutorizing two master students (Master in Translational Research and Personalized Medicine and Master in Genetics and Evolution, UGR), a technician student and a PhD student. So far, I have attended as a committee of a PhD thesis at the Autonoma University of Madrid and 10 Master thesis at the UGR. I have also served as a reviewer for different scientific journals (Frontiers in medicine, Theranostics, Biomoleclues, Medicina, Food & function, Frontiers in Immunology, Frontiers in Pharmacology, Life Sciences and Nutrients) and as a guest editor in Frontiers in Pharmacology (Research Topic: NRF2 Signaling Pathway: New Insights in the Field of Reno-Cardiovascular Health) and International Journal of Molecular Sciences (Special issue: Strategies for Specific Cell-Target Delivery of Anti-tumoral Agents).

Throughout my scientific training, I have acquired a strong background in the fields of inflammation, cardiovascular and renal diseases, metabolic diseases such as obesity and type 2 diabetes, pancreas biology and cancer. In addition, I have developed substantial expertise in cutting-edge techniques, including molecular and cellular biology approaches, single cell transcriptomics, proteomics, RNA-sequencing and bioinformatic analysis, as well as in the management of animal models and human samples. All this expertise encompasses a myriad of skills and tools necessary to build an independent research line, using multiple systems, some of them developed during my scientific career. Importantly, the plethora of collaborations that I have established during my scientific career will ensure the successfully accomplishment of my research line.

Área Temática:	**Biomedicina**
Nombre:	PARRA DAMAS, ARNALDO
Referencia:	RYC2022-037843-I
Correo Electrónico:	arnaldo.parra@uab.cat
Título:	Molecular mechanisms mediating cell type-specific synaptic dysfunction in Alzheimer's disease

Resumen de la Memoria:

I have developed my scientific career in Neuroscience studying the molecular and cellular mechanisms underlying neurodegeneration and memory dysfunction in Alzheimer's disease. During my PhD, in the group of Prof. Carlos Saura at Universitat Autónoma de Barcelona, I studied the role of the CREB coactivator CRTC1 in Alzheimer's disease (AD), by analyzing human AD brain samples and two different mouse models of amyloidosis and neurodegeneration (APPSw,Ind transgenic mice and presenilin conditional KO mice). I carried out a predoctoral research stay for 6 months in the group of Prof. Jie Shen (Harvard Medical School, Boston), studying the transcriptional regulation of CREB/CRTC1 target genes and the familial Alzheimer's disease-linked presenilin genes. During my PhD I published 8 articles, including 3 first-author research articles in Biological Psychiatry (IF: 12.81), The Journal of Neuroscience (IF: 6.07), and Scientific Reports (IF: 4.12).

In my first postdoc, in the group of Prof. Ali Ertürk at Munich University Hospital, I contributed to develop groundbreaking methods for volumetric imaging and analyses of high biomedical value, including imaging and machine learning analysis of intact mouse bodies for detecting tumor metastases and assessing neurodegeneration induced by experimental brain trauma. I gained expertise in state-of-the-art tissue processing methods in Neuroscience, including different types of tissue clearing, super-resolution expansion microscopy, and Light-sheet imaging. In this postdoc I published a co-first author article in Cell (IF: 36.22) and two additional articles in Nature Neuroscience (IF: 21.12) and Int J Cancer (IF: 7.36), and filed one patent. During my current position as Juan de la Cierva-Incorporación Postdoctoral Fellow, I have secured funding (602.325 €) by being awarded one international project from the BrightFocus Foundation as Co-PI (Ref. A2022047S) and three national technology transference projects as Scientific Entrepreneur (BIODICO PDC2021-121350-I00 and TARPENI PDC2022-133831-I00, IMPULSA-Llavor-0053), which I conceived, prepared, and I am leading in collaboration with Prof. Carlos Saura. I generated the working hypotheses and conceived these projects from recent studies that I am leading (Parra-Damas et al, Submitted; Capilla-Lopez et al, Submitted) and I prepared the proposals in collaboration with Prof. Carlos Saura. Accordingly, I planned most of the experiments, defined the objectives, experimental design, methodology and work plan of these projects, in which are involved my 4 PhD students. Moreover, I am coordinating the bioinformatics analyses for the BrightFocus project in collaboration with Profs. Hans-Ulrich Klein and Phillip de Jager at Columbia University.

In summary, during my career I have revealed relevant mechanisms contributing to AD and neurodegeneration, leading to 1) the identification of potential biomarkers and therapeutic targets that I am validating in transfer projects; and 2) the formulation of new hypotheses that I am I am exploring in novel research lines with original methodological approaches. I expect that this RyC project will help me to consolidate an independent group and to achieve my research goals for developing relevant biomarkers and therapies for dementia and neurodegeneration.

Resumen del Currículum Vitae:

Current position
Juan de la Cierva-Incorporación Postdoctoral Fellow

Previous positions
2020	Associate Professor, Universitat Autònoma de Barcelona, Spain
2018-2019	Postdoctoral scientist, CIBERNED, Spain
2017-2018	Postdoctoral scientist, Universitat Autònoma de Barcelona, Spain
2016-2017	Postdoctoral scientist, Munich University Hospital, Germany
2011-2016	PhD student fellow, Universitat Autònoma de Barcelona, Spain

International research stays
2016-2017	Postdoctoral scientist, Munich University Hospital, Germany.
2013-2014	Research scholar, Brigham and Women's Hospital, USA. (6 months).

Publication metrics and scientific indicators
10 published research articles (Q1), including 4 first-author articles in Cell (IF 36.22), Biological Psychiatry (IF 12.81), Journal of Neuroscience (IF 6.75), and Scientific Reports (IF 4.12), plus two submitted.
5 published review articles (Q1), 2 corresponding and 2 first-author.
Total times cited: 1032.
H-index = 13 (Source: Google Scholar, Web of Science ResearcherID)

Conferences
8 nternational conferences
3 international workshops/courses

Scholarships and awards
2020 Senior Postdoctoral Fellowship "Juan de la Cierva Incorporación". Ref. IJC2019-042468-I

2020 Rolf-Becker Award. Maximilian University of Munich, Germany.
2019 Travel grant. EMBL Course: "Whole Transcriptome Data Analysis".
2018 Young Investigator Award Finalist. Societat Catalana de Biologia.
2017 Extraordinary PhD award. Universitat Autònoma de Barcelona.
2016 Cum Laude PhD qualification. Universitat Autònoma de Barcelona.
2016 International PhD award. Universitat Autònoma de Barcelona.
2013 International research stay FPI Fellowship. Ref. EEBB-I-13-06754.
2011 Doctoral FPI fellowship. Ref. BES-2011-044405.
2009 MSc fellowship. Universitat Autònoma de Barcelona.

Technology transfer
Patent: WO2018224289A1, EP3635363. Amended to include co-inventors. December 11, 2019.
Contract: Merck-Millipore. Transfer agreement: October 2014.

Active collaborations
Prof. Phillip de Jager and Hans-Ulrich Klein, Columbia University, NY, USA.
Dr. Mercè Boada (Fundación ACE, Barcelona)
Dr. Albert Quintana and Elisenda Sanz, Universitat Autònoma de Barcelona.

Supervision of PhD and Master students
Supervised PhD Thesis: 4 (ongoing). Supervised Master projects: 3.

Teaching activity
250+ hours of practical sessions and lectures.
Institution: Universitat Autònoma de Barcelona. Courses: Neurochemistry. Biochemistry and Molecular Biology. Metabolism. Programs: BS in Medicine. BS in Biomedicine, BS in Biochemistry. Since 2019.
Course: Advanced Imaging Methods in Neuroscience. Doctoral Programme in Health Science. EIT Health Ageing PhD School. Periods: 2020-2021, and 2021-2022.
Course: International workshop on Tissue Clearing and Light Sheet Fluorescence Imaging. Munich University Hospital, Germany. 2017.

Other academic activities
Member of the follow-up committee. PhD in Neuroscience Program, Universitat Autònoma de Barcelona. Since 2020.
Guest Editor. Frontiers in Molecular Neuroscience and Frontiers in Synaptic Neuroscience. Research Topic: Bidirectional Communication between Synapses and Nucleus in Brain Physiology and Disease.
Reviewer for the Spanish Research Council (Agencia Estatal de Investigación). Since 2021.
Ad hoc reviewer for Neurobiology of Disease, Life Sciences, Cells, Journal of Neurochemistry.

Área Temática:	**Biomedicina**
Nombre:	SERRANO TEJERO, DIEGO
Referencia:	RYC2022-038084-I
Correo Electrónico:	diegoserranot@gmail.com
Título:	Descifrando los mecanismos de resistencia a radioterapia en cáncer de pulmón. Nuevas oportunidades para estrategias radiosensibilizadoras.

Resumen de la Memoria:

Dr. Diego Serrano completed his B.S. Degree in Biology at the University of Navarra in 2007 and his PhD in Biology in 2011 (University of Navarra). In 2011 Dr. Serrano finished his PhD formation at the Laboratory of New Therapeutical Targets at the Center for Applied Medical Research (CIMA, University of Navarra) under the supervision of Dr. Calvo.

During his PhD, he identified, isolated and characterized a small fraction of lung cancer stem cells (CSC) in cell lines and in several pleural effusion samples. Interestingly, he discovered that these cells have longer telomeres than their non-cancer stem cell counterparts. Interestingly he demonstrated that telomerase inhibition in combination with radiotherapy specifically targeted the cancer stem cells.

In January 2013, Dr. Serrano joined the Cell Cycle Regulation and Genome Integrity laboratory led by Dr. Damien D'Amours at the Institute for Research in Immunology and Cancer (IRIC, University of Montreal, Canada). During this postdoctoral formation, Dr. Serrano expanded his knowledge on the cell cycle and DNA damage repair pathways. During this period in Canada, Dr. Serrano worked in two different projects. The first one focused on the study of the Checkpoint Adaptation to DNA damage. Dr. Serrano's second project during his postdoc focused on the human Smc5/6 DNA repair complex, his findings were published in Molecular Cell. This paper not only revealed the structure and biochemical properties of the human Smc5/6 complex but also pinpoints the molecular cause for LIC Syndrome, a rare pulmonary disease that is lethal in children. Dr. Serrano's findings were essential to fulfill a collaboration agreement with Gilead Sciences (biopharmaceutical company) in order to develop novel treatments for Hepatitis B based on the interaction between Smc5/6 and the HBx protein.

In September 2018, Dr. Serrano was awarded with a Juan de la Cierva - Incorporación fellowship and moved to the University of Navarra as Guest lecturer and Researcher. This fellowship allowed him to start his own research team focused on radiation resistance in lung cancer and the response of tumor microenvironment to radiotherapy. Dr. Serrano aims to identify the intrinsic and extrinsic factors that confers radiation resistance to cancer cells. His final goal is to develop radiosensitizing therapies to improve outcome of lung cancer patients.

Resumen del Currículum Vitae:

Diego Serrano graduated in Biology and obtained his PhD at the University of Navarra, Spain. In 2013, He joined the Genome Integrity laboratory at the Institute for Research in Immunology and Cancer (IRIC), University of Montreal, Canada, under the mentorship of Dr. Damien D'Amours. He obtained funding from the FRS-Q Health department of Quebec, Canada (ref. 29086). In 2017, he moved to the Ottawa Institute of Systems Biology, University of Ottawa (Canada) as Research Associate. His research topic in Canada focused on the human DNA repair complex Smc5/6. Using protein engineering tools and novel purification approaches Dr. Serrano successfully purified and characterized this complex and its interactions. Furthermore, taking advantage of the evolutional conservation of this complex, Dr. Serrano identified and validated several mutants that are related to human diseases (published in Molecular Cell). After his international training, he returned to the University of Navarra as Guest Lecturer and Research Associate. He joined the Laboratory of Novel Therapeutic Targets at CIMA (University of Navarra) led by Dr. Luis Montuenga and Dr. Alfonso Calvo. In 2018, Dr. Serrano obtained a Juan de La Cierva – Incorporación fellowship (Spanish Ministry of Science and Innovation, ref. IJCI-2016-27595) that allowed him to start his own research topic focused on Lung Cancer, Radiotherapy and DNA damage with a particular interest in radiation resistance (locoregional recurrence) and the response of tumor microenvironment to radiotherapy. His group is in close collaboration with researchers, oncologists, radiation oncologists and other clinicians that provide a clinical insight that facilitates translation of his research to the clinic. He has participated in 11 competitive projects, and Dr. Serrano is the Principal Investigator of 3 funded projects: a national FIS (ISCIII), an international project funded by ILCF (USA) and a FRS-Q (Health Department of Quebec, Canada). He leads and supervises a team of three PhD students and two research technician. He hes also supervising two degree final projects (TFG). Dr. Serrano combines active research with teaching activities at the Faculty of Medicine (University of Navarra). He is an Associate Lecturer in different subjects: From the molecule to the cell (international and national programs) from the Medicine degree and Organography (international program) from the Biology and Biochemistry degrees.

Fellowships obtained: FPU (Spanish Ministry of Science and Education, ref. AP2009-3339), Torres Quevedo (Spanish Ministry of Science and innovation, ref. PTQ-09-02-02215) and FIMA (Univeristy of Navarra and Juan de la Cierva – Incorporación (Spanish Ministry of Science and Innovation, ref. IJCI-2016-27595). Travel allowance (RTICC, Instituto de Salud Carlos III) and S hort-term stay fellowships (RTICC, Instituto de Salud Carlos III).

Number of publications: 21. Number of publications in Q1: 15. Number of publications as first author: 5. H-index: 11. Participation in funded projects: 11 (3 as PI). Communications in national and international meetings: 19. Total citations: 428 (scopus).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	MADRIGAL MATUTE, JULIO
Referencia:	RYC2022-036653-I
Correo Electrónico:	juliomadrigalmatute@gmail.com
Título:	Impacto de la nutrición en el origen de las enfermedades metabólicas

Resumen de la Memoria:

I have co-authored a total of 46 scientific publications, including 32 research articles, 8 invited reviews, 2 autophagy guidelines, 1 systematic review, and 3 editorials. Among the 32 research articles, I was first author on 6 of them (2 of which were during my PhD), second author on 6, and third author on 6. My first-author papers were published in high-profile, peer-reviewed journals such as Proc Natl Acad Sci USA (Impact Factor: 12,8), Cardiovascular Research (3 articles, IF: 14,2), Free Radic Biol Med (IF: 8,1), and J Am Heart Assoc (IF: 6,1). As a second author, my work was published in journals with the following Impact Factors: Cell Metab (IF: 31,4), Atherosclerosis (IF: 6,8), Arterioscler Thromb Vasc Biol (2 articles, IF: 10,5), and Cardiovascular Research (2 articles, IF: 14,2).

According to Google Scholar, I have received a total of 14,672 citations, with an h-index of 34 and an i10-index of 43.

My research will focus on the impact of short-term fasting on colorectal cancer treatment. People diagnosed with cancer may benefit from short-term fasting because it decreases the levels of hormones, insulin, and IGF-1, which are linked to an increased risk of developing cancer. Additionally, it reduces blood glucose levels and increases ketone bodies, making tumor cells more sensitive to chemotherapy. Fasting has been shown in preclinical and clinical trials to enhance the immune response and reduce side effects of conventional cancer treatments. Despite recent advances in colorectal cancer detection and therapy, it remains a major challenge in clinical practice.

Hypothesis: short-term fasting (32 hours) can improve the efficacy of colorectal cancer treatment by enhancing the immune response and reducing the side effects of chemotherapy. To test this, I will use in vitro and in vivo models of colorectal carcinoma and perform a pilot clinical trial to evaluate the efficacy and safety of short-term fasting in colorectal cancer patients.

Goal: To demonstrate through the Ramón y Cajal program that fasting is an effective and inexpensive strategy to enhance chemotherapy in colorectal cancer and reduce treatment side effects.

Expected Outcomes: The outcomes of this research will provide important insights into the potential role of short-term fasting in improving the efficacy of colorectal cancer treatment and reducing side effects.

Significance: The results of this study have the potential to offer a new and inexpensive approach to enhance the treatment of colorectal cancer, which remains a major challenge in clinical practice. The findings will inform future research and clinical decisions in the field and have the potential to benefit patients and their families.

My background in the study of vascular and metabolic diseases, combined with my PhD studies in a broad range of subjects, has taught me the importance of considering the impact of nutrition on cancer treatment, which involves modulating proteostasis, metabolic and signaling pathways.

Resumen del Currículum Vitae:

Throughout my scientific career, I have been driven by a desire to make a positive impact on society.

During my PhD at the IIS-Fundación Jiménez Díaz (FJD), I investigated the role of chaperones in atherothrombosis, using 17DMAG as a tool to modulate HSP70 activity. Our findings revealed that 17DMAG, previously used as a chemotherapy drug, showed potential as a treatment for atherothrombosis. However, 17DMAG's role as a chemotherapy drug was significant, as I began to see that many diseases shared common characteristics, in this case, proteostasis dysfunction and metabolic abnormalities.

This phase of my training was marked by the publication of over 20 scientific articles, including three as first author, and my thesis received recognition as the best in experimental biomedicine at IIS-FJD and in basic medicine at Universidad Autónoma de Madrid. My training helped me grasp the interplay between metabolism, cell biology, and vascular physiology, which led me to delve deeper into the regulation of metabolism.

During a one-year stay at New York University with Dr. Carlos Fernández-Hernando, I studied the role of microRNAs and epigenetics in lipid metabolism and atherosclerosis, resulting in 6 scientific articles. This experience helped me identify my ideal postdoctoral laboratory, which I found in the group of Dr. Ana María Cuervo, a renowned expert in autophagy.

Over six years in Dr. Cuervo's lab, I combined my academic training with my research interests in the impact of nutrition on metabolic diseases, particularly atherosclerosis, obesity, and cancer. This stage resulted in 14 scientific articles, including a publication in Proc Natl Acad Sci USA where we highlighted the critical role of CMA in protecting against atherothrombosis. I also collaborated on projects with leading researchers such as Dr. De Cabo (NIH, USA) and Dr. Manuel Serrano (Altos Lab, UK), which led to publications in Cell Metabolism and Aging Cell exploring the role of calorie restriction and lysosomal pathways in aging.

While in Dr. Cuervo's lab, I received postdoctoral fellowships from the American Diabetes Association and American Heart Association, and participated in the Leducq Foundation-funded Transatlantic Project, which aimed to modulate autophagy for the treatment of vascular diseases. I was also a co-PI on two Leducq Foundation-funded projects and trained numerous students and laboratory technicians, as well as serving as a scientific reviewer for over 15 publications.

In 2020, I returned to Spain and, during the COVID-19 pandemic, I co-created the COVPLAS19 clinical trial together with a multidisciplinary team from the Hospital de San Juan de Alicante. This trial helped hundreds of patients and received widespread media coverage. The COVID-19 crisis inspired me to apply my knowledge to help people, leading me to co-found IBIONS in 2021. IBIONS aims to improve the health and quality of life of cancer patients through evidence-based nutritional and lifestyle changes and to raise awareness of the importance of healthy habits in disease prevention and treatment outcomes.

Área Temática:	**Biomedicina**
Nombre:	HERNANSANZ , PABLO
Referencia:	RYC2022-036516-I
Correo Electrónico:	pablo.hernansanz@cnic.es
Título:	Mitochondrial sodium, membranes and oxidative homeostasis in neurological health and disease

Resumen de la Memoria:

My group will be focused on the research of mitochondrial homeostasis, particularly in mitochondrial Na+ management, membrane stability and fluidity, oxidative signaling and metabolism, related to mitochondrial genetics and neurological diseases. In the last few years, the importance of mitochondrial signaling in disease has exploded; however, there still are many unknown aspects of mitochondrial physiology and genetics which most probably play an essential role in many pathological scenarios.

One of the sub-lines of research will be based on the study of mitochondrial Na+ management. I have recently discovered that Na+ is a second messenger and the implications of this feature have not yet been explored in any pathological context. Currently, I am in the way to publish, as a corresponding author, my last discovery in which I have identified the long-sought mitochondrial Na+/H+ antiporter and observed that it controls half of the mitochondrial membrane potential. These findings highlight that the critical importance of Na+ in mitochondrial homeostasis has just been discovered. Based on my own discoveries and the field that is emerging from them, I expect to expand the knowledge and contribute to apply it to the study and advance in the understanding of neurological disorders.

Another sub-line of research in my group will be centered in IMM fluidity. I aim to study how its regulation affects to neurological (patho)physiology. First, I have a panoply of protein candidates which can potentially regulate IMM fluidity and I aim to characterize them. Second, an interest in my group will be on the search and design of molecules modifying specifically IMM fluidity, which use have the potential impact to be translated into clinics.

Oxidative signaling and metabolism are key features in mitochondrial homeostasis and neurological diseases. I am particularly interested in dissecting the molecular pathways leading to signaling and disease because, though oxidative signaling has been related to an enormous panoply of (patho)physiological situation, the mechanisms leading to them are poorly understood or completely unknown. My research will be crucial for the advance of the field as dissecting the specific oxidative signaling behind a disease allows to differentially inhibit it and, thus, the specific pathogenesis associated with those molecular pathways may be ameliorated.

The recognition of the importance of mitochondrial genetics in disease has only been set. However, whereas some mitochondrial genetic models are very well recognized as neurological disorders, others are simoly unknown. I aim to study these models under the scope of mitochondrial Na+ handling, IMM fluidity, oxidative signaling and metabolism.

Embracing all these sub-lines of research is the study of neurological disorders. Given the tight relationship between several mitochondrial functions and the onset and development of neurological diseases, it is critical to start lines of investigation, previously unstudied, to tackle an alternative and complementary advance in the currently established fields in molecular biology and biomedicine. Thus, my line of research represents a very suitable opportunity to increment the knowledge on this type of diseases as it represents an empty niche of research of currently unknown consequences in the (patho)physiology of neurological disorders.

Resumen del Currículum Vitae:

I am author of 27 scientific publications (h-index: 16; Web of Science) in world leading journals, such as Nature, Science Advances or Redox Biology: (i) I conceived the idea and elucidated the controversy regarding mitochondrial ROS paradox production during hypoxia, which solved a two decades-lasting debate (Free Rad Biol Med, 2014); (ii) I envisioned the idea and successfully revealed the implication of mitochondrial complex I active/deactive (A/D) in oxygen sensing (Redox Biology, 2017), paving the ground to elucidate the mechanism behind and the oxygen sensor in mitochondria (iii); I conceived the experimental setup and the methodology to solve a decade-lasting debate regarding the existence of partially differentiated mitochondrial electron mobile carriers pools (Science Advances, 2020); (iv) I envisioned and discovered the first known role for the mitochondrial calcium-phosphate precipitates, the largest calcium store in the cell, which function remained obscure since their discovery (v); and I conceived the idea and discovered that sodium is a second messenger acting during acute hypoxic adaptive response, which has changed the vision of the importance of sodium in homeostasis and the relationship between cation homeostasis and metabolism (Nature, 2020). I am also co-corresponding author of several recent publications and have developed three technological tools, published in three different chapters and articles (Hernansanz-Agustín P, et al. Mehods Mol Biol, 2021; Hernansanz-Agustín P, et al. J Vis Exp, 2022; Acín-Pérez R, Hernansanz-Agustín P, et al, Methods Cell Biol). I have done a two-year placement in the university of Hertfordshire and 4 temporary stays at the university of Zurich and university of Cambridge for a total of 6.5 months.

I am an elected member of several scientific associations (SFRR-I and ISN), I have an ongoing collaboration with industry through the company iAltitude, I have participated in 35 scientific events, I have been invited many times as speaker at different universities and congresses, and I have received several young investigator awards and distinctions, including " Best article by young investigators "María Teresa Miras" award 2020-2021" by SEBBM and several awards by international societies (SFRR-I and Oxygen Club of California). During the last few years, I have been evaluator of research projects for two different international funding agencies and reviewed articles for their publication in several well-established journals, such as Redox Biology, Antioxidants or Scientific Reports and I am Review Editor in Frontiers in Physiology. In addition, I have supervised one bachelor' s final thesis, two master thesis and I currently am the co-supervisor of a PhD student. I have participated in scientific divulgation activities in the primary school Ciudad de Jaen.

I aim to research the implication of sodium, ROS, IMM fluidity and mitochondrial genetics in neurological disorders, through their implication in energy production, and to study the relationship of mitochondrial bioenergetic homeostasis with neuronal outcome, metabolism and signaling.

Área Temática:	**Biomedicina**
Nombre:	LÓPEZ DOMÍNGUEZ, JOSÉ ALBERTO
Referencia:	RYC2022-037197-I
Correo Electrónico:	josealbertold@gmail.com
Título:	Modulation of aging and age-related diseases by clearance of senescent cells and dietary interventions

Resumen de la Memoria:

My scientific trajectory has focused on strategies to extend lifespan and delay age-related diseases by nutritional interventions and clearance of senescent cells.

During my PhD at the University of Córdoba (PI José Manuel Villalba) and early postdoctoral work at the University of California, Davis (PI Jon Ramsey), I led the following projects:
- Optimization of calorie restriction diets, proving that qualitative changes in the fatty acid component of a caloric restricted diet can maximize its effects.
- Demonstration that a ketogenic diet essentially depleted from carbohydrates extends the longevity and healthspan even when started in adult mice. Mice fed a ketogenic diet presented better memory and preserved motor function and coordination.

At the Buck Institute for Research on Aging (California) (PI Judith Campisi), I described a novel marker of cellular senescence and participated in projects that explored features of cellular senescence contributing to the systemic effects of these cells and their physiological relevance in aging.

Finally, at my current position at the IRB Barcelona (PI Manuel Serrano) I have:
- Explored tools for non-invasive detection of senescent cells, not achieved to date by any laboratory, by magnetic resonance.
- Performed unbiased metabolomic analysis of several types of human and murine senescent cells, as well as serum metabolomics of senescence-related fibrotic disease in animal models, in order to identify novel potential biomarkers.
- Contributed to the optimization of galactose-conjugated small molecules to target senescent cells specifically, taking advantage of their increased beta-galactosidase activity.
- Dissected aspects of the interaction between cellular senescence and the adaptive immune system in the context of cancer. I have contributed to a recent high impact work establishing the immunogenicity of senescent cells. Additionally, my main project studies how the expression of the immune checkpoint ligand PD-L2 in chemotherapy-induced senescent cells contributes to their persistence in post-therapy tumors. PD-L2 ablation (by genetic or pharmacological means) synergizes with genotoxic chemotherapy to enhance tumor elimination.

Recent work from our laboratory and others have unveiled the critical importance of the adaptive immune system for senescence immunosurveillance in aging and cancer, using immune checkpoint blockade as a strategy to decrease senescent burden and delay age-related phenotypes. I propose several research lines aiming to:
- Explore the mechanisms behind the beneficial effects of increased senescence immunosurveillance in the context of aging and age-related diseases.
- Understand which tumors and under which circumstances are sensitive to a combination of PD-L2 ablation and a standard therapy.
- Identify novel regulators of the senescence associated pro-inflammatory secretory phenotype and refine our in vivo, non-invasive detection tools.

Resumen del Currículum Vitae:

Current position
AECC Investigador researcher (PI Manuel Serrano) at the IRB Barcelona, exploring immunosurveillance evasion by senescent cells, role of cellular senescence in cancer and non-invasive detection of senescence in vivo.

Publications
23 peer-reviewed publications (17 in Q1*) plus a recent co-first author preprint, h index of 13, 701 citations, cumulative impact factor of 198. 5 publications as first author (4 in Q1), two as corresponding author (both Q1, Exp Gerontology, Cell Metabolism) and one of these as last author (Cell Metabolism). 3 book chapters and 2 conference papers. 22 publications with international funding or including international collaborations.

International stays
- Predoctoral. Two stays at the School of Veterinary Medicine, University of California, Davis (CA, USA): Sept-Dec 2010 and Sept-Dec 2011.
- Postdoctoral stay at the School of Veterinary Medicine, UC Davis (CA, USA) (1/6/2013-31/8/2015) exploring longevity extension and healthy aging by low-carbohydrate, ketogenic diets.
- Postdoctoral stay in the Campisi lab at Buck Institute for Research on Aging, Novato (CA, USA) (1/11/2015-30/11/2018), investigating the contribution of cellular senescence to age-related diseases, senescence markers and cell-non autonomous effects of senescent cells.

Competitive funding
Fellowships: FPU fellowship for predoctoral work at the University of Córdoba; Juan de la Cierva-Incorporación and AECC Investigador (current position) contracts at the IRB Barcelona.
Projects: Two projects as principal investigator: active 2021-2024, in competitive calls at the BIST Ignite program (Barcelona) and the Longevity Impetus Grants program (USA).
Participation in eight other regional, national and international projects.

Collaboration with private entities

Sponsored Research Agreements with Unity Biotechnology Inc, at the Buck Institute (2015-2018) on cellular senescence in metabolic diseases. PI Judith Campisi.

Teaching, mentoring and training
University of Córdoba, Degree in Biology (2009-2012). UIMP Teófilo Hernando School of Pharmacology (2022).
Co-direction of one PhD thesis (2021). Student: Sandra Rodríguez López, University of Córdoba. Apto cum laude. International mention, quality mention.
Mentoring of undergradutate and graduate (MSc and PhD) students at UC Davis, Buck Institute and University of Córdoba. Recruitment of three PhD students of the University of Córdoba for short stays in the United States.

Participation in outreach and management activities
At the Buck Institute, intramural outreach program and also talks organized by local associations in the city of Novato (CA). At the IRB Barcelona, Open Doors Days, Crazy About Biomedicine and other programs. Secretary at the Postdoctoral Association at the Buck Institute (2017-2018).

Certifications and other merits
Ayudante Doctor (ANECA), i3 (2022) and evaluator for the Spanish Research Agency (AEI). PhD in Biomedicine at the University of Córdoba (Spain), international mention and quality mention. Beca de Colaboración, Beca de Introducción a la Investigación (CSIC), extraordinary degree award (University of Córdoba).

Área Temática:	**Biomedicina**
Nombre:	VENEGAS MALDONADO, CARMEN JESICA
Referencia:	RYC2022-036191-I
Correo Electrónico:	eliszca@gmail.com
Título:	Inflammation in neurodegenerative diseases

Resumen de la Memoria:

Dr Venegas defended her PhD in Intercellular Communication research group (CTS-101), University of Granada, focused on the analysis of the mechanisms that regulates the extrapineal melatonin and its receptors, and the search for a therapeutical dose. The findings showed the dynamic of the extrapineal melatonin in the subcellular compartments, indicating the absent of the circadian rhythm. In absent of pineal melatonin, the levels increased, which indicated that the pineal melatonin regulates the tissular synthesis. The administration of different melatonin doses, revealed that the membranes have a high capacity to storage melatonin, acting a reservoir, which indicated that there is an internal mechanism that controls the access to the cells. Based on the obtained results, she showed an approach of the dose in humans. Furthermore, the unknown mechanisms that regulate the membrane and nuclear melatonin receptors were described, indicating that the circadian distribution of the receptors is under the control of the serum and intracellular melatonin, suggesting that high doses of melatonin could be used for therapeutic purposes. In parallel, she contributed to others projects concerned with nuclear-mitochondrial inflammatory pathways, including melatonin treatment of Parkinson's disease (PD), Duchenne muscular dystrophy, mucositis and aging.

During her postdoctoral period in the Department of Neurodegenerative Diseases and Gerontopsychiatry, University of Bonn, Dr Venegas focused on the analysis of the role that ASC specks play in the aggregation and spreading of the amyloid beta in Alzheimer's disease (AD). She found that ASC specks can interact with the Amyloid beta plaques and induce its spreading through different approaches in vitro and in vivo models, and how the treatment with an ASC-speck-specific IgG reduced Amyloid beta deposition. Furthermore, she worked on another project, deciphering the role of the NLRP3 inflammasome in the aggregation and hyperphosphorylation of Tau. The data showed lower levels of proinflammatory markers and reduced release of ASC specks in the NLRP3-inflammasome-deficient mice, which correlated with the low levels of hyperphosphorylated and misfolded tau were lower in the hippocampus of the animals deficient for NLRP3 and decreased levels of several kinases and phosphatases involved in tau phosphorylation.

In 2019, she joined to the Molecular and Functional Neurobiology group, at the university of Luxembourg she worked initially on the activation of the immune system in PD, identifying whether iPSC-derived microglia are a good model to study inflammation in PD. After the microglia characterization and analysis of the immune response, Dr Venegas showed a similar behavior that in the nigral tissue of idiopathic PD patients. Currently, Dr Venegas is working as PI on the project "Synergistic effect of protein aggregation and mitochondrial dysfunction on inflammation in neurodegenerative diseases", where she is analyzing the effect of the accumulation of alpha-syn on the mitochondrial homeostasis and in the neuronal function. Dr Venegas observed differences in the neuronal expression profile between controls and PD patients, showing a higher level of alpha-syn in the PD lines with alterations in mitochondrial pathways and altered neuronal development and synaptic functions.

Resumen del Currículum Vitae:

Dr Venegas, PhD is a scientist researcher in the Molecular and Functional Neurobiology group in the Luxembourg Centre for Systems Biomedicine, with more than 15 years of experience in both national and international institutes with a scientific record of 22 scientific papers, 12 presentations in national and international congresses and 2 patents, reaching a research impact factor of 151.32.

She holds a PhD in Biomedicine from the University of Granada, with a PhD Thesis entitled "Estudio de los mecanismos de la regulacion de la sintesis, distribuicion y efectos de la melatonina extrapineal" (Study of the regulatory mechanisms, synthesis, distribution and effects of the extrapineal melatonin). She worked in the Intercellular Communication research group (CTS-101) under the supervision of Dr Acuña-Castroviejo, where she studied the mechanisms of regulation of extrapineal melatonin and its receptors and assessed pharmacological doses for a potential use to treat patients. The resulting paper entitled "Extrapineal melatonin: analysis of its cellular distribution and daily fluctuations" was awarded the Best Publication in Biomedicine Prize at the University of Granada. Moreover, this work helped to develop a patent: Durable preparation of an injectable of melatonin exhibiting long-term stability. Dr Venegas also participated in other research projects concerned with nuclear-mitochondrial inflammatory pathways, including melatonin treatment in PD, mucositis and ageing.

In 2013, she did an internship in the Group of Prof Michael Heneka at the Department of Neurodegenerative Diseases and Gerontopsychiatry, University of Bonn, where she joined in 2014 for her first postdoctoral fellow. Her main project was to investigate the role of ASC specks in the aggregation and spreading of the Aβ peptide, which drove to the development of a patent. In addition, she worked in another project, which evaluated the role of the NLRP3 inflammasome in the aggregation and hyperphosphorylation of Tau.

In May 2019, she moved to the University of Luxembourg, where she joined to the Molecular and Functional Neurobiology group led by Prof Anne Grünewald, focusing on the activation of the immune system in neurodegenerative diseases. From December 2019 to September 2020, she interrupted her word due to the maternal/parental leave. In 2020, she was funded by the "Fonds National de la Recherche" as Junior PI. Since 2021 she is working as PI in the project "Synergistic effect of protein aggregation and mitochondrial dysfunction on inflammation in neurodegenerative diseases", where she is supervising a technician and a PhD student.

Throughout her scientific career, Dr Venegas has acquired an extensive expertise in murine and cells models, and molecular and biochemical techniques. She was engaged in supervising students, participated in science awareness events and contributed to the writing of grant applications. Moreover, Dr Venegas is Review Editor on the Editorial Board of Alzheimer's Disease and Related Dementias (specialty section of Frontiers in Aging Neuroscience).

Área Temática:	**Biomedicina**
Nombre:	MAUVEZIN , CAROLINE
Referencia:	RYC2022-035576-I
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Título:	Study of mitotic autophagy in cancer: a new therapeutic window

Resumen de la Memoria:

My long-standing research interests focus on autophagy, a catabolic process fundamental for cellular homeostasis, with links to many human diseases including cancer. During my PhD at IRB Barcelona supervised by Dr. Zorzano, my work brought together for the first time two previously unrelated areas: nuclear co-factor signaling and autophagy. My results showed a novel function for the transcription co-factor TP53INP2/DOR to activate autophagy and resulted in 2 first-author publications. From 2011 to 2015, I joined Dr. Neufeld' s lab at the University of Minnesota to continue my training on autophagy and to learn the Drosophila model system. During my postdoctoral experience, I published 5 first-author articles. My research focused on determining the mechanisms driving autophagosome-lysosome fusion and acidification, a long-standing and important controversy in the field. My results uncovered that lysosomal acidification is not a prerequisite for fusion as it was previously believed. These findings are particularly important to the autophagy field and incited a re-evaluation of those studies whose interpretation depends on selective inhibition of lysosome acidification by lysosomotropic drugs. I also led a collaborative project aiming to determine the involvement of lipid-interacting proteins in autophagy and identified a novel complex essential for accurate autophagy. From 2015 to 2021, I was a senior postdoctoral associate at IDIBELL in the Laboratory of Cancer Metabolism. I was awarded 2 prestigious research grants: Juan de la Cierva fellowship to characterize the role of lysosomes in E2F1-induced mTOR activation in cancer cells and the European fellowship Marie Curie to support my innovative project focused on the role of autophagy during mitosis, still being a polemical question. Our findings were published in Autophagy [top journal in the field (IF: 10.79)], which I signed as last and corresponding author and revealed that efficient autophagy and lysosome degradation during mitosis protects against chromosomal instability (CIN), a hallmark of cancer. We characterized an atypical nuclear phenotype, the toroidal nucleus, as a useful biomarker for CIN. Since 2021, I am a junior principal investigator at the University of Barcelona. I was awarded 2 prestigious research grants: JIN-MINECO and LAB AECC to pursue my research goals in defining novel personalized cancer therapies based on autophagy modulation. Along my career, I established strong collaborations with experts by attending renowned international conferences. I have supervised 9 undergraduate students, 5 master students and co-directed 1 PhD thesis. My current goals are to exploit this unique niche of research with an interdisciplinary strategy to develop new CIN-targeted therapies by (1) deciphering how autophagy regulates mitotic progression, (2) developing cutting-edge tools to promote the use of toroidal nucleus in genotoxicity screenings and (3) assessing combination strategies in cancer cells. My established collaborations, my unique set of skills and expertise, my capacity to attract prestigious funding and the novelty of the research lines I am exploring, settle my scientific career as independent principal investigator and consolidate my position as a leader in the autophagy field while incorporating revolutionary concepts in cell division to tackle cancer progression.

Resumen del Currículum Vitae:

Based on Scopus: Total publications: 20 (80% in Q1), h-index: 15
Total citations: 5938 Average citation/year (5 years): 932.8

First author (7): EMBO Rep 2010 (IF: 7.82), FEBS Lett. 2012 (IF: 3.58), Methods 2014 (IF: 3.64, Q1), Nat. Commun 2015 (IF: 11.32, D1), Autophagy 2015 (IF: 9.10, Q1), J. Cell Sci. 2016 (IF: 4.43, Q2), Small GTPases 2017 (IF: 4.88, Q1).

Contributor (8): J.Lip.Res 2009 (IF: 4.91, Q1), EMBO J. 2013 (IF: 10.43, D1), PLOS One 2012 (IF: 3.73, Q1), Autophagy 2016 (IF: 8.59, D1), Cells 2017 (IF: 5.65, Q1), Autophagy 2021 (IF: 13.39, D1), EMBO J. 2020 (IF: 11.59, D1), Int J Mol Sci. 2023 (IF: 6.20, Q1).

Corresponding author (6): FEBS Lett. 2012 (IF: 3.58), iScience 2019 (IF: 4.44, Q1), Autophagy 2021 (IF: 13.39, D1), J Cell Sci 2022 (IF: 5.23, Q2), Methods Mol. Biol. 2022, Methods Mol. Biol. 2022.
Last author (4): Autophagy 2021 (IF: 13.39, D1), J Cell Sci 2022 (IF: 5.23, Q2), Methods Mol. Biol. 2022, Methods Mol. Biol. 2022.

Leadership and expertise in hypothesis-driven projects: I launched an original line of research connecting two influential fields in cancer research, autophagy and mitosis, and providing clear translational outcomes for CIN-targeted therapeutics. I acquired leadership skills by supervising 15 students at different career stages and by participating to HHMI mentoring program and EMBO Leadership workshop.

Successful on highly competitive Spanish and European research calls: I was awarded the Juan de la Cierva and the prestigious MSCA postdoctoral fellowship to develop the groundbreaking project in the field of lysosomes and cancer. I was involved in 15 competitive research grants as associated researcher and was the PI of a collaborative project with a private company. I have been recently awarded 2 competitive research grants (JIN-MINECO and LAB AECC) as group leader.

Genuine mobility and extensive professional network: After completing my BS in Biotechnology and MS in Structural Biology at the University of Montpellier (FR), I worked in several international laboratories [IRB (ES), UMN (USA), IDIBELL (ES)]. I participated in 30 prestigious international conferences (Keystone, Gordon, EMBO) in the field of autophagy and mitosis [12 oral presentations, 2 flash talks and 17 posters]. I am an active member of 7 scientific associations and I am a board member of the mentoring committee of WIA and SEFAGIA, two associations of experts in autophagy.

Science communication: I participate in divulgation activities to lay audiences in different languages and settings. I developed YouTube videos focused on autophagy, the status of mothers in research, and cell division and cancer. Yearly, I join public schools to advocate for research and innovation.

Academic contributions: Ad-hoc reviewer for Cell Death Differ., FASEB, FEBS Lett., Biochem. J and Cell death & disease. I participated to the revision of manuscripts in Dev. Cell., PLoS Genet., EMBO J., Autophagy and Traffic. I am a Topic Editor for Cells (ISSN 2073-4409, IF: 4.36) and a Guest Editor for Frontiers in Cell and Developmental Biology (ISSN: 2296-634X, IF: 5.69).

Área Temática:	**Biomedicina**
Nombre:	MARTÍN DE SAAVEDRA ÁLVAREZ DE URIBARRI, MARÍA DOLORES
Referencia:	RYC2022-035648-I
Correo Electrónico:	dolores.ms@ucm.es
Título:	Contribution of ectodomain shedding to neurodevelopmental disorders

Resumen de la Memoria:

Mª Dolores Martín-de-Saavedra's scientific career has been devoted to understanding the pathophysiology of brain disorders with the ultimate goal of identifying potential pharmacological targets to treat or cure diseases. During her PhD and postdoctoral training, she employed in vitro and in vivo models of disease and analyzed the cellular and molecular differences by biochemistry, molecular biology, mass spectrometry, proteomics, bioinformatics and advanced super-resolution imaging techniques.

In 2020 she was appointed Assistant Professor in the Department of Biochemistry and Molecular Biology at Universidad Complutense de Madrid. Here, she focused on how ectodomain shedding (ES) contributes to brain disorders thanks to funding obtained from Agencia Estatal de Investigación (2022-2025). ES is a protein processing mechanism that involves the cleavage of the extracellular domain of membrane proteins and the subsequent release of their fragments into the extracellular space. The group of membrane proteins cleaved and released into the extracellular media is referred to as sheddome. As an independent investigator and Group Leader at the Sheddome and Disease Lab,

she employs a multidisciplinary approach including proteomics, bioinformatics, together with biochemistry and molecular biology techniques to decipher the molecular, functional and disease properties of ES in health and disease.

Resumen del Currículum Vitae:

Mª Dolores Martín-de-Saavedra studied a B. Sc in Pharmacy at Universidad Complutense de Madrid (2004). During this period, she did an internship at the Institute for Pharmaceutical and Medicinal Chemistry (Germany), where she participated in the evaluation of delta-opioid modulators for the treatment of pain. She then completed her M. Sc. degree in Research and Development of Drugs (2008) at the University of Navarra. She participated in identifying chemical preconditioning as pharmacological tool to treat MDMA ("exctasy")-induced toxicity. She obtained her Ph. D. on Pharmacology and Physiology with International Honors and Summa Cum Laude Evaluation at Universidad Autónoma de Madrid (2012) thanks to an FPI fellowship. She was awarded with an Outstanding Doctorate Award for her Thesis "Implication of Nrf2 in depressive disorders". This publication identified for the first time Nrf2 as a pharmacological tool to treat mayor depression.

In 2012, Prof. Martin-de-Saavedra moved to the USA to work as a postdoctoral fellow at Northwestern University (Chicago, USA) under the supervision of Prof. Peter Penzes a world-renowned expert on genetic determinants of neuroplasticity. Here, she focused her research on the role of CNTNAP2 on neuronal pathophysiology. Her project led to the first evidence of the role of ectodomain shedding in the aetiology of neurodevelopmental disorders. Her postdoctoral project was selected as "Hot topic" at the American Conference of Neuroscience SfN (2015). Moreover, she was awarded a Promising Young Researcher Award for the attendance of the Syngap1 International Meeting (Houston, 2016), where she her project was selected for an oral communication.

In 2020 she was appointed Assistant Professor in the Department of Biochemistry and Molecular Biology at Universidad Complutense de Madrid. Here, she has founded the Sheddome and Disease Lab, in which she aims at deciphering whether ectodomain shedding plays a role in the pathophysiology of neurodevelopmental disorders. This project has been funded funded by Agencia Estatal de Investigación (2022-2025).

She has authored a total of 29 publications in journals such as Neuron, Nature Communications, Trends In Neurosciences, PNAS, Molecular Psychiatry, etc. She has one corresponding author paper (J. Neurochem), and 6 first author papers. According to Google Scholar, she has almost 1200 citations and an h-index of 18. She has presented her projects in almost 40 conferences. She has been awarded with a Best Oral Presentation Award twice. Her talks have been selected for presentations at international conferences such as Gordon Research Conference (2015), the SYNGAP1 International Meeting (2016) and the Cajal Christmas Meeting (2022). She has performed 3 international stays during her research career (Germany, UK, and USA).

Área Temática:	**Biomedicina**
Nombre:	MODOL VIDAL, LAURA
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Título:	Functional development cortical circuits in health and disease

Resumen de la Memoria:

During my scientific career, I have always been interested in understanding the neural basis of brain disease. For the past years I have addressed this issue focusing on the role of GABAergic microcircuits in brain development. I strongly believe that understanding how circuits assemble during brain maturation is the best way to understand how they operate, even into adulthood and in disease. My work has focused on several fundamental questions related to: 1) the critical role of development shaping adult function; 2) the importance of specific cell types driving developmental activity patterns and functional maturation of cortical circuits; and 3) the impact of environmental queues in the regulation of internal dynamics during development. In the next step of my career, I will combine the expertise I have acquired over the years studying network dynamics and developing circuits in normal conditions and extend it to pathology. Specifically, my research line will uncover how early aversive experiences such as early life stress (ELS) impact the maturation of cortical circuits and how these relate to psychopathology in adulthood. To address this issue, I will focus on the functional development of the medial prefrontal cortex (mPFC), an associative brain region crucial for the regulation of a variety of cognitive and emotional processes, in adult stages. Interestingly, several lines of research from human and rodent studies suggest that changes in the structure and function of the prefrontal cortex (mPFC) might underlie the symptomatology linked to ELS. Nevertheless, how ELS impacts the functional organization of the mPFC and how this relates to development is unknown. My research proposal is grounded on the cutting-edge experimental strategy I will develop. Concretely, I will combine the theoretical and experimental expertise I have previously acquired over the years, to study cortical network dynamics at a large scale with single-cell spatial and genomic resolution. Besides an outstanding academic track-record, I will bring three unique skills to the project. First: my multi-disciplinary background which combines the expertise of developmental dynamics, optics, and theoretical neuroscience. Second, my outstanding presentation skills, which make me a very well-qualified scientist to deliver on both the high-quality academic promise of this project, as well as its knowledge transfer and public dissemination. Third, the ability to achieve original and high-quality performance in a new area in a short period of time. Throughout my career I have shown a rare ability to progress across disciplinary boundaries and I have published in high impact journals in each of them. My excellent track record, as the result of the accomplishment of high-quality research projects and challenging experimental boundaries, demonstrates my ability and skills required to overcome the challenges of being an independent researcher.

Resumen del Currículum Vitae:

During my PhD studies, I investigated the role of Neurosteroids in the development of hippocampal formation and adult behavior under the direction of Dr. Pallares (Institut de Neurociencies, UAB, Spain). My work as a PhD student was seminal bringing new insights into the underlying molecular mechanisms that mediate how Neurosteroids impact the maturation of the hippocampus and its adult function. During that period, I further developed a side project in the lab of Prof. Navarro (Institut de Neurociencies, UAB, Spain) to investigate new therapeutic strategies, ameliorate neuropathic pain and to promote peripheral nerve regeneration after injury. As a result of my PhD work and the work that I undertook in the laboratory of Prof. Navarro, I built an exceptional record of scientific publications (14 publications, 7 as a first author). Due to my outstanding track record during my graduate studies, I also obtained two competitive positions as an associate professor at the university.

My passion and curiosity in research prompted me to broaden my scientific background in the field of optics, joining the lab of Dr. Cossart (INMED, Marseille, France) in 2014 as a postdoctoral fellow. In her lab, I became a leading expert in developmental dynamics by implementing a new experimental pipeline to investigate the relevance of GABAergic circuits in the maturation of the brain, by using two-photon Ca2+ imaging in vivo. For this project I was awarded a competitive Marie-Slodowska Curie individual fellowship in 2015. Additionally, I further extended my expertise to data analysis and network neuroscience (Graph theory), to uncover that developing circuits contain a subpopulation of GABAergic "Hub" cells that regulate developmental activity. Moreover, in a collaboration with the laboratory of Valentina Emilliani (La Vision, Paris, France), I was able, for the first time, to apply holographic stimulation to single cells to perturb network dynamics and 2-photon Ca2+ imaging in vivo, to experimentally prove the role of GABAergic "Hub" cells in living circuits. Overall, this postdoctoral experience helped me to continue building an outstanding publication record (5 publications, 3 as a first author), but also to develop outstanding skills in managing projects and collaborations, thinking critically, and solving problems. More recently (October 2019) I joined the laboratory of Prof. Marín (King's College London, UK), as a senior postdoc, to further investigate development from a different perspective. My goal in joining his team was to combine our fields of expertise in order to uncover for the first time the principles of how genomic cell properties relate to the emergent network dynamics in the developing cortex. I am particularly proud of this ambitious project, for which I am the co-corresponding author. Overall, my research has been broadly disseminated in national and international scientific conferences, where I have been invited to present my results (AXON (2017), Societe des Neurosciences (2017), SENC (2021), FENS (2022)). My additional participation in more than 15 conferences over the years has further contributed to making me an excellent communicator within the science community.

Área Temática:	**Biomedicina**
Nombre:	ORTIZ FERNÁNDEZ, LOURDES
Referencia:	RYC2022-036635-I
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Título:	Genomic and epigenomic characterization to unravel the molecular mechanisms underlying immune-mediated diseases

Resumen de la Memoria:

Since the beginning of my research career I focused on determining the molecular mechanisms underlying immune-mediated diseases, with a special emphasis in systemic vasculitides but also others such as systemic sclerosis or systemic lupus erythematosus. Most immune-mediated diseases present a complex etiology arising from a combination of genetic and environmental factors, most of which have not yet been identified. The main objective of my research has been to identify the genetic and epigenetic factors influencing susceptibility and/or severity to these diseases, which will improve our understanding of their pathophysiological mechanisms and will help to develop new and more specific diagnostic tools and therapeutic targets. Particularly, I have participated and led numerous genetic and epigenetic studies, including large-scale genome-wide association studies (GWAS) and Immunochip studies with the participation of national and international consortia.

The main research line of my doctoral Thesis was to investigate the genetic architecture of Behçet disease (BD), a rare form of systemic vasculitides. I obtained my PhD with the mark ' Summa Cum Laude Unanimously' in December 2015 and was awarded with the Extraordinary Doctorate Award by University of Seville. Subsequently, I was hired by the IPBLN-CSIC as a postdoctoral researcher in the group of Prof. Martín. This first postdoctoral stage resulted in a successful scientific period that allowed me to gain leadership experience by leading two projects focused on the study of the common genetic component among systemic vasculitides. In 2017, I performed a two months' research stay at the Bellvitge Biomedical Research Institute, Barcelona, in the group of Dr. Ballestar which lead an internationally renowned laboratory with vast experience in the field of epigenetic alterations, especially in DNA methylation.

As a second postdoctoral stage, I worked with Amr Sawalha, M.D., at two prestigious Universities of the United States (University of Michigan and University of Pittsburgh). Of special relevance, I led the largest and most ancestry-diverse large-scale genetic studies performed to date in Takayasu arteritis and in BD. In conjunction with Amr Sawalha, MD, I coordinated these international collaborative projects (with more than 90 researchers and physicians from 10 different countries around the world) that represent a milestone in the understanding of the pathophysiology of these two forms of systemic vasculitides.

I returned to Spain in 2021 supported with a Juan de la Cierva-Incorporación Fellowship to re-join Prof. Martín group at the IPBLN-CISC as a postdoctoral researcher with a more senior profile. The extensive knowledge of epigenetics and multiomics data acquired during my trajectory have been very useful in contributing to the growth of the group' s expertise areas, and has provided me the opportunity to lead projects and supervise undergraduate and PhD students.

My career has been defined by its high mobility and internationalization which has provided me the great opportunity to work with multiple renowned national and international researchers. This has allowed me to develop strong adaptability skills and to acquire a wide experience in state-of-the-art technologies and tools in the field of molecular genetics, computational biology and biostatistics.

Resumen del Currículum Vitae:

My interest in Science and Research began at the earliest stages of my bachelor degree, and since then, all my research career has been focused on the study of the genetic landscape of immune-mediated diseases, with a special emphasis in systemic vasculitides but also others such as systemic sclerosis or systemic lupus erythematosus. My career has been defined by high mobility and internationality, which have provided me the great opportunity to work with multiple renowned national and international researchers. In this line, I have received 6 competitive grants: 4 for undergraduate students for research initiation, a predoctoral grant (PFIS 11/00547) and a postdoctoral grant (IJC2019-04746-I). Additionally, I have worked as a postdoctoral fellow in two prestigious Universities in the United States (University of Michigan and University of Pittsburgh).

My scientific contribution has been considerably high in every step of my career and my research have remarkable contributed to the progress in the identification of genes and pathways with an essential role in the onset of the aforementioned pathologies, and have been published in top ranking journals of Multidisciplinary Sciences, Medical areas, Genetics and Immunology. In summary, I am author of a total of 31 externally peer-reviewed scientific publications, 21 of them published in Q1 journals (10 in D1). I am first author of 17 publications (6 of which published in D1 journals) and corresponding author on four of them. I am also first and corresponding author in one book chapter published by a prestigious editorial (Springer). My publications have 809 citations, while my h-index is 16 (GoogleScholar). My Thesis project received the Extraordinary Doctoral award by the University of Seville (2015/2016). My work has been also presented in numerous national and international conferences, including the largest conferences in the field of Rheumatology. I have actively participated in 9 national and international projects.

Regarding my teaching and supervision activities, I have supervised two final master projects carried out by Javier Martínez (2021) and Inmaculada Rodríguez (2022) from the Master of Genetics and Evolution (UGR), who obtained the qualification with an Excellent mark and both are currently working on their doctoral Thesis under the supervision of close collaborators. I am currently supervisor of the master project of Carlos de la Rosa (JAE-INTRO Fellowship) and two PhD students within the Biomedicine Department, UGR (Elkyn Estupiñan (Marie Skłodowska-Curie Innovative Training Network) and Gonzalo Borrego). I have participated as Lecturer in the Master of Autoimmune Diseases, University of Huelva [2016-2018; 2023-], and in the Master of Genetics and Evolution, University of Granada [2021-until now]. Moreover, I am author of teaching material for two online courses for the European Alliance of Associations for Rheumatology (EULAR). Finally, I become reviewer on a number of scientific journals such as Am J Hum Genet, Rheumatology, eBioMedicine, Front. Genet, among others. My commitment with Science is also reflected with my participation in dissemination activities, highlighting my role as local coordinator who initiated the celebration of the international event Pint of Science, in Granada (2017-2018).

Área Temática:	**Biomedicina**
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Referencia:	RYC2022-037214-I
Correo Electrónico:	aurorarguezrguez24@gmail.com
Título:	New Contrast Agents for Molecular Imaging

Resumen de la Memoria:

Aurora Rodríguez's scientific journey began with a scholarship for her collaboration in research activities within the "Lanthanide Complexes: New Progresses on Contrast Agents for Magnetic Resonance Imaging" project. During her doctoral thesis, she explored the systematic design and optimization of Magnetic Resonance Imaging (MRI) contrast agents, honing her skills in organic synthesis and physical characterization of potential MRI probes through international predoctoral stays in Italy, France, and Hungary.

During her first international postdoctoral position in France, she was introduced to the field of Positron Emission Tomography (PET) and conducted research on bidentate Nitrogen/Sulfur ligands for potential use in Copper complexation in Nuclear Medicine. During her second postdoctoral position in the US, she made significant contributions to the design, synthesis, characterization, and application of new targeted Gadolinium-based probes in a mouse model of pulmonary inflammation. Upon returning to Spain as a Research Associate, Aurora set out to find safer alternatives to commercially available MRI contrast agents, eventually earning recognition with her own JIN project as the Principal Investigator. She has established her own research line, focusing on the development of specific and safe probes for breast cancer detection through MRI, incorporating Iron(III) as a paramagnetic ion and polysaccharides as components of the targeting vector.

Even though her research career was interrupted twice because of 2 maternity leaves, her work has significantly contributed to the field of Molecular Imaging. Through her insights into the parameters that require optimization for improving the contrast and safety of Magnetic Resonance Imaging (MRI) contrast agents, she has advanced the understanding of the rationale behind MRI contrast agent design. Her seminal publication "Chemistry of MRI contrast agents: Current challenges and new frontiers" (Chem. Rev. 2019, 119, 2, 957–1057) is widely regarded as a benchmark in the field.

As a demonstration of her successful research trajectory, she has published 29 scientific articles, of which 23 are in the first quartile (Q1) and 9 are included in the first decile (D1). She is also the first author of a highly regarded book chapter on Chemical Exchange Saturation Transfer (CEST) imaging. With a h-index of 13, her contributions to the field are widely recognized and highly cited. Additionally, she has presented her work at numerous international conferences, both as a poster presenter, oral communicator, and invited speaker, further demonstrating her expertise and impact in the Molecular Imaging field.

So, her professional background has progressed from a foundation in Coordination Chemistry to a focus on applied, in vivo experiments for the preclinical development of probes. Her research pursuits are seamlessly intertwined with her efforts to disseminate her findings, with a steadfast commitment to make a tangible impact on the lives of those affected by breast cancer. She firmly believes that even the slightest advancements in the detection of this disease can lead to a significant improvement in patients' quality of life.

Resumen del Currículum Vitae:

Aurora Rodríguez¿s scientific career has been financed through 18 grants and contracts from competitive international (American NIH, French Regional Government, COST Actions), and national (Spanish Government, Xunta de Galicia, UDC) calls, allowing her to pursue her formal education, to perform international stays, to attend to conferences, and to develop her own projects. She has contributed to 12 research projects (team member of 10 and PI of 2), spanning from regional (6), national (4) to international (2) initiatives. She has been member of 2 Excellence Networks related to the Bioinorganic Chemistry field and participated in the strategic group CICA-INIBIC. Her exceptional research accomplishments have been showcased in 29 peer-reviewed publications (12 as first author, 1 as last author, and 5 as corresponding author, with over 1000 total citations), 2 book chapters (1st author) and at more than 30 international conferences. She has presented her findings in a variety of formats: poster presentations (6), oral poster flash presentations (1), oral communications (4), and invited speaker (1), receiving an award for the Best Poster Presentation at GPOL 2014. Her wide expertise in the Molecular Imaging field allows her to work as reviewer for the Royal Society of Chemistry and as an assessor for the ANEP.

She reached the degree of International Doctor in Chemistry in 2014 with the highest distinction and performed 3 international predoctoral stays in 3 different countries: Italy (UPO), France (UBO), and Hungary (University of Debrecen). Later, she was hired as postdoctoral researcher at the UBO, France and at Harvard Medical School, USA. After that, she worked at CICA/ UDC, Spain, as a Research Associate. Nowadays, she is the Principal Investigator of her own JIN Project (ref. PID2019-108352RJ-I00, 181.500 €), and she is also the co-Principal Investigator of a disruptive-seed (ref. SEM2021-A5, 8.500 €). Additionally, Aurora works in close collaboration with SERGAS, trying to improve breast cancer screening programs and patients¿ quality of life.

Aurora is dedicated to disseminating her research results to both specialized and general audiences. So, she publishes in Open Access journals, and she participates in the organization and moderation of high-level specialized events and general public dissemination events. She is also a member of the Activities Committee of CICA and plans scientific events at her research centre. Furthermore, she is a member of various associations: ASEICA, InvestiGal, EACR, and ySMIN.

She is accredited as "Contratada Doctor" by ANECA and participates in the formal education of students. She has co-supervised a PhD, a Master¿s degree and a Bachelor's degree thesis and mentored several master and undergrad students. She has responsibility assignments, such as being the coordinating teacher of Inorganic Chemistry 4 (UDC), external advisor of the PhD Program in Chemistry (UDC) and member of the evaluating panel involved in the assessment of final degree projects of the Chemistry Degree program. She is part of the Innovative Teaching Group (+LuCe) at UDC (Spain). Since she is a PI, she has taught 80 h / academic year in three different degrees (Biology, Nanoscience and Nanotechnology, and Chemistry) offered at the Faculty of Sciences at UDC.

Área Temática:	**Biomedicina**
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Referencia:	RYC2022-035380-I
Correo Electrónico:	tati.hurtadodemendoza@gmail.com
Título:	Targeting neoantigens to tumors to enable immunotherapy

Resumen de la Memoria:

I graduated from Universidad Autonoma de Madrid in June 2000 with a B.Sc in biochemistry and molecular biology. Three months later, determined to pursue a career in research I moved to USA. The original plan was to gain laboratory experience for one year, but I am still here 23 years later. After making the decision of pursuing a Ph.D degree at UCSD I was assigned to carry out long term projects with full responsibility of designing and carrying out experiments. I was trained to work with very limited supervision and led all the projects from beginning to end. Here is a short summary of my work since I came to USA.

1. 2000-2002: I gained research experience in molecular biology in the laboratory of Dr William Loomis at UCSD.

2. Fall 2002: I enrolled in the Biology Ph.D program at UCSD and joined the laboratory of Dr Inder Verma at the Salk Institute, affiliated with UCSD. My thesis project consisted in characterizing the biological role and mechanism of action of the antiapoptotic protein Lifeguard (LFG). I demonstrated that LFG played a role in cerebellar development by protecting Purkinje and granular cells from Fas mediated apoptosis (PNAS 2011). I also studied the role of LFG in antiviral immune response and demonstrated that LFG is instrumental in memory T cell survival (PLoS ONE 2015).

4. 2012-2019. I moved to SBPMDI to work with Kazuki Sugahara and Erkki Ruoslahti who is the last year's recipient of the Lasker Award for his discovery of integrins. My work focused on the mechanism of tissue penetration of the tumor targeting peptide iRGD. I demonstrated that iRGD targeted cancer associated fibroblasts in an integrin b5 dependent manner, making this integrin a potential biomarker for iRGD based therapies, currently on phase II clinical trials for pancreatic cancer (Nature Communications 2021).

5. 2019-present. I was recruited to UCSD to lead the appendix cancer program. I recently developed an organotypic tumor slice platform that represents the first experimental model to study this rare disease for which no animal models or cell lines are available. This work was published November 2022 and featured in the cover of Clinical Cancer Research. In addition, I continued to develop my own work consisting on strategies to deliver neoantigens to solid tumors and use pre-existing antiviral immunity to kill cancer cells. I was awarded a large grant (750,000$, 2021-2024) for independently developing this project as principal investigator from the "For a Better World" foundation.

6. 2022. In January 2022, I was promoted to Research Scientist and officially started my independent career.

Line of Research:

Most solid tumors have relatively low mutational burdens rendering them resistant to current immunotherapies. I propose a novel treatment strategy based on tumor penetrating peptide (iRGD) mediated delivery of neoantigens to tumors; initially we will target ovalbumin class I and class II peptides to solid tumors, followed by adoptive transfer of antigen specific T cells. In addition, we will test whether pre-existing immunity can be harnessed to recognize and kill tumor cells when viral antigens are delivered by iRGD.

This is a mutation agnostic approach that can benefit a large number of patients, since iRGD has been demonstrated to work in a wide variety of tumor types. In addition, iRGD is already in clinical trials for pancreatic cancer

Resumen del Currículum Vitae:

Determined to pursue a career in cancer biology, I studied at the Universidad Autonoma de Madrid and received a bachelor's degree in Biochemistry and Molecular Biology in June 2000. In September of the same year, I moved to the United States to join the laboratory of Dr. William Loomis at UCSD. There, I worked on the pathways regulating the development of Dictyostelium discoideum. In the fall of 2002, I entered UCSD's PhD program in Biology and joined the group of Dr. Inder Verma, a leader in lentiviral vectors, gene therapy and cancer signaling at The Salk Institute. Even as a student, I was assigned an independent project on the characterization of a novel anti-apoptotic protein called lifeguard (LFG). I demonstrated that LFG regulated cerebellar development (PNAS, 2011), antiviral immune response and memory T cell survival (PLoS ONE, 2015). I graduated in 2009, and remained in Dr Verma's laboratory to complete my work on LFG.

In 2012, I moved to SBPMDI as a postdoc in the lab of Drs Kazuki Sugahara and Erkki Ruoslahti (the 2022 recipient of the Lasker award for discovering integrins). My project was to determine the mechanism by which the peptide iRGD penetrates tumors facilitating drug delivery. I demonstrated that iRGD acts by targeting cancer associated fibroblasts before spreading to tumor cells and that this is dependent on integrin b5, identifying this receptor as a biomarker for patient stratification. I also demonstrated that co-administration of iRGD with Gemcitabine extended the survival of mice bearing pancreatic tumors (Nature Comm, 2021). These findings received media coverage for their potential clinical impact. Indeed, iRGD in combination with chemotherapy, is currently in phase 2 clinical trials for pancreatic cancer.

In 2019 Dr Andrew Lowy proposed me to lead the appendix cancer program in his laboratory at the Moores Cancer Center of UCSD. There, I developed an organotypic slice culture platform that is considered to be the first pre-clinical model of appendix cancer (Clinical Cancer Research, 2022) featured on the cover of CCR and highlighted in the press. I also continued another independent line of research I had initiated at SBPMDI investigating the use of iRGD to deliver neoantigens to enable cancer immunotherapy. I obtained striking results in a model of breast cancer (70% responders and 42% complete remissions) and, in 2021, I was awarded a large grant in the amount of $750,000 (direct cost), as principal investigator to develop a similar approach in pancreatic cancer. In January of 2022, I was promoted to Research Scientist and officially started my independent career.

I supervised several interns and technicians as well as the master's thesis of Alexis Wascher, who defended on September 19th 2022 titled "Combination therapy of low dose gemcitabine and merestinib, decreases tumor burden through reduction of immunosuppressive cell types and increased T cell activation" at UCSD.

I presented my work at several national and international conferences. Last year, my abstract was selected for an award at AACR. I was also invited to talk to the NCI Pancreatic Cancer Task force, since our results could impact the phase II clinical trials being designed.

Área Temática:	**Biomedicina**
Nombre:	DAPA , TANJA
Referencia:	RYC2022-036163-I
Correo Electrónico:	tdap@upo.es
Título:	Synergistic coevolution between gut commensal bacteria and the mucosal immune response of the mammalian gut

Resumen de la Memoria:

Already during my undergraduate studies at the University of Ljubljana (Slovenia), where I graduate with honors in Microbiology at the Biotechnical Faculty, I discovered my passion for science, which led me to get involved early on in different research projects. Moreover, as a student representative, I was actively involved in different committees within the Faculty and the University, which contributed to the early development of my leadership and management skills.

I had the honor of obtaining a 3-year Marie Curie ITN Fellowship (ClostNet project) at Novartis Vaccine and Diagnostics (Siena, Italy, today GSK Vaccines), where I was enrolled in prestigious PhD Novartis Academy program headed by the world-leading expert in vaccinology, Dr. Rino Rappuoli. Moreover, as part of my Marie Curie ITN, I did a secondment to the Clostridium Research Group, at the University of Nottingham (UK). A PhD between a world-leading biotechnological company and an academic lab provided me a unique perspective on research at the interface between academy and industry, extensively contributing to my research management skills. Moreover, it gave me a once-in-a-lifetime chance to attend scientific seminars given by leading researchers in the field of infectious diseases and immunology, as well as courses on intellectual property, communication skills and internal meetings related to biotech product development. For my first postdoctoral training I changed research fields and country and joined one of the top labs in the world to study bacterial stress responses: Dr. Ivan Matic's at INSERM (Paris, France). Since the field where I foresee my future research as an independent researcher is at the interface between microbe-host interactions, stress responses and evolution, for my second postdoc I joined Dr. Karina Xavier's laboratory (Instituto Gulbenkian de Ciência, Portugal), in order to complement my knowledge on genetics and bacterial physiology with experience on microbe-host interactions, evolutionary biology and biochemistry. In November 2022 I joined as a Maria Zambrano Researcher at CABD - UPO in Seville (Spain). In addition, I have recently been awarded a Beatriz Galindo Senior contract, which will allow me to start my career as an independent researcher within the host institution.

In summary, I worked in laboratories located in five different countries across Europe, and in diverse research areas of microbiology and beyond, from bacterial genetics, microbial physiology, bacterial evolution and microbe-host interactions. This wide-ranging experience allowed me to obtain knowledge on diverse biological systems and provided me with expertise in a myriad of different research techniques. Moreover, my hands-off mentors fostered my creativity and favored my independence. This allowed me to learn how to single-handedly design, plan, execute and troubleshoot projects, all while keeping my motivation, and to cultivate my ability to identify interesting, original and feasible questions. In addition, by working in several laboratories and living in different countries and cultures, I acquired the social skills necessary for the successful generation of a safe and collaborative environment when starting my own research team.

Resumen del Currículum Vitae:

My scientific career started during my undergraduate studies at the Biotechnical Faculty, University of Ljubljana (Slovenia), where I was involved in different research projects, i.e., studying genetic diversity of E. coli isolated from healthy cattle, which led to a publication (Fajs et al., AJMR 2013), and identifying unknown proteins which regulate the SOS response of E. coli, which was part of my Graduation thesis. For my PhD training I moved from Slovenia to Siena, Italy, where I performed my PhD project in an industry research center, Novartis Vaccine and Diagnostics (today GSK Vaccines). For this I obtained a 3-year Marie Curie ITN Fellowship. I was also part of a prestigious Novartis Academy PhD program, headed by the world-leading expert in vaccinology Dr. Rino Rappuoli. My PhD, supervised by Dr. Meera Unnikrishnan, included a pioneer article on biofilm formation by the anaerobic gut pathogen Clostridium difficile (Dapa et al., Journal of Bacteriology, 2013), which is highly cited and regarded in the field, having been highlighted in multiple platforms. Moreover, as part of my Marie Curie ITN program, I did two secondments to the Clostridium Research Group, at the University of Nottingham, under the supervision of Prof. Nigel P. Minton, where I mastered genetic tools for manipulation of fastidious anaerobic bacteria (Clostridia). After obtaining PhD, awarded by the University of Bologna, for my first postdoctoral fellowship I changed research field and country. In the lab of Dr. Ivan Matic, a world leader in the field of stress responses, at INSERM (Paris, France), I designed and developed a research project on integration between the general stress response (RpoS response) and the DNA damage stress response (SOS response) in E. coli (Dapa et al., Genetics. 2017). In a parallel project, I studied the integration between the SOS regulon and the stringent response to starvation in E. coli (Dapa and Matic, in preparation). Moreover, I constructed genetic tools to dissect translation fidelity, which led to an additional publication (Woo et al., Science Adv. 2018). Additionally, I made the initial observations that led to a ground-breaking publication (Fleurier et al., Nucleic Acids Research. 2022), which was selected by the reviewers to be featured as a 'Breakthrough' article. To complement my knowledge on genetics and bacterial physiology with experience on microbe-host interactions, evolutionary biology and biochemistry, I once again changed research field and country for my second postdoc, joining Dr. Karina Xavier lab at the Instituto Gulbenkian de Ciência, in Portugal. My work on the effects of dietary regimens on evolution of a key member of the gut microbiota has been recently published in the prestigious journal Cell Host & Microbe (Dapa et al., Cell Host Microbe. 2022), where it was selected as a "Featured article" of the month and highlighted on the Cover of the journal and in a Preview article (Garud, Cell Host Microbe. 2022). Recently I enrolled as a Maria Zambrano Researcher at the CABD - UPO in Seville (Spain), and I have been awarded a contract Beatriz Galindo Senior. Importantly, my previous experience allowed me to develop as an independent researcher and to pursue my own ideas, as I have repeatedly proven by successfully designing, executing, and publishing independently of my previous supervisors (PhD or postdoc).

Área Temática:	**Biomedicina**
Nombre:	BLANQUER JEREZ, ANDREU
Referencia:	RYC2022-037805-I
Correo Electrónico:	andreublanquer@gmail.com
Título:	Piezoelectric and magnetoelectric devices for cell stimulation and skin regeneration

Resumen de la Memoria:

The research line to be developed by the candidate is the conjunction of the knowledge acquired during the postdoctoral stays at the IMB-CNM (CSIC) and Institute of Physiology CAS. The use of piezoelectric and magnetoelectric devices for cell stimulation, and the use of new materials and approaches to treat chronic wounds.

The candidate will explore new strategies based on energy harvesting and energy transformation tools aimed at improving skin wound healing. Bioelectricity has an important role in several physiological processes, which includes the epithelium homeostasis. Epithelium in healthy skin establishes and maintains a constant electrical potential. When skin layers are damaged, their electric resistance disappears and results in electric field created locally in the injured epithelium. This local electric field created at the wound site has an essential role during the first steps of wound healing. However, endogenous electric fields, created at wound sites, are compromised or absent in chronic wounds. Thus, the use of exogenous electric fields could be a useful strategy to improve the wound healing rate in recalcitrant wounds However, the use of electrodes to deliver the electric fields has the disadvantages of low spatial resolution and the need for external electrical sources, as well as the need for appropriate equipment.

The candidate proposes a paradigm shift to avoid the use of extra-body stimulation sources and to reduce the electric fields generated to nanoscale size. The collection of ambient mechanical energy for further utilization or transformation is becoming a hot topic in many research fields. Piezoelectric and magnetoelectric materials are able to create an inherent electric field when they are strained. So, piezoelectric and magnetoelectric membranes will be developed with nanoscale structures like nanosheets, nanodevices or nanofibers. The nanopatterned membranes will be able to create local electric fields at single cell level. The electrical stimulation could be generated by the cell movement or controlled remotely. Moreover, the candidate is planning to start working on 3D in vitro models for skin wound healing research. Several research groups are working on the fabrication of skin substitutes to replace damaged skin. However, there is a lack of 3D skin in vitro models that are able to integrate the biomaterials or devices and to test their potential to treat chronic wounds. Thus, as a complement to the previously mention research line, the candidate will create a 3D skin in vitro model with integrated piezoelectric and magnetoelectric membranes to study the effect on skin. The in vitro studies of the membranes for skin wound healing will unravel the effects of local electric fields on cell membrane potential and intracellular changes. At the same time, the candidate will analyse the potential capacity of the new membranes to enhance the healing of chronic wounds using 3D skin model.

Better understanding of the local electric stimulation effect on cells will help us to design new therapies, and then to improve the quality of life of patients with chronic wounds. In addition, a 3D skin construct together with NG devices represents a new, modern system that can be adapted for testing chemical compounds and drugs, and for testing biomaterials or model constructs for skin tissue engineering.

Resumen del Currículum Vitae:

Graduate in Biology at the Universitat Autònoma de Barcelona (UAB) and PhD in Cell Biology at the UAB. The applicant obtained a predoctoral fellowship grant (PIF/UAB) to develop his PhD thesis at the Departament de Biologia Cel·lular, Fisiologia i Immunologia and to incorporate to the Cell Biology and Cell-Material Interactions group, directed by Dr. Carme Nogués and Dr. Lleonard Barrios. The PhD thesis was focused on the analysis of the in vitro biocompatibility of different new alloys based on titanium and of smart materials for orthopaedical applications. As a member of a multidisciplinary group, the applicant was in close contact with physics and engineers to fabricate and characterize the materials and devices. During the PhD period, the applicant spent 4 months at the Institute of Physiology of the Czech Academy of Science in Prague, and the research developed there allowed increasing his experience, the techniques and the results to complete the PhD thesis. The applicant obtained his PhD with International Mention and the highest mark (excellent cum laude) in June 2016, and the Special Award for Doctoral Studies (academic year 2015-2016).

In January 2017, the applicant started working at Institut de Microelectrònica de Barcelona (IMB-CNM, CSIC) to study the effect of electrical stimulation on cells. The project was focus on the use of magnetostrictive and piezoelectric materials for cell stimulation and future medical applications. The applicant characterized the new devices and smart materials that were able to generate an electric current or field, and to analyse the effect of the electrical stimulation on cells such as bone and muscular cells. Moreover, during the period from February 2017 to February 2019, the applicant was adjunct lecturer at the UAB. Teaching purposes included 933 h of theoretical and practical sessions, and the supervision of two final graduate theses. In 2019, he was habilitated as Assistant Professor (Professor Lector) by the Regional Catalan Government (AQU agency).

In March 2019, the applicant moved to the Czech Republic to join the Biomaterials and Tissue Engineering Lab at the Institute of Physiology CAS. He worked on nanofibrous membranes for skin wound healing and the effect of platelet lysate molecules on skin regeneration. In April 2020, the applicant obtained a Widening Fellowship project grant from European Union's Horizon 2020 research and innovative programme. The applicant worked in collaboration with the IMB-CNM, CSIC (Spain) and Technical University in Liberec (Czech Republic). In addition, the applicant is co-director of two PhD students, Laura Lefaix and Oriol Careta.

In April 2022, the applicant obtained a Beatriu de Pinós grant from Generalitat de Catalunya to work at the UAB as postdoctoral researcher. The research is focus on the magnetoelectric stimulation of cells for skin tissue regeneration.

The applicant has co-authored 22 research publications, all of them published in international, peer-reviewed and indexed journals, 9 publications as first author or first author as equal contribution. In addition, the candidate is author of 2 book chapters and has communicated his research in 25 international conferences.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Biomedicina**
Nombre:	VARELA FERNANDEZ, LUIS
Referencia:	RYC2022-038155-I
Correo Electrónico:	luis.varela@yale.edu
Título:	Estudio de los mecanismos centrales que regulan el balance energético

Resumen de la Memoria:

Since the beginning of my career as a neuroscientist until the recent creation of my own laboratory of "Neuron-Glia Interaction in the control of Hunger" at the Achucarro_Basque Center for Neuroscience, I have dedicated myself to the study of the hypothalamus as a regulatory center of energy balance. In a first pre-doctoral stage at the University of Santiago de Compostela, I focused mainly on the study of hypothalamic lipid metabolism. The main project of my thesis work was published in Nature Medicine 2010 and Journal of Pathology 2012. My achievements during this stage allowed me to receive the postdoctoral fellowship from Ministerio de Educación/Fullbright Commission and join the laboratory of Dr. Tamas Horvath at Yale University. During my time at Yale University, first as a Postdoc and later as an Associate Scientist, my lines of research focused on understanding the role of non-neuronal hypothalamic cells and their communication with neurons. This line of research has allowed me to achieve the greatest successes of my scientific career. The studies generated have been published in journals of great recognition and impact factor in the field of metabolism, such as The Journal of Clinical Investigation, Science Advances or Diabetes, articles of which I am the first and corresponding author. Also, the publication of my own studies and my specialization in the study of astrocytes have attracted a large number of collaborations with the best groups in the field of obesity. These collaborations have given rise to numerous research articles published in the best scientific journals, including Nature, Cell or Nature Medicine, among others. In addition, I have been invited to write different reviews in Cell, EMBO Journal and Trends in Molecular Medicine, and other reviews that have obtained a large number of citations in journals such as EMBO Reports or the International Journal of Molecular Science. In recent years I have been appointed as reviewer for different general and metabolism journals: PNAS, Molecular Metabolism, or Journal of Neuroscience. I have also been selected as Editor for the International Journal of Molecular Science, in which I am leading a special issue dedicated to lipid metabolism in humans. The sum of the above has led me to have an h-index of 28 and have been cited 5,000 times by other authors. The achievement of these achievements has led me to get an Ikerbasque contract at the end of 2021 that has allowed me to create my own research group at the Achucarro-Basque Center for Neuroscience on April 1, 2022. In addition, I have also achieved a Maria Zambrano contract to join the University of La Coruña, which I have declined.

As a group leader, I received a grant from Ministerio de Ciencia "Generación de Conocimiento 2021", funded with 130.000 euros (direct costs), to investigate the role of hypothalamic glia in the regulation of energy balance. I have been chosen as a reviewer for the prestigious Swiss National Science Foundation and the Agencia Estatal de Investigación (Spain).

Resumen del Currículum Vitae:

I am a motivated and passionate neuroscientist whose main interest focuses on obesity-related research. I have more than 15 years of experience deciphering the hypothalamic circuits controlling the regulation of energy balance and the development of obesity. During my pre and post-doctoral training, I had the opportunity to publish scientific articles, reviews and comments, as well as a book chapter as a first and corresponding author. I carried out different collaborations with labs from the U.S.,Germany, Spain and Australia, which have allowed me to establish a large network of collaborators. I also became peer-paper reviewer in PNAS, J Neuroscience or Mol. Metabolism, among others, and Editor in Int J Mol Sci (Impact Factor=6.2). I have published more than 45 articles and presented 20 communications at congresses. I have been invited as Guest speaker in different seminars in Leipzig (2017), Munich (2018), Zurich (2021) and CICBiogune (2023). I have more than 45 publications in Q1 journals based on JCR (2023).
Web of Science, h-index=25
Google Scholar: h-index=28
Since 2017, when I was promoted to Associate Research Scientist, I have been trying to unravel the role of hypothalamic astrocytes and their communication with neighboring neurons in the control of energy balance.
Main Contributions.
2012. Journal of Pathology. (First Author) I identified a new central mechanism that mediates weight loss and hyperphagia in response to changes in circulating levels of thyroid hormones.
2015. Nature. I co-authored a scientific article describing the hypothalamic mechanism by which cannabinoids promote feeding.
2016. Cell. I found Zika viral particles in brains of mice from mothers vaginally exposed to the virus.
2016.   Celll. I co-authored a scientific article describing the role of astrocytic insulin receptor in the sensing of changing sugar levels.
2016. Neurobiology of Disease. (First Author) I discovered a new factor, UCP2, involved in the recovery of cortical and hippocampal functions after post-natal hypoxia.
2017. Diabetes. As a first and CORRESPONDING AUTHOR, I identified a new dependence of POMC neuronal activity on trans-endothelial glucose transport.
2021. Science Advances I investigated the role of fatty acid availability and mitochondrial morphology in hypothalamic astrocytes during the development of obesity. CORRESPONDING AUTHOR.
2021. J Clin Inv. I discovered a new mechanism by which AgRP neuron-released GABA activates adjacent astrocytes. CORRESPONDING AUTHOR
Present and future Directions
-I further investigate the bi-directional communication between hypothalamic astrocytes and neighboring neurons.
-I also study the most altered signaling pathways in cancer in the context of hypothalamic control of feeding
Other contributions. ·
-Book/2 Book chapters/ Reviews, comments and highlights in Cell, Neuron or The Embo Journal.
-In November 2021, I have been selected for "Ayudas Maria Zambrano. Position DECLINED.

-In November 2021, I received an Ikerbasque Fellowship. In April 2022, I started my own laboratory of "Neuron-Glia Interactions in the control of Hunger" in Achucarro_Basque Center for Neuroscience.

-Reviewer for: Swiss National Science Foundation and Agencia Estatal de Investigación -2022- -Awarded «PROYECTOS DE GENERACIÓN DE CONOCIMIENTO».

In 2015 and 2018 I had two interruptions due to the birth of two children.

Área Temática:	**Biomedicina**
Nombre:	VALENCIA LEOZ, KARMELE
Referencia:	RYC2022-036689-I
Correo Electrónico:	kvalencia@unav.es
Título:	understanding lung cancer molecular mechanisms to find new vulnerabilities and therapeutic opportunities

Resumen de la Memoria:

During the past 14 years, my research has been focused on the study of mechanisms underlying lung tumorigenesis throughout its different stages, as well as on the search for new therapeutic strategies and biomarkers to improve patient management. The translational approach carried out over these years is a result of a very close collaboration with clinicians and having access to clinical samples.

I started my scientific career with my PhD work in the University of Navarra under the supervision of Dr. Lecanda covered by FPU grant. My PhD (Extraordinary Doctoral and two "Young Investigator" awards) was focused on mechanisms involved in lung cancer bone metastasis. I reported my work, as a first author, in three papers, all in Q1.

After two years of postoctorate in ETH Zürich, where I secured my own funding (Fundación Alfonso Martín Escudero) and that resulted in a first author publication, I joined the Solid Tumors program at CIMA with the objective of establishing a research career to find biomarkers and new therapeutic targets in lung cancer. Since then, I have been focused on the study of KRAS-driven tumors (Valencia et al. JCI, 2020), cytoplasmic tyrosine kinases (Valencia et al. JEM, 2022; Redín et al. JTO, 2022), new biomarkers in liquid biopsy in lung cancer (Valencia et al. Cancers, 2021) and the development of preclinical tools for lung cancer study (Valencia et al. Disease Models&Mechanisms, 2021).

I have been granted by IASLC and Fundación la Caixa with 3 projects as PI to fund my independent line of research. I have participated in 15 R&D projects financed in competitive calls from national and international entities and presented 15 works in national and international conferences, 5 of which have been awarded.

I am assistant professor in Genetic and Biochemistry department and I am supervising 2 final degree projects and 3 PhD thesis.

My line of research is based on understanding the mechanisms underlying tumorigenesis, with emphasis on lung cancer due to my background and expertise, access to both preclinical and clinical models and tools, but with connection to other types of tumors such as breast or hepatocarcinoma. More specifically, my aims are:

1) Identification and functional characterization of genetic or phenotypic events that lead to carcinogenesis and metastasis of lung cancer and exploration of potential anti-tumor strategies.

2) Study the mechanisms of resistance to standard clinical treatments (chemo, radio, immunotherapy).

3) Identification and validation of biomarkers from the genetic profile of tumors which are clinically useful for the diagnosis and prognosis and treatment prediction of lung cancer. All these studies are carried out on a cross-sectional basis. For this, we have a multidisciplinary team composed by biochemists, chemists, pharmacists, oncologists, thoracic surgeons and pathologists, a reality that is part of our daily routine.

The study address both the field of molecular and cellular oncology, generating omics data and clinical validation in patients thanks to our cohorts and our close collaboration with clinicians.

I have always been strongly committed with scientific outreach participating in several institutional proposals, including student mentoring "Woman for Science" and "Inspire Stem" from UN and University of Deusto respectively.

Resumen del Currículum Vitae:

I started my scientific career with my PhD work in the University of Navarra under the supervision of Dr. Lecanda covered by ADA, FIMA, Government of Navarra and Spanish Ministry of Education fellowship (FPU) grants. My PhD (Extraordinary Doctoral and two "Young Investigator" awards) was focused on mechanisms involved in lung cancer bone metastasis. I reported my work, as a first author, in three papers, all in Q1. After a first postdoctorate in ETH Zürich for two years under the supervision of Prf. Wutz, for which I secured my own funding (Fundación Alfonso Martín Escudero) and that resulted in a first author publication, I joined the Solid Tumors program at CIMA for a second postdoc with the objective of establishing a research career to find biomarkers and new therapeutic targets in lung cancer. In 2018, I obtained a public position as researcher in CIBERONC funded by the Spanish Ministry of Health to join Dr. Montuenga's laboratory.

Since then, I have been focused on the study of KRAS-driven tumors (Valencia et al. JCI, 2020), cytoplasmic tyrosine kinases (Valencia et al. JEM, 2022; Redín et al. JTO, 2022), new biomarkers in liquid biopsy in lung cancer (Valencia et al. Cancers, 2021) and the development of preclinical tools for lung cancer study (Valencia et al. Disease Models&Mechanisms, 2021). I have 33 publications in the field of cancer, 14 in D1 as first authorship or co- author. I have published as co-author or main author in high impact journals as JEM, JCI, Can Disc, Nat Cancer, Can Research, Nat Comm, JTO, AJRCCM or CCR among others. This January I have obtained a permanent position as researcher at the Solid Tumor program at CIMA.

The collaboration with Prof. Montuenga in my path to independent research has allowed me to establish independent research lines, being my leadership recognized by being corresponding authorship in my last three pieces of work and the co-supervision of 3 PhD thesis. I have been granted by IASLC and Fundación la Caixa with 3 projects as PI to fund these lines of research. I have had the opportunity of participating in 15 R&D projects financed in competitive calls from national and international entities and presented 15 works in national and international conferences, 5 of which were awarded.

I am part of the Liquid Biopsy working module of CIBERONC. I have been reviewer of 5 scientific journals. I have licensed two lung squamous cell carcinoma cell lines as inventor to Applied Biological Materials, Inc. (Canada). Since 2016 I am assistant professor in Genetic and Biochemistry department (Contracted Doctor ANECA accredited since 2018) in the school of Science, with more than 500 hours of teaching experience. I am responsible of two innovative teaching projects at the University of Navarra. To date, I have supervised 3 master's thesis and 2 final degree projects. Currently I am supervising 2 final degree projects and 3 PhD thesis.

I have always been strongly committed with scientific outreach participating in several institutional proposals, including student mentoring to inspire young girl's vocations for science in the programs "Woman for Science" and "Inspire Stem" from UN and University of Deusto respectively. I have also the opportunity to explain my research in national and regional media including national TV and radio.

Área Temática:	**Biomedicina**
Nombre:	CUARTERO DESVIAT, MARÍA ISABEL
Referencia:	RYC2022-037937-I
Correo Electrónico:	micuartero@cnic.es
Título:	You AhR what you eat: linking the AhR- gut microbiota axis with post-stroke dementia

Resumen de la Memoria:

My scientific career has focused on investigating the mechanisms that control brain system regulation in health and disease. One of my goals has been to acquire the necessary training, practical experience, and knowledge to better understand brain physiology and finally, how pathological conditions impact on brain functioning in terms of memory and cognition. I have explored this phenomenon for more than 15 years across four main stages of my scientific career:

- During my Bachelor¿s Biology degree and Master studies on Neurosciences (2006-2009) at Hospital Universitario Ramón y Cajal (Spain) I explored the role of Smad3 in different physiological and pathological scenarios. Mentored by Amelia Sánchez-Capelo.
-During my PhD (2010-13) and my first postdoctoral period (2014-2017) at the School of Medicine Complutense University (Spain) I first explored the role microglia and infiltrating myeloid cells on stroke outcome. Later, the endogenous functions of the AhR in health and disease. And finally, I characterized the contribution of hippocampal neurogenesis to long term cognitive impairment after stroke. Mentored by Ignacio Lizasoain and María. A. Moro.
-During my postdoctoral stay (2017-2020) at Centro Biología Molecular Severo Ochoa (Spain). I focused on the study of the cellular and molecular mechanisms responsible for synaptic plasticity and specifically how PI3K isoforms differentially contributes to these processes. Mentored by José Antonio Esteban.
-In my last postdoctoral stay (2020-2022) at CNIC (Spain). I explored the mechanisms that contribute to the development of vascular dementia by using a multidisciplinary approach including murine vascular dementia models, state of the art -omics, non-invasive and PET imaging and brain functional characterization by electrophysiological and cognitive testing. Mentored by María. A. Moro.
- Since September 2022, I joined Dept. of Pharmacology, Faculty of Medicine in UCM, where I am currently occupying a position of Research Associate Professor.

All the skills acquired during my scientific career have greatly enhanced my competence diversification and have greatly contributed to my professional development as an independent researcher, with capacity to develop new ideas and to generate strong network of collaborators to achieve my future research goals.

Resumen del Currículum Vitae:

Graduated in Biology at the UAM in 2007, Maribel Cuartero studied neuroscience at the UAM in 2009 and obtained her PhD in Biomedicine in 2013 at the UCM (Extraordinary Doctorate Awards). She did several stays in national and international research centers including the Hospital Ramón y Cajal, Children's Hospital of Boston, Hospital 12 de Octubre, CBMSO and CNIC. In 2022 she joined Dept. of Pharmacology, Faculty of Medicine in UCM, where she currently occupies the position of Research Associate Professor, participating in the Neurovascular Research Unit (UCM), in the Neurovascular Group of the Institute of Health Research i+12 and in the CNIC's Vascular Neuropathology Group. Her scientific career has focused on elucidating the mechanisms that control and regulate the function of the central nervous system in physiological and pathological situations. Her main line of research is cerebrovascular pathology and, specifically, ischemic stroke and vascular dementia, fields in which she has contributed to the elucidation of the neuroprotective and neurotoxic actions of different receptors like AhR, PPARγ and TLR4, as well as the elucidation of the mechanisms of initiation and resolution of the inflammatory response in stroke with special interest on the role of neutrophils. She is also investigating the impact of adult hippocampal neurogenesis in vascular pathologies and how this aberrant neurogenesis might be modulated as a therapeutic target. Her work is reflected in 3 book chapters and 35 research articles in high-impact journals such as Circulation, Stroke, Journal of Clinical Investigation, Nature Communication, Science, Immunity, Science Advances etc... So far, She is corresponding author in 7 articles. Q1 publications: 75%; D1 publications 30%. 2 sexenios of research. She has an H-index=22 and 1952 citations. She has actively participated in more than 16 national/international projects and belongs to scientific networks like Stroke-IMPACT and LCN-CIRCA from Leducq Foundation. She has collaborated with the company APTATargets for testing in stroke a TLR4 DNA-aptamer. She has obtained several grants: FPI-fellowship, Juan de la Cierva-Incorporation and a small project as principal investigator "Early Career Research" Grant Stroke-IMPACT" funded with 20000€ She has developed an active teaching in the subject of Pharmacology in Medicine and Nursing, Dentistry and Physiotherapy, and nutrition and dietetics, as well as her participation in various master's studies such as the Neuroscience from the UCM, her collaboration with Valencia International University and her participation as member in 2 Doctoral Thesis Committees. She has already directed 2 doctoral theses, and 10 master's theses/TFGs. She is currently supervising 5doctoral theses, 1master's student and 4technicians. She has disseminated her work in different important conferences/congress related to neurosciences and stroke (SENC, FENS, Brain and ESOC among others). She also develops an active role in science dissemination/divulgation to the general public (IFEMA, Noche Europea..,etc.). She is reviewer of numerous journals (Theranostics, Brit J Pharm, Stroke, Brain, and JNeuroinflammation.), editor in Frontiers of Neuroscience-Neurogenesis and an expert reviewer for research agencies (ANEP-Spain; Wellcome Trust-UK; ANR-France and Fondazione Cariplo-Italy).

Área Temática:	**Biomedicina**
Nombre:	MONTES RESANO, MARTA
Referencia:	RYC2022-036819-I
Correo Electrónico:	mmontesr@unav.es
Título:	Exploting lncRNA biology to target senescent cancer cells

Resumen de la Memoria:

Licenciada en Biología y Bioquímica por la Universidad de Navarra, me uní al laboratorio de Carles Suñé en el IPBLN (CSIC; Granada) con una beca predoctoral FPU del Minsiterio de Educación. Defendí la tesis en 2012 en la Universidad de Granada obteniendo la calificación de Sobresaliente Cum Laude. La línea de investigación fue el estudio del acoplamiento entre la transcripción y el splicing alternativo. Hice una estancia en el laboratorio de José Alcamí (ISCIII, España) y otra en el laboratorio de Benoit Chabot (Universidad de Sherbrooke, Quebec, Canadá). El trabajo de mi tesis permitió contribuir a la evidencia de que el splicing alternativo ocurre de manera co-transcripcional y por primera vez demostramos el papel del factor de elongación TCERG1 en este acoplamiento. Estos descubrimientos dieron lugar a 3 publicaciones de primera autoría, además de una revisión y 4 publicaciones como co-autora derivadas de colaboraciones con otros miembros del laboratorio.

En 2013 me uní al laboratorio de Anders H Lund en el Biotech Research and Innovation Centre (BRIC), Universidad de Copenhague, financiada por una prestigiosa beca Marie Curie para estudiar el papel de los ARNs largos no-codificantes (lncRNA) en senescencia.

Publiqué dos artículos en la revista Nature Communications sobre el papel del lncRNA MIR31HG en la regulación de la senescencia dependiendo de su localización en la célula.

El primer estudio fue uno de los primeros en describir el mecanismo molecular de los lncRNAs en senescencia (Nat Comm, 2015). El segundo atículo, publicado en 2021 soy autor de co-correspondencia (Nat Comm 2021). También he contribuido con un artículo de revisión sobre los lncRNAs y su papel en la senescencia (FEBS J. 2016) y recientemente en una revisión sobre el papel de los lncRNAs como potenciales dianas terapéuticas (Expert Opin Ther Targets, 2021) en colaboración con Luis Arnes (BRIC, Copenhagen) como investigadora independiente.

Mi trabajo ha sido seleccionado para comunicaciones orales en diversas conferencias, incluyendo como potente invitada en a la 20a conferencia de la Asociación Europea de Hematología en Viena (>500 participantes) y a resultado en premios (ej. Mejor póster, Heidelberg 2013 or Spotlight Publication, BRIC, 2021). Durante este periodo he participado en varios proyectos nacionales e internacionales, así como de proyectos colaborativos (ej. ITN-RNAtrain).

En 2021 me uní al laboratorio de lncRNAs y cáncer en el CIMA (Pamplona) liderado por Maite Huarte, pionera en lncRNAs. Durante el último año he contribuído a entender el papel del lncRNA RIPOR3-AS1 en la conexión entre senescencia y metabolismo, resultados que están a punto de ser envíados para publiCación (Grossi E, Montes M et al. In preparation).

En Mayo de 2022 conseguí por segunda vez la prestigiosa beca MSCA que me ha permitido empezar mi propia línea de investigación centrada en el papel de los lncRNAs en la respuesta a la quimioterapia donde combino mi experiencia en senescencia y RNA con la investigación traslacional.

Resumen del Currículum Vitae:

Tras licenciarme en Biología y Bioquímica en la Universidad de Navarra, me uní al laboratorio del Dr. Carles Suñé en el IPBLN, CISC (Granada) para llevar a cabo la tesis doctoral financiada por una competitiva beca FPU del Ministerio de Educación. Durante este tiempo realicé 2 estancias cortas 1) en el laboratorio del Prof. Benoit Chabot (Universidad de Sherbrooke, Canada) y 2) en el laboratorio del Dr. José Alcamí (Unidad de Inmunopatología, Instituto Carlos III). Durante mi etapa predoctoral publiqué 3 artículos de primera autoría, 1 revisión y 4 artículos como co-autora con otros miembros del laboratorio. En 2012 defendí la tesis doctoral obteniendo Sobresaliente Cum Laude.

Siguiendo mi pasión por el ARN, en 2013 me uní al laboratorio del Prof. Anders Lund en Biotech Research and Innovation Centre (BRIC), Universidad de Copenhague financiada por una prestigiosa beca Marie Curie para estudiar el papel de los ARNs largos no-codificantes (lncRNA) en senescencia.Durante mi etapa postdoctoral publiqué 2 artículos como primera autora en la revista de alto impacto Nature Communications. En el último de ellos soy además autora de co-correspondencia. Así mismo, escribí 2 artículos de revisión (FEBSJ, 2016 y Expert Opin Ther Targets, 2021). El segundo como investigadora independiente. Además, estos resultados fueron seleccionados para presentación oral en diversas conferencias nacionales e internacionales, incluyendo ponente invitada en la "20th EHA conference" (2016, Viena) y recibieron diversos premios y distinciones (mejor póster Heidelberg 2013 o Publication Spotlight, BRIC, 2021)

En Agosto de 2021 me uní al laboratorio de la Dra. Maite Huarte en el CIMA (Pamplona) pionera en el estudio de los lncRNAs para continuar mi investigación sobre lncRNAs en senescencia. Durante este tiempo he contribuído a entender el papel del lncRNA RIPOR3-AS1 en la conexión entre senescencia y metabolismo, resultados que serán pronto enviados para publicación (Grossi E, Montes M et al. en preparación).

Durante mi carrera he participado en actividades docentes para estudiantes de grado de medicina y en el curso de doctorado "Non-coding RNA" (Universidad de Copenhague). He formado parte de proyectos nacionales e internacionales, así como de proyectos colaborativos (ej. ITN-RNAtrain). He participado en procesos de selección de miembros del laboratorio. He supervisado a varios estudiantes además de co-dirigir oficialmente 1 tesis de doctorado (Giulia Maglieri, 2017) y una de grado (Marie Amanda Bust Levy, 2018) por la Universidad de Copenhague. Actualmente co-dirijo la tesis de Maria Guadalupe Salgado Lora y a partir de Marzo la de Niloufar Hosseini Giv (Universidad de Navarra).He participado en varias iniciativas de divulgación ("Mujer y Ciencia"). Soy miembro activo de asociaciones científicas (ICSA, RNA Society, SEBBM) y participo en como mentora en el grupo de la SEBBM "Mujer y Ciencia". Soy revisora asidua de revistas científicas (ej. Oncogene).

Actualmente me encargo de organizar los seminarios del departamento y he implementado las reuniones "Coffee Brain" donde ponentes invitados se reúnen de manera informal con postdocs y estudiantes.

Finalmente, en Mayo de 2022 conseguí por segunda vez la beca Marie Curie que me ha permitido empezar mi línea de investigación centrada en los lncRNAs en senescencia en respuesta a quimioterapia.

Área Temática:	**Biomedicina**
Nombre:	PASCUAL REGUANT, ANNA
Referencia:	RYC2022-035848-I
Correo Electrónico:	anna.pascual@charite.de
Título:	Combining Multiplexed Histology and Spatial Transcriptomics as a tool for next-generation pathology

Resumen de la Memoria:

My main technical contribution to the scientific field has been the establishment of a cutting edge imaging technique and its coupling to a computational analysis pipeline, which permits the in-depth characterization and quantification of the tissue composition, including structural, stromal and immune cell types, while retaining the spatial information. I streamlined and standardized the complete histological process, from sample preparation to image acquisition and guided the development of the customized pipeline for single-cell-based proteomics image analysis. Thereby, I could robustly identify a novel phenotype (IRF4+CD138+ Innate Lymphoid Cells) in various human tissues and allocate them to conserved tissue niches. This work was much appreciated by the national and international ILC and immunology research community, as evidenced by a first authorship publication in a high impact journal, multiple collaborations on the phenotypical and spatial characterization of immune, stromal and structural cells in their native tissues that led to several publications and two awards in conference presentations.

My main conceptual contribution to the scientific field has been the characterization of distinct tissue niches as self-organized functional units that modulate local immunity and tissue pathology. To study tissue niches in such theoretical framework, I applied and combine spatially-resolved omics techniques at the protein and transcriptional level, which led to a first co-authorship publication in a high impact journal, an award for an oral conference presentation, three invitations as a conference speaker and collaborations with two leading groups in the immunology and the genomics field.

The experience gathered during the last 5 years in implementing spatially-resolved omics techniques to understand the molecular and celullar mechanisms underlying multiple diseases has given me a broad and deep understanding of tissue immunology, pathology and available computational tools. It has additionally allowed me to work with interdisciplinary teams, including immunologists, clinicians, pathologists, biphysicians and computational biologists. I learned from that how to integrate different biomedical research approaches to answer a particular question.

The proposed line of research to be developed is based on the hypothesis that distinct tissue niches function as key sensory units, in which a common niche regulatory program sustains tissue homeostasis. Inflammation results in niche activation, and altered niche composition and function. Local innate immune cells trigger the adaptive immune arm to specifically clear the thread. After that, tissue niches enter a healing phase, in which remodeling pathways are activated. Failure in restoring the common niche regulatory program is the birthmark of immunopathology, where these tissue areas might become fibrotic foci and sustained T-cell activation / modulation cites, eventually leading to tertiary lymphoid structure formation. By using Spatial Transcriptomics, which allows to visualize and quantify RNAs' expression directly in tissues, I will test if distinct disease entities with different etiology share molecular, cellular or multi-cellular spatial signatures, which could be targeted to prevent/ameliorate pathological states.

Resumen del Currículum Vitae:

During my PhD, I performed in vivo and in vitro mouse studies to provide new insights into the mechanisms by which epithelial cells and tissue-resident macrophages control pro-inflammatory TH17 cells in the intestine in order to sustain homeostasis. I defended my PhD with a magna cum laude and published a highly cited article. As a post-doctoral researcher, I have worked passionately to implement cutting edge methods for the in situ analysis of local immune responses in human tissues.

I established a multiplexed imaging system in the lab, called multi-epitope ligand cartography (MELC), which allows the visualization of more than 50 proteins on the same tissue section and, thus, permits in-depth characterization of the tissue composition. I guided the development of a customized analysis pipeline for the computational analyses of multiplexed image data. Thereby, I identified a novel immune cell phenotype in its native tissues and pin pointed fibrovascular niches (FVNs) as conserved sites for its localization. This study set the basis for further spatial and multiplexed analysis of tissue immunology. The interest generated in the research community led to numerous collaborations to profile several immune and stromal cells in various human tissues in-depth, leading to a wide publishing record.

Later, I directed an interdisciplinary team that established spatial transcriptomics techniques (ST) in post-mortem COVID-19 lungs and combined ST with MELC. Thereby, we outlined FVNs as key microenvironments orchestrating lung immunopathology via CCL18 and CCL21. Importantly, we delineated the spatial link between prominent T cell accumulation and exhaustion, tissue fibrosis and organization of ectopic lymphoid structures in COVID-19 lung FVNs.

Taken together, my work has generated panoptic datasets describing phenotypic, transcriptional and functional cellular properties, while retaining the precise positioning of cells within tissues. It has also produced a theoretical framework, in which FVNs emerge as key tissue sensory units that direct chronic inflammation and immunopathology. I have gained valuable experience in the histological, cellular and molecular analysis (at the protein and transcriptional level) of various human tissues under chronic inflammatory conditions. My contribution to the rapidly growing field of spatial immunology allowed me to present my work at several conferences, achieving three awards (Charité 3R Audience Award, EFIS-BioLegend Bright Sparks Award in the 6th European Congress of Immunology and Best Oral presentation in the 1rst yEFIS Symposium). It has also granted me the recognition to be a peer-reviewer. To transfer the expertise and experience acquired I have trained and supervised several colleagues on the way.

I am committed to Open Science and made publicly available all data generated. At the same time, I guaranteed data security and privacy protection of human samples by fully de-identifying them.

I am affiliated to the German society of Cytometry (DGfZ), to the German Society of Immunology (DGfI) and to the EFIS (European Federation of Immunological Societies) Young Immunologist Task Force (yEFIS). I was also an active part of the organizing committee of the 29th Annual Meeting of the DGfZ and of the Summer School for PhDs and Post-docs of the Priority Program on Innate Lymphoid Cells (SPP1937) 2022.

Área Temática:	**Biomedicina**
Nombre:	LÓPEZ GONZÁLEZ, CRISTINA
Referencia:	RYC2022-036438-I
Correo Electrónico:	clopez2@recerca.clinic.cat
Título:	Identification of chromosomal aberrations in B and T cell malignancies

Resumen de la Memoria:

I have a broad background of more than 10 years in the research field of lymphoid malignancies, including theoretical and practical knowledge in different research areas as genetics, molecular, biological and clinical aspects, as well as bioinformatics. During the Master Degree in Genetics I worked in the Hospital Sant Joan de Déu and the Hospital Clinic of Barcelona to learn conventional and molecular cytogenetics, respectively that have been instrumental in broadening the scope of my research. I did my PhD in Hospital Clinic of Barcelona in a project to determine the impact of genetic alterations in chronic lymphocytic leukemia (CLL) at diagnosis and also during the clinical course of the disease, to identify subgroups of patients with different clinical behavior. My results identified a new recurrent chromosomal abnormality (López et al., 2012a), in a subgroup of patients associated with bad prognosis (López et al., 2012b), and determined clonal evolution in CLL (López et al., 2013). During my PhD study, I was also involved in the International Cancer Genome Consortium (ICGC)-CLL, performing the basic genomic characterization of the samples. Taken together, during my PhD I learned i) relevant techniques to identify chromosomal alterations, ii) scientific knowledge of haematological malignancies; iii) expertise working with clinical data; iv) knowledge to perform and interpret statistical analysis; v) next generation sequencing (NGS) technologies. Thereafter, I continued my research career with a postdoc in Germany to investigate the genomic alterations in T cell prolymphocytic leukemia. My post-doc work has generated relevant publications (5 publications) and allowed me to acquire skills in analyzing copy number arrays, designing and performing PCR and Sanger sequencing, and designing and analyzing NGS panels. Furthermore, I was also part of the team of the ICGC MMML-Seq project, that gave me the opportunity to learn how to interpret whole genome sequencing and transcriptome, integrate different layers of molecular data, and understand the bioinformatic work-flow of these technologies. In the framework of this project I have published 15 publications. I came back to Spain in 2020, and was awarded with the Beatriu de Pinós grant from Secretaria d'Universitats i Recerca del Departament d'Empresa i Coneixement de la Generalitat de Catalunya and by Marie Skolodowska-Curie COFUND program from H2020 to investigate the mutational landscape of follicular lymphoma according to four clinically different groups of patients in IDIBAPS. I'm improving my knowledge and I'm learning bioinformatic skills to analyze the NGS panels and also use different bioinformatic pipelines. In my upcoming research program I will aim to characterize the molecular profile and microenvironment interactions driving evolution and therapeutic responses of aggressive lymphomas. Moreover, to implement the use of circulating tumor DNA (ctDNA) as a new and integrative source of molecular alterations. The objectives will be: i) to understand the genomic mechanisms, primary and secondary alterations, and subclonal dynamics involved in the evolution of aggressive lymphomas; ii) to identify the crosstalk between tumor cells and tumor microenvironment; and iii) to implement the use of ctDNA as an integrative source for genomic profiling.

Resumen del Currículum Vitae:

My research has targeted the identification of chromosomal aberrations in B and T cell malignancies. I performed her PhD in Oncohematological Cytogenetics Laboratory from the Pathology Department of Hospital Clinic of Barcelona under Dr. Carrió and Dr. Colomer supervision, and was focused in the detection of chromosomal abnormalities in chronic lymphocytic leukemia. In the meanwhile, I was awarded with a predoctoral grant from Institute Carlos III (2008-2012). Furthermore, during my PhD study, I was involved in the International Cancer Genome Consortium (ICGC) CLL, led by Carlos López-Otín and Elías Campo. Thereafter, I continued my research career with a postdoctoral program in Germany with the group of Prof. Reiner Siebert. I was granted with the postdoctoral grant from Alexander von Humboldt Foundation (2013-2015) investigating the genomic alterations in leukemia T cell prolymphocytic leukemia. Furthermore, I was also part of the team of the ICGC MMML-Seq project, where I was the responsible of the structural variants analysis from the whole genome sequencing (WGS). I came back to Spain in 2020, and was awarded with the Beatriu de Pinós grant from Secretaria d'Universitats i Recerca del Departament d'Empresa i Coneixement de la Generalitat de Catalunya and by Marie Skolodowska-Curie COFUND program from H2020 in IDIBAPS, Hospital Clinic. I have also collaborations with other national and international research institutions that are reflected in several recent publications (Socha et al., 2021, Am J Hum Genet; López et al., 2022 Nat Rev Dis Primers; Radke et al., 2022 Nat Commun; Patil et al., 2022 Genes Chromosomes Cancer). I promote the scientific dissemination participating as a speaker in school in i) #100TíFIQUES program from Fundació Catalana per a la Recerca i la Innovació (FCRI) y el Barcelona Institute of Science and Technology (BIST) and collaboration of Departament d'Educació de la Generalitat de Catalunya (2021-2023); ii) the annual European researcher's night; and iii) the "RecerConnecta" programs from AGAUR (2022-2023). I contribute in the educational and teaching supervision regularly of students and is a regular reviewer of high impact scientific journals, and from scientific projects from European Hematology Association, and World Cancer Research Association. She has also been appointed as Board member of Doctoral Theses. According to the source Scopus, Elsevier, she has published a total of 47 papers in high impact journals, the majority of them (78%) corresponding to first quartile, with a total of 2872 citations and an H-index of 20. Dr. López' s major achievements reflected by the published manuscripts as first author are: 1)IG-MYC-positive neoplams with precursor B-cell phenotype are genetically distinct from Burkitt lymphomas (Blood. 2018); 2) Genomic and transcriptomic changes complement each other in the pathogenesis of sporadic Burkitt lymphoma in children (Nat. Commun. 2019); 3) Mutational Mechanisms shaping the Coding and Non-coding Genome of B-cell Lymphomas (Leukemia. 2021); 4) Focal structural variants revealed by whole genome sequencing disrupt the histone demethylase KDM4C in B cell lymphomas (Haematologica. 2022); and 5) Burkitt lymphoma (Nat Rev Dis Primers. 2022).

Área Temática:	Biomedicina
Nombre:	LÓPEZ MARTÍNEZ, VIRGINIA
Referencia:	RYC2022-035313-I
Correo Electrónico:	virivir@gmail.com
Título:	Unraveling the molecular determinants of cancer through epigenomic and proteomic approaches

Resumen de la Memoria:

Throughout my career I have always had a deep interest in biomedical research under the prism of molecular biology, without losing sight of the translational potential of my research results. I conducted my first research project in oncology on the molecular characterization of the RAS/RAF/ERK and the PI3K/AKT signaling transduction pathways in aggressive thyroid tumours. During my master's thesis, I performed molecular profiling on bladder cancer. My work contributed to further characterize genomic and epigenomic alterations involved in disease progression and had translational relevance proposing novel biomarkers. As PhD student I investigated the role of DNA topoisomerases during replication in both prokaryotes and eukaryotes. My work delved into understanding the nature of the catenation checkpoint, how DNA replication terminates, how anti-Top2 drugs work, and how new drugs might be designed. We published influential works as anti-topoisomerase drugs are clinically important antibiotics and chemotherapies. During my postdoctoral stage abroad, I improved my background in the molecular basis of cancer, developing a project to decipher the physical and catalytic determinants of dicentric chromosomes breakage as a source of genome instability and a hallmark of cancer. Our papers have been a milestone in the field. Since chromosome components, cell cycle exit, cytokinesis, nucleases and DNA repair pathways are well conserved in eukaryotes, the mechanisms deciphered in yeast in these works have a general significance and are directly inspirational also in other organisms including humans. Through that very enriching experience I acquired new scientific, teaching and technical skills that I was able to apply in my next stage at Cancer Epigenetics laboratory. I joined a research line on functional epigenomics in glioblastoma, exploring the dysregulation of epigenetic enzymes in this tumor type. I also led a study on the histone mark H4K16ac and demonstrated its function in chromatin regulation in myeloid cells with important clinical implications as might help to understand the mechanism of action of HDAC inhibitors, a family of small molecules with antitumor activity. I am also involved in several projects related to different types cancer such as colorectal and thyroid cancer. My novel and independent line of research seeks to answer focused clinical questions while elucidating the molecular determinants of prostate and bladder cancer. This proposal represents an innovative approach in the study of these tumors and will take advantage of cutting-edge technology of high resolution mass spectrometry (MS) for which I have already laid the groundwork at the technical level. Thus, I will perform massive screening for new histone post-translational modifications altered in these tumors, integrating the information with that from other omic technologies and clinical data. The resulting chromatin signatures would provide a mechanistic explanation for clinical outcomes or therapy response in these malignancies, and potential biomarkers to tackle the different clinical scenarios and select the best treatment for an individual patient with the aim to obtain precision medicine. The current proposal represents a unique opportunity to integrate basic and translational research and to promote synergies within the National Health System.

Resumen del Currículum Vitae:

After obtaining my Bachelor in Biochemistry (University of Oviedo), I conducted my first research project working on thyroid cancer with a research grant from the Institute of Molecular Pathology and Immunology of the University of Porto (IPATIMUP, Portugal). Then, I did my master's degree in the Tumor Markers group at the Spanish National Cancer Research Center (CNIO), studying genomic and epigenomic alterations and their clinical significance in bladder cancer (PMIDs 19088041, 23914742). Next, I obtained my PhD in Biochemistry in Dr. Schvartzman's laboratory (CIB-CSIC) investigating the dynamics of topological changes of DNA during replication. During that period, I was awarded a FPU fellowship and performed international stays in two of the world's leading research centers: Swiss Federal Institute of Technology (EPFL, Lausanne) and Imperial College (London). I published the results of my research in Nucleic Acids Research, Methods and Science (PMIDs 22187153, 22465282, 21393545). In 2012, I joined Dr. Marcand's laboratory at the Research Institute of Cellular and Molecular Radiobiology (IRCM-CEA, Paris) with a postdoctoral fellowship from the French National Research Agency (ANR). There I contributed to decipher the mechanism of breakage of dicentric chromosomes as a source of genome instability and published papers in Genes & Development and Molecular Cell (PMIDs 25644606, 31204167). In 2015 I became a Senior member of the group headed by Dr. Fraga at IUOPA/ISPA (Oviedo), to further expand my background in epigenetics and clinical oncology. In 2017, I obtained the highly competitive postdoctoral fellowship JdC-Incorporación. My research over the past seven years has been focused on the study of epigenetic alterations in colon cancer and glioma (34447744, 33871658, 30923829, 28499883, 31211412, 29899831, 29878202, 28901819). Throughout my career I have presented my work at prestigious international conferences, kept up with the latest technologies in my field, contributed to raising funds in public calls and open new lines of research for the laboratories I have belonged to, and established fruitful collaborations with leading scientists around the world (e.g. ERANET-TRANSCAN European project). As a sign of my scientific maturity, my leadership and productivity have remained constant regardless of the hosting laboratory, and I have made the most of my international stays. My work has so far produced 17 scientific publications in high impact journals (16 research papers and a review all in Q1), in 6 of which I am first author (sum of times cited: 684; h-index: 13) and I have two more articles under revision. I have participated as guest editor in the special issue of Cancers "Cancer Epigenomics: New Clinical Opportunities and Challenges". I am actively involved in scientific associations (member of the European Association of Urology), and participate in dissemination activities aimed at students (AECC, Galbán). Since 2019, I am part of the CIBERER as Associate Researcher. To date, I have supervised a total of 10 students (4 intern students, 1 technician, 2 PhD, 1 TFG, 3 TFM). Currently, I supervise 2 PhDs and a TFG student as co-director, and I lead a new research line in the laboratory focused on understanding the epigenetic determinants of urological tumors and discovering novel biomarkers using integrative multi-omic approaches.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	ZHOU , GUIYAO
Referencia:	RYC2022-035226-I
Correo Electrónico:	jdzhouguiyao@163.com
Título:	Forestry and global change

Resumen de la Memoria:

I am a forest researcher with a strong multidisciplinary background in forestry, microbial ecology, biodiversity conservation, and global environmental change. I am currently a Humboldt Research Fellow working both at German Centre for Integrative Biodiversity Research (iDiv) and Instituto de Recursos Naturales y Agrobiología de Sevilla (IRNAS), CSIC (Spain). My PhD work focused on the effect of climate change such as drought on ecosystem functions of subtropical forest. I further expand my research to explore how climate change regulate the forest restoration effects on multiple ecosystem services globally, as well as the linkage between biodiversity and ecosystem functions of Mediterranean forests during my postdoc period. Although I am in an early stage of my career (5 years post-PhD), my work has already expanded our understanding of various fields of forestry. For example, my research has revealed that on-going climatic changes may dampen the expectations of the positive effects of forest restoration on biodiversity and ecosystem functions worldwide, a result that had not been previously reported, and with important implications for the maintenance of multiple ecosystem services worldwide. I have also shown that plant and soil biodiversity are essential for supporting highly multifunctional forests during Mediterranean rewilding, and that the forest understory is strongly tied to ecosystem functioning and soil biodiversity of mature Mediterranean forests. Such fundings are important to improve the predictability of the ecological consequences of forest succession under future changing climatic condition, and thus to support vibrant human cultures in the future.

During my PhD study, I conducted an eight-month international visit at the University of Exeter, UK, to enhance my data mining skills and then had the chance to interact with (and learn from) some outstanding scientists in forestry fields. The acquired skills and knowledge enabled me to be a more independent researcher in forest ecology to successfully lead two projects funded by China National Science Foundation and Shanghai Science Foundation. Under the supervisor of Prof. Manuel Delgado-Baquerizo and Prof. Xuhui Zhou at my first postdoc research in China, I extended my research field into biodiversity conservation to increase my multidisciplinary knowledge, which resulted in a novel work published in leading journals. In recognition of my early independence and maturity as a researcher, I was awarded as Humboldt Research Fellow by Alexander von Humboldt Foundation, supervised by Prof. Nico Eisenhauer, and was the first to unravel the stress-response and adaptation strategies of forest ecosystem multifunctionality to global change and plant biodiversity.

Resumen del Currículum Vitae:

I am a forest researcher with a strong multidisciplinary background in forestry, microbial ecology, biodiversity conservation, and global environmental change.. I have more than 10-years experience working in forest management, climate change and biodiversity-ecosystem functions research, combining a multidisciplinary array of analytical, modelling and experimental techniques. I have delivered 62 publications (18 as first author), including one book, one invited book chapter and five patents, and published 10 open access global database (n° citations: Google Scholar, 1293; ISI Web of Science: 916; h-index = 18), related to forest restoration, climate change and biodiversity conservation. My previous work on forestry combined a wide range of multidisciplinary methods and disciplines to deliver a novel insight to mitigate climate change. It also enhance some Spain-China-Germany collaboration in the fields of forestry, climate change and biodiversity conservation.

Recognized as an early independence and maturity researcher, I have been awarded a grant worth 150,000 € from China National Science Foundation, as a Principal Investigator to explore the effects of drought on ecosystem multifunctionality of subtropical forest in 2020. I was also awarded "National Scholarship" by Ministry of Education of the People's Republic of China up to three times (ca. 10,000 €). Currently I am a Humboldt Research Fellow by Alexander von Humboldt Foundation aiming at conducting ground breaking research on the stress-response and adaptation strategies of forest biodiversity and ecosystem multifunctionality to global change. I have > 2 years of international and over a year of national postdoctoral experience in UK, Germany and Spain. During my career, I have regularly presented my research as oral report or poster, with ca. 10 contribution at national or international conferences such as Ecological Society of America (ESA) and European Geosciences Union (EGU). I was also appointed as a section editor in Plant and Soil (2022-, Q1, IF=4.99), edited for Journal of Applied Ecology (2020-2021, Q1, IF=6.8) and regularly review multiple papers for more than 30 international leading journals such as Global Change Biology etc. Moreover, I have successfully organized a special issue to explore how below ground biodiversity affect forest ecosystem functions on Plant and Soil. During the past years, I have been involved as a researcher on five successful grant applications, totalling > €1 million, contributing to writing proposals, fieldwork and manuscript writing. Finally, I have co-supervised 6 BSc, 5 MScs and 3 PhD students since 2016. Four of my students have successfully published their research in leading journals such as Global Change Biology (×2) and Journal of Applied Ecology.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	PEREZ HEDO, MERITXELL
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Título:	Nuevas soluciones en la gestión sostenible de plagas agrícolas

Resumen de la Memoria:

Resumen trayectoria: Ingeniera Técnica Agrícola por la Universidad Politécnica de Cataluña (UPC) en 2003, Ingeniera Agrónoma y Doctora Ingeniera Agrónoma por la Universidad de Lleida (UdL) en el 2006 y 2010, respectivamente. Mi tesis doctoral se centró en el estudio de la regulación hormonal del lepidóptero Sesamia nonagrioides, plaga clave en maíz. Además, durante esta etapa participé en diversos trabajos para la mejora de la gestión integrada de plagas en maíz. Tras la obtención de mi doctorado inicié una etapa postdoctoral, primero en la UdL donde profundicé en los efectos de la toxina Bt sobre el sistema endocrino de lepidópteros plaga del maíz, así como en el metabolismo y modo de acción de la toxina Bt. Posteriormente, obtuve un contrato de Associate Postdoctoral Researcher en la Florida International University (FIU) donde durante un año y medio estudié los mecanismos de activación de la síntesis de hormona juvenil del mosquito (Aedes aegypti). En el posdoctorado trabajé en aspectos de investigación básica de fisiología de insectos, y tuve la oportunidad de adquirir experiencia en técnicas y herramientas moleculares como son dsRNA para el silenciamiento de genes, más allá del conocimiento en herramientas moleculares adquiridas anteriormente. Esta experiencia ha sido clave en las líneas de investigación aplicada en las que actualmente estoy trabajando. Tras mi periodo postdoctoral regresé a España en 2013 donde me incorporé al grupo de Entomología del Instituto Valenciano de Investigaciones Agrarias (IVIA) y posteriormente en 2015 con un contrato de Investigadora Juan de la Cierva en la Universitat Jaume I (UJI) de Castellón (el número 2 en agricultura de la convocatoria). Desde el 2013 y en el marco de la Unidad Asociada de Entomología entre IVIA y la UJI, centré mis líneas de investigación en 1) Búsqueda de nuevos agentes de control biológico para la gestión de plagas en cultivos hortícolas, 2) Respuesta defensiva de la planta de tomate, pimiento y cítricos a la actividad de depredadores zoofitófagos y volátiles de planta 3) Puesta a punto de un programa de gestión integrada de plagas en caqui. En octubre del 2017, me incorporé como investigadora en el IVIA con un contrato de investigadora INIA-CCAA-2015 que cambió en 2019 por tomar de posesión de una plaza de investigadora como funcionaria Interina. En esta etapa continuo mis líneas de investigación iniciadas en 2013 y he abierto una nueva línea centrada en el control de plagas y vectores clave en la Comunidad Valenciana mediante tecnología RNAi.

Línea de investigación: Exposición a volátiles inducidos por plantas: una vía sostenible de manejo de plagas y enfermedades. Mi investigación se enfoca en aprovechar la comunicación mediada por los volátiles entre plantas para aumentar la resiliencia de las plantas. Los resultados que he obtenido hasta la fecha son los primeros en demostrar cómo volátiles de plantas inducidos por herbívoros (HIPVs) liberados a través de dispensadores poliméricos en cultivos aumentan las defensas en las plantas.

Resumen del Currículum Vitae:

Poseo una formación multidisciplinar en el campo de la Entomología, que va desde la entomología aplicada hasta la entomología molecular. Esta formación me ha permitido incorporar diversas técnicas de biología molecular para la mejora de gestión de plagas y la prevención de plagas exóticas en los diversos laboratorios en los que he estado, así como profundizar en aspectos básicos de la fisiología de los insectos. Fruto de estas investigaciones he publicado 57 artículos SCI (82% Q1), 8 artículos indexados, 26 artículos de divulgación científica, 1 libro y 4 capítulos de libro. Me gustaría resaltar mi papel de liderazgo en 59 de las 90 publicaciones al figurar como primero o último autor. También soy autora de una patente (patente: P202030330) de la que soy primera autora de la invención. He participado en 16 proyectos de investigación con un montante económico de 4.492.500 € de los cuales he sido IP en cuatro de ellos con un presupuesto total de 553.745 € Dos de los proyectos que figuro como IP fueron elegidos como destinatarios de un contrato predoctoral. De estos proyectos he participado como investigadora en tres proyectos internacionales (2 europeos y 1 de EEUU) que me han permitido expandir mi red de colaboraciones internacionales. A lo largo de mi carrera, he realizado 9 estancias de investigación internacionales con una duración total de 41 meses, que han contribuido significativamente a mi desarrollo profesional. Destaco la obtenida en 2022 en el prestigioso programa Fulbright para realizar investigaciones para la gestión del HLB en la Universidad de Florida. He participado en 3 convenios/contratos de investigación con empresas privadas por un importe 62.607 € y he sido investigadora responsable en uno de ellos. También he participado en 2 convenios con la administración por un importe de 214.000 €

He participado de manera activa en más de 70 acciones de transferencia en las que se incluyen jornadas técnicas, seminarios, acciones de divulgación on-line y días de campo, compartiendo mis hallazgos con expertos, profesionales y agricultores del sector. Como líder en la coordinación del Portal "Gestión Integrada de Plagas y Enfermedades en Caqui" (http://gipcaqui.ivia.es/), he generado una amplia difusión y aceptación de prácticas sostenibles en el sector de cultivo de caqui (+100 entradas al día y +de 13.000 suscriptores).

En cuanto a mi capacidad de formación, he dirigido 3 tesis doctorales y estoy dirigiendo actualmente otras 3. He dirigido 11 trabajos de final de grado/máster y receptora de las estancias de investigación de más de 20 estudiantes e investigadores tanto nacionales como internacionales. He sido profesora docente de las asignaturas Biotecnología Aplicada a la Protección de Cultivos, Entomología Agrícola y Protección de cultivos en la UJI de Castelló. Soy editora de las revistas CABI Agriculture and Bioscience, Frontiers in Ecology and Evolution y Frontiers in Insect Science y pertenezco al consejo asesor de la revista Agrícola Vergel (L.A.V.,S.L.). He participado en comités científicos y organización de congresos y reuniones científicas tanto nacionales como internacionales. Además, desde octubre del 2022 soy vocal de la junta directiva de la Sociedad Española de Entomología Aplicada (SEEA).

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	ROBLEDO GARRIDO, MARTA
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Título:	Survival and host infection strategies of bacteria relevant for the agri-food sector

Resumen de la Memoria:

I started my scientific career in the research group "Plant-Microbe Interactions" at "Hispano-Luso Institute of Agricultural Research" (CIALE, University of Salamanca) awarded by a FPU fellowship. During my Ph.D. I conducted several short research stays at UCLA (USA) and at John Innes Center (Norwich, UK), a reference center in agricultural research. I was then awarded with a Humboldt project to fulfil my first postdoctoral stay at Marburg University (Germany) hosted by Prof. Dr. Anke Becker, head of Centre for Synthetic Microbiology (2011-2015). After a "Juan de la Cierva" reincorporation contract at Estación Experimental del Zaidín (CSIC, Granada), I stated leading innovation projects with the biotech company "Biomar MT" at "Institute of Biomedicine and Biotechnology of Cantabria" thanks to a "Torres Quevedo" contract.

Plant-associated bacteria impact plant health and disease, playing an important role in agriculture. My research is focused on the molecular mechanisms employed by agronomically-relevant bacteria to survive and progress in changing environments, especially during their interaction with plants. For this porpoise, I have mainly used as model organism rhizobia, which share the ability to switch from a free-living lifestyle to a nitrogen-fixing intracellular symbiosis with legumes. This symbiotic association is of critical agronomic and environmental importance, allowing legume crop production without the supply of chemicals fertilizers. My predoctoral research unveiled several molecular mechanisms governing the first steps of rhizobial symbiotic interaction with host plants. The importance of my PhD findings is demonstrated by 6 first-authored articles and 5 book chapters. My postdoctoral research line aimed at validation and functional characterization of rhizobial non-coding RNAs giving rise to 19 publications, most with international collaborators. Working on this novel topic, I unveiled unprecedented post-transcriptional regulation of key prokaryotic functions such as cell cycle progression, N fixation and plant intracellular establishment. Back in Spain I further focused on this fruitful research line, discovering the role of novel proteins that assist RNA regulation, like a unique nuclease.

Globalization and climate change impact on the expansion of human (i.e. SARS-CoV-2 virus, AMR bacteria) and plant infectious diseases (Xylella fastidiosa), risking public health and food security. My recent research interest as project leader focus on biofertilizers and applied targeted control mechanisms against bacterial pathogens (i.e. Xylella fastidiosa). X. fastidiosa is one of the most dangerous plant pathogenic bacteria worldwide, causing chronic vascular infections in >600 plant species and crops of great economic interest, with no effective treatment to date. Genetic interventions on microorganisms in natural environments was challenging because conjugation-based delivery of cargos is unspecific and limited by low rates. I have recently engineered mating assemblers to switch plasmids into efficient conjugators, allowing target delivery of DNA for biotechnology purposes. This work is a real breakthrough in the field of conjugation that opens as yet unexplored avenues for programmable engineering of bacterial specific killing in complex native communities, a fascinating research line I am striving to establish.

Resumen del Currículum Vitae:

I am a young researcher focused on functional understanding of the molecular mechanisms employed by bacteria to survive and progress in changing environments, especially during plant infection. My work has originated 31 SCI publications: 6 book chapters and 26 articles, 23 ranked in the first quartile (Q1) and 14 in D1 journals of its SJR category. I am the first author of 15 publications, some in multidisciplinary journals (PNAS, NAR, Plos Genetics...) and the last/corresponding author of 5 works, including one in NAR (IF=19,16). My works have been cited 594 times and my H index is 13. During my PhD I discovered an essential enzyme for rhizobial signalling, attachment and symbiotic infection of legumes. My postdoctoral findings at Synmikro (Marburg) and EEZ-CSIC pioneered research on riboregulation in rhizobia. Currently, I am Head of the Plant Microbiology and bioinformatics department of the biotech company "Biomar MT" at "Institute of Biomedicine and Biotechnology of Cantabria". My main research interests include biofertilizers and targeted control mechanisms against food-borne (EHEC) and plant pathogens (the emerging pest Xylella fastidiosa). I set up and supervise a biosafety level 2 facility together with a team formed by a PhD student, a bioinformatician and a technician. I have applied for a European patent and developed a new methodology based on the use of synthetic adhesins to obtain conjugative DNA delivery into specific target cells, including pathogens. I am a corresponding author of this breakthrough work published in NAR. I am the coordinator of the private-public collaboration contract and of several joint projects, in which I have been involved in the conceptualization, application writing, management, and purchase of the granted equipment. I am also the principal investigator of an applied project and in charge of a working package from another one. Different programs fund my current research (Torres Quevedo, "EIT Food Innovator" EU program, CDTI, technological patronage...) with a total endowment of > 6 M€

I have also given 12 seminars upon invitation in renowned international and national institutions. I have been directly involved in proposal writing and/or management of 10 out of the 17 funded projects I have participated. Due to my expertise, I am a reviewer editor of Plos Genetics and Frontiers in plant science, a regular reviewer in other international journals (Sci Reps, Mol Micro, RNA), projects (Conicet), and a member of the jury of PhD theses. Besides this, I was part of the organizing committee of 3 research conferences and organized several seminars for research career development and scientific outreach. During my scientific career, I have mentored 1 post-doc, 2 PhD, 5 graduate/master, 7 visiting PhD students; and technicians. My work has been presented at 31 inter- and 24 national conferences. Among them, 17 contributions are as invited speaker or selected oral communications.

As a result of my intense scientific and teaching experience, including in several Master programs from different Universities, I already got Accreditations to "Investigador Distinguido-I3" (AEI) and "Profesor Contratado Doctor" (ANECA). I have also received the 2022 "Antonio J. Palomares" young researcher award from the Spanish Society for N fixation for my relevant contributions in the bacterial-plant interactions field.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	BARASONA GARCIA-AREVALO, JOSE ANGEL
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Título:	Unravelling and controlling shared infections affecting wildlife, domestic animals and humans

Resumen de la Memoria:

Specific and technical contributions described in the research proposal
1- Development of the first oral vaccine against ASFv in wild boar
2- Safety evaluation of ASF vaccine candidate Lv17/WB/Rie1 in wild boar following European Medicine Agency guidelines
3- Rule out the use of recombinant and inactivate vaccines to produce efficient ASF immunity
4- Determination of the crucial role of the un-registered and free-range domestic pigs "Brado" in the epidemiology of ASFV in Sardinia, Italy
5- First detection of antibodies against Mycobacterium bovis in oral fluid from wild boar
6- Unravelling the role of the biodiversity with increased community competence to maintain and transmit pathogens of the Mycobacterium tuberculosis complex in Mediterranean Spain
7- Determination of the main causes of mortality in wild boar in Mediterranean environments
8- Characterization of the environmental presence of Mycobacterium tuberculosis complex DNA in aggregation points at the wildlife/livestock interface
9- Development and evaluation of the specific preventive management measures capable of reducing the interaction and transmission of shared pathogens among wild ungulates and domestic cattle, as a starting point for all the specific biosafety programs currently developed
10- Identification of the sanitary interface among wild ungulates and extensive livestock in Mediterranean scenarios

The line of research proposed during the execution of this grant focuses, on the one hand, on continuing with the studies begun in my last phase as a researcher and on the training of researchers who are conducting their doctorates or other scientific training with me. The general objectives are (i) monitoring and modelling infectious diseases and its environmental regulation, (ii) developing tools to monitor epidemiological processes among different hosts, (iii) evaluating pathogen interactions and co-infections in extensive livestock populations and sympatric wildlife and (iv) testing new preventive sanitary measures in these complex epidemiological scenarios.
On the other hand and more focused on the last objective described, the current projects that I lead and new project proposals in which I am more involved in the Viral Immunology and Preventive Medicine Unit of VISAVET-UCM, are focused on the development and specific evaluation of vaccines against ASF. In this sense, future tasks of this objective are:
-        Improving the knowledge of genomic factors influencing safety, cross protection and stability of ASF vaccines candidates. In this task, I propose a deep exploration and study of additional viral factors and genes, which could be related to virulence and the evasion of the immune response for the generation of completely safe and effective Lv17/WB/Rie1 derived pilot vaccines.
-        Assessing the virus shedding, transmission, environmental contamination and cross-protection capability of the ASF vaccine candidates. A profile of the protective immune response will be fully performed. The immune response of vaccinated animals will be characterized by the detection of specific antibodies (ELISA and IPT, humoral immune response), as well as by flow cytometry by characterization of the cellular immune response.
-        Evaluating the vaccination strategies for different epidemiological situations for wild boar and domestic pigs.

Resumen del Currículum Vitae:

Since my pre-doctoral period at IREC (SaBio group), I have developed and adapted multidisciplinary techniques of ecology , biotechnology and veterinary sciences among different hosts ("One Health" approach). My scientific contributions allow to design, evaluate and offer monitoring of infectious diseases and prevention tools, as the novel Latent Selection Difference (LSD) functions developed in my Thesis. These studies allowed me to be in charge of two National Plan projects to study (i) the epidemiology and control of animal tuberculosis (TB) at the livestock-wildlife interface, and (ii) the oral vaccination against TB in wild boar (AGL2010-20730-C02-01 and AGL2011-30041-C03-01, respectively), both with high impact on knowledge transfer in publications and patents of international relevance (Part C1-C4).
In 2015, I obtained the PhD with International Mention, obtaining the Extraordinary Doctorate award and an Innovation Unit price (Cátedra de Innovación-UCLM-JCCM). In addition, I made four predoctoral scientific stays (10 months) in foreign R&D centers: i) Landcare Research Institute in New Zealand, ii) "Centro de Investigaçao em Biodiversidade e Recursos Geneticos" (CIBIO) in Portugal, iii) "Erasmus MC, Universitair Medisch Centrum Rotterdam" in Netherlands, and iv) US Department of Agriculture (USDA) in United States. This established main scientific lines and international collaboration in quantitative epidemiology of infectious processes.

My postdoctoral stage began in IREC-UCLM where I carried out key activities of scientific transference of TB prevention for the livestock and hunting sectors in collaboration with SABIOTEC and COVAP Companies, which established the basis of specific biosecurity programs on extensive livestock farms at Mediterranean scenarios; thanks to the EU Project ANTIGONE-278976 FP7 and the National Plan project AGL2013-48523-C3-1-R. Since then, I have been awarded four postdoctoral fellowships through competitive calls in Spain (VISAVET-UCM and IREC-UCLM), France (CIRAD) and Italy (IZSS): "Juan de la Cierva-Formación", COST Action STSM, Martín-Escudero, "Juan de la Cierva-Incorporación". I recently joined the VISAVET Centre (UCM, Madrid), to find solutions against the current and devastating African Swine Fever (ASF) disease in the pig industry. During my vaccination studies against ASF virus, we get an competitive European Project: VacDIVA, a safe DIVA vaccine for ASF control (EU H2020- 862874). This call was a historical milestone in animal health science in Europe owing to the economic (10 million €) and the socio-economic relevance of this disease nowadays. Its concession was definitely favored by my previous advances in the development of an effective oral vaccine against ASF virus (Barasona et al. 2019, 2021; 1ª and 2ª in section C1). For this reason, I am currently focused on safety and efficacy of mutant vaccine prototypes against ASF as the lead researcher of the Subproject 3 of VacDIVA: Live attenuated virus (LAV) Lv17/Rie1 DIVA vaccine for wild boar. This project allows me to work with a

consortium of 17 foreign R&D centers and to apply currently for a new European grant with these partners: Advancing vaccine development for African swine fever (HORIZON-CL6-2023-FARM2FORK-01-5).

Resumen de la Memoria:

My work is focused on the study of the coordination of C and N metabolism at the molecular and biochemical level, but also at the whole plant (source-sink dynamics) and canopy level (high field capacity phenotyping). My current research as PI already differs from my previous groups and collaborators due to the innovative integration of plant phenotyping and metabolism to understand the interaction genotype by environment at the whole plant level, with a particular emphasis on the organ-specific metabolic mechanisms during grain filling and the development of customised phenotyping approaches at this level.

The final goal is the definition of crop ideotypes better adapted to present and future environmental conditions in the Mediterranean region through the novel integration of field phenotyping and molecular phenotyping. The knowledge and expertise I have acquired during these years, together with my international expertise and the multidisciplinary research network I have built will be the basis to accomplish the scientific goals that I would like to carry out if my Ramón y Cajal contract is approved at IRNASA-CSIC (Salamanca, Spain). In the following points I summarise my current and future research lines:

(i) To understand plant responses to abiotic stresses, with special attention to crops traditionally grown in the Mediterranean basin and the introduction of alternative species (wheat, barley, quinoa, tritordeum, sorghum...) that can improve our local sustainability and economy. These studies focus on the integration of agronomy, physiology, biochemistry and molecular biology to characterise the plant responses at the whole plant level to future climatic conditions associated with climate change, such as drought, warmer temperatures, elevated CO_2, salt stress, and nutrient deficiencies, grown as much as possible to real field conditions.

(ii) To elucidate the photosynthetic contribution of non-foliar organs to grain yield, quality and stress resilience and its regulatory mechanisms in Mediterranean environments. I hypothesise that ear organs have special physiological and metabolic features that confer tolerance to heat and water stress more than in other parts of the plant, making this "constitutively" stress-tolerant organ of special interest for mining existing natural variation and for identifying new useful traits for wheat breeding. I predict that advances in ear phenotyping and metabolic regulation will strongly contribute to crop improvement in the Mediterranean agroenvironemts, highlighting the need of including them in the breeding agenda as new sources for crop improvement.

(iii) To identify novel key parameters to be incorporated in breeding programmes that consider future food demands, environmental sustainability and the specific local environments where the plants will grow. To achieve this objective, the strategy is to develop customised field phenotyping solutions that can be used throughout the plant life cycle in a rapid, low-cost and non-destructive manner and relate the vegetation indices obtained to agronomic components and physiological traits. This will help to understand and predict the molecular and physiological mechanisms behind complex traits such as yield and grain quality or stress tolerance, to accelerate breeding programmes.

Resumen del Currículum Vitae:

My research career has been focused on understanding C/N coordination, source-sink dynamics and responses to abiotic stress for crop improvement and resilience. I did my PhD thesis (FPI-MICINN fellowship) under the supervision of Dr. Rosa Morcuende at IRNASA-CSIC (Spain). We demonstrated that long-term exposition to elevated CO_2 caused a photosynthetic acclimation in wheat due to an inhibition of N assimilation in leaves and roots, being more exacerbated with a low N supply. We further showed that the negative effects of high temperatures can be partially compensated by elevated CO_2 in field conditions, but depends on N fertilisation. Transcriptomics analyses allowed us to identify key target genes for crop improvement. Overall, my PhD thesis led to the publication of 6 papers as first author, obtained Summa Cum Laude grade, International Mention, and the Extraordinary Doctorate Award at the University of Salamanca. As Postdoctoral Researcher at the University of Barcelona (Spain) under the supervision of Prof. J. L. Araus, I complemented my skills in plant physiology, biochemistry and molecular biology with ground and aerial-based high-throughput phenotyping techniques. In order to deepen the molecular mechanisms regulating photosynthetic C regulation, I started as Postdoctoral Researcher at the Max Planck Institute for Molecular Physiology (Germany), under the supervision of Prof. Mark Stitt and Dr. John Lunn. I studied the key role of the signal molecule trehalose 6-phosphate regulating plant central metabolism. In 2020, I joined ITQB NOVA (UNL, Portugal) as the Head of Plant Ecophysiology and Metabolism Laboratory. We perform multidisciplinary approaches, from field high-throughput phenotyping to omics technologies and biochemical analyses, with the aim to understand the coordination of C/N metabolism at the whole plant level (source-sink dynamics) during grain filling to promote crop improvement and resilience in Mediterranean environments. Additionally, I carried out 4 short-stays abroad. My career track demonstrates my dedication to scientific excellence with an h-index of 13 / 14 / 17 and 537 / 599 / 800 citations in the Web of Science, SCOPUS and Google Scholar, respectively. I have published one book chapter and 30 research articles in peer-review journals: 26 Q1, 11 as first author, 2 as last author, and 6 as corresponding author. I have participated in 42 national and international congresses, contributing with 25 oral presentations and 23 posters. I participated in 22 projects, funded at regional (5, total=627k€), national (8, 3.1M€) and European (4, 27M€) level, as well as 4 contracts with the private sector (Syngenta Spain, Vivagran SL and Super Bock Group; 98k€). I am currently PI of a project with the private sector, another with the Oeiras City Hall for Citizen Science, and involved in two large European projects. I supervised 2 postdoctoral researchers, 4 PhD students, 5 MSc students, 10 BSc students, 3 lab technicians, and 30 High School students. I am (i) member of the Research Units of Excellence in Castile and León since 2018 and Basque Country from 2022, (ii) Professor in the PhD programme Plants for Life at ITQB NOVA, (iii) Guest Editor in Frontiers in Plant Science and Planta, (iv) member of Doctoral Thesis Committees, and (v) responsible of the phenotyping facilities at my institution.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	OLIVARES SEVILLA, MARTA
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Título:	Influencia de la microbiota y la dieta en la salud

Resumen de la Memoria:

In 2010, I started working on the gut microbiota in the group of Prof. Y. Sanz (Institute of Agrochemistry and Food Technology (IATA-CSIC), in Valencia, Spain), who has vast experience and international recognition in this field (h-index=71). During my Ph.D., I investigated the influence of the intestinal microbiota on the pathogenesis and risk of celiac disease (CeD) by mainly conducting prospective and intervention studies in humans. As a result, I acquired a solid background in immunology, microbiology, and nutrition. Besides, my research contributed to understanding the microbiome's role in the context of CeD and helped to bring new microbiome strategies (probiotics) to the celiac population. Accordingly, some of the results I obtained were published in high-impact journals (Gut, Microbiome, Gut microbes).

My stay at the Université Catholique de Louvain (Belgium) in the Metabolism and Nutrition research group led by Prof. N. Delzenne (h-index=96) and P. Cani (h-index=102) has an opportunity to expand my skills in metabolism using pre-clinical models of diet-induced obesity and to investigate new mechanisms linking gut microbes to human health. Acquiring the competence to work with laboratory mice allowed me to investigate mechanisms and pathways that human studies cannot address.

After my return to IATA-CSIC to Prof. Sanz's team, I have been able to complement my skills in immunology and microbiology acquired during my predoctoral stage with the knowledge in animal models and metabolism learned during my postdoctoral years. This expertise was the basis of my MSCA-IF project entitled "MicroILCs: Deciphering how the gut Microbiota influences Innate Lymphoid Cells in obesity". Specifically, I am investigating how the gut microbiota shapes the innate lymphoid cells (ILCs) to affect adiposity and metabolic health by conducting mechanistic studies in animal models of diet-induced obesity.

Besides, I have been involved in several projects at the European (MyNewGut, MicrobiomeSupport, CLimB-Out, TRIBIOME) and Nacional levels (SWEETFOOD, INEOB). I was part of an educational initiative funded by EIT-FOOD to generate a Massive Online Open Course (MOOC) entitled "The Human Microbiome". Also, I have performed research in contact with many industries and biotech companies. For instance, I have been the principal investigator of a project with a pharma company to assess the safety of a Bifidobacterium strain with protective effects on metabolic health.

Throughout my career, I have been committed to transferring the knowledge generated by scientific progress to society. Accordingly. I have participated in several initiatives with this aim. Some examples are the organization of activities for children like "You and your gut bacteria!" ("ExpoCiencia", Open day in "Parc Cientific"), or I GUT the power (MEDNight). Through my involvement in the non-profit association of Spanish Scientists in Belgium (CEBE) I actively participated in the organization of numerous activities related to scientific dissemination and professional development. Besides, I am one of the authors of the outreach book (What do we know about celiac disease? Edited by Catarata/CSIC), which allowed me to give several outreach lectures that disseminate our findings and increase the visibility of our work.

Resumen del Currículum Vitae:

I did my Ph.D. at the Institute of Agrochemistry and Food Technology (IATA-CSIC) with the competitive grant JAEpre from CSIC. My Thesis was supervised by Prof. Yolanda Sanz (h-index =71). In my Thesis, I investigated the influence of the intestinal microbiota on celiac disease (CeD). I did two international stays, the first at the Academy of Science of the Czech Republic and the second at the University of Michigan. My Ph.D. holds the International Mention and the Extraordinary Prize of the UPV. My work led to 16 articles. I can point out 3 significant contributions where I am the first author regarding the role of the gut microbiota in CeD published in Gut (IF= 14.92, D1), Microbiome (IF= 10.47, D1), and Gut Microbes (IF= 7.82, D1). I also evaluated the interest of the bacteria Bifidobacterium longum for the celiac population. As a result, this bacterium is currently protected by a patented and is under exploitation.

In 2016, I moved to Belgium to join the team of Prof. Nathalie Delzenne (h-index =96), and Prof. Patrice Cani (h-index =102) at Université Catholique de Louvain. First, I got a contract associated with the EU project MyNewGut. Later, I won a grant from the Marie Curie Sklodowska-Curie actions (MSCA-COFUND program, 2016-2018). I materialized my work in 3 original papers as the first author published in Diabetologia (IF= 7.11, Q1), Mol Nutr Food Res (IF= 4.65, D1), and Front Microbiol (IF= 4.26, Q1), plus 7 additional papers as coauthor. I was one of the founders of the non-profit association "Spanish Scientists in Belgium (CEBE), where I was on the board (secretary) from June 2016 to December 2018. I was particularly involved in fundraising and in the organization of workshops, and conferences to bring science to the people and strengthen collaborations between Spain and Belgium.

I returned to IATA-CSIC with a JdC-I (2019-2020). Afterward, I won an MSCA-Individual Fellowship program (2021-2023) to develop the project "MicroILCs". During this period, I have participated in several European (MicrobiomeSupport, CLimB-Out, TRIBIOME) and Nacional (SWEETFOOD, INEOB) projects. These initiatives allowed me to collaborate with renowned international research teams to produce high-impact results published in Cell Metab (IF=21.57, D1) or Curr Opin Biotechnol (IF= 9.57, D1). I have been involved in an educational initiative from EIT-FOOD to develop the MOOC "The Human Microbiome". I work in permanent contact with agro-food and biotech companies. After my return, I have published 11 papers. co-supervised an MsC and a Doctoral Thesis, and I have been awarded the IV Research Prize of the Catalonian Association of CeD.

I hold seven years of postdoctoral experience supported by highly competitive grants (MSCA-IF, MSCA-COFUND, JdC-I). More recently, I have been granted by CSIC in the competitive program "MSCA-IF-ERC" (starting in May 2023). I have performed international stays for more than 3 years. I am a coauthor of 37 scientific publications (10 in D1, 21 in Q1), 12 as the first author, five book chapters, and one outreach book. My h-index is 21, and my work sums >1500 citations (Scopus). I have participated in 17 research projects and industrial contracts. I have attracted >200.000 € as the PI and about 10.00 € for outreach initiatives with CEBE. I am a frequent peer reviewer of journals in my field and I am part of the evaluators of the AEI.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	HEVIA CABAL, ANDREA
Referencia:	RYC2022-037832-I
Correo Electrónico:	aheviacabal@gmail.com
Título:	Beyond sustainable forest management: Wood production and carbon sink under environmental changes

Resumen de la Memoria:

My past and current research interests focus on the role of forest management in the adaptation and mitigation of forests to environmental risks (e.g., fire, pests) and climate change (e.g., droughts, warming) with special emphasis in the assessing of forest growth, wood quality and production changes (timber, biomass, carbon sequestration). During my PhD (FPU competitive grant, Outstanding Award), I acquired a solid background in silviculture, forest inventory (non-destructive techniques to characterize mechanical and physical properties), modelling (empirical, timber quality and process-based models) and wood sciences applied in high-quality timber products. I established and coordinated for more than 10 years a unique network of silvicultural experiments, which has acquired great scientific value and impact silvicultural strategies on private and public stakeholders, providing one of the most valuable long-term experiments in forest management research, used for national and international projects. During my 1st postdoct (2013-2017), I was PI of an unique laboratory in wood sciences using novel retrospective techniques (microdensitometry and dendrochemistry) and tree-rings, developing my own novel research lines in national and international projects and making strong networks of research. Later, I joined (2nd and 3rd postdoc experience) to the Univ. Huelva (2018) and Univ. Pablo de Olavide (2022) focusing on the vulnerability and adaptation of Mediterranean forests to climate change. I again demonstrated an independent researcher career by managing (PI) a FEDER-project (PinCAR) and developing my own ideas on how management modulate the responses of forest production to global change drivers, calibrating innovative forest models combining with novel approaches for forest inventory as remote sensing (satellite, LiDAR) and close techniques (TLS), silvicultural treatments, wood sciences and novel retrospective techniques using tree-rings to create useful tools for stakeholders and understand better the role of forests as carbon sinks. Moreover, I recently presented a project proposal as PI, in the Interreg Atlantic Area (call 2023), together with other 11 partners, "REINFFORCE2-Research Infrastructure for adaptation to climate change2" (3,5 M€). My current position in Spain (Univ. Jaén, Jan. 2023-present, 4th post-doc experience, competitive postdoctoral fellowships at the UJA) aim to gain knowledge into the effects of management in the adaptation and mitigation of forest to fix carbon and produce the highest quality wood under the environmental risks and climate change uncertainness; a promising research line and of maximum societal interest, given the current climatic crisis and the importance of goods and services from worldwide forests.

Resumen del Currículum Vitae:

During my scientific career, I have developed an internationally recognized research trajectory which has been recognized by the IUFRO Outstanding Doctoral Research Award. I did the PhD in Agroforestry Engineering (FPU, PhD Outstanding Award) at USC (2013), Degree in Forest Engineer (2004, UniOvi; 2006, USC), was working in forest management for timber, biomass, carbon and nutrient cycles, and assessing environmental risks in Atlantic forests. I also established and coordinated a long-term forest research network, with great scientific and practical values. I did predoctoral research stays at different international centers (10 months), with emphasis in wood sciences and forest modelling. I established multiple national-international collaborations (e.g. FONCICYT), been awarded with several grants in competitive calls. I expanded my research skills with training in competitive fellowships (2 EU ProgrammeFP7; 4 Cost Action). Mi current postdoctoral stage is mainly focused on adaptive forest management for wood production and carbon sink in Mediterranean forests, combining temporal (tree-rings) and spatial approaches (satellites, LiDAR, TLS). I completed several postdoctoral stays (1DE, 2CH, 3PT, 1ChR, 1SW, 2SP; >12months) and improved my leaderships developing new research lines in wood sciences (microdensitometry-X-ray and microfluorescense-µXRF), coordinating a pioneer laboratory that opened my research network to outstanding global research centres (8SP, 2CH, 1NL, 2DE, 1SW, 2PT, 1SV, 1MX, 1BZ), being guest researcher in>5countries and allowing to focus my research across forests distributed globally. I participated in 18 national-international projects (PI in 5, funding >1,000.000 €), and contracts (9) with public and private entities, with fruitful collaborations with industry partners. I have published 44 SCI papers (75% Q1; 40%Open Access), first author in 12, second in 6, and senior or the corresponding author in 9; cited 1418 times (H-index=21, H10=33), Google Scholar, and published in high impact journals (e.g. Nature Communications, PNAS). The strong network of collaborators is reflected in my publications (>250 authors), together with a solid research career with new collaborators (25 papers) besides my former PhD groups. Also I am author of 3 books (2edited), 8 book chapters, 14 non-SCI journals; participated in 33 conferences (8National, 25Internat.; 57communications, 38oral, invited in 7) and 19workshops and seminars (13 invited talks; 4internat.). I am editor (5) and a regular reviewer (>30). I participated in 5 European COST actions. I was the co-chair of the international TRACE2015. I organized 7courses (5Internat.), 6workshops (2Internat.), 4 sessions of Conferences (3International; co-chair in 3). I supervised 2Bsc, 3Msc (2ongoing) and 1PhD (referee for 7 thesis defenses).

Science communication and knowledge transfer is also an important goal of my research through seminars, workshops, social media, radio interviews (RNE, Canal Sur) and TV (Canal Sur, la Sexta) together with impact in national-international newspapers (e.g. El Pais, La Vanguardia). I am one of the coordinators of the Silviculture and Climate Change Group of the Andalucia Forestry Association.

Acredited as "Profesora Contratada Doctora" by ANECA. I have taught in Forestry Engineering (2National, 3Erasmus) and Doctoral degree (3).

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	BARAIBAR PADRO, BARBARA
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Título:	Ecological weed management

Resumen de la Memoria:

The EU Farm to Fork strategy largely aims at making agricultural systems more sustainable and to lower the dependency on pesticides to manage crops. My research career has focused on addressing these challenges by understanding how we can use ecological processes to manage weeds more effectively and with a low environmental impact. In my early career I studied the process of weed seed predation as a biological weed management method to increase weed seed losses and decrease the amount of seeds entering the soil seed bank. My work was pioneer on demonstrating the large impact of ants, rodents and carabid beetles in Mediterranean as well as in continental (Germany, through a research stay) systems to regulate weed population dynamics. This line of research has resulted in eight papers (6 from the PhD) and a book chapter co-authorship, and includes my PhD years and my first post-doctoral period at the University of Lleida.

After moving to Penn State University (PSU, USA), I broadened the scope of my research and started working on a large project that aimed at designing cover crop mixtures that could provide multiple ecosystem services including weed suppression, erosion reduction and nutrient retention and provisioning, among others. I started developing my own research line within the project while at the same time, learning to collaborate with colleagues from different disciplines and with farmers. My results highlighted that cover crop mixtures can indeed suppress weeds and be multifunctional but mixture expression, and thus, functionality, can depend on other conditions such as soil fertility and climatic conditions. I also demonstrated the same pattern for the service of weed suppression specifically. Overall at PSU, I published 10 papers.

My experience at PSU (4 years, 10 months) helped me to develop into a more senior researcher and I used this experience to get a 3-year Beatriu de Pinós post-doctoral fellowship with my own research project (extra 12,000€) on the influence of soil, fertility management and the soil microbiome on weed - crop competition. Since 2020, I lead this novel line of research to explore the still hidden relationships between the soil microbes and plant growth, in order to better understand crop – weed competition. I have also used the expertise gained abroad on cover crops and organic agriculture to lead as PI a newly awarded national project (TED2021-130138A-I00, 128,685€) that aims at reducing tillage to manage weeds in organic systems (vineyards and field crops) using cover crops and published 6 papers and a book chapter in Springer Nature. I also signed as PI a research agreement with a farmer (25,000€) to effectively manage weeds in organic soybeans and lower the carbon footprint of organic meat production. Within these projects, I am mentoring a PhD student, a master and two graduate students.

If funded by a Ramón y Cajal fellowship, my research would combine my expertise on cultural and biological weed management and weed – crop competition to further promote the reduction in pesticide use, as posed by the EU. I would do so by focusing on the redesign of Mediterranean agricultural systems to incorporate cover crops, organic mulches and intercropping in order to reduce erosion and nutrient leaching and manage weeds, while also preserving crop yields in the current scenario of climate change.

Resumen del Currículum Vitae:

My research career has focused on understanding how to use ecological processes to manage weeds effectively and with a low environmental impact. To do so, my work has focused on three main topics: weed seed predation, the use of cover crops to manage weeds, and the relationships between weeds and the soil microbiome.

My PhD research on weed seed predation was pioneer in Spain and it helped understand the importance of this ecological process and how to use it as a biological weed management tool (6 publ., best PhD at the Univ. of Lleida, UdL).

After my PhD, I moved to Penn State University (PSU) in the USA (Nov. 2014 – Aug. 2019) where I worked as a lead post-doctoral researcher on a one-million dollars cover-crop-related project. I led the crop and weed samplings, analysis and results' writing of the project and published 10 papers. I also oversaw the project budget, wrote annual reports for the funding agency, organized the annual "Advisory board meeting" and led the daily tasks of the weed ecology lab.

After coming back to Spain in 2019, I was awarded a competitive 3-year's Beatriu de Pinós (BdP) post-doctoral fellowship at the UdL – Agrotecnio (with additional 12,000€), where I currently lead a project on the influence of soil, fertility management and the soil microbiome on weed - crop competition, which is a very novel area of research. Within the BdP fellowship, I started a collaboration with the Dep. of Agriculture of the Catalan government (as part of a pilot program) to understand the effects of different fertilizers on weeds' growth. Also, I was recently awarded a competitive national project as Principal Investigator (PI) (TED2021-130138A-I00; 128,685€) to reduce soil disturbance to manage weeds in organic systems using cover crops. Within the project, I am supervising a PhD and a graduate student. I also lead as PI a research agreement (25,000€) with a local organic pork farmer to optimize weed management in soybeans.

So far, I have published 22 peer-reviewed scientific papers (11 as lead and corresponding author, 2 as the last author, 14 in Q1, WoS) with a total of 540 citations (av. 24.5 citations/paper), and have co-authored two chapter books, one in Springer Nature. My h index is 12. I have also published many extension publications in journals like "The Conversation" or "Investigación y Ciencia" and in extension websites. I have also spoken at events to promote science dissemination such as "Pint of Science", on Radio5, and on high schools on the "International Women and Girls in Science Day".

I have supervised (or I am currently supervising) a PhD student (1), three master students (1) and five undergraduate final projects (2). I have also taught at master and undergraduate levels.

I have participated in 7 national and two international research projects, being the PI in one of them recently (TED, 128,685€). I have done three research stays in Germany, the USA and the Philippines, presented my results on 4 national and 11 international scientific conferences and co-organized sessions in three of them. I serve as a Subject Editor of the journal Weed Research (IF 2.424), a lead journal on the area of weed science. I am a reviewer for the Spanish Research Agency (AEI), regularly review manuscripts for JCR journals and have been a committee member of two PhDs.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	DONAT VARGAS, CAROLINA
Referencia:	RYC2022-037599-I
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Título:	Epidemiología nutricional

Resumen de la Memoria:

My research field is included within the environmental and nutritional epidemiology and concerns how diet, environmental pollutants in food and drinking water may affect health with the overall aim to improve knowledge on disease prevention and sustainability. My Ph.D. project (2013-16) was focused on the evaluation of the human health impact of the dietary exposure to polychlorinated biphenyls (known as PCBs), a persistent organic pollutant, to which general population is exposed mainly by eating animal products (especially fish). I joined the Cardiovascular and Nutritional Epidemiology Unit, at Karolinska Institutet in Sweden, as a postdoctoral fellow in 2016. During these 3-years (2016-2019) I continued my line of research on dietary contaminants and its interaction with diet, in relation to cardiometabolic risk factors and chronic diseases. I also worked in two scientific reports on environmental factors related to development of cardiovascular disease and diabetes, published by Karolinska Institute in collaboration with the Swedish Government. My research and training were supported by several fellowships and recognized with different awards.

My main research lines during my stay at the Universidad Autónoma de Madrid and IMDEA (2019-2021) were 1) the consumption of ultra-processed foods (UPF) and risk of different chronic diseases; 2) the validation of the algorithm behind the labeling food system Nutriscore, in terms of predicting the risk of pathologies at the individual level (which had high influence on national public health policies); and 3) the consumption of olive oil, with emphasis on the differentiation between virgin and common oil. My joint research with the Department of Preventive Medicine of the University of Granada is on endocrine disruptor chemicals in relation to cardiometabolic and endocrine health. Likewise, I am also involved in the line of line of research on social media-based health research at the Department of Medicine and Medical Specialities, Universidad de Alcalá.

In 2021 I joined Cristina Villanueva's group at ISGlobal in Barcelona. My research aim at here is to evaluate human exposure to chemicals in drinking water and the association with non-communicable diseases. Currently I am working on: 1) the relationship between long-term exposure to nitrate and disinfection by-products (DBPs) through drinking-water and different type of cancers within The MCC-Spain study and the Cancer-Watch project, based on a large French population-based prospective cohort; 2) exposure to Nano and microplastics (NMP) and plastic additives through diet and drinking water. In this line I am involved in 2 different projects with the aim of generating novel knowledge on the main determinants and sources of NMPs exposure in our society and its health implications, thus providing clues to minimise NMPs exposure as well as inspiring future research. Likewise, my research plan for the next years at the Karolinska Institutet is to evaluate the implications of additives and processing contaminants exposure through ultra-processed food (UPF) consumption in the development of prevalent chronic diseases.

Resumen del Currículum Vitae:

63 publications (20 first-author, 2 last -author, 6 corresponding), H-index 14, 840 times cited. Author of 5 book chapters and 2 scientific reports. 8 communications presented in international conferences as main author. Principal advisor of 1 PhD and deputy advisor of 4 PhD (2 in the Karolinska Institute), as well as principal advisor of 2 MSc.

I have a degree in pharmacy (2012), a Master' s degree in Public Health (2013), and a PhD (Cum Laude) in Nutritional Epidemiology and Public Health (2016). I obtained the Extraordinary Doctorate award for the best doctoral thesis. My 3 postdoctoral years were financed by the Karolinska Institute (excellence scholarship for postdoctoral research training) and by the Ramón Areces Scholarship for postdoctoral studies abroad. Currently, I continue as a researcher attached to the Karolinska Institute, and, in addition to research, I am co-supervising two PhD students.

In 2019 I obtained the Juan de la Cierva scholarship to join the Faculty of Medicine at the Autonomous University of Madrid. A year and a half later, I was also awarded the Atracción de Talento scholarship from the Community of Madrid, and I joined the IMDEA-Food institute (Madrid).

Leadership and personal collaborations: since 2020 to date, I am part of Dr. Álvarez de Mon's social media-based mental health research team (Universidad Alcalá de Henares); where I work with big data, machine learning, and natural language processing applied to social media and healthcare. I also collaborate with the National Epidemiology Center of the Carlos III Health Institute working with the EpiGEICAM case-control study led by Prof. Marina Pollán. Our jointly published studies are a good example of the value of multi-institutional collaboration in generating relevant knowledge. Another important active collaboration is the one with the team of Dr. Juan Pedro Arrebola from the University of Granada and with MA Martínez at the University of Navarra.

Editorial and dissemination activities: In 2018 I acquired the certificated of Assistant Professor (professor ayudante doctor) by the Spanish National Agency for the Evaluation of Quality and Accreditation. I am the co-author of 5 book chapters, different teaching materials and scientific reports. I participate in forums organized by the Mediterranean Diet Foundation, and I have several blog articles disseminating to the general public my scientific publications.

Training of young researchers. I have extensive teaching activity both to undergraduate students and to master's students from the Universidad Autónoma de Madrid, la Universitat Oberta de Catalunya (UOC), the University of La Rioja (UNIR), the Catholic University of Bolivia and the University of Granada. Currently, I am collaborating professor at UOC and UNIR. Since 2019, I am part of the board of directors of the Spanish Group of Young Epidemiologists and Health Professionals (Grupo EJE), whose objective is to attract and support young research talent, guiding, facilitating the exchange of knowledge and contributing to the development of the career of young professionals. I am also an evaluator of research projects at Fundación instituto de investigación sanitaria de canarias (FIISC).

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	ÁLVAREZ NÚÑEZ, CONSOLACIÓN
Referencia:	RYC2022-035823-I
Correo Electrónico:	consolacion@ibvf.csic.es
Título:	Biotechnological approaches to improve crop productivity and revalorization of agricultural by-products

Resumen de la Memoria:

My scientific carrier has four main stages: a predoctoral period where I worked in plant molecular biology, a first postdoctoral stage in which I worked for an international private company in Biotechnology (Abengoa Bioenergy New Technologies), a second postdoctoral period where I moved to Abengoa Research as principal investigator and a fourth postdoctoral period in which I returned to the academia as principal investigator of different projects combining basic science in plant molecular biology with applied research in plant Biotechnology.

In my predoctoral stage (with a JAE predoctoral fellowship) the scientific goal was to gain knowledge of the physiological functions of cysteine in plant responses to intracellular signals. My research opened a new paradigm in plant science for cysteine. In addition, these outcomes allowed initiating new, very successful research areas in the research group, such as the study of the regulation of plant autophagy by sulfide, as well as determining the mode of action of sulfide in different plant processes signaled by this molecule.

After PhD completion, I moved to the private sector for a first postdoctoral position in "Abengoa Bioenergy New Technologies", where I focused on the development of enzymes for the production of second generation (2G) bioethanol. I participated in a project linked to an international grant FEDER Innterconecta.

Then I moved to "Abengoa Research", to be in charge of a research group, and being principal investigator of three research projects with ENAC certification linked to national and international grants, such as European FP7 and EC-H2020 programs. My main research work during this period was focused on create a collection of genes encoding for different cellulolytic activities for expression in appropriate production platforms.

After that, I decided to return to the academia to restart my previous activity in Plant Molecular Biology and Plant Biochemistry, joining the group "Plant-cyanobacteria symbiosis" at the IBVF. Thus, in 2018, I obtained one of the fourteen State-Level ComFuturo Grants financed by the "Fundación General CSIC", which I have developed as principal investigator. The main objective of this project was to study the mutualistic relationships between Nostoc punctiforme and Oryza sativa. I showed for the first time a stable symbiosis between cyanobacteria and rice, providing an eco-friendly alternative to the use of agrochemicals in the agriculture. I demonstrated for the first time the expression in Nostoc of Nod-like proteins and participation of the Common Symbiotic Signaling Pathway in rice during symbiosis.

In 2022, I obtained a I+D+i FEDER project as principal investigator. The main objective of this project is to create an ecological biofertilizer alternative to synthetic nitrogen fertilizers based on cyanobacteria isolated from the Guadalquivir marshes.

I have recently been granted a "Project for Excellence" financed by Andalusian Government as principal investigator. The main objective of this project is to continue the study of cyanobacteria and rice symbiosis.

My research interests focus on elucidate molecular mechanisms involved in the symbiosis between cyanobacteria and rice. Knowing these signals will allow greater control of the symbiosis process, providing an eco-friendly alternative to the use of agrochemicals in the agriculture.

Resumen del Currículum Vitae:

I started my PhD with a "JAE Predoctoral" fellowship (CSIC) at the "Institute of Plant Biochemistry and Photosynthesis" (IBVF) where I worked in several research projects. The main goal of my PhD was to gain knowledge in the physiological functions of cysteine in plant responses to intracellular signals. In this period, I published 8 works (five of them as first author) in top journals like: Plant Physiology, New Phytologist, Molecular Plant or Plant Cell, being this later one selected by Faculty1000 as a highly relevant work. My investigation opened new lines of research currently being explored, focused on the intracellular signaling pathways mediated by the cysteine-related molecules and also the regulation of plant autophagy by sulfide. I determined the mode of action of sulfide in different plant processes. I obtained Extraordinary Award of Doctorate (University of Seville) and Award for scientific excellence from the Center cicCartuja-Ebro Foods.

After PhD completion, I Joined to "Abengoa Bioenergy New Technologies/ Abengoa Research" international company in 2012, where I carried out extensive work as principal investigator of different research projects with ENAC certification linked to national and international grants, such as Feder Innterconecta, European FP7 and EC-H2020 programs. My main research works during this period was focused in the design of new enzymes for the production of second generation bioethanol (2G). Also, I was in charge of the technical direction, supervision and management of a research team formed by: 1 PhD student, 2 scholar students and 4 lab technicians. Due to Abengoa's confidentiality policy, much of my work was not published as scientific publications but I was author of 8 international patents, one review article as first author. I addition, I directed a PhD.

I re-incorporated to the IBVF in 2017 in the research group "Plant-Cyanobacteria Symbiosis". In 2018, I obtained as principal investigator one of the fourteen State-Level ComFuturo Grants financed by the "Fundación General CSIC. ComFuturo program is focused on attracting highly qualified young scientists to develop research projects with a high transfer potential. The main objective of this project was to study the mutualistic relationships between Nostoc punctiforme and Oryza sativa. In 2022, I obtained a I+D+i FEDER project as principal investigator and I have recently been granted a "Project for Excellence" financed by Andalusian Government as principal investigator, to continue the study of cyanobacteria and rice symbiosis and generate a microbial consortium of symbiotic nitrogen-fixing cyanobacteria that may be applied to replace the synthetic fertilizers in rice crops.

In this line of research, I have published 4 research papers. I have participated in four research projects, three of them as Principal investigator, as previously mentioned (ComFututo, FEDER and "Excellence" grants). Furthermore, I have participated in five I+D+I transfer contracts with different national and international private companies specialized in fertilizers, one of them as Principal investigator. I have directed one Bachelor degree, two JAE-intro (CSIC) Scholarships and two Master thesis and I am currently co-directing a PhD.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	ESCRIBANO TORTOSA, DAMIÁN
Referencia:	RYC2022-037873-I
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Título:	Avances en la aplicación práctica de biomarcadores no invasivos validados para evaluar y mejorar el bienestar en la producción animal

Resumen de la Memoria:

Desde 2010 hasta 2016 he pertenecido al grupo de investigación Interlab-UMU de la Universidad de Murcia (UMU). En una primera fase, disfruté de una beca FPU, obteniendo el Premio Extraordinario de Doctorado y el Premio Robles Chillida a la mejor tesis del Área de Ciencias de Salud de la UMU. Posteriormente disfruté de un contratado postdoctoral asociado a proyectos de investigación, etapa durante la cual nuestro grupo de investigación consiguió el Premio al Mejor Grupo en Transferencia de resultados de la UMU y fue reconocido como Grupo de Excelencia de la Región de Murcia. Durante este período he trabajado en el desarrollo de nuevos métodos analíticos para evaluar el bienestar y el estado sanitario de los animales.

Durante 2017-2019 disfruté de la beca nacional Juan de la Cierva Formación en el grupo de investigación de Bienestar Animal de la Universidad Autónoma de Barcelona (UAB). Las actividades de investigación se centraron en el estudio de biomarcadores de estrés en porcino y rumiantes dentro del proyecto de I+D+i RETOWELL y proyectos realizados en colaboración con el IRTA y el CITA-IVIA. Durante estos dos años realicé actividades de transferencia a empresas externas a través de diferentes contratos de investigación por un valor de 217.305€ Además, he pertenecido al "Farm Animal Welfare Education Centre" de la UAB, participando en la puesta en marcha de la 1ª edición del Máster en Bienestar Animal. También he sido representante español de la COST Action CA15131 y miembro del comité organizador del COST Action TD1404. En 2019 se concedió otro proyecto europeo "ClearFarm" (5.899.105 €) sobre bienestar en porcino y vacuno, del que soy miembro y líder del WP4 de porcino.

Durante el año 2020 disfruté de la beca nacional Juan de la Cierva Incorporación, integrado en el grupo Interlab-UMU, y desde 2021 hasta la actualidad poseo un contrato postdoctoral en la UMU asociado a un proyecto sobre inflamación, salud y bienestar en el porcino, del que soy IP.

Resumen del Currículum Vitae:

En mi trayectoria investigadora he publicado 2 capítulos de libro, un libro docente y 102 artículos, estando 75 de ellos en revistas Q1 (JCR) y ocupando posiciones relevantes en más de la mitad de ellas (primero, segundo, último o autor de correspondencia). Tengo un h-índex de 21 y un i10 de 53, con un total de 1348 citas (520 los últimos 5 años, fuente: Scopus). En mi actividad internacional he publicado 42 trabajos en coautoría con investigadores internacionales y he realizado estancias de investigación por un total de 16 meses. Una de ellas, en la Universidad de Zagreb (Croacia), fue financiada dentro del programa de movilidad en el extranjero para jóvenes doctores "José Castillejo" del MICINN y me permitió participar en el proyecto europeo "VetMedZg" (2.378.334 €). He presentado 49 trabajos en congresos internacionales -incluyendo 2 ponencias invitadas- y he participado en 23 proyectos competitivos financiados por organismos nacionales e internacionales y en 14 contratos con empresas. También he dirigido 8 TFG, 7 TFM y 3 tesis doctorales, una de ellas con premio extraordinario por la UMU y otra galardonada en uno de sus trabajos con el premio AVEDILA 2018 a la mejor publicación científica sobre diagnóstico laboratorial veterinario. Actualmente codirijo dos tesis en curso. Además, tengo una patente "Fastcell Assay" y una fórmula registrada para evaluar el grado de estrés en cerdos "Well-Sal".

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	AGUILERA , EDUARDO
Referencia:	RYC2022-037863-I
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Título:	Quantification of greenhouse gas emissions and environmental impacts of Mediterranean agriculture

Resumen de la Memoria:

My research has largely focused on the study of greenhouse gas emission (GHGe) in Mediterranean agriculture, combining field research, data mining and analysis, and modelling. But my research interests and experience cover most aspects of agricultural sustainability across spatial and temporal scales, production types and management practices.

My main specialization, since my PhD, has been the quantification of the carbon footprint of agricultural production through life cycle assessment (LCA), with a focus on Mediterranean agroecosystems. As a result of this expertise, I have initiated research lines on this field in the three working places in which I have been based (UPO, UCO and UPM). These lines of research have been enriched by the diversity of expertises and backgrounds in each of these teams. Thus, with the UPO team I applied LCA in historical studies (Aguilera et al., 2019a, 2019b, 2021) and organic crop management (Aguilera et al., 2015a, 2015b, Carranza-Gallego et al., 2018). These works have also served to extend my research to other fields, such as efficiency modelling based on DEA methodology, in collaboration with researchers from ETSI-US (Gutiérrez, Aguilera et al. 2017); at UCO I applied it mainly to livestock systems (Aguilera et al., 2021b, Reyes-Palomo et al., 2022); and at UPM I applied it to field experiments (Guardia et al., 2019, Montoya et al., 2021) and to the estimation of the effect of urban gardening on food-related C footprints (Puigdueta-Bartolomé et al., 2021).

Another research line I have led is the quantification of GHGe and C sequestration through meta-analysis. I initiated this research line during my PhD at UPO (Aguilera et al., 2013a, 2013b), and these works were followed by other based on collaborations (Pardo et al., 2015, Vicente-Vicente et al., 2016, Ledo et al., 2020).

Another main research line I have led is related to modelling soil carbon and soil gas emissions. I started this line with the development of HSOC model (Aguilera et al., 2018), which I later applied to field studies (Carranza-Gallego et al., 2018, Guardia et al., 2019) and I am now applying at various scales and multiple sites in the world in different projects (EU and IAEA contracts). I continued it with the adaptation of the MANNER empirical model to large scale assessments of NH3 emissions (Sanz-Cobena et al., 2014; Aguilera et al., 2021), which I am now applying in various projects (see above)

My participation in other research lines also demonstrates my independence and ability to develop novel ideas across the transdisciplinary study of agricultural sustainability. As a result of my network at UPO, I have participated in two works (Vila-Traver, Aguilera et al., 2021, 2022) in which we developed a new indicator (violet water) to quantify the mismatch between water availability and crop needs. I have also been involved in many works related to nitrogen, being pioneer in the characterization of the N cycle in Spain and in Europe, and to energy flows in agriculture, in which we have developed new methodological frameworks based on historical data in Spain and over the world. I have also led a work on agricultural adaptation to climate change (Aguilera et al., 2020). Last, I am now starting to incorporate social aspects to my sustainability assessments (Guzmán et al., 2022).

Resumen del Currículum Vitae:

I have a highly productive and influential research profile, with 50 publications in Web of Science (WoS) (41 Q1) since my first paper in 2013, 10 of them as first author (all Q1), 7 as senior author (3 Q1), and 13 as second author (all Q1). My publications have received 1956 citations (409 in 2022) in WoS, resulting in an H index of 23, with 6 publications led by myself and 2 as senior author contributing to this value. My Google Scholar H index is 30, with 3564 citations (769 in 2022). My Research Interest Score of ResearchGate (RG) is higher than 97% of all RG members, 99% of the members who first published in 2013, and 97% of those in Environmental Sciences and in Agronomy. I am also coauthor of one book, 7 book chapters (2 as first author), 5 reports (3 as first author) and 3 working papers (one as first author). I have been involved in 11 international and 8 national projects and contracts.

I have worked in 3 research facilities: Universidad Pablo de Olavide (2012-2017), Universidad de Córdoba (2017-2018) and Universidad Politécnica de Madrid (2019-2023). In the later I have worked as Juan de la Cierva-Formación and currently as Juan de la Cierva-Incorporación fellow. I have realized 3 international stays (2 as PhD student, and one as post-doc (José Castillejo, 6 months) at Sorbonne Université, France). I have a high level of international collaborations: 20 out of my 50 WoS papers are co-authored by international teams, including 8 papers led by non-Spanish scientists and 14 led by scientists based outside Spain.

Regarding teaching activities, up to now they include 4 BSc courses and 3 MSc courses, plus seminars in many MSc, BSc and other courses. I have supervised 5 MSc theses and 2 BSc theses, and I am currently supervising one PhD student, one post-doc researcher, and one stay of a PhD student.

I have a strong commitment with dissemination, with more than 20 articles in wide audience newspapers and specialized dissemination magazines, and interviews for magazines and radio programs. I have presented or coauthored about 90 works in congresses, and intensively participate in outreach activities, with about 60 invited talks in congresses, dissemination events and courses.

I have participated in various international committees, such as the expert networks MEDECC and EPNF, hired Expert at European Commission (2020-2022), and the IAEA (2021-present), and co-author of the INA (INMS project). I also participated in the Organizing Committee of the FAO-led initiative RTOACC (2010-2014). I am Editor of 2 JCR journals and have made 79 paper reviews for 26 JCR journals. I have also participated in 4 project evaluation committees.

I participate with a leading role in scientific societies and networks, being a founding member of the think tank Alimentta and of the scientific network REMEDIA, and member of the scientific society SEAE, in all of which I participate in the scientific committees.

I have received the following awards and mentions: XV Premio de Historia Agraria Ramón Garrabou (2021, SEHA); XIX Premio Nacional Andrés Núñez de Prado (2017, Ecovalia); 2 Highly cited papers in WoS (2013 and 2017, Clarivate); Seal of Excellence H2020-MSCA-IF-2016 call (European Commission, 2017), Best Poster award (2015, Remedia); 1st Award at I Seminario Int. Comunicación, Ciencia y Medio Ambiente (2011, UPO).

Resumen de la Memoria:

I hold a PhD in plant ecophysiology applied to agriculture (2010-2014) from the University of Seville (UoS) funded by an FPDI Fellowship (Spain). My PhD research focused on the physiological mechanisms behind the control of transpiration in olive and almond species under drought conditions, and I visited laboratories led by world experts in stomatal functioning mechanistic models (2011, USA) and leaf hydraulics (2012, USA). In 2014 I was awarded (i) a Third Phase of the FPDI Fellowship (2014-2015) as a Research Assistant Professor at the Plant Physiology Area (UoS), and (ii) a contract as Research Assistant with the company BASF Española S.L. (2015-2016). In 2016, I was appointed as an Adjunct Researcher at the University of Tasmania (UTAS, Australia) participating in a Discovery Project (Australia), and performing outstanding research on plant hydraulics, novel plant sensor technology, and novel methods to characterize stomatal plant responses. In 2017, I was awarded a prestigious Marie-Sklodowska-Curie Action (MSCA) Global Fellowship (15% success) (2017-2019, UTAS, Australia; 2019-2020, Institute of Natural Resources and Agrobiology of Seville, IRNAS-CSIC, Spain), achieving relevant results in the physiological characterization of how plants respond to their environment and to drought, boosting my scientific production and international visibility, and improving my skills in project management and leadership, acting as Principal Investigator (PI). In 2020, I was awarded a "Juan de la Cierva Incorporación" (JdC-I) at IRNAS-CSIC (2020-2023), increasing my international network of collaborators and strengthening my leadership skills as PI by being also granted a German project (€30,000) from the University of Bayreuth. Very recently (December 2022), I have been awarded a Contract to Access the Spanish Science, Technology, and Innovation System (SECTI) at the UoS (2023-27).
My research aims to understand the crucial role of stomata (small pores on the leaf surfaces that control the exchange of gases between the interior of the leaf and the atmosphere) on water use in agriculture. These important leaf structures are the main regulators of both water and carbon cycles at plant and global scales, and hence, the physiological mechanisms underlying their control may have enormous impacts. Over my 13 years of research experience, I have focused on determining the optimal provision of water for crops, mainly fruit tree species, under drought conditions, by applying innovative approaches based on key physiological knowledge, i.e., (i) mechanistic models to integrate the diverse plant physiological responses to drought, and (ii) plant sensors to monitor those responses (i.e., plant water stress), and optimize irrigation strategies. The main pillar that connects these two research fields is a profound knowledge of plant physiological mechanisms underlying the response to drought. Currently, my research focuses on disentangling the effects of both above- (abiotic plant-atmosphere interactions) and belowground (soil-plant hydraulic interactions) processes (usually disconnected fields) on the pivotal role of stomata on plant response to drought within optimal agricultural water use and climate change context.

Resumen del Currículum Vitae:

I started as a PhD student (JAE Predoctoral Fellowship) at CEBAS-CSIC (supervisor: Dr. A. Torrecillas) [main goal: using dendrometry as a precision tool for irrigation scheduling in fruit tree species]. This first PhD period gave me expertise in using plant sensors for scheduling irrigation and made me wise to the need of connecting precision agriculture with the physiological mechanisms behind the plant response to drought. To further strengthen my bases on plant physiology, I continued my PhD (FPDI Fellowship; 2010-2014) at the Plant Physiology Area of the UoS (supervisors: Dr. A. de Cires, Dr. A. Diaz-Espejo). My PhD research focused on the physiological mechanisms behind the control of transpiration in olive and almond species under drought conditions. During my PhD, I visited laboratories led by world experts in stomatal functioning mechanistic models (2011, Dr. Tom Buckley, USA) and leaf hydraulics (2012, Dr. Lawren Sack, USA). The success achieved during my PhD period was rewarded by being granted a Third Phase of the FPDI Fellowship (2014-2015) to work as a Research Assistant Professor at the Plant Physiology Area of the UoS. From 2015 to 2016, I was employed as Research Assistant by IRNAS-CSIC to conduct specific experiments for the company BASF Española S.L., giving me expertise in working with international industry partners. In 2016, I was appointed as Adjunct Researcher at the UTAS (Australia) and I performed outstanding research in the field of plant hydraulics using novel plant sensor technology and applying novel methods to characterize stomatal plant responses. In 2017, I was awarded a prestigious MSCA Global Fellowship (15% success) (2017-2019, UTAS, Australia; 2019-2020, IRNAS-CSIC, Spain). During this period, I achieved relevant results in the physiological characterization of how plants respond to their environment and to drought, I boosted my scientific production and improved my skills in project management and leadership, acting as Principal Investigator (PI) of the project. In 2020, I was awarded a JdC-I at IRNAS-CSIC (2020-2023). This period has helped me to establish my own international network of collaborators within the field of soil-plant hydraulic interactions and to strengthen my leadership skills as PI by being also awarded an Alexander von Humboldt Junior Fellowship (€30,000) from the University of Bayreuth (Germany). Very recently (December 2022), I have been awarded a Contract to Access the SECTI at the UoS (expected starting date: August 2023). I have demonstrated my aptitude as PI, obtaining around €300,000 from international research grants. I have supervised four master's and undergraduate students, and I am currently supervising a PhD student and a master's student. I have been invited to international conferences and seminars, and to PhD Thesis Committees, and I have presented my research in other outreach activities. My research has resulted in 30 publications (24 SCI articles) in top journals (5 as first author in D1, 3 as first/last author in Q1) in Plant Sciences, Water Resources, Agronomy, and Forestry, h-index of 17 (SCOPUS) and total citations of 1226 (Google Scholar), 929 (SCOPUS), 863 (WOS). I am a regular referee for top journals in Plant Physiology and Agronomy, a member of the Editorial Board in Plants, Guest Editor in Forest, and I reviewed the AoB AoBP ECOS Awards 2020 international panel.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ROS FREIXEDES, ROGER
Referencia:	RYC2022-038102-I
Correo Electrónico:	roger.ros@udl.cat
Título:	Whole-genome sequence data for livestock breeding

Resumen de la Memoria:

My research focuses on the application of state-of-the-art technology, such as whole-genome sequencing, to unravel the genetic control of biological processes and to drive livestock breeding for the production of value-added products. In particular, my current research aims at developing strategies based on whole-genome data for breeding pigs with enhanced organoleptic and nutritional meat quality.

During my PhD studies at University of Lleida (2010-2014, FPI fellowship, Honours Award) my research combined the use of quantitative and molecular approaches to study the genetics of meat quality and fat metabolism traits in pigs. I trained in a broad range of skills: from the estimation of genetic parameters and genetic evaluations to the identification of candidate genes and the newest advances in genomics (genomic prediction, genome-wide association studies, signatures of selection…). My results showed that: (i) there exist scenarios where intramuscular fat content and composition can be improved through selective breeding simultaneously with lean weight if these characters are routinely registered, and (ii) candidate genes such as SCD or LEPR can be used for selecting pigs with more desirable fatty acid profiles.

After completing my PhD I took a post-doctoral researcher position at the prestigious The Roslin Institute (University of Edinburgh, UK; 2015-2018). I worked in an Innovate UK-funded project in collaboration with pig breeding company PIC plc. We developed innovative strategies to implement the use of whole-genome sequencing at large scale. We proposed sequencing strategies at low coverage, we developed suitable bioinformatic pipelines to process the data, we proposed imputation solutions, and we assessed the use of sequence data in genomic prediction. This collaboration later continued as an on-going agreement between Agrotecnio, The Roslin Institute, and PIC plc where I am named PI.

I am currently employed as a post-doctoral researcher at the research centre in agrotechnology Agrotecnio-CERCA Center (Lleida, Spain; since 2018) and adjunct lecturer at University of Lleida. I am leading my own research as PI in two projects of the Spanish National R+D+i Programme that brings together my two previous lines of research. In these projects we sequenced the whole genome of a limited number of pigs for discovering candidate variants that are potentially associated with meat quality and fat metabolism and we are validating such associations in a much larger number of pigs from a biobank of historic referenced samples. The project will provide new tools for selecting pigs with nutritionally enhanced meat and a better understanding of the biological processes underlying fat deposition. Additionally, I have started a new line of research for the genetic characterisation of local chicken breeds and another one on the application of genomics for the management and conservation of wild species of cynegetic interest such as red-legged partridge.

My research career has always been in close collaboration with industry partners (national and international, mainly breeding companies and meat processors) to ensure that I tackle issues that are impactful for a more efficient and competitive pig industry and for producing pork of a greater quality for the consumers.

Resumen del Currículum Vitae:

Post-doctoral researcher of the Animal Breeding Unit of Agrotecnio-CERCA Center and adjunct lecturer at University of Lleida (UdL), since 2018. I completed a PhD in Animal Breeding and Genetics at University of Lleida in 2014 (Honours Award). After the PhD I took a postdoctoral researcher position at The Roslin Institute (University of Edinburgh, UK; 2015-2018).

My research focuses on the application of state-of-the-art technology, such as next-generation sequencing, to unravel the genetic control of biological processes and to drive livestock breeding for the production of value-added products. My research career has always been in close collaboration with industry partners (national and international, mainly breeding companies and meat processors) to ensure that I tackle issues that are impactful for a more efficient and competitive pig industry and for producing pork of a greater quality for the consumers. In previous projects, my research aimed at developing innovative strategies to implement the use of whole-genome sequencing at large scale. My current research applies strategies based on whole-genome sequence data for a better understanding of the biological processes underlying fat deposition and for breeding pigs with enhanced organoleptic and nutritional meat quality. Additionally, I research on the genetic characterisation of local chicken breeds and on the application of genomics for the management and conservation of wild species of cynegetic interest.

I lead my own research as the PI in a competitive-call research project and in 2 technology transfer contracts with industry partners. I have participated in more than 14 research projects from competitive calls, both national (6) and international (8). I have participated in many research projects and technology transfer contracts with national and international industry partners. My research has been published in 34 papers in SCI journals (h=12) and 3 preprints in review. I have also published software (available online) and dissemination articles in technical magazines. I have contributed oral communications in many conferences, including 2 invited talks at international conferences during the last years. I have participated in international collaborations since early in my career, including predoctoral research stays at Iowa State University (USA, 2010 and 2013) and the Norwegian University of Life Sciences (Norway, 2012).

In the frame of my research, I am co-directing 2 PhD theses. I have also been involved in the mentoring of a post-doctoral researchers. I have participated in training-oriented international programmes like the Newton Fund Researcher Links Workshops Programme (UK) in institutions from Brazil (2017) and Mexico (2018). I have also taken part in outreach activities. I have acted as evaluator for international project research calls and PhD theses, as well as reviewer for several JCR-indexed journals and session chair at national conferences. I teach Animal Breeding, Poultry Breeding, Biotechnology, Applied Statistics, and Animal Data Analysis (coordination) for different academic degrees at UdL. I have been recognized with the 'Accreditation of research' by AQU (Catalan Agency for the University System Quality).

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	HOHMANN , PIERRE
Referencia:	RYC2022-037997-I
Correo Electrónico:	pierrehohmann@gmail.com
Título:	SMART microbiome management for resilient Spanish farming systems

Resumen de la Memoria:

My main research line focuses on microbe-assisted crop production aiming at reducing agrochemical inputs under increasingly challenging climatic conditions while maintaining yields (as highlighted, for instance, in Hohmann, Sessitsch, Schlaeppi, 2020). Besides my focus on microbe-assisted crop productivity, my research includes other biotic interactions such as plant-plant interactions towards improvement of mixed cropping systems and plant-pathogen interactions via epidemiology, diagnostics and biocontrol, and aims to contribute to a sustainable and competitive rural development by transitioning cultivation systems towards a circular bioeconomy. Following the SMART objectives (specific, measurable, assignable, realistic and time-related), my microbe-based solutions include the development of pre- and probiotics that enhance crop performance, and the application of holobiont-based genetics and microbiome characterisations to improve trait predictions and clarify context-dependencies (e.g. GxE interactions). To achieve this, my research areas range from microbial ecology and phytopathology via plant genetics and biotechnology to agronomy and plant breeding research implementing microbiological and molecular tools, lab, mesocosm, greenhouse and on-farm experimentation, advanced statistical models and, most importantly, early involvements of industry actors to ensure local relevance and knowledge and technology uptake. Past achievements could be realised because of close collaborations with 88 individual scientists and 21 industry partners having led to 21 SCI publications and 115 other scientific and knowledge transfer activities. Up to now, I have provided supervision and mentorship to 5 Postdoctoral Researchers, 5 PhD students, 11 post- and undergraduate students, 6 technical staff and 12 Interns.

The consolidation of my research through a Ramón y Cajal fellowship will enable me to improve Spanish farming systems addressing climate change-relevant challenges such as drought tolerance, resistance against emerging diseases, and soil organic matter build-up and carbon sequestration.

Resumen del Currículum Vitae:

Dr. Pierre Hohmann (M) works in microbial ecology, phytopathology and plant breeding and specialises in microbe-assisted stress resistance. It is foreseen for him to lead a new Research Area on Organic Farming focusing on the development of resilient, sustainable agroecosystems. As a Principal Investigator at an impact-oriented, applied research institute, he has a proven track record to develop efficient strategies and long-term visions to address most urgent needs for the agri-food sector. Current and past projects provide science- and customer-driven solutions and products for several economically important crops using a broad spectrum of molecular-genetic and microbiological techniques in lab, controlled conditions, and field trials. For instance, in cooperation with SMEs and multi-nationals and by means of >60 technology transfer activities (excl. scholarly publications and conference papers), Pierre's teams contributed to the improvement of crop performance by incorporating microbial ecology and breeding concepts, i.e. via (i) resistance-related microbial attributes, (ii) superior non-synthetic pesticides, (iii) new field-relevant high-throughput screening systems, (iv) advanced diagnostic tools and (iv) virulence and epidemiology studies.

During his 6-year work experience (2015-2021) as a PI of the world's leading research institute of organic agriculture (FiBL), he became a renowned expert in the area of ecological transition. He has been involved in 19 commercial and academic R&D projects (9 as (co-)PI) including WP leads in Horizon 2020 (ReMIX) and Horizon Europe (NUTRIBUDGET) projects and in other national and international projects such as LIVESEED (Horizon 2020), TRANSITION (PRIMA) and AgroBioFood Ponent (PECT). He published a total of 136 scientific and technical communications with 21 peer-reviewed publications in top scientific and impact-oriented journals (17 in Q1 and 11 in D1 journals), 16 of which as last/corresponding author. During a 4-year post-PhD phase (2011-2015) in commercial research and lab management, he provided knowledge and technologies to commercial forestry companies and nurseries having led to substantial commercial and environmental benefits. Since 2015, he worked in impact-oriented R&D institutes realising various engagements with private and public stakeholder that have led to 53 technology and knowledge transfer activities and 19 SCI-indexed publications. Up to now, Pierre has supervised 5 PostDocs, 5 PhD candidates, 8 MSc/BSc students and 12 interns. Among other involvements, Pierre is board member of the EUCARPIA Section Organic & Low-input Agriculture, chair of the EUCARPIA working group on plant-microbe interactions, editorial board member of Frontiers in Agronomy – Section Disease Management, guest editor in Frontiers in Plant Science and Frontiers in Fungal Biology, and member of the EU CAP (Common Agricultural Policy) Thematic Group "Strengthening the Position of Farmers in the Organic Food Supply Chain". He was a member of scientific/organising committees of 3 conferences and 2 workshops, and 2 PhD examination committees, and reviewed for top scientific and impact-oriented journals including Proceedings of the Royal Society Biological Sciences, Microbiome, Phytobiomes, Frontiers in Microbiology, FEMS Microbiology Ecology, and Scientific Reports.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	CONDE SIEIRA, MARTA
Referencia:	RYC2022-038313-I
Correo Electrónico:	mconde@uvigo.es
Título:	The interaction of aquaculture practices on the regulation of appetite in fish: Dietary and welfare conditions.

Resumen de la Memoria:

I carried out my PhD in the research group of Fish Physiology of the University of Vigo (PhystoFish), where I combined fundamental and applied investigations bringing out new valuable information, not only for scientific community but also for aquaculture industry. The research undertaken in my PhD focused on 1) the effect of stress on the metabolic and neuroendocrine mechanisms that regulate feed intake in fish; 2) the role of some hormones in this stress-appetite interaction. I obtained my PhD at the UVigo with Cum laude, International Mention and the PhD Extraordinary Award. My first postdoctoral period was at CIIMAR in Portugal in the LANUCE group after obtaining a FCT grant, where I carried out my research in Senegalese sole. I studied the metabolism, welfare and growth of this species under the use of sustainable aquafeeds made with alternative ingredients. This allowed me to establish a solid line of international collaboration with the group of CIIMAR that still is fructiferous nowadays. Then, I returned to the research group in UVigo where I started my own research line focused on a very important but poorly known aspect of the feed intake regulation in fish such as the involvement of hedonic mechanisms in fish appetite. To develop this research line, I obtained my own funding thanks to 2 competitive grants: first Juan de la Cierva-Incorporación and then a grant from Xunta de Galicia (I2C-B). Then, I obtained a contract as Distinguished Researcher at the UVigo, which allows me to follow on my investigations. Within this research line, I have already supervised 2 PhD, 1 MSc and 3 BSc students. Furthermore, I am the corresponding and senior author in 6 papers published in JCR journals with elevated impact. All these recent achievements reflect my leadership capacity. Furthermore, I am the responsible of the UVigo team in the project ACUISOST under the New Generation Project call from MAPAMA, in collaboration with other research institutions (IRTA, University of Barcelona and ICTAN-CSIC) and several companies related to the aquaculture industry.

My outreach activities comprise 54 JCR papers (full list here) of which 38 (70.4 %) are Q1 and I am first/last/corresponding author in 29 (53.7 %). I also published 2 book chapters and carried out 52 presentations in national and international conferences. My papers have been cited 899 times with an h index=19. I have reviewed 20 papers in 6 different JCR journals. Currently, I am the PI from UVigo in the project ACUISOST and I was PI in a research project supported by Xunta de Galicia. Furthermore, I participated as a researcher in 14 competitive projects (2 international, 7 national and 5 regional) and in 2 national Research thematic networks. One of my main expected goals is to drive the scientific knowledge related to fish physiology transfer to the aquaculture industry. In this regard, I have been involved in research projects in collaboration with private entities such as Cluster de Acuicultura de Galicia, the international fish farming company Stolt Sea Farm, and the international food additives company Lucta S.A. Moreover, I am the representative member of our research group in the aquaculture cluster Aciuplus. Considering the importance of feeding in fish aquaculture, as it accounts for the main cost of the sector, the knowledge delivered from my research will contribute to improve

Resumen del Currículum Vitae:

Scientific contributions
- 54 JCR papers , 38 (70.4 %) are Q1. First/last/corresponding author in 29 (53.7 %).
- 2 book chapters
- 52 presentations in national and international conferences
- h-index: 19 (Scopus)
Public research projects
1. ACUISOST. Ministerio de Agricultura, Pesca y Alimentación. Participation: UVigo sub-project P.I: 01/01/2022 - 31/12/2023. 118.671,97 €
2. AGROSERV. European Union (HORIZON-INFRA-2021-SERV-01). Participation: Researcher member. 01/06/2022 - 31/05/2027. 139.416 €
3.-"Marine Science program (ThinkInAzul)". Spanish Ministry of Science and Innovation and Xunta de Galicia, with funds from NextGenerationEU (PRTR-C17.I1) and European Maritime and Fisheries Fund Program (FEMP). Participation: Researcher. 01/10/2022-30/09/2025. 114,783€
4.- "Consolidación y estructuración de unidades de investigación competitivas en las universidades del sistema universitario de Galicia" (Ref. GPC-ED431B 2022/01). Xunta de Galicia. Researcher. 01/01/2022-31/12/2024. 120.000 €
5.- Characterization of hedonic regulation of appetite in fish (ED481B-2018/018). Xunta de Galicia (Plan I2C-B). Participation: P.I. 31/07/2018 - 30/01/2021. 25.000 €
6. EATMORE (PID2019-103969RB-C31). UVigo. Funding: Ministerio de Ciencia, e Innovación. Participation: Team member. 30/12/2016 - 29/06/2020. 236.313 €
7. AGL2016-74857-C3-1-R. Ministerio de Economía y Competitividad. Participation: Team member. 30/12/2016 - 31/12/2020. 211.750 €
8. MARINALGAE4aqua (ERA-NET COFASP/004/2015). CIIMAR; Portugal. European Union: ERA-NET. Participation: Team member. 01/06/2016 - 01/06/2019. 127.498 €
9. IAGL2013-46448-C3-1-R. Ministerio de Economía y Competitividad. Participation: Team member. 01/01/2014 - 30/06/2017. 142.780 €
10. AGL2010-22247-C03-03. Ministerio de Ciencia e Innovación. Participation: Team member. 01/01/2011 - 30/06/2014. 145.200 €
Obtained grants and scholarships
Predoctoral
1. Formación de Personal Investigador (FPI). Ministerio de Ciencia e Innovación (Spain). 4 years. UVigo

Postdoctoral
1. Fundação para a Ciência e Tecnologia (FCT). Portuguese Government. 3 years. CIIMAR; Portugal.
2. Post-doctoral grant PLAN I2C (A modality). Xunta de Galicia (Spain). 2 years. CIIMAR, Portugal.

3. Post-doctoral grant PLAN I2C (A modality-extension). Xunta de Galicia (Spain). 1 year. UVigo
4. Juan de la Cierva-Incorporation grant. Ministerio de Economía, Industria y Competitividad. 4 months. UVigo.
5. Post-doctoral grant PLAN I2C (B modality). Xunta de Galicia (Spain). 2 years. UVigo

Mentions and distinctions
1. PhD Extraordinary Award. UVigo. 12/2013
2. PhD International Mention. UVigo. 10/2012
3. ANECA accreditations for Assistant, Associate and Private University Professor. 09/2018
4. I3 Certificate by Ministerio de Ciencia Innovación y Universidades. 07/2019

Teaching and supervisory activity
1. Official teaching. 526.5 hours. UVigo. Doctoral, Master and Degrees programms.
2. Supervisor of 1 PhD Thesis. UVigo and University of Porto.
3. Supervisor or 1 PhD Thesis, 1 MSc and 3 BSc Thesis. UVigo.
4. Tribunal in the PhD Thesis of Miguel Gómez Boronat. Complutense University of Madrid.
5. Thesis committee of Daniela Resende. University of Porto (Portugal).

Other merits
1. Guest Editor JCR journal Animals (I.F. = 2.32) and Frontiers in Endocrinology (I.F. = 3.64).
2. Reviewer in several peer-reviewed journals (Q1 and Q2).
3. Representative member in Acuiplus Cluster.
4. Co-responsible of 4 research p

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	GÓMEZ MUÑOZ, BEATRIZ
Referencia:	RYC2022-035772-I
Correo Electrónico:	beatriz.gm@hotmail.com
Título:	New strategies to increase soil fertility in agroecosystems

Resumen de la Memoria:

My research line is focused on the study of soil fertility, estimating the soil and waste organic matter decomposition processes and soil nutrient turnover, availability and losses in agroecosystems. My goal is to improve soil fertility and nutrient use efficiency to ensure food production to feed the growing population with fewer inputs (fertilizers and pesticides) and less environmental impact.

I have a very strong background in this subject dealing for the last 15 years with the quantification of the main pools and fluxes of nutrients, especially nitrogen (N), carbon (C) and phosphorus (P) in agroecosystems. During my PhD degree in Environmental Sciences at the University of Jaén, I acquired a solid experience in the study of the main N pools and fluxes in olive crops, and I investigated the N release from a huge range of organic wastes including manure, commercial fertilizers, plant residues, biochar or compost. I have also deeply investigated the use of composted olive mill pomace, which is a by-product of olive oil extraction, as organic fertilizer. Part of these studies was carried out at North Wyke (Rothamsted Research, UK), where I did a research stay for 6 months in 2009 and the results were published in 3 JRC publications. In December 2011 I defended my PhD thesis getting the higher qualification (Cun Laude) for my European Doctorate (7 JRC publication in total). From 2011 to 2012, I was hired as a Scientific Researcher at the University of Jaen to investigate the use of different management practices such as cover crops, or different management strategies to treat pruning remains to increase C sequestration in soil reducing the CO2 emissions from agroecosystems (3 JRC publications).

My scientific career has been completed in one of the world-leading international research institutions especially in agricultural science, which is the University of Copenhagen (DK), performing cutting-edge research in laboratories led by the most outstanding researchers in their fields. From 2013 to 2014 as a Postdoc at the University of Copenhagen (UCPH) I worked on different Danish and European projects to evaluate how the use of new technologies for recycling organic wastes such as acidification, separation or biochar production for manures or the use of sludge treatment in reed bed systems to treat sewage sludge, can improve their fertilizers values (5 JRC publications). From 2014 to 2015 as a Postdoc and from 2015 to 2018 as Assistant Professor at the UCPH, I investigated how phosphorus-mobilizing microorganisms can increase P availability from soil and organic wastes and plant growth, and which are the required conditions for a successful plant growth promotion after microbial inoculations (6 JRC publications). From 2019 until now as a Postdoc and Assistant Professor at the UCPH, I am investigating the recycling of different industrial, urban and agricultural wastes as fertilizers in organic farming, which will help to close the nutrient cycles in these agricultural systems (6 JRC publications and 2 manuscripts in preparation). In addition, I am also investigating how different management practices carried out in conservation agriculture like no-till and straw retention can increase C storage in soil decrease decreasing the contribution of agriculture to the greenhouse gases emissions (1 JCR publication and 2 manuscripts in preparation).

Resumen del Currículum Vitae:

My research and teaching experience has been developed in the Department of Animal Biology, Plant Biology and Ecology of the University of Jaén (UJAEN) where I did my PhD with European Mention from 2007 to 2011 and, subsequently, I was hired as a Scientific Researcher from 2011 to 2012. After that, I was hired as a Postdoc from 2013 to 2015 and as Assistant Professor from 2105 to 2018 and from 2019 until now at the University of Copenhagen (UCPH, Denmark). This has been possible thanks to the achievement of various scholarships and competitive concurrency contracts.

My research activity has been focused on studying how to improve soil fertility in agroecosystems, investigating how different management practices can increase soil fertility, the use and treatment of different organic residues as fertilizers, and the use of new strategies such as the use of biofertilizers to increase nutrient availability in soil. For that, I have carried out studies under various conditions, from agrochemical characterization in the laboratory to evaluation in the field. This research activity was possible through my participation in 7 national and 12 international research projects (some of them in collaboration with biotech companies such as Novozymes, HedeDanmark or Newbiotechnic, among others), and in which I have actively collaborated both in its preparation and in its development. From 2017 to 2018, I was a work package leader in an international project (MiCroP). In 2022, I got funding from the Independent Research Fund Denmark (Danmarks Frie Forskningsfond) under the Green Research call, to develop my own research project (OptiChar) as a principal investigator at UCPH (385.865 €). I have also collaborated with other research groups such as the University of Castilla-La Mancha, Universidad Nacional Autónoma de México, Technical University of Denmark, CSIRO (Australia), University of São Paulo (Brazil), or North Wyke (United Kingdom) among others, where I did a pre-doctoral stay (6 months).

This work has been published in 61 publications including 28 publications in peer-reviewed international journals (24 of them are in Q1 in their respective category and being first and second author in 15 and 6 of them respectively), 2 articles in a national journal, 26 refereed book chapters and full-length symposium papers, 5 articles in specialized magazines. Currently, I have 4 papers submitted and 4 manuscripts in preparation. I accumulate 421 citations and I have an H index of 12 (based on Scopus). My results have been disseminated in 48 contributions in national and international conferences with 18 oral communications. Recently, I was also invited to moderate a session in an international conference. I have actively collaborated in teaching activities at both UJAEN and UCPH, and I have co-supervised 1 Bachelor thesis, 8 Master thesis, 1 dissertation, 1 PhD thesis and 1 IF Marie Curie Postdoc. Currently, I am supervising 2 Master projects in different Universities. Moreover, I act as a frequent reviewer of international journals. In April 2019, I got accreditation as an Assistant, Associate and Private University Professor by ANECA.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	MIRAS MARÍN, MANUEL
Referencia:	RYC2022-036011-I
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Título:	Unravelling plant virus translation and transport to understand viral infection and generate immunity

Resumen de la Memoria:

I am currently Team Leader and Marie Sklodowska Curie Individual Fellow (MSCA-IF) in the Institute of Molecular Physiology at Heinrich Heine University, Düsseldorf (Germany). My research focuses on understanding plasmodesmata (PD) composition and development and their role in cell-to-cell communication, nutrient transport, and viral cell-to-cell movement within plants.

I began my scientific career in 2010, as a Ph.D. student awardee with an FPI fellowship at CEBAS-CSIC under the supervision of Prof. Aranda and Dr. Truniger, where I studied the molecular mechanisms of cap-independent translation of melon necrotic spot virus (MNSV) RNAs. I contributed significantly to our understanding of 3' cap-independent translation enhancers (3'-CITEs) function, sequences found in many plant viruses. I demonstrated for the first time their modular nature, identifying a 3'-CITE acquired through recombination that was responsible for the breaking of host resistance, and characterized the host-virus interactions critical for viral translation and, thus, infection. This work leads to 3 publications in high-impact journals. During my Ph.D. and first Postdoc in Prof. Aranda's lab, I established new methods and concepts to the lab, thanks to short visits to Prof. Miller's Lab at Iowa State University and Prof. Verdaguer's Lab at Instituto de Biologia Molecular de Barcelona. I initiated both collaborations, which resulted in productive work (4 publications), including the publication of the first crystal structure of the eukaryotic translation complex eIF4F. Later (2016), I participated in the European project EMERAMB and a project funded by Fitó Seeds, where I worked in the characterization of emergent viruses and the identification of potential resistant sources in collaboration with Prof. Garcia-Mas. These projects lead to 2 publications and the design of molecular markers used in breeding programs by Fito Seeds. During 2019, I joined Abiopep SL, a biotech start-up, where I successfully developed monoclonal antibodies against MNSV and transferred to a leading provider of test kits (Agdia).

In October 2019, I joined the Institute of Molecular Physiology (Prof. Wolf Frommer) at the Heinrich Heine University (HHU, Düsseldorf) as a Research Associate, where I focused on the symplasmic route followed by sugars in plants, resulting in collaboration on the development of the first single-cell transcriptome atlas of the Arabidopsis leaf, where I identified PD transcripts localized in specific cell types.

In 2021, I gained my research independence with a MSCA-IF grant to establish an independent research line and the leadership of one of the four teams part of the ERC-Synergy SYMPORE project. Both projects study the composition and function of PD from two different but complementary angles, their role in nutrient transport and signaling, and how viruses manipulate PD to move cell-to-cell. Thanks to both projects, I have initiated fruitful collaborations with leading scientists in diverse topics (Prof. Simon, Prof. Schulze, Prof. Baumeister) resulting in 3 publications so far. This demonstrates my capability to conduct high-level multidisciplinary projects. The results obtained and the methodologies acquired led me to propose new hypotheses to unravel viral transport and their implications in the plant virus arms race, elaborated in my recently submitted ERC Starting.

Resumen del Currículum Vitae:

I graduated in Agricultural Engineering at Miguel Hernandez University (Spain, 2010) and obtained my Ph.D. in Plant Biology from the University of Murcia (Spain 2016). The major focus of my research is to unravel plasmodesmata composition and development and to understand their function as cell-to-cell bridges for communication, nutrient transport, and viral cell-to-cell movement within plants.

I started my scientific career in 2010 as a Ph.D. student with an FPI fellowship at CEBAS-CSIC, where I studied the molecular mechanisms of cap-independent translation of melon necrotic spot virus (MNSV) RNAs. During this time and first postdoc, I collaborated in 6 projects, including contracts with the industry and 11 publications. I also worked for a biotech start-up developing monoclonal antibodies and get an agreement with provider of testing kit company for their marketing.

In October 2019, I joined the Institute of Molecular Physiology at HHU as a Research Associate and focused on the symplasmic route followed by sugars in plants. This resulted in collaboration on the development of the first single-cell transcriptome atlas of the Arabidopsis leaf. In 2021, I was awarded a MSCA-IF grant to establish an independent research line and lead one of the four teams in the ERC-Synergy SymPore project. Through these projects, I have initiated collaborations with leading scientists in developmental genetics, proteomics, structural biology, and virology, resulting in several publications and new hypotheses on viral transport and the plant virus arms race.

Also, in 2021, I participated in the Academic Career Development Programme at HHU to advance my skills relating to leadership, science communication, and management which help me to effectively lead my team composed of 2 MSc students, 2 Ph.D. students, 2 technical assistants, and 2 postdoctoral fellows, all under my direct supervision.

In addition to my research, I was involved in teaching the Master of Plant Virology at Murcia University (2014-2019) and, currently, in the Master Module Fluorescent Biosensor Engineering at the HHU.

I have also been actively engaged in science outreach activities through science shows (Semana de la Ciencia, Research Night) as well as communicating my research through various channels, including Twitter and my personal blog (https://pdgate.wordpress.com), where I share updates on my MSCA project and science news. I aim to communicate the biotechnological implications of my research to the general public, in particular to university students organized by the Heine Research Academies network.

Overall, my early-research career achievements and international recognition are documented by 15 publications in peer-reviewed journals (10 as first author and 1 as corresponding author; 276 times cited and h-index equal to 8 -Scopus-), and a preprint, >30 contributions to international conferences (receiving two travel awards), participation in 8 research projects including the MSCA-IF, reviewer of peer-reviewed international scientific journals, guest editor of a special issue, the selection committee in Ph.D. programs, and external referee of doctoral thesis.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	OTERO FUERTES, MARIA PAZ
Referencia:	RYC2022-036690-I
Correo Electrónico:	pazotero80@hotmail.com
Título:	Sustainable recovery of bioactive compounds from algal residual biomass and agri-food by-products for high-value food applications

Resumen de la Memoria:

Paz Otero has addressed several research topics across different fields of Food Safety and Food Quality, to reach the highest impact in the area of Food Science and Technology in the last stage of her career.

During phd, the candidate¿s domain of specialization was Analytical Chemistry applied to food. Such specialization has permitted the development of analytical methodologies for the analysis of emerging phycotoxins, which could be recognized as official methods in the EU. She carried out identification and discovery of new molecules and their purification from shellfish and microalgae to develop standards of biotoxins, deriving in a contract with AESAN, and two technical reports to EFSA.

In a second stage, she employed the analytical chemistry background to solve various problems or questions within the area of biotechnology and food science. After completed Ph.D. studies (April, 2013) at the University of Santiago de Compostela (USC) (summa cum laude and Outstanding Dissertation Award), the candidate had the opportunity to work in four different centres across Europe, integrated in multidisciplinary research teams, participating in EU projects, exploring new applications that allowed her to acquire new technical skills and a global vision in the fields of knowledge and establish a solid background, independence and a gradual transition to leadership.

In March 2014 she moved to Shannon Applied Biotechnology Center (LIT, Ireland, 3 years) to work on the sustainable culture of microalgae and cyanobacteria to produce valuable bioactive compounds in a controlled way. In this Centre, she was awarded with project DETTOX from Irish research Council (IRC), opening a new research direction. The idea was to apply the previous knowledge to produce new secondary metabolites from harmful algae. After that, with the achievement of highly competitive 4-years Talent Attraction Programme (Comunidad de Madrid), she moved to the Institute for Food Research (CIAL, CSIC-UAM) in April 2017 and stablished with independence a new research line focused on green extraction technologies to obtain biologically active products from macroalgae. In this Institute, she was working until granted with the JdeC incorporación contract in the USC (2018-2020) to be involved in a work strategy to facilitate market delivery of safer seafood by putting at disposal of affected industries new toxicity alert systems getting the coordination of an EU project.

Since Dec 2020, she works with independence in the Dep. of Analytical and Food Chemistry from the University of Vigo, collaborating with several companies from different food sectors to find new strategies for recycling their wastes and creating new market opportunities in the concept of Bio-based Economy, committed with Horizon 2020 and 12th Goal of the United Nations 2030 Agenda. So far, she has obtained one regional project, two Mobility Grants by the IACOBUS program in IPB-CIMO (Portugal), taken a main role (PI/Task Leader) in 2 EU projects and she is team member and task/WP leader of a just awarded EU project WHEATBIOME where she is working hard in the implementation of a new research line to evaluate the biotic/abiotic factors affect wheat microbiome composition, including the presence of microorganisms causing mycotoxins and how the modification of wheat microbiomes can translate into improved crop yield, nutritious

Resumen del Currículum Vitae:

POSTDOCTORAL MOBILITY AND INTERNACIONALIZATION
-Dept. of Food and Analytical Chem, Faculty of Science, UVigo, ES (24 months)
-Mountain Research Centre at Polytechnic Institute of Bragança (CIMO-IPB), PT (6 months)
-Dept of Pharmacology, Veterinary Faculty, USC, ES (29 months)
-Dept of Novel Foods at Institute for Food Research (CIAL), UAM, ES (15 months)
-Shannon ABC Biotechnology Centre, LIT, IRL (36 months)
70% of the scientific production in collaboration with International Institutions. 115 Co-Authors from 15 different countries and 46 different Institutions

SCIENTIFIC PRODUCTION
-Total number of articles in SCI journals: 56 (Postdoc 41) |Q1: 50 (D1:10) |First: 20| Corresponding Author: 10 |Open access: 32| Conference proceedings:11 |Books:4| Book chapters:11

DISSEMINATION ACTIVITIES
-International scientific conferences: > 70 works (3 invited, 15 oral)
-Media: Newspapers (11), newsletters (3), radio (1), food/fish magazines (3), invited to regional conference (1), industrial cluster (1)
-Organization of EU Workshops (8)
-Participation in the European Researchers G-Night 2022 at Schools, from Marie Sklodowska Curie Actions (HORIZON-MSA-2022-CITIZENS-01)

KNOWLEDGE TRANSFER
2 Technical Reports to EFSA, 1 Contract with AESA, 2 Patents, 3 Contracts with Companies (2 in Spain, 1 in Ireland) and 9 products in the market. Knowledge transfer to 5 Industries from Turkey (1), Germany (1) and Spain (3).

RESEARCH PROJECTS
Participation in 27 research projects:
19 EU-funded: 1 as PI (GOIPD/2015/681), 3 as Coordinator (Interreg Altantic Area), 2 as Tasks/WP Leader and taken a main role (PI/Task Leader) in other 2, with an amount of ~4 million €in the period 2018-2023.

8 National Research Projects (ES): 2 as PI (2016-T2 / BIO-1791 and IJCI-2016-27774) and 6 as Team Member leading objectives and tasks.

SUPERVISION AND TRAINING:
-Supervisor of 21 Master's Students and 5 B.Sc. Projects Student (10 as unique supervisor), 4 Ph.D. theses (1 IRL, 3 ES), 1 internship (IRL), 1 Postdoc (PT) and 2 Professors International Stays (PT).

GRANTS/ AWARDS
-2 IACOBUS mobility Grants
-JdC Incorporation Grant
-Madrid Talent Attraction Grant (just 3 awardees in the Food Science Area)
-Irish Reseach Council Award (IRC)
-Postdoc Xunta de Galicia Grant
-Outstanding Dissertation Award of PhD by the USC " Extraordinary PhD Award"

PARTICIPATION IN SCIENTIFIC AND EVALUATION COMMITTEES, EDITORIALS,
-Peer reviewer for several JRC journal in the field of Food Science & Toxicology.
-Guest Editor of Journal Toxins (ISSN 2072-6651) and Marine Drugs (ISSN 1660-3397).
-Scientific Expert of MINECO (project evaluator) ES
-Scientific Expert of EU programs in the Food Safety and Marine Biodiscovery Panel (EX2022D703027) (project evaluator) EU.
-Editor of 4 books in IntechOpen (2), Elsevier (1), John Wiley & Sons (1).
-Member of evaluation committees of Master Thesis (32), B.Sc. Projects (6), and PhD Thesis (1).
-Member of the Organizing Committee of the International Scientific Conference from Nutritionist College from Venezuela.

CERTIFICATES
-Positive assessment as Profesor Contratado Doctor by ANECA (2020)
-Positive assessment Certificate I3 (2021)

TEACHING
Professor of Experimental and Biomedical Science (from 2017 to date):
Degrees in Food Science (UAM), Veterinary, Pharmacy and Medicine (USC) and Masters in Novel Foods (UAM), Nutrition and Health (VIU) and Agri-food and Environmental Science and Technology (UVigo).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	BARBA ESPÍN, GREGORIO
Referencia:	RYC2022-036682-I
Correo Electrónico:	barbaespin@gmail.com
Título:	Plant physiology and biochemistry to meet agricultural challenges

Resumen de la Memoria:

Feeding a growing population in a context of shortage of arable land and water supply, while protecting the environment, is a challenge that agriculture must address at multiple levels. My research deals with these aspects, linking basic research in plant physiology and biochemistry with practical agronomical and biotechnological solutions.

As photosynthetic organisms, plants long ago mastered the art of redox control. The cellular redox hub integrates information from metabolism and environment to fine-tune growth, defence and developmental requirements. Concerning seed germination, my research provided new insights linking H_2O_2 signalling with antioxidant metabolism, phytohormones, reserve mobilization and changes at the proteome level, contributing to a better understanding and an improvement of the germination process. In addition, I have contributed to elucidate the role of antioxidant metabolism and redox biology in variety of processes (plant growth, response to stress, or flowering, among others) in different plant species. Such a comprehensive knowledge enables us to develop strategies to increase productivity.

Other relevant aspect of my research was the development of agronomic strategies to improve field-grown black carrot and red beet as sources of natural colorants. In this regard, the regulation of anthocyanin (for black carrot) and betanin (for red beet) biosynthesis was linked to the functioning of the antioxidant system and the role of their pigments as antioxidants. Furthermore, I performed a characterisation of unevaluated black carrot germplasm, as a pre-breeding strategy to introduce key traits (stress resistance, increased pigment contents) in carrot breeding programs. Moreover, for the first time, hairy roots derived from Rhizobium rhizogenes-mediated transformation of black carrot were obtained. This served as an in vitro platform to study anthocyanin biosynthesis and its interplay with antioxidant metabolism.

Currently, as a breakthrough on my research career, I am involved in an UE consortium project (PRIMA program) for the utilization of halophytes in saline agriculture, by which (1) we have evaluated the use of halophytes in intercropping with tomato and (2) initiated in vitro propagation of two halophyte species.

From this basis, my aim is to expand the scope of my current research with halophytes by designing a solid experimental workflow that allows:

- In vitro multiplication of germplasm of different Mediterranean halophyte species that have not been previously explored. This will provide a platform for characterisation and ex situ conservation, while serving to deliver elite clones (adapted to high salinity) for further experimentation ex vitro.

-Field trial evaluation of the elite clones vs. specimens from natural habitat. The goal is to determine whether in vitro propagated material displays higher yield and halo-remediation capacity of salt-contaminated soils, while providing a comprehensive characterization of the plants and determining their applicability in soil remediation and saline agriculture.

This would put my research at the forefront of sustainable agriculture, since it may imply: evaluation of unexploited germplasm, conservation of halophyte species (and hence saline habitats), soil remediation, and saline agriculture, while providing halophytes as value-added crop for multiple uses.

Resumen del Currículum Vitae:

I am plant biologist widely dedicated to understand and improve plant development, abiotic stress response and crop yield through physiology, biochemistry and biotechnology studies.

I have 53 publications. From my 40 SCI articles, I am the first (14 papers) or last author (8 papers) in 51% of them, of which 82% are Q1 and 45% are D1. From 2017, I have been the corresponding authors of 9 publications (6 Q1+3 D1). I have 1450 citations (Scopus, h-index 21, only 5% self-citations). Only in 2020-22, I obtained 20 publications.

I hold a degree in Biology (University of Murcia, 2006) and conducted my PhD studies at CEBAS-CSIC (2008-11) in the characterization of the antioxidant metabolism of pea plants. My international trajectory comprises 2 pre-doctoral stays at Bayer CropScience (Lyon) and the University of Leeds, and almost 6 years in Denmark as a postdoc researcher: first at the Technical University of Denmark (20 months) and later at the University of Copenhagen (KU) (46 months, of which 20 months were as Assistant Prof. and PI of a project). Indeed, 25% of my research articles resulted from my postdoctoral stays.

I obtained 2 projects as Principal Investigator: the first one at the KU (2016-2018, 309,000€, Danish Ministry of Science), and the second one at CEBAS-CSIC (2018-21, 76,500€, Saavedra Fajardo excellence call, Séneca Foundation).

I am the main inventor of 2 patent applications (2018 and 2019) published as a result of my first postdoc position at KU, for improving black carrot and red beet as sources of natural colorants. In this project, in which I also performed R&D activities, involved multiple partners and research institutes, including Chr. Hansen A/S, worldwide leader in the natural food colours market.

I conducted research in seven departments and co-authored papers with over 100 scientists. I have 27 communications to international conferences (6 oral communic.) and have acted (2022) as an Expert Evaluator for R&D and innovation projects. I hold a solid editorial activity (Guest Editor in Q1 journals, co-editor of a book, editorial board of a journal, and reviewer in numerous Q1 journals). I have organized R&D activities and participated in 3 contracts with private companies.

I obtained teaching qualifications by the KU (2016), and I have over 560 teaching hours. I participated as Assistant Professor at KU and as External Professor at the University of Murcia.

My science divulgation includes dissemination talks, appearances in media (TV and newspaper), participation in projects and events with high schools, etc. In addition, I have accredited diplomas in English (C1 Cambridge), French (B2) and Danish (B1).

From 2017, I supervised 17 students including 2 Doctoral Thesis (1 ongoing) and 4 MSc thesis (1 ongoing). The first Doctoral Thesis (Cristobal Solano, 2020) led to the publication of an utility model as co-inventor (2021) consisting of a LED-based experimental chamber to improve seed germination and plant growth.

My current research (2020-present) is developed in the frame of an EU PRIMA project involving universities and research centres from Europe, Tunisia and Egypt for the establishment of halophyte-based saline agriculture. In this context, I am co-supervising my second Doctoral Thesis between CEBAS-CSIC and CBBC (Tunisia) in the in vitro culture of halophytes as a platform for the propagation of elite germplasm

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	DIAZ SANCHEZ, SANDRA
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Título:	Metagenomic application to control vector-borne diseases

Resumen de la Memoria:

The major milestones in my scientific trajectory have converged into the study of host-microbial interactions. My initial research work examined the epidemiological dynamics of enterobacteria in game/wild animals. These studies resulted in significant scientific contributions to animal health, conservation, and public health organizations. Later, my postdoctoral position at UT allowed me to bridge cutting-edge High-Throughput Sequencing technologies and bioinformatics tools with classical microbiological techniques with relevant contributions to understanding fundamental aspects of the analysis of microbiota impact on poultry and translated into a metagenomic program for the industry to predict health and performance. As a postdoctoral researcher for an EU H2020-funded project, I focused my research to give answers to the central questions regarding vector-microbiota interactions. To achieve this, I launched a biolab to increase the research capacity, innovation, and excellence of the group. My research integrates-omic approaches to acknowledge vector-pathogen-microbiota interactions contributing (i) to identifying microbial biomarkers within the tick microbial community (ii) to understand the impact of abiotic and biotic in host-microbiota interface,(iii) disentangling vector-microbiota co-evolution, that (iv) provide evidence-based knowledge that can be translated to design strategies to control vector-borne diseases.

My research resulted in SCI 34 publications and 2 book chapters with about 1182 citations. I disseminated my research to the scientific community and general public at 34 national and international conferences, 4 seminars, and 3 publications in popular magazines. I co-organized an international meeting. I promote the dissemination of resources in open-access pre-print repositories, open repositories (NCBI-SRA, Dryad), and publishing in open-access.

My scientific trajectory has been recognized with the I3 accreditation. In my early career, I was awarded 1 pre-doctoral, a Juan de La Cierva Incorporación, and research internships. Internationationally, I developed teaching materials and disseminate metagenomics pipelines in an open way in a workshop (UT), I participated in working groups within the EU-H2020 project and participated as a member of an international research network, and as a project reviewer in two international calls.

I had independent funding leading projects funded by the regional government of CLyM as PI, and co-leading an intramural project. Internationally, I also got funding as a co-PI in two intramural projects at UT and participated in 3 projects funded by Cobb-Vantress Inc., the CPS, and EU-H2020. I worked in activities transferring knowledge to the industry, and the development of a patent. I taught Food Microbiology Lab classes, and trained and co-supervised undergraduates, graduates, and Master¿s students at UT. I supervised a PhD student, and a Master's Theses student. Additionally, I participated in TFM scientific committees, and as an external reviewer of a PhD Thesis. I reviewed manuscripts for top-ranked journals and was a guest editor for the journal Frontiers in Veterinary Science. I participated as an advisor of project development to companies. In my current position at UL, I coordinate the subject ' Environmental Microbiology' , and participate in the Dissemination Commission.

Resumen del Currículum Vitae:

I am a veterinary microbiologist with solid multidisciplinary training in Agricultural and Environmental Sciences, and Bioinformatics, with international experience at multiple top institutions. During my PhD, I acquired extensive theoretical and technical knowledge in microbiology and molecular techniques to study the epidemiological dynamics of enteropathogens in wild/game animals. These results constituted significant scientific contributions providing the foundation for zoonotic risk analyses and further research in the field. During my postdoc at UT, my research interests evolved to the study of host-microbial interactions by using HTS technologies. My research work resulted in a metagenomic program for the poultry industry to predict performance and contributed to the study of antibiotic alternatives to improve food safety. As I joined the IREC, I applied my skillset to start leading a novel research line based on the study of vector-borne diseases (VBDs). Relevant contributions have been released to catalog the microbiome of vectors, infer potential vector-microbiota co-evolution patterns, and design innovative strategies to control VBDs.

I had independent funding from the Juan de la Cierva Incorporación and 4 research grants to explore my ideas and I demonstrated independence leading projects as PI. I keep solid collaborations in several multidisciplinary projects exploring innovative strategies.I co-authored 34 peer-reviewed papers, ~60% are open access (1182 citations, h-index 19), and 2 book chapters. I have 42 contributions to conferences and seminars. I co-authored 3 dissemination manuscripts, and 5 publications from scientific meetings and prepared technical reports for national and international projects. I made my research visible to other researchers by sharing my data sets in open repositories.

I participated in 11 projects, 6 of them funded by regional (PI in two of them), and national, and in 3 international (one industry-funded), and 2 awarded intramural calls. I participated as a co-inventor of 1 patent and I received the I3 accreditation.I taught graduate and ungraduated students in the Food Microbiology Laboratory, co-advised 8 undergraduates, 1 graduate student, and a Master¿s student at UT. And, I co-directed a PhD student and a TFM student. I taught for MSc in Basic Research Applied to Hunting Resources and was an invited lecturer for the MSc in Agronomic Engineering. I keep well-established networking, and to date, my scientific production has resulted in collaborations with 105 co-authors from 46 research institutions. I participated as a guest editor for the journal Frontiers in Veterinary Science and as a reviewer for SCI journals. I reviewed 2 international projects, evaluated symposiums and TFMs committees, and collaborated as an external reviewer of PhD Thesis. I participated in the organization committee of an international meeting. I actively cooperated with the Department of Extension at UT.

As I have been advancing in my scientific career I have felt more enthusiastic about the findings in the state-of-the-art. At the time that provided me with solid fundaments to that, I further opened a new research line. I envision my research plans with a multidisciplinary focus and continuing and starting new collaboration efforts to confront the challenges that are directly related to the VBDs research scopes.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	LOPEZ GARCIA, ALVARO
Referencia:	RYC2022-038499-I
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Título:	Microbial ecology for agricultural improvement

Resumen de la Memoria:

The role of microbiomes as drivers of the functioning of agricultural plant-soil systems has emerged as a hot topic in recent years. A deep understanding of the ecological processes that govern plant-soil microbiome assembly and functionality is needed to foster their potential management to increase agroecosystems sustainability. Indeed, this objective falls into the strategies of Spanish Sciences, Technology and Innovation Strategy for 2021-2027, as their main strategies of research and innovation refers explicitly to Natural Resources and Agriculture.

In this framework, I have actively contributed to improve our understanding of microbial community assembly and its functional consequences for the plant-soil systems. In the course of my career, I have explored the environmental drivers of microbial community composition in the frame of the known as deterministic processes. By other hand, I have also studied how stochastic events, those dependent on probability such as random dispersal of organisms, could also affect the composition of microbiomes. A third pillar of my scientific profile has been the study and development of trait-based approaches to microbial communities. Based on these theoretical and practical ecological tools, I have entered into the study of how the change of microbiomes can affect the provision of ecosystem services to cropping systems and how it is possible to increase agricultural sustainability.

In the frame of this contract and as a continuation of the exposed research line, I will research in two parallel and complementary lines to advance in the knowledge of the role of microbiomes in agriculture: understanding the causes that shape the composition of microbial communities and, by other hand, the functional effects that these compositional changes have on cropping production and the provision of ecosystem services. Particularly, I will focus on:

i)   The role caused by dispersal from diversity hotspots (natural/well-conserved vegetation patches) on improving the spatial variation of soil microbiomes (beta diversity).

ii)   How the caused spatial heterogeneity of soil microbiome compositions will serve as an insurance for the provision of multiple ecosystem services to crops.

For pursuing these objectives, I will benefit from my established collaborations with national and international research groups.

Resumen del Currículum Vitae:

I defended my PhD (FPI grant) in 2013 under the direction of José M. Barea and Concepción Azcón-Aguilar, heads of the internationally recognized and pioneer lab on Mycorrhizas (EEZ-CSIC, Granada). During that time, I did two research stays in the labs of John Klironomos (University of Guelph, Canada), in 2009, and Matthias Rillig (Free University of Berlin, Germany), in 2010. As postdoc, from 2014 to 2022, I have worked in various research groups: Matthias Rillig¿s in Free University of Berlin, Germany (4 months), Teodoro Marañón¿s in IRNAS-CSIC (5 months), Søren Rosendahl¿s in University of Copenhagen, Denmark (33 months), and back to the Mycorrhizas group in EEZ-CSIC (19 months). Since 2019 I was hired by the University of Jaén to be incorporated to the Inter-University Institute of Research on the Earth System in Andalusia (IISTA-UJA).

I have authored/co-authored 35 research JCR peer-reviewed articles (plus two accepted pendants on satisfactory review), 14 of them as first, last or equal contributor in journals of plant sciences, soil sciences, microbiology and ecology areas. This research has been funded through my participation in 18 national (10) and international (8) projects, three of which as principal or co-principal investigator including a Marie Curie Individual fellowship (see project list). I have co-supervised one PhD thesis and have mentored several PhD students during short stays, all of them currently working in the academia or innovation companies. I count teaching experience at bachelor and master degree levels and course organization. As a result of master and degree thesis supervision, I have co-authored with my students four SCI articles.

The core of my research is the description of microbial communities, often by means of massive sequencing approaches and bioinformatics, to disentangle the sources of their compositional and phylogenetic variation. I have applied these methodologies to diverse microbial groups, from bacteria to mycorrhizal fungi. My main contributions are the study of the relative importance of the different ecological processes that influence the assembly of microbial communities. A step forward in the understanding of this duality was represented by the use of fungal traits to explain their community assembly patterns. This research includes the effect of contamination on ectomycorrhizal communities, effect of climate change in soil fungal communities, or the functional profiles of bacterial communities associated to mycorrhizal fungi. In recent years, I have turned towards the application of community ecological theory of microbial assemblies to understand the functioning of forest and agricultural systems. Studies on agricultural systems include the effect of dispersal and succession on microbial diversity associated to crops and the functions of microbiota associated to plants of agronomic interest.

During this time, I have built an international network of collaborators that include researchers from Denmark and Germany in Europe and Chile, Brazil and Peru in South America. I am member of Spanish Association for Terrestrial Ecology (AEET) and within it, coordinator of the working group on plant-soil interactions.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	RUIZ DOMÍNGUEZ, MARÍA DEL CARMEN
Referencia:	RYC2022-035332-I
Correo Electrónico:	macarudo@hotmail.com
Título:	MICROALGAE AS A SOURCE OF HIGH-VALUE BIOACTIVE COMPOUNDS OBTAINED BY USING INNOVATIVE AND GREEN TECHNOLOGIES FOR FUNCTIONAL APPLICATIONS

Resumen de la Memoria:

Her research career is focused on the optimization of the production and green extraction of bioactive compounds of interest in the human/animal food and health sector with different commercial microalgae and vegetables, as well as with species isolated from extreme environments. Among her remarkable and published scientific-contributions we find: (a) isolation and cultivation under different conditions of microalgal species from extreme acidic environments (Tinto river) for the production of valuable compounds, namely lipids for novel food and/or bioenergy production (predoctoral stage); (b) isolation, cultivation and characterization of extreme photosynthetic microorganisms from Atacama Desert (Chile) for production of valuable molecules of interest in the biotechnology industry (postdoctoral stay, 27 months) at Universidad de Antofagasta (UA), Chile, where she expanded her experience in the use of analytical techniques; (c) leading her own research line and scientific cooperation with a number of partners in activities related to Food Science and Nutrition at UA (from 2017 to date, Chile). As Principal Researcher competitive projects which have focusing on the use of green extraction techniques of valuable compounds and its encapsulation from microalgae and vegetables for the development of the functional food - circular economy. The future research line will continue with the use of microalgae as source of bioactive compounds. This research project aims to contribute to the expansion of knowledge in the following aspects: (a) Using innovative and ecofriendly technologies. (b) Improving the use of microalgal biomass as a value-compounds source (bioactive compounds). (c) Producing functional foods that are nutritionally more effective for consumers with specific diets such as vegetarian or population with any intolerances. (d) Integration of mathematical models in functional food processes. To conclude, from all these steps and previous experience, the strategy of this potential research would be to assess the possibility of linking these three points of the efficient and sustainable use of microalgal biomass: (a) Functional food production, (b) Solving nutritional and environmental problems using green technologies (c) Using powerful and reproducible statistical tools and (e) evaluating the digestibility of this novel green extracts (d) interaction with the agri-food sector (companies that can participate in testing products or proposing elements/changes in the configuration of new foods).

Resumen del Currículum Vitae:

BSc in Environmental Science (07/2009, University of Huelva, UHU, Spain), Master in Instrumental Techniques in Chemistry (12/2010, UHU), and Ph.D. in Environmental Sciences – Cum laude - (11/2013, UHU). In 05/2014, posdoctoral scientific research stay at the University of Antofagasta (UA), financed by a 7th European Framework Programme KBBE - F613588 (MIRACLES, ~430,560€) duration of 27 months. In 2016, 1st project as Principal Researcher (PR), code PAI-79160037 (~106.000€) from CONICYT (now ANID, Chile), obtaining in 09/2017 (to date) a place as Associate Professor (equivalent to permanent professor) in the Food Science and Nutrition Department (UA, Chile) which gives place to co-direct the research line and lab named "Microencapsulation of Bioactive Compounds Lab, (LAMICBA)". More than 60 credits (equivalent to ECTS taught) as Associate Professor and Coordinator in the UA-regulated subjects in Degree of Biochemistry, Biotechnology, and Food Engineering. She has been PR in 9 competitive projects (PAI-79160037 and FONDECYT-11170017, ANID; BIP-30488758-0, FIC-R; ANT-1855, ANT1999, and Teaching innovation Project (3), MINEDUC-UA; María Zambrano-SOL-RPU-38, Min. Universidades-EU. Funds in total of ~650.000€). At present (01/2023-12/2023), she is PR of a "María Zambrano Grants" at UHU (51.500€, Spain). She has also participated as Researcher Team in 7 projects funded by ANID, Andalusian Research Plan (Spain), and oils companies such as CEPSA (Spain) and BioTopic (Denmark) and her intense activity in the transfer of research results with international universities or companies, such as the UNICAMP (Brazil), U. Chile (Chile), CIAL and "Instituto de la Grasa" (CSIC), U. Córdoba, or UHU (Spain). She has directed (7) and co-directed (2) BSc Thesis and (2) MSc Thesis. She has acted as an external member in 7 European Ph.D. Committees, 2 Chilean Ph.D., 2 MSc, and 5 BSc Thesis Committee. From 2020 to date, the candidate is the leader of LAMICBA group which is composed of a multidisciplinary research team of 6 scientists as permanent staff hired by the candidate, as well as several Master and Bachelor (Degree in Biochemistry, Food, and Biotechnology Engineering) students. His scientific career (including more than 8,5 continuous years in Chile) has allowed her to take part in the publications of 35 scientific articles (31 WOS, Q1: 14 (45%) and Q2: 12 (39%)/4 Scielo-others), and 5 book chapters. Privileged authorship position: 26/40 (65%). Senior author since 2020: 5/19 (26%). More than 40 presentations in National/International Congresses have been presented, 10 of them oral and invited presentations. She is a regular reviewer of manuscripts for indexed scientific journals. As other contributions, she has received grants as a young researcher and teacher (MINEDUC-UA and Iberoamerica-Santander Grants "Jóvenes Profesores e Investigadores-Santander Universidades-2018") for a stay in research centers (CSIC-CIAL, Madrid). Currently, she is the Research Secretary (area management) of the Food Sciences and Nutrition Department (UA) promoting courses with useful tools in the development of scientific publications. Finally, obtaining the ANECA accreditation (PCD 2020-869, PUP 2020-8699, and PAD 2020-8698) and accreditation Postgraduate Professor at the UA (Chile).

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	MARQUÉS BUENO, MONTSERRAT
Referencia:	RYC2022-038179-I
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Título:	Health risk assessment of food contaminants: combining dietary exposure, biomonitoring and cohort studies

Resumen de la Memoria:

My research is focused on the development of innovative food control strategies of contaminants for human health risk assessment. I carried out my PhD at the Laboratory of Toxicology and Environmental Health from Universitat Rovira i Virgili (URV) after being awarded with the competitive FI-AGAUR Pre-Doctoral grant. During my PhD, I was focused on the impact of climate change on soil pollutants. I applied and developed analytical methods based on GC-MS/MS for the determination of PAHs and by-products, along with the set-up of toxicity tests. On the same period, I received the EEA grant to perform a scientific stay at the University Centre in Svalbard (UNIS) and the Norwegian University of Life Science (NMBU) to extend my knowledge on climate change and soil pollution. Following completion and knowledge of my PhD, I moved to Pere Virgili Health Research Institute (IISPV) to gain knowledge in the field of food control and biomonitoring, as a follow-up of the PhD findings. I co-supervised one PhD student, which contributed to improve my leading skills. In 2018, I moved to the Environmental Analysis and Management group from the URV where I extended my experience in dietary exposure, and gained knowledge on innovation, knowledge exploitation and communication in the framework of SEAFOODTOMORROW. I led FishChoice® development, a risk-benefit tool addressed to seafood consumers. Furthermore, I was involved in food control contracts with the industry and public agencies. I wrote as official co-applicant of SPRINT, a H2020 project awarded with a total budget of 385,000€, being the PI of my working institution. In March 2021, I moved to the University of Antwerp with a Marie Curie co-fund fellowship for the project Information on Endocrine Disruptors and Gestational Diabetes Mellitus – A mobile app (INSULIN; €138,240), being the co-PI of a well-reputed pregnancy cohort stablished at Joan XXIII University Hospital (Tarragona, Spain). In March 2022, I joined URV Foundation Technology Transfer and Innovation Center (FURV, Spain), where I worked on safe+PREGNANCY®, a mobile app to provide recommendations to minimize the exposure to endocrine disruptors during pregnancy. Subsequently, I was awarded with a Marie Curie Individual Fellowship to implement "The chemical exposome of pregnant women with gestational diabetes" (MANGO, €261,380.64) between the University of Columbia (USA) and IISPV (Spain). MANGO combines exposomics and epidemiology to implement the first prevention programme to further assess the impact on adverse health outcomes during pregnancy (i.e: GDM) and later in life.

Despite my short academic career, I achieved an exceptionally strong track record in conducting interdisciplinary research on environmental, biological and food control monitoring, with most of my research papers published in the first journals of the field. Overall, my research has been published in 49 peer-reviewed papers, attracting > 1300 citations, with h-index 20. I have been appointed as associate editor of Environmental Pollution and Environmental Advances and Deputy Director of TecnATox. Given my scientific output, funding fellowship obtained, as well as my supervision, internationalization and leading experience, I have the capacity to form an internationally recognized research programme in my field of expertise.

Resumen del Currículum Vitae:

Dr. Montse Marquès is Marie Curie research fellow at URV Foundation Technology Transfer and Innovation Center, lecturer and coordinator of Food and Environmental Toxicology at URV (Spain) and Associate Editor of Enviromental Pollution and Environmental Advances (Elsevier). She has published 49 peer-reviewed papers and owns an h-index of 20.

She obtained the BSc in Geography (UB) in 2008, MSc in Environmental Engineering and Sustainable Production (URV) in 2012 and PhD degree (International Doctorate, Cum-Laude) in 2017 (URV). Her PhD thesis was focused on the assessment of climate change impact on the widespread soil pollutants Polycyclic Aromatic Hydrocarbons (PAHs). She demonstrated pathways of PAHs photodegradation by-products and the increase of soil toxicity due to climate change, representing a health risk. These findings were relevant to design adaptation policies to climate change. She was awarded with an EEA grant to perform a research stay at The University Centre in Svalbard and the Norwegian University of Life Science (Norway). This stay provided the first data on soil characterization, the levels and sources of PAHs in Svalbard. The PhD thesis entailed 6 peer-reviewed scientific articles in prestigious journals, 21 presentations in international conferences and one press release. The results of the PhD aroused her scientific interest on the dietary exposure to food contaminants and biomonitoring studies, which drove her to join IISPV (Spain). She performed a postdoc in MODELBIS and HBM4EU projects and co-supervised a PhD student. She shed light in the field of dietary exposure to bisphenol A (BPA), combining biomonitoring, duplicate diet and cohort studies. The generated knowledge was aligned with the EFSA request on the review of the temporary tolerable daily intake.

In 2018, she moved to URV to lead a task in the H2020-funded SEAFOODTOMORROW project. She developed FishChoice®, a risk-benefit tool calculating the intakes of nutrients and pollutants and advising on sustainability to help to the seafood consumers, health professionals, academia and industry to take decisions. SEAFOODTOMORROW allowed to develop coordination and managing skills and gave her a priceless view beyond the academia.

Since 2018, she has been working to attract funding. As a result, she is the PI of the H2020-funded SPRINT project, leading a duplicate portion analysis study across Europe. In 2020, she was awarded with the Marie Curie co-fund TECNIOspring Fellowship to perform INSULIN at the University of Antwerp and the URV Foundation Technology Transfer and Innovation Center. INSULIN deepens the understanding of the role of the dietary co-exposure to endocrine disruptors on the development of gestational diabetes (GDM), along with the development safe+PREGNANY® mobile app. She is the co-PI of a well-reputed pregnancy cohort stablished at Joan XXIII University Hospital (Spain). In 2022, she was awarded with the prestigious Marie Curie Individual Fellowship to implement MANGO between the University of Columbia (USA) and IISPV (Spain). MANGO combines exposomics and epidemiology to further explore GDM.

During the period at URV, she was involved on food control contracts with the industry and other institutions.

She has been Teaching Assistant and international teacher in PhD courses. She has supervised 11 undergraduate students, 1 MSc student, 4 PhD student (3 ongoin), and 1 Post-Doc. She has been appointed as Deputy Director of TecnATox.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	GASMI , LAILA
Referencia:	RYC2022-037286-I
Correo Electrónico:	gasmi.leila@gmail.com
Título:	Tackling insect immunity for improved pest management

Resumen de la Memoria:

Global food security is a major worldwide concern that require an increase in production while protecting the environment. In this regard, research efforts to develop eco-friendly pest management strategies are being carried on worldwide. Despite their biodiversity richness, a limited number of entomopathogens and natural enemies are currently part of integrated pest management (IPM) strategies. In addition, insects are in dynamic interactions with components of their ecosystems. Variable interactions between insects, their plant hosts, microorganisms and natural enemies might exert variable selection pressures which would differently affect the extent of damage caused by insects and efficiency of the applied biological control agent. Therefore, considering mixed infections, the complex multitrophic interactions of the insect in its ecosystem and what drives the evolution of the insect immune mechanisms is primordial to design optimum pest control strategies that involve pathogens such as insect viruses.

My research interests and goals have been shaped by these questions. I mostly focused on insect-virus interactions using as a model system the generalist worlwide pest Spodoptera exigua (Lepidoptera) and its baculovirus which is used as biological control agent. Then, I expanded my interest to interactions with other viruses and parasitic wasps as natural enemies of lepidopteran insects. In particular, I focused on evolution of the insect immune system against viruses and natural enemies (i.e., parasitic wasps) as a first step to improve efficiency of virus-based insecticides, predict establishment of infection in natural populations after application in field and to develop optimum pest management strategies that include both viruses and parasitic wasps while predicting competition and/or cooperation between these 2 biological control agents. Additionally, I contributed to characterizing interactions between viruses within the same host and how the order of infection (that will be reflected in order of application of the virus-based insecticide) affect the insect mortality rate. I further assessed how insect-plant (S. exigua-Maize) interactions affect the interactions between the insect and entomopathogens. I also focused on characterizing the stability and efficiency of entomopathogenic fungi to control agricultural pests. Currently, I am a researcher in the University of Pavia (Italy) where I managed to support my research through a competitive internal call within the University to develop my own project, established a cell culture facility and supervised 4 Bachelor and Master students. Combining knowledge from different fields (e.g., insect pathology, molecular entomology, plant biology) is needed to identify molecular targets, interaction mechanisms and new pathogens for efficient pest management strategies. With this in mind, I have been characterizing insect immunity against entomopathogens, the pathogenicity and infective strategies of these pathogens, in addition to the interactions that involve natural enemies and plants.

Resumen del Currículum Vitae:

I am a molecular entomologist interested in insect-virus interactions to identify interaction mechanisms or molecular targets for pest control. I published 17 peer-reviewed papers (11 open-access) and presented my results in 11 congresses and 3 academic institutions. I supported my research with fellowships and/or ad hoc research projects. Additionally, I co-supervised 2 bachelor and 2 master students. I served as ad hoc project reviewer for the Poland National Research Center, currently serving as guest editor for the journals Insects and Frontiers in Immunology and reviewed papers for 12 journals.

I was introduced to the field of pest control when I started my PhD in the University of Valencia, funded by a fellowship from the Generalitat Valenciana. I focused on how immunity of the generalist pest Spodoptera exigua evolved to respond to viruses as a first step to improve efficiency of virus-based insecticides and predict establishment of infection in natural populations after application in field. Results were published in 4 papers as first author. One of which, published in PLOS Genetics, received significant press attention for the results novelty. Additionally, I obtained 2 travel grants to attend international meetings and an award for outstanding poster presentation.

By the end of my PhD, I was convinced that to assess pathogen-based insecticides efficiency, it is primordial to consider multitrophic interactions. Thus, I expanded my interest to chemical ecology and mixed viral infections as a junior researcher in the University of Valencia and showed that mixed infections and plant defense mechanisms effect on the insect pathogens should be considered when designing integrated pest management strategies (IPM). Results were published in 2 papers as 1st author. Intrigued by multitrophic interactions, I developed a proposal that was funded by the Japan Society for Promotion of Science and moved to the Tokyo University of Agriculture and Technology. IPM relies on combination of existent control tools that include natural enemies and pathogens, thus characterizing compatibility between these entities is primordial. I described new gene family that determine the parasitoid complex able to develop within the host. These genes resulted from horizontal transfer of viral genes that in viruses confer competitive advantages over parasitic wasps. Results were published in the prestigious journal Science.

To expand my expertise on pest control strategies, I joined the group of Insect Molecular Biology in South Korea. I contributed to assessing efficiency and thermal stability of Beauveria bassiana (one of the most used fungi in biological control). In addition to a paper as a 1st author, I contributed to side projects that resulted in 2 publications. In 2019, I moved to the University of Pavia where I managed to fund my research through the "Dipartimento Excellenza" program of the Italian Ministry of Education, University and Research. I am characterizing viral integrations in a different insect species. The results are not published yet, but so far, I contributed to 4 papers.

Through the past 12 years, I developed an international network, acquired overview on the complex interactions involving insects and skills in applied entomology, molecular and cellular biology, virology, chemical ecology and evolutionary biology.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	PÉREZ ÁLVAREZ, EVA PILAR
Referencia:	RYC2022-036443-I
Correo Electrónico:	evapipeal@msn.com
Título:	Técnicas agronómicas y enológicas para mejorar la calidad y composición de uva y vinos y aumentar la sostenibilidad en vitivinicultura.

Resumen de la Memoria:

At CIDA-La Rioja, a FPI fellow allowed me to sample and upload edaphological information to the Soil Database of La Rioja. These data along with varietal, climatic and vines productive-vegetative parameters, grape nitrogen composition and organoleptic properties of the microvinifications I made, allowed me to characterize "Terroirs" in a D.O.Ca. Rioja wine-growing area and to know its impact on grape and wine quality. An INIA predoctoral fellowship gave me the chance to study the cover crops effect on the soil-vine-grape-wine system. I analyzed their influence on the nitrogen cycle, soil moisture, vine nutrition and development, grape nitrogen composition and wines biogenic amines. At University of California-Davis (USA) I increased my knowledge of vine physiological behavior. At University of Evora (Portugal) I fine-tuned an ICP-MS method to quantify trace mineral elements optimizing the wines traceability. At ICVV (Logroño), I studied the nitrogen dynamics in the climate-soil-vine system in order to rationalize its use and mitigate the greenhouse gases emission in vineyards, for which determination, I optimized a GC-MS-ECD method. I also evaluated bioprotection, an alternative technique in the winery that reduces SO2 addition. At CEBAS (Murcia), with a Juan de la Cierva-Formación (JdC) contract, I studied water-soil-plant relationships, using controlled deficit irrigation (DI) strategies that allow to optimize irrigation systems. I evaluated agronomic techniques (late pruning, DI, new rootstocks, elicitors) to reduce the uncoupling of the grape technologic and phenolic maturities. With my current JdC-Incorporación contract at ICVV, I continue the line to optimize foliar application of elicitors in the vineyard (in this period incorporating nano-technology), to improve the grape and wine aromatic, nitrogen and phenolic composition. I have complemented this line with a stay at the Polytechnic University of Marche (Italy), to study the effect of these applications on vine plant protection.

I have participated in 71 research projects: 4 internationals, 13 nationals, 36 regionals (IP in 2) and 9 with private companies (3 internationals; IP in 2 and 6 nationals; IP in 4). I have made stays in 5 foreign and 3 national research centers. I have published 77 scientific articles (56 Q1), 16 technician manuscripts, 10 book chapters (1 as senior author and I am the only author in another one) and 77 communications in congresses (53 internationals; 20 as orals). I have been editor of an international book (2017) and, currently, I am editor of a special issue (2023). So far, my publications have received 948 citations (Scopus). My h-index is 20. The "J. Sci. Food Agric." awarded me a recognition for having one of the most read articles in 2018-2019. Accrediting entity: Wiley (USA). I have directed a Doctoral Thesis, tutored 7 Masters students and 2 European postdoctoral fellows. I have been a Tribunal Member of 1 Doctoral Thesis and Substitute in another 4. I am on the organizing and scientific committees of an international congress; I organize seminars at ICVV and I have organized 1 international project meeting. ANECA certified me as Assistant Professor. I have the I3 Program.

To sum up, the main objective of my research lines is to improve the quality and health properties of grapes and wines, through the study of agronomic and enological factors.

Resumen del Currículum Vitae:

Technical Agricultural Engineer, specialized in Agricultural and Food Industries (University of La Rioja (UR), 2005), Agricultural Engineer (University of Lleida, 2007), Degree in Enology (UR, 2010) and PhD with international mention (UR, 2015).

A pioneer project in Europe about agronomic behavior of herbaceous crops under organic agriculture, allowed me to elaborate my Bachelor Thesis and introduce me to the research world (Erasmus scholarship, Università degli Studi di Firenze, Italy, 2007). During my period as a FPI fellow at CIDA (2008-2010), Logroño, I developed projects regarding different Terroir characteristics and its impact on grapes and wine quality. In my PhD Thesis (INIA predoctoral fellowship, 2010-2014), I studied the incidence of cover crops on the soil-vine-grape-wine system. At University of California-Davis (USA, 2013), I improved my knowledge of grapevine physiological behavior.

In 2016 (Universidade de Évora, Portugal), I fine-tuned a chromatographic technique that analyzes nitrogen compounds in musts and wines. At Hercules Laboratory (Évora, Portugal) I optimized an ICP-MS methodology for wines, to quantify trace mineral elements and achieve the wines traceability. At ICVV, Logroño, I studied the nitrogen dynamics in the climate-soil-plant system to rationalize its use and mitigate the greenhouse gases emission in viticultural ecosystems. I optimized a GC-MS-ECD method for its determination. I evaluated bioprotection, an alternative technique to reduce SO2 addition in wines. I analyzed the influence of commercial formulations applied in vineyard to improve grape quality and reduce wine biogenic amines. At CEBAS, Murcia (Juan de la Cierva-Formación (JdC) contract, 2018-2021), I focused on water-soil-plant-environment relationships, evaluating DI strategies to optimize irrigation through sensors and water balance modeling. I evaluated agronomic techniques to reduce the uncoupling of the grape technological and phenolic maturities. At ICVV (JdC-Incorporación contract, 2021-present), I have studied the effect of elicitors foliar applications on musts and wines composition. At Università Politecnica delle Marche, Ancona (Italia, 2022), I tested basic substances as alternative strategy to improve the fungus control in the vineyard. I have participated in 71 research projects: 4 international, 13 nationals, 36 regionals (IP in 2) and 9 with private companies (3 internationals; IP in 2; 6 nationals; IP in 4). I stayed in 5 foreign and 3 national research centers. I collaborate with 96 scientists, including 26 internationals. I have published 77 scientific articles (56 Q1), 16 technical papers, 77 communications in congresses (53 internationals; 20 as orals), 10 book chapters and co-edited 1 international book and 1 special issue. So far, my publications have received 948 citations (Scopus). My h-index is 20. I have directed 1 PhD Thesis, supervised 2 fellows, 5 people in their Master stage (3 internationals) and 2 European exchange postdoctoral fellows. I have been a member of the tribunal of 1 PhD Thesis and member substitute in other 4. I have censored manuscripts of international SCI journals. I collaborated in the XIX Science and Technology Week of CSIC, 2019. I am certified by the ANECA as Assistant Professor. I have the I3 Programm certification (Ministerio Universidades). I am a Spanish Society of Soil Sciences member

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	TELLO MORO, JAVIER
Referencia:	RYC2022-037758-I
Correo Electrónico:	javiertm85@hotmail.com
Título:	Análisis de la diversidad genética de la vid y sus aplicaciones

Resumen de la Memoria:

My scientific career focuses on the analysis of the existing diversity of the grapevine (Vitis vinifera L.) germplasm to reveal the genetic basis of relevant traits linked to features of agronomic interest (fruit quality, crop yield, adaptation potential). To that end, I use a combination of approaches (phenomics, genetics, transcriptomics, genomics) and disciplines (quantitative genetics, statistics, bioinformatics, plant physiology, plant phenotyping, molecular biology) that I obtained during my scientific training, most of them acquired at forefront research institutions. At the mid- and long-term, this knowledge is devoted to the generation or improvement of grapevine varieties capable to strengthen the resilience of the viticultural sector to face, among other challenges, current climate change-derived threats. My scientific training has been mostly funded by local, national and European programs, including highly competitive individual fellowships (Juan de la Cierva Incorporación; AgreenSkills+). During my scientific training, I constructed a strong professional network that includes some of the most influential international experts in grapevine sciences.

Resumen del Currículum Vitae:

The impact of my research work within the Agricultural Sciences and Plant Sciences research fields is shown in my 30 SCIE-indexed scientific publications (70% in Q1) and in two book chapters. My leading role in these publications is reflected in the authorship of 19 of them as first/last author, and 10 as the corresponding author. These works generated new research ideas, as well as highly cited results (in average, 98 citations per year from 2018-2022). Most of these works are published in Open Access journals, and research outputs are freely available in public repositories to meet FAIR principles. My research has been also disseminated in numerous national and international conferences, and in technical reports for professional journals, specialized blogs, and press notes, among others. These works mostly result from my collaboration in 12 research projects funded by regional, national and international public agencies. I was PI of two of these projects, funded by CSIC (iCOOP+ 2020; 23.884,36 €) and the EU (AgreenSkills+; 86.393,12 €).

My research work has also received the interest of research-end users, obtaining funds from public and private sources (45.282,77 € in total). I have participated in 19 research contracts with private companies and international agencies. I was PI of five of these contracts, one of them funded by the Food and Agriculture Organization of the United Nations (FAO). Projects findings were exploited by local and national stakeholders to shape effective viticulture policies.

I have teaching experience in six BSc and MSc courses, adding for 39.5 ECTS, and I have supervised three MSc Thesis, and evaluated one PhD Thesis. These experience resulted in positive evaluations from ANECA as PAD, PCD, and PUP. I am a frequent reviewer of SCIE-indexed scientific publications, and I have edited two Special Issues for two SCIE-indexed scientific journals. I am in the organizing committees of two international conferences. I am an international evaluator for the National Program for Scientific Research and Advanced Studies of Peru.

I am one of the two Spanish members in the 'Vitis' Working Group of the ECPGR. My research findings have been acknowledged with the 'Robert Schlumberger Research Prize for Innovative Research Projects in Viticulture', the Second Finalist mention in the 'Young Researcher' Award organized by the 'Plataforma Tecnológica del Vino', and one award in an international conference.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	MORENO GONZALEZ, DAVID
Referencia:	RYC2022-035915-I
Correo Electrónico:	dmgonzal@ujaen.es
Título:	INNOVATIVE ANALYTICAL APPLICATIONS IN FOOD QUALITY AND SAFETY ASSESSMENT.

Resumen de la Memoria:

Dr David Moreno González joined the group of Prof. García-Campaña at the University of Granada (UGR) to carry out his PhD, including a secondment at the University of Utrecht, evaluating a new sheathless interface prototype for capillary electrophoresis/mass spectrometry (CE-MS). He completed his PhD in Analytical Chemistry in 2013 (Summa Cum Laude and International label). Then, he obtained a postdoctoral contract at the UGR, expanding his research interests towards other challenging food contaminants. After that, and aiming to gain experience and exposure in the private sector, he completed six months as an analytical scientist in a food quality control laboratory. After a second postdoctoral appointment at the UGR, he was awarded with a "Juan de la Cierva programme" research grant -one of the most competitive tenure-track calls for young scientists- at the University of Jaén (UJA). The main topic was the implementation of nanoLC-HRMS for quantitative small molecule applications in food sciences. To expand his skills and international visibility, the candidate completed a one-year appointment in the Czech Republic (Charles University), as a junior scientist of the European Project STARRS. To further enhance his knowledge of the development of scientific instrumentation, he developed a novel miniaturized ionization source for separation methods based on the use of low-temperature helium plasmas. To accomplish this study, he was awarded with a Marie Sklodowska Curie Action at the Leibniz Institute for Analytical Sciences-ISAS (Germany). MSCA fellowships are among Europe's most competitive and prestigious awards, aimed at supporting the best and most promising scientists. Currently, the researcher has returned to UJA, leading his research project through another competitive call supported with EU funds, addressing the compelling topic of virgin olive oil authentication. The main research topic that the candidate has tackled (supported by several national and European projects and grants) is the food quality and safety realm, developing green analytical methodologies for the determination of organic contaminants in foods as well as other relevant technological aspects of food quality. His contributions on the coupling of CE, LC and nano LC to MS analyzers as advanced tools for multiresidue quantitative methods of organic contaminants at ultra-trace levels have been pioneering and widely recognized by several conferences at international level where the candidate has disseminated his results.

Additionally, the development and applications of new ionization sources in mass spectrometry have allowed the candidate to open new research venues based on the application of the latest advances in analytical chemistry to high-impact fields within food science. Currently, the candidate has returned to UJA, with his own independent research project, showcasing his leadership and the ability to raise funding at this career stage. In parallel, the candidate has also contributed to an EU H2020-funded WIDESPREAD action consortium entitled TimPANI and research institutions from Germany and Cyprus. Besides, he is also engaged in an EU-PRIMA project entitled SUSTAINOLIVE and in a LIFE project GEN4OLIVE. Thanks to these collaborations, he foresees opportunities to apply for several international and national calls to accomplish his independent research.

Resumen del Currículum Vitae:

Dr Moreno-González completed his PhD at the University of Granada, obtaining the highest score (summa cum laude and international label). His research career is focused on developing green analytical methodologies for relevant species of interest in Food Science and Technology. More specifically, his main research topic (supported by several national and European projects) was the exploitation of the potential of coupling CE, HPLC and nano-LC to MS analyzers as advanced tools for multiresidue quantitative methods for the determination of relevant organic contaminants at trace levels. The candidate has been involved in various European projects, including a Marie-Sklodowska Curie action, where he has been developing a novel ionization source called Controlled-Atmosphere Flexible Microtube Plasma with potential applications in food quality and safety. He is currently involved in two EU-funded research projects: TImPANI and SUSTAINOLIVE, with over 3-million euro total budget. Besides the competitive calls obtained, several awards and honourable mentions prove his research's quality.

He has accumulated a sound postdoctoral experience in internationally recognized research groups, completing his training by means of different research appointments (a total of 3 years abroad), and also in Spain. These appointments constitute the building blocks of current active research initiatives and networking activities where the candidate plays a central scientific role. In all cases, he has obtained competitive funding from the European Union and Spanish governments. Overall, these competitive fellowships/contracts sums up over 235,500 EUR of funding. Together with his key role in TImPANI and SUSTAINOLIVE EU-funded projects, Dr. Moreno-González is currently developing a research project as principal investigator at the University of Jaén (UJA), addressing challenging topics in olive oil quality, through a competitive call for young researchers within the framework of the ERDF Andalusia 2014-2020 Operational Program (Ref. 1263809), with overall funding of 97,000 EUR for two years.

He has actively contributed to 14 research projects, including 6 funded by the EU (2 as principal investigator). His record includes 75 international publications, including 68 peer-reviewed articles, indexed in JCR, 50 in journals ranked Q1. He has the privileged position of authorship in 82% of them (first/second author in 50 papers, last/corresponding author in 6). He has also authored 8 international book chapters (written by invitation). Besides, up to 5 articles has been submitted or are in publication progress. These scientific contributions have accumulated 1600 citations, with 279 and 309 citations received in 2021 and 2022, respectively. He has disseminated his research through over 80 scientific contributions at both national and international conferences (30 oral communications, 6 of them invited). In addition, he has gained a sound teaching experience at the graduate level in Food Science and Technology. He has demonstrated his leadership and mentoring skills, supervising three PhD theses in the frame of the PhD programme entitled "Advances in Food Safety" at the UJA, as well as various MSc theses (6), four of them from the "Official Master in Food Safety" from the UJA.

Área Temática:	**Ciencias agrarias y agroalimentarias**
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Título:	Análisis integrado genómico, transcriptómico y epigenómico

Resumen de la Memoria:

El Dr. Juan A. Salazar durante su carrera investigadora ha contribuido a la mejora genética de frutales de hueso aportando publicaciones relevantes enfocadas al desarrollo de nuevas herramientas moleculares para la Selección Asistida por Marcadores (SAM) en especies del género Prunus para caracteres relacionados con la fenología, calidad del fruto y comportamiento postcosecha. Para ello, se han implementado enfoques genómicos, transcriptómicos y epigenéticos. Todo el trabajo realizado hasta ahora ha servido en parte para la obtención de nuevas variedades de Prunus de interés, como el albaricoquero y el ciruelo japonés.

Desde un punto de vista genómico y transcriptómico, el solicitante ha publicado resultados relevantes relacionados con la identificación de QTLs ligados a caracteres fenológicos, como la fecha de cosecha (genes NAC); y a caracteres de calidad del fruto, destacando los genes relacionados con el color del fruto (genes MYB) en el albaricoquero y ciruelo japones. Por último, también se han identificado nuevos QTLs menores relacionados con el comportamiento postcosecha en ciruelo japones, considerando la degradación de la clorofila y el ablandamiento de la fruta como los parámetros más relevantes involucrados en el período de vida útil del fruto, así como también se han identificado importantes QTLs ligados a compuestos nutracéuticos. Otro enfoque novedoso a tener en cuenta es la epigenética, para tener una mejor comprensión de los procesos biológicos que no dependen de alteraciones en la secuencia del ADN debido a mecanismos como la metilación del ADN. Así pues, el solicitante ha generado información valiosa desde el punto de vista genómico y transcriptómico, sin embargo, el carácter poligénico de los caracteres de calidad del fruto dificulta la aplicación de SAM. Por tanto, debemos asumir que, SAM sólo es posible para caracteres de baja complejidad o controlados por genes mayores, y no para caracteres complejos o controlados por genes menores al menos en un corto plazo. Por lo tanto, en el contexto de un programa de mejora genética, para avanzar hacia una mayor eficiencia, debemos: (1) abordar aquellos caracteres de interés vinculados a genes mayores (color del fruto, fecha de cosecha, etc.), y (2) tratar de diseccionar aquellos caracteres vinculados a QTL menores (peso del fruto, acidez, contenido de azúcar, etc.) para aumentar la explicación de la varianza fenotípica. En este sentido, la línea de investigación que debe desarrollarse para seguir avanzando en los actuales y futuros programas de mejora genética incluye la selección de los mejores genitores para la generación de nuevas poblaciones segregantes. Para este propósito, se deben implementar nuevos enfoques, como la selección genómica, utilizando poblaciones bien diseñadas y fenotipadas con precisión para predecir el 'Breeding Value', lo que facilita el diseño de los cruces más adecuados para unos caracteres de interés. Además, la disponibilidad de los genomas del albaricoquero y ciruelo, así como las nuevas tecnologías de secuenciación, facilitan el genotipado de nuevas poblaciones. Estas herramientas moleculares son necesarias para estudios de asociación del genoma completo (GWAS) y la selección genómica (GS), las cuales, podrían acelerar la eficiencia de los programas de mejora de estas especies.

Resumen del Currículum Vitae:

Doctor en Biología Vegetal (2014) por la Universidad de Murcia e Ingeniero Agrónomo (2010) por la Universidad Miguel Hernández (Elche). En 2010 me incorporé al Departamento de Mejora Vegetal del CEBAS-CSIC (Murcia) para realizar mi Tesis Doctoral titulada 'Bases genéticas y moleculares de la calidad del fruto en albaricoquero (Prunus armeniaca L.)', bajo la dirección del Dr. Pedro Martínez y David Ruiz.

Durante mi etapa predoctoral (2010-2014) en el CEBAS-CSIC, a través de una beca predoctoral JAE, abordé estudios de fenotipado y genotipado en diferentes poblaciones de albaricoquero mediante el uso de marcadores de ADN para el análisis de diversidad genética, mapeo genético e identificación de QTLs. También tuve la oportunidad de realizar estancias durante 2 meses en el Departamento de Ciencias Vegetales (UC Davis, California) y de 6 meses en el Departamento de Ciencia y Tecnología Agroalimentaria (Universidad de Bolonia, Italia). La experiencia adquirida durante este periodo me ha permitido contribuir sustancialmente en los campos de la genética y genómica de frutales de hueso, lo que se ha traducido en varias publicaciones en revistas científicas incluidas en la 'Web of Science' (WOS).

En cuanto a mi etapa postdoctoral (2015-2018), fui contratado a tiempo completo como investigador colaborador durante 8 meses en el 'Programa de Mejoramiento Genético de Kiwi Chile-Italia apoyado por selección asistida por marcadores' (Departamento de Producción Agrícola, Universidad de Chile). Luego, obtuve mi propio proyecto postdoctoral titulado 'Bases genéticas y moleculares de caracteres de calidad del fruto en el género Prunus' como Investigador Principal (PI) durante 3 años en este mismo Departamento. En este periodo, publiqué el primer mapa genético del ciruelo japonés (Prunus salicina L.) en la revista Frontiers in Plant Science, donde muchos de los QTL identificados previamente en albaricoquero también fueron identificados en ciruelo japonés.

Más recientemente, durante mi Reincorporación al CEBAS-CSIC, obtuve un contrato postdoctoral a tiempo completo a través de un proyecto 'Saavedra Fajardo' (2018-2020) de la Región de Murcia como IP en el CEBAS-CSIC. En este momento, tengo un contrato postdoctoral 'Juan de la Cierva Incorporación', y también soy IP de un proyecto de investigación nacional 'Mejora genética del albaricoquero' (PID2020-116780RB-I00).

En resumen, durante mi carrera investigadora, he publicado 30 artículos de investigación originales en revistas internacionales, 26 de ellos incluidos en la 'WOS', y 20 de ellos en el primer cuartil de su categoría. Además, también he presentado 41 comunicaciones a congresos nacionales e internacionales y soy co-obtentor de dos nuevas variedades de albaricoquero ('Tardorange' y 'Capricho') y una nueva variedad de ciruelo japonés ('Lucia myrtea'). Además, he dirigido 2 Trabajos Fin de Máster y 2 Trabajos Fin de Grado, y dirigiré una tesis doctoral a través de una beca FPI de la fundación SENECA. Por otro lado, también he participado en 13 proyectos nacionales (6 como IP), así como en 5 convenios de transferencia. Finalmente, todos estos logros me han permitido obtener la certificación I3 a través del Programa de Incentivo a la Incorporación e Intensificación de la Investigación.

Área Temática:	**Ciencias agrarias y agroalimentarias**
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Título:	Mejora por resistencia a estreses bióticos y abióticos

Resumen de la Memoria:

As previously stated the research group in which I am integrated within the Institute for Sustainable Agriculture (IAS-CSIC) has large experience in the breeding for resistance to biotic and abiotic stresses. In the frame of that research line I developed my thesis in which I focussed in the breeding of oats focussed mainly in genetics and disease resistance aspects.

After finishing my thesis, I thought that quality aspects were lacking in the know how of the group since it is currently an important trait in the oat breeding programs aiming to use oat for human food which allow important benefits to farmers. Then, I decided to perform my post-doc in one of the most prestigious centres tackling oat breeding for quality, which is the Cornell University. I worked in the project "Acelerating Oat Breeding for Nutritional Qualities" in which an oat diversity panel was evaluated for agronomic traits and seeds were analysed for non-targeted and targeted metabolomic profiling to identify genes associated with variation in oat nutritional and metabolite composition utilizing a genome-wide association (GWA) approach. I carried out the agronomic evaluation of the oat diversity panel in the field in different environments and determined several nutritional oat components such as; proteins, lipids, beta-glucans, avenanthramides, etc by chromatographic methods and by NIRs. I was responsible to set up the conditions and protocols for the NIR determinations, the results of the first Near Infrared Reflectance (NIR) single kernel analyser, able to detect simultaneously biocompounds content, weight, and image of individual oat dehulled kernels. In addition, the information generated was used to develop GWAS of oat nutritional components to identifying loci associated with biocompounds which will allow us to understand the biochemical pathways related to different compounds and to pinpoint the genetic control of trade-offs in chemical production.

The knowledge and skills acquired during my postdoc will allow me to develop a new and interesting line of research in the host group, in which a broader and more integrated vision of the genetic improvement of oats will be obtained and that it is completely integrated with the current research lines.

As I mentioned, the research group in which I am currently integrated has large experience in the breeding for resistance to biotic and abiotic stresses. However, in the group there is no experience in quality aspects in oats (or other crops) which I gained during my postdoc. One of the most novel aspects of the researcher line will be to integrate the quality aspects of oats, based on the functional and healthy properties of avenanthramides with the resistance to diseases. This will allow me to develop, top science, deepen in the mechanistic role of avenanthramides during the resistance responses to rust, which is one of the most important constraints for this crop in Mediterranean areas, together with introducing the breeding aspects for nutritional quality, which is currently one of the most desired traits for oat, due to the additional value of the harvested grain. On the other hand, it will also allow me to develop an independent research line that without doubt will consolidate my research career and that at the same time is completely integrated with the research activities of the group in which I am integrated.

Resumen del Currículum Vitae:

I obtained a degree in Biology at the University of Granada in 2005. Subsequently, I developed 3 Master's degrees in different complementary fields from 2006 to 2011 to improve my skills and knowledge. From 2011-2014 I performed my doctorate in Biosciences and Agrifood Sciences with honours (Cum Laude) and European Mention. Then I performed a post- doc at Cornell University, USA (2014-2016). From 2017 I developed my research career at IAS-CSIC. In 2020 I obtained a competitive grant for Doctors funding by Andalusian Government for 3 years (2021-2024) and recently I obtained the competitive EMERGIA contract for Doctors of Excellence for 4 years from Andalusian government.

During my research career I have focus in the resistance to biotic and abiotic stresses in plants. The skills and knowledge developed during my research career are supported by the different high impact publications derived from my work. Thus, I have contributed to this research line with 27 publications, 19 of them being SCI articles in which I am first/last author in 12 of them, most of these publications are classified in Q1 and 7 of them in D1. I addition, I also contributed to this scientific field with 3 outreach articles and 4 book chapters. In order to widely communicate our research I presented 37 contributions to international conferences, 11 of them as oral communications. I have contributed to the establishment of international and national collaborations, at time that I specialised my formation through different stays during my predoctoral and postdoctoral period in research institutes of Aberystwyth (UK), Nijmegen (The Netherland), Barcelona (Spain), Cornell University (USA), Radboud University and the IG-CSIC for c.a 3 years.

I have participated in 13 research projects funded by public bodies and also private companies such as "PepsiCo" during my postdoctoral studies or Syngenta, which provided me with a view for the integration between Science and Industry. Recently, I was funded by EMERGIA program funded by Andalusian Government for 4 years (2023-2027) to develop the project "LowCostResistance" as PI. I also have the Seal of Excellence awarded by the European Commission in the H2020-MSCA-IF-2016 call based on my CV and the project presented.

I think it is very important to communicate science to society and in this sense I have participated in several events such and the "Science walk", the "Night of researchers", "PIIISA" "Science IES" and "FidiCiencia+Erasmus" programs and we assiduously communicate our results through the twitter account of our group, CeResLab.

From the training point of view, I have directed 2 TFG and I am currently supervising 1 Doctorate Thesis (next defense in 04/2023). I have been responsible teacher in a topic of 2 Masters at Cordoba University and teacher in an Advance specialised course in the International Excellence Campus on AgriFood eidA3 in 2013 and 2017. I am member of the Dissemination and Outreach Committee (DOC) of IAS-CSIC.

From the transfer and valorisation of results point of view I want to highlight that I am co-founding partner of Solintagro, S.L. which is a business entity for the management of R&D actions and projects, from 2015 up to date. In addition, I am part of the Editorial board of Frontiers in Plant Science as associate reviewer and Editor of the Plants journal, I have also participated as a guest reviewer in many other journals and I belong to the Spanish Society of Plant Physiology (SEF

Área Temática:	**Ciencias agrarias y agroalimentarias**
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Título:	RESOLVE

Resumen de la Memoria:

1. Extended detail of research career

All my research career I have been interested in developing soil and water conservation strategies to address soil degradation across different landscapes. I have found that forest residue mulch is an extraordinarily effective, easy to apply and highly available resource capable of improving soil ES erosion control, water supply and carbon storage in areas degraded by wildfires. It is my strong feeling that it will also be effective in other degraded areas vulnerable to soil erosion and low in SOM. Mulch-based techniques can serve the triple objective of revert desertification, increase SOM (and combat global warming) and promote circular economy.

I developed an extensive network of collaborations with Portuguese, Spanish and USA research centers, which are a unique international ring trial of leading experts tackling with land degradation from a variety of approaches. The new platform of research project that I am leading (SOLVO, SOLVIT, BIOMONTADO) will allow the urgent assessment of new tools to restore degraded soils in Mediterranean regions, where the EU members have required joint efforts to address the climate emergency.

2. Main research line:

Future climate change scenarios indicate an increasing vulnerability to desertification in southern Europe. Its effects will be particularly acute in southern Iberian Peninsula, where warmer and drier scenarios may increase forest wildfires and transform forests into low-biomass grasslands with lower SOM content. Desertification combined with unsustainable land management and fuel load management are triggering land degradation by several soil threats. Besides soil erosion, the decline in SOM, soil fertility and soil biodiversity promote global warming, reduce agronomic yield and compromise food security. Promoting soil carbon sequestration strategies, as the 4%(20), can compensate global greenhouse gas emissions and halt climate change. Biochar can be used for rehabilitation of low fertility soils (3, 4) but can have potential trade-offs with soil biota (5). In a nutshell, the economic feasibility and ecological implications of applying organic residues or biochar and the implications on soil ESs are still a matter of debate.

The main objective of this line of research is to reverse desertification in degraded areas by means of applying mulch-based solutions, derived from agro-forestry residues. The specific objective are:

1. Select the mulch materials, application rates and schemes that are effective to maximize the mulch restoration capacity;

2. Assess the effect of selected mulches on soil ecosystem services (ESs) such as erosion control, water supply, carbon fixation, soil fertility and soil biodiversity across spatial scales in field scenarios;

3. Assess the treatments' life-cycle performance and the environmental suitability and predict the performance of the treatments within broad temporal and spatial scenarios, useful as decision-support tools for land managers.

The approach combines lab and field experiments to engineer a mulch-based solution capable to revert soil degradation in areas vulnerable to soil erosion and with low soil organic matter (SOM) contents, while at the same time mitigates global warming by increasing C sequestration.

Resumen del Currículum Vitae:

I concluded my PhD thesis "Soil erosion mitigation following forest wildfires" in 2013, which was developed with several stays at Univ. Porto (Portugal; 8 months), Univ. Valencia (Spain; 3 months) and Univ. Colorado (CSU; USA; 6 months). I developed my post-doc (2014-2019) at CESAM-UA through collaboration with FCTUC-Coimbra (11, 16, 17; numbered according to CVA and Research Proposal); and 12 months stay at Forest Service California USDA-FS (1, 12), 15 months at Sevilla IRNAS-CSIC (4, 5, 19) and 12 months at Pontevedra MBG-CSIC (13). In the present, I am auxiliary researcher at MED–Mediterranean Institute for Agriculture, Environment and Development, Univ. Évora (UE), Portugal, where I expanded into the assessment of soil ecosystem services (ESs) in agro-silvopastoral systems such as Dehesas, olive and vineyards and soils affected by fire and polluted with heavy metals.

During my PhD I demonstrated that forest residues are a resource for restoration of burned areas (10, 121 cites, according to Scopus). During my Pos-Doc I developed a robust screening method to select effective mulches in the lab (1, 11, 16, 17), followed by field assessing (7, 8, 9, 12) and finally validation at scales useful for managers (2, 18), as they need tools scientifically validated in field studies. My research independence is demonstrated through the new research projects that I am leading as PI (SOLVO, SOLVIT) and Co-PI (BIOMONTADO) and also through collaborations with USDA-FS (1,12) where we assessed the post-fire erosive response under complex, salvage logging scenarios) and with other Spanish and Portuguese research institutions, such as IRNAS-CSIC (4, 5, 19 where I authored three studies assessing the effects of biochar in soils), MBG-CSIC (13, where I authored a study about community-based initiatives to mitigate land degradation), INIA & EBD-CSIC research centers (14, where I assessed the effects of prescribed vs megafires in the soil C pools and wind erosion in the CILIFO research project, see CVA) and the Portuguese Univ. Lisbon-CE3C research center (R3-FOREST project). My research was funded by 13 ongoing research projects; 3 of which I am Principal Investigator or Co-PI. I have obtained a total funding of 1.6M euros, from which 730K euros were attributed to my research center (UE) and allowed me to work as an independent researcher and to build my own team, which currently has 1 PosDoc student, 1 MsC Student and 1 BsC student, and 1 research fellow. My scientific leadership is also demonstrated through the co-supervision of 1 PosDoc, 1 PhD, 5 MSc, 3 BSc students and 4 project fellows, the organization of 6 International conferences, the delivery of 20 invited talks and the organization of advanced courses and workshops where forest managers asked for scientific guidance to combat post-fire soil degradation.

I have published 36 articles in international peer-reviewed JCR/SJR-indexed journals or conferences (47 documents in total). From these, 27 were published in Q1 journals, including 18 in D1 journals. I was first author in 13 of them, being 11 in D1 journals. Overall, my H-index is 21 (30/01/2023) and my articles have been cited 1199 times in Scopus (1684 in Google scholar), some research papers of high impact factor (21, 22) have cited my research up to 7 times.

Área Temática:	**Ciencias agrarias y agroalimentarias**
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Título:	From the determination of bioactive compounds in food matrices to understand the food/diet-host interactions for successful promotion of human health

Resumen de la Memoria:

Patricia Reboredo-Rodríguez holds a PhD in Food Science and Technology with a strong background in Food Chemistry and Food Technology and Nutritional Biochemistry and Bioenergetics. Her scientific-technical interests and goals in the medium/long term are focused on understanding the food/diet-host interactions and how the modulation is critical for successful promotion of human health.

Her doctoral thesis focused on the application of analytical methods to study secondary metabolites in Galician Extra Virgin Olive Oils (EVOOs). To that end, she combined the use of different sample preparation techniques with targeted and untargeted approaches based on chromatography (LC and GC) coupled to several detection systems (DAD and MS). During this period, two new autochthonous Galician olive cultivars were identified in terms of morphological endocarp traits and molecular markers: 'Brava Gallega' and 'Mansa de Figueiredo'. These discoveries aroused the Galician oil producers' interest in recovering old autochthonous varieties over the last years and enabled the elaboration of new EVOOs with particular and differentiated sensory, nutritional and health promoting characteristics. In collaboration with colleagues from the University of Bologna, she has been working in the validation of a quick and simple method to determine the amount of phenolic compounds present in olive oils in order to bear the health claim established in the Commission Regulation (EU) 432/2012. Her PhD work represents a good example of application that served to begin to organize the olive oil sector in Galicia.

During the postdoctoral stage, she opened up her research interests to new matrices (i.e., nuts, honey, strawberries, etc.) and initiated collaborations with other research groups focused on the study of the effects of food intake on health, that led her to draw her attention to Nutritional Biochemistry and Bioenergetics. During her postdoc at the Marche Polytechnic University (Italy), she was responsible for the evaluation of phenolic extracts bioactivities of VOO on different cellular models. Upon her return to UVigo, she started to lead a new research line linked to Food Quality and Health. The last project in which she was being involved is the assessment of the digestive stability and bioaccessibility of phenolic compounds from Galician VOOs by applying an in vitro static digestion model (the INFOGEST standardized method) and a dynamic digestion simulator (simgi®, CIAL, Madrid). Moreover, she has strongly collaborated in a clinical trial to study the improvement of biochemical parameters in patients diagnosed with Type 2 Diabetes after ingesting Galician EVOO.

In summary, her research career has developed around the use of analytical strategies to address challenges faced by agro-industries and clinical research and the study of food intake on heath by using different experimental models. Thanks to all the scientific activities and projects in which she has participated, her research stays in national and international leading laboratories, and her collaborations with worldwide recognized experts, she has acquired a multidisciplinary knowledge and has built technical skills and teams management abilities that will allow her to tackle any research project she will lead in the future with a great prospect of success.

Resumen del Currículum Vitae:

Patricia Reboredo-Rodríguez earned a BSc in Food Science and Technology (2011) and a MSc in Agrifood and Environmental Science and Technology (2011) at the University of Vigo (UVigo). She developed her PhD studies (2011-2015) under the supervision of Dr. González-Barreiro, Dr. Cancho-Grande and Dr. Simal-Gándara at UVigo. During the pre-doctoral stage, she worked in the optimization of analytical methods (GC-MS and LC-DAD/MS) and their application to the study of secondary metabolites in Extra Virgin Olive Oils (EVOOs). She carried out 4 research stays in several national and international renowned research groups from University of Castilla-La Mancha (Spain, 5 months), University of Santiago de Compostela (Spain, 2 months), University of Córdoba (Spain, 1 month) and University of Bologna (Italy, 3 months). As a postdoc, she was granted a "Juan de la Cierva-Formación" grant (2015 call) and an international post-doctoral contract from "Xunta de Galicia" (2016 call), performing a total of 34 months (June, 2016 – December, 2018) in the Laboratory of Bioenergetics at the Marche Polytechnic University (Italy). During the postdoctoral stage, she worked in a new research line focused on defining the role of antioxidants and bioactive compounds present in different food matrices on oxidative stress and on the modulation of several genes involved in antioxidant defenses, metabolism, cell survival and proliferation, inflammation and related disorders, including both in vitro and in vivo models. In January 2019, she completed the comeback period of her postdoctoral contract from "Xunta de Galicia" (January, 2019 – August, 2021) and started to lead a new research line linked to Food Quality and Health. In September 2021, she got a "Juan de la Cierva–Incorporación" grant (2019 call) and was able to set up strategic collaborations with national and international research groups.

She is coauthor of 56 papers (+2 under review) published in prestigious international journals (39Q1/19D1), 4 book chapters and 2 books as editor (h-index=29, >2100 citations (450/year, postdoctoral period during the last three years)). She is listed as 1st author in 40% and corresponding author of 10% of these contributions. Her research works are coauthored with 15 world-wide recognized institutions. In addition, she has participated in 27 national and international scientific conferences (50 posters, 8 oral communications-2 invited talks). She also regularly acts as reviewer (1 paper/month) and is member of the Editorial Board of relevant scientific journals. Her research work has been awarded several prizes (including best Thesis award and best communication in congress). She has taken part in 24 research projects funded by regional, national and European sources (3 as Principal Investigator). Moreover, she has developed a company contract and act as scientific advisor in private companies. She is currently supervising a PhD candidate, has directed 8 BSc and 4 MSc and she has accumulated 420 hours of teaching experience. She participates in science outreach activities, belongs to the Coordinating and Organizing Committee of an International Congress and a National Scientific Meeting and is a committed contributor to scientific journals. She holds a positive evaluation of teaching and research activity from ANECA as Contracted Professor since December 2020.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	GIRALDO SILVA, ANA MARIA
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Correo Electrónico:	anagiraldosilva@gmail.com
Título:	Microbial systems to support ecological restoration and sustainable agriculture

Resumen de la Memoria:

I am a soil microbiologist working at the interface of organisms, populations, and community ecology. My research program seeks to integrate the use of microbial systems in ecological restoration and sustainable agriculture by i) advancing knowledge in fundamental ecology aspects of soil microbial communities that are critical to understand changes in population and community under ongoing climatic and land use conditions, and by ii) using this fundamental knowledge to support effective soil rehabilitation strategies to address contemporary issues in ecological restoration, sustainable agriculture, and adaptive management.

I focus on drylands (arid-, semi-arid and dry-subhumid areas) because they cover nearly 45% of the total Earth continental area, and host over 38% of the human population, making them a crucial ecosystem in terms of biodiversity and human well-being, especially in a warming world. Environmental change is altering the climate and the disturbance regimes of landscapes, fundamentally transforming the distributions, dynamics and structure of organisms, communities, and ecosystems. Yet, anticipating how and where transformational change will occur, or what will be its cascading effects on diversity, species replacement, habitat disturbance and the consequent loss in ecosystems services, remains a major challenge. Therefore, understanding the ecology of natural, disturbed, and managed ecosystems, and how climate change, land use and biotic interactions drive organisms and communities' dynamics is key to overcome challenges in sustainable and adaptive management of soils.

During the last decade it has become patent that microbes can play a significant role in the success of restoration practices of biological systems including soils and crops. This points to a significant, and novel approach to enhance the effectiveness of the field by bridging fundamental scientific efforts with applied restoration and sustainable agriculture endeavors.

My work to date has focused on soil bacterial physiology and their niche partitioning, microbial symbiosis, bacterial strains isolation, cultivation, and their further taxonomical classification within an ecological framework, cyanobacterial phylogeny, microbial population and community dynamics, global change, land use and ecological restoration. To tackle these research questions, I use interdisciplinary techniques including laboratory manipulations, microbial strains isolation and cultivation, controlled greenhouse, and field experiments, in combination with biochemical and molecular tools, next generation sequencing, genomics, metabolomics, bioinformatics, and meta-analysis.

While my research focuses on the fundamental science of soil microbiomes, it has immediate applications in restoration ecology and in the private sector. These applications make my work publicly relevant and well-positioned for a very diverse stream of funding sources. Moving forward, I aim to continue establishing a novel research program that focuses 1) broaden our knowledge of the fundamental ecology of soil microorganisms, 2) to forecast changes in microbial communities due to climate change, and 3) to promote dryland soils health through sustainable agricultural and ecological restoration efforts.

Resumen del Currículum Vitae:

I have developed my scientific career across multiple countries: USA, Colombia, Argentina, and Spain; where I am currently leading research projects. My research outcomes have not only contributed to the advancement of fundamental knowledge in microbial- ecology, microbial genetics, and physiology, but it has also made a tangible impact on strategies in land/soil and resources management, soil conservation & restoration, and technological processes. During my Ph.D., I discovered a microbial symbiosis that is key to understanding the early establishment of soil microbial communities in otherwise nitrogen-limited soils. I coined the term "cyanosphere", by analogy to the rhizosphere of plant roots, to describe the microbial community of heterotrophs that intimately associate with biocrust pioneer cyanobacteria and that concentrates the nitrogen-fixing function. The discovery of this carbon for nitrogen symbiosis also aided in my ultimate goal of pioneering the development of the first "biocrust microbial nursery", which constitutes a novel and innovative interdisciplinary application of environmental microbiology and restoration ecology to implement accelerated biocrust restoration strategies. I then joined the CFAM and CBBG centers as a project manager and postdoctoral associate. During this time, I successfully transferred the microbiome symbiosis line of research to restoration and showed that it is a cost-effective strategy to recover soil function of degraded dryland-soils. In 2020, I joined Rice University after successfully competing for a fully funded junior fellowship. At Rice, I am the lead investigator on a research project focusing on how drylands are fertilized by microbial-mediated mobilization of aeolian dust nutrients. Over the past three years, I have also expanded my research program to different countries. I am currently the principal investigator of a project looking into environmental drivers of soil microbiomes across a precipitation gradient in Colombian dryland-soils. Using the diversity of drylands in Argentina, I am co-leading a project studying the responses in structure and function of soil microbiomes to current and future climate change and land use conditions. Within the USA, I am also the co-PI of a multi-institutional effort to sequence whole genomes of key desert soil microbes to characterize how ongoing climate change is likely to alter their structure across dryland soils. In addition, I am co-leading a project looking at the effects of water availability on rhizophore' communities of legumes from arid soils in Spain (Bardenas Reales). In pursuing these lines of research, I have been funded through competitive national and international programs and I have raised more than € 280.000, showing my potential to attract extramural funding. My publication record speaks about my experience in conducting interdisciplinary work through national and international collaborations. I have led and co-author a patent and more than 20 peer-reviewed manuscripts in high impact journals. I had advised three Ph.D. and two undergraduate students. I am currently the external supervisor of a doctoral candidate and the supervisor of a master' s student. I taught microbiology and general biology laboratories at ASU. I am also has been actively involved in professional service and outreach activities throughout my career.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	BLANCO IMPERIALI, AYELÉN MELISA
Referencia:	RYC2022-037124-I
Correo Electrónico:	amblanco@uvigo.es
Título:	Towards optimizing feeding strategies for a sustainable aquaculture

Resumen de la Memoria:

Since the beginning of my research career, I have been trained as a comparative physiologist with a strong emphasis on studying mechanisms governing feed intake in fish, and how knowledge on this field can be applied to find new strategies to improve aquaculture, a strategic sector to feed the ever-increasing human population. Within this framework I have carried out work concerning: 1) the effects of different hormones on feed intake and metabolism; 2) the study of environmental and physiological aspects modulating appetite-regulating endocrine systems; 3) the impact of nutrients on feed intake and its regulatory systems; 4) how different organs work together to regulate feeding and metabolism; and 5) the evaluation of the effects of nutrients and other dietary compounds on feeding performance and appetite-regulating systems.

In the recent years, I started developing my own research line devoted to characterising the gut-brain axis in fish and its implication in feeding regulation. The term 'gut-brain axis' refers to a complex bidirectional communication system between the gastrointestinal tract (GIT) and the CNS, in which the GIT sends information on energy status to the brain, which integrates this with other inputs and transmits feedback to the GIT, regulating food intake and other gut processes. Within this axis, the gut microbiota also plays a key role in food intake control, interacting locally with gut cells and with the brain through neuroendocrine and metabolic pathways. In mammals, the gut-brain axis is pretty well characterized. However, knowledge in fish is very scarce. This lack of information on such an important player in feed intake regulation, and what this implies for aquaculture, has driven my motivation to include the characterisation of gut nutrient sensing systems and the role of gut microbiota in fish feeding as core elements of my research line.

Results obtained so far described the presence of several amino acid sensors in the trout GIT and their response to luminal amino acids. Likewise, we recently described several fatty acid sensors in the trout GIT, their response to intragastrically-administered fatty acids of different length and degree of unsaturation, and the impact of such a presence of fatty acids in the lumen on brain circuits governing feed intake, which points towards a functional gut-brain axis in fish, as it is present in mammals. All obtained results have provided valuable and very interesting information on the fish gut-brain axis, but still knowledge is very scarce. My aim is to continue performing experiments to fully understand how the gut-brain axis works, using a multidisciplinary approach, incorporating state-of-the-art techniques and collaborating with experts from different fields that will offer an integrated approach to the research line. In addition, considering that the final aim of my research is the improvement of aquaculture sustainability, I consider crucial to promote the transfer of knowledge to the industry, and because of that I seek to continue working in collaboration with industrial partners, such as LUCTA S.A. Planned projects include the study of how different feed additives may impact nutrient sensing mechanisms, and how this can influence feeding and the acceptance of the aquafeed by fish.

Resumen del Currículum Vitae:

My research career started in 2011, when I joined the research lab of Dr. Manuel Aldegunde at the Laboratory of Animal Physiology, University of Santiago de Compostela (Spain) to carry out basic research, after being granted business practices and a collaboration grant. In 2017, I completed my PhD in Biochemistry, Molecular Biology and Biomedicine from the University Complutense of Madrid, under the supervision of Dr. María Jesús Delgado, obtaining the Outstanding Cum Laude grade and awarded the Extraordinary PhD Award. Following my PhD, I started my first postdoctoral stage at the University of Saskatchewan (Canada), in the research group of Dr. Suraj Unniappan (from 2017 to 2019), and from 2019 I am carrying out my second postdoctoral stage at the University of Vigo (Spain), in the research group of Dr. José Luis Soengas.

So far, I have built over a decade of experience as a researcher, period during which I have accomplished several achievements and acquired skills at multiple levels: (i) Knowledge base, technical skills and independence: I have gained strong background in fish physiology and endocrinology, experience with a variety of techniques and the ability to develop a great range of independent tasks, as well as acquired excellent writing and oral skills. Results of my research work are reflected in 46 scientific publications, 9 book chapters and over 50 communications to national and international conferences; (ii) Mobility and internationalization: I have carried out research at national (IATS-CSIC and CIB-CSIC) and international (Univ. of Saskatchewan, Canada) centres that has allowed me to establish a wide network of collaborations. Such internationalization is supported by 70% of my publications co-authored by foreign colleagues. In addition, I am currently carrying out four international collaborative research projects with Drs. J. Roy (INRAE, France), B. Cleveland (USDA, USA), M. Vijayan (Univ. of Calgary, Canada), and I. Seiliez (INRAE, France). I have also participated in two research projects in collaboration with a private entity, the international food additive company Lucta S.A., which has provided me a direct contact with the industry needs. (iii) Leadership and mentoring: I have co-supervised 5 undergraduate students and I am currently co-supervising 1 PhD and 2 undergraduate students. I have also taught over 250 h of theory and practical lessons on animal physiology to university students (degree and master), gaining great teaching experience; (iv) Funding and awards: I have obtained national (FPU, Xunta de Galicia, Juan de la Cierva) and international (Canadian SHRF, ranking first) funding to pursue my PhD and postdoctoral training, and prestigious travel grants (Boehringer, FPU mobility program) to carry out collaborative research. I have also participated in 7 national and 3 international projects, and 2 industry contracts; (v) Dissemination experience: I have participated in organizing scientific dissemination activities ('Semana de la Ciencia') and been in (co-)charge of organizing an online contest during the 30th CECE and 9th ISFE meeting. In addition, I am Guest Associate Editor in Front Endocrinol, Front Physiol and Animals, I have evaluated one international scientific project (Conicet, Argentina), and I have peer-reviewed over 40 manuscripts submitted to over 15 JCR journals.

Resumen de la Memoria:

In 2012 I started my PhD Thesis focused on the evaluation of the anti-carcinogenic activity of polyphenols from food origin by using a Foodomics approach. In 2016 I join Prof. Dr. Jonas Bergquist laboratory at Uppsala University (Sweden) to develop, evaluate and apply qualitative and quantitative proteomics and phosphoproteomics MS-based methods for investigating protein changes in several biological systems (humans, canids, in vitro cell culture models and viruses) under different conditions (cancer, pregnancy, viral infection, etc.). In 2018 I join the (Micro)-Separation Techniques research group at Universidad de Alcalá, where I developed advanced analytical methods (proteomics and peptidomics) to characterize foods and biological systems. During this period, I also got a competitive mobility grant to join the NIH West Coast Metabolomics Center at UC Davis (USA) to develop new computational and experimental approaches for the identification of compounds in the metabolomics field. In 2020 I got a competitive Juan de la Cierva–Incorporación postdoctoral contract to join the Laboratory of Foodomics at CIAL, where I am applying transcriptomics, proteomics and metabolomics approaches to study the effects of food and food by-products on Alzheimer's disease models. Moreover, I am responsible of the data processing and report generation of all the works performed by the Metabolomics Platform (CEI UAM+CSIC), I am developing new GC-MS methods to analyze short chain fatty acids (in collaboration with El Bosque University, Colombia), and I am leading the CSIC's task on WP2 (Metabolomic mass-spectrometry analysis of recursive reaction networks) of an European Union-Horizon-EIC-2021-Pathfinder project.

My area of expertise is multidisciplinary, as it combines the fields of Food Science and Technology, Biology, Analytical Chemistry and Bioinformatics/Chemometrics. My investigations are mainly focused on the development, application and integration of omics technologies and bioinformatics tools to investigate complex biological systems, such as foods, food by-products and samples of human/animal origin. Based on my expertise, the line of research I would like to develop is divided in three blocks:

1) Development of new methodologies to study the food-health relationship. The main objective of this line of research is to expand the existing knowledge on the neuroprotective activity of carotenoid-enriched food extracts (and the analytes resulting from their metabolism) developing new in vitro and omics methodologies.

2) Characterization and functional study of the protein fraction of foods and food by-products. I would like to start a new research line in the Laboratory of Foodomics focused on the development of new proteomics and peptidomics methodologies aimed at the chemical characterization and functionality of these residues.

3) Identification and characterization of bioactive metabolites in food and food by-products, and the analytes resulting from their metabolism. The main aim of this research line is to develop new chromatographic methods, the creation of retention time-MS/MS spectral databases, and the application of bioinformatics tools that allow predicting the analytes that can be generated, predicting their retention times and MS/MS spectra, and interpret MS/MS spectra from those not contained in current databases.

Resumen del Currículum Vitae:

I graduated in Food Science and Technology at Universidad Autónoma de Madrid (UAM, 2010). From 2011 to 2016 I carried out my PhD Thesis in Biology and Food Sciences at the Institute of Food Science Research (CIAL-CSIC) with a competitive FPI-MINECO grant. My PhD Thesis (Cum Laude with honors and International PhD) obtained the UAM Extraordinary Doctorate award. During this period, I did a 4-month stay at the Analytical Chemistry department at Uppsala University (Sweden), and in 2016 I got a postdoctoral grant in the same department (18 months). In 2018 I got a competitive Juan de la Cierva-Formation contract to join the (Micro)-Separation Techniques research group at Universidad de Alcalá (UAH) for 24 months. For 7 months during this period, I was a Visiting Scientist in the NIH West Coast Metabolomics Center at UC Davis (USA). In 2020, I got a competitive Juan de la Cierva-Incorporación contract to join the Laboratory of Foodomics at CIAL, where I am responsible of the data processing and report generation of the works performed by the Metabolomics Platform (CEI UAM+CSIC), I am Co-Principal Investigator of an international project in collaboration with El Bosque University (Colombia, total budget: 46,560 €), and I am leading the CSIC's task on WP2 of an European Union-Horizon-EIC-2021-Pathfinder project (CORENET, total budget: 3,057,375 €).

I have co-authored 54 SCI publications (69% Q1), my H-Index is 20 and my field citation ratio is 4.185. I am first, second or last/corresponding author in 65% of my publications, 66% of my articles have international collaboration and they have been cited 1183 times. I have also published 12 book chapters, 3 no SCI articles and I have expanded the Mass Bank of North America public metabolomics database. The results of my research career have derived in 89 contributions to national and international conferences, including 4 invited lectures, 9 oral communications and 11 poster communications presented by myself.

I have participated in 11 research projects in competitive calls: 1 international (Colombia), 1 funded by the EU, 7 nationals and 2 regionals (Comunidad Autónoma de Madrid). I have also participated in 3 research contracts with different entities (more than 130,000 €). I have collaborated in teaching tasks at Uppsala University (43 hours), UAH (143 hours) and CIAL (9 hours). I have formed part of the organizing committee of one congress, and in two dissemination activities.

I have directed one Final Master's Project and one Degree Project in Chemistry at Uppsala University, supervised the works of two international PhD students at CIAL, and I am co-supervising one PhD Doctoral Thesis at CIAL. I am member of the Editorial Board of Front. Nutr., Int. J. Mol. Sci. and Open Life Sciences journals, I have edited three special issues in SCI journals (Nutrients, Foods and Curr. Opin. Food Sci.) and I am regular reviewer of several high-impact SCI Journals (Trends Anal. Chem., Trends Food Sci. Technol., Food Res. Int., etc.). I have participated as invited external evaluator for the "Convocatoria de Ayudas a Proyectos de Investigación y Desarrollo en Salud 2021" (Spain), for the Committee of the Czech Academy of Sciences, and in three projects for FONDECYT-CONCYTEC from Perú. I have also participated as committee member in 1 PhD Thesis and in the final year projects of "Máster de Nuevos Alimentos" UAM.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	DÍAZ BLANCO, NOELIA
Referencia:	RYC2022-037163-I
Correo Electrónico:	noeliadiazblanco@gmail.com
Título:	Epigenetics of gene regulation in changing environments

Resumen de la Memoria:

I am a molecular biologist with solid formation in reproduction, epigenetics and bioinformatics, interested in unravelling the mechanism by which the environment affects the development and reproduction of aquacultured species. In my research, I have applied multidisciplinary approaches (histology, microarrays, RNA-seq, Hi-C,..).

During my PhD (ICM-CSIC | UPF, 2007-2014), I applied microarrays to study the effects of rearing conditions (temperature, density, stress, external hormones) on fish sex differentiation (zebrafish and European sea bass) and contributed to the development of a reproduction-specific European sea bass microarray. At that period, I also participated in discovering an epigenetic mechanism linking water temperature increases with the methylation of the aromatase promoter and the subsequent masculinisation of the population and the definition of its time onset. After my PhD, I joined a computational lab focused on the epigenetics of early development to gain a new set of skills in cutting-edge epigenetic techniques and bioinformatic pipelines that I could apply in the future to aquaculture and species conservation studies.

During my postdoc, I developed a low input technique (Low-C) to characterised the 3D chromatin conformation of zebrafish at early developmental stages and a bioinformatic tool (CHESS) for quantitatively comparing 3D chromatin data. Low-C meant a breakthrough in the current technology and allowed for the analysis of rare cell populations like those in the early stages of cancer and development, enabling me to compare chromatin conformation and its effects on transcriptional regulation in different species in development, disease, and evolution.

Since my PhD, I started to accumulate a track record of international mobility and collaboration, stays abroad that have shaped the interdisciplinary scientist that I am today. This, along with my independence and leadership, can be seen in the open access articles (and datasets) that I' ve published recently (the last 9 articles without my PhD supervisor), the projects I have obtained or participated in, the funding and awards obtained, technology development, the work presented in national and international congresses, student training and supervision, and courses taught.

Throughout my career, I have gained the know-how and the ability to study the epigenetic control of gene regulation in different organisms and changing systems. I am using those skills and know-how to lead a new line of research on "Regulatory Genomics" at the ICM-CSIC, where I am currently a Severo Ochoa Fellow. I am ready to tackle the challenges in aquaculture and natural fish population conservation due to the lack of genetic and epigenetic tools by applying cutting-edge biomedicine methodologies to study climate change's effects on fish development and reproduction. This lack of resources has hindered the understanding of basic physiological processes governed by the environment through epigenetic regulation. The here-proposed research line has high societal interest due to the current global climate change scenario. My research career trajectory and varied background make me the ideal person to lead this new research line at the ICM-CSIC.

Resumen del Currículum Vitae:

I am a researcher with >8.5 years of postdoctoral experience, interested in applying cutting-edge epigenetic techniques from the field of biomedicine to unravel how the environment affects the development and reproduction of aquacultured species. A biologist by training, I have worked on lactic bacteria R+D+I (THT, BE), pursued a PhD in Biomedicine focused on the effects that rearing conditions have on fish sex differentiation, where we discovered the first epigenetic mechanism linking environmental cues with the final phenotype (UPF/ICM-CSIC, ES), and followed a postdoctoral period where I trained myself as a bioinformatician and epigenetist (MPI, DE). I have worked in four research institutions in Spain, Belgium, the USA, and Germany. As well, I obtained 9 grants (ICM-CSIC, U. Pierre et Marie Curie, U. of Gembloux, U. of Singapore, U. of Wisconsin, and Max Planck Institute), 3 conference prices, 3 contracts, participated in 15 projects (three as PI and five as a leading researcher), secured ~636k €in different types of funding, and co-authored a patent application for the generation of a kit to analyse low input 3D genome structure.
I have authored 20 SCI peer-reviewed open access articles (i.e. PNAS, Nat.Gen., Nat.Comms., Cell Rep. or PLoS Genet.), 1 book chapter and 5 preprints. I have an h-index of 17, and my papers accumulate >1665 citations, being 1st or 2nd author in 52% of them. I have generated several open access datasets deposited at GEO and ArrayExpress and participated in technology development such as a custom-made European sea bass microarray, a novel low input bench protocol (Low-C), a bioinformatic tool (CHESS) for the analysis of 3D chromatin data, and an open access web data coordination centre for zebrafish sequencing datasets and standardised protocols (DANIO-CODE).
I am a certified associate professor with 7 years of Lab Manager experience in running a lab and training students, supervising 16 students, and being a MARINA mentor. I taught MSc courses on aquaculture, bioinformatics, and epigenetics; since 2022, I have organised and taught a "Low Input Epigenomics Course" at the Wellcome Trust Genome Campus (Cambridge, UK).
My work has been presented at 64 conferences (receiving three prizes), participated in outreach initiatives and oceanographic cruises, and served as a reviewer of several peer-reviewed journals and student selection committees. I am a member of the Bioethics and Gender Equality Committees at the ICM-CSIC.
Currently, I hold a Severo Ochoa (2021-2023) and a Marie Sklodowska Curie Action (2023-2025) postdoctoral grants at the Institute of Marine Sciences (ICM-CSIC), where I lead two projects on zebrafish primordial germ cells dynamics under the effects of climate change and the study of European sea bass 3D chromatin conformation at early stages of development.
Throughout my career, I have navigated different fields such as molecular endocrinology, physiology, reproduction, epigenetics, bioinformatics, development, evolution and disease. This experience has given me a broad toolkit of techniques, analysis and biological approaches to tackle old

problems with new insights and a varied list of national and international collaborators. The Ramón y Cajal grant will help me set up my research niche at the ICM-CSIC based on the study of "Regulatory Genomics" applied to Aquaculture and species conservation.

Resumen de la Memoria:

I earned my international PhD degree in Chemical Science and Technology (Extraordinary Doctorate award) in the Dept. of Analytical Chemistry and Food Science at the University of Santiago de Compostela (USC, June 2015). Since then, I gained extensive expertise in advanced extraction methods, as well as in chromatography and mass spectrometry hyphenated tools, which allowed me to successfully face analytical challenges to tackle important socio-economic problems related to cosmetic and food safety, food authenticity, and food bioactivity. In particular, I pioneered on advance bioanalytical methods to monitor harmful cosmetic ingredients and their unwanted photoproduct, working in two highly competitive projects (MINECO projects; EU-Water JPI FRAME project). These methods were transfer to the multinational company INDITEX through 7 R&D contracts, and one of these methods has been proposed as a European standard (CEN) multianalyte method (under evaluation by CEN/TC 392/WG 1).

During my postdoctoral period I have extended the application of advanced multiresidue methods to food safety control, monitoring contaminants (e.g., mycotoxins and pesticides) in food and their biomarkers in food matrices and humans (Horizon2020 MultiCoop project, 1 M Eur), working with world-class leaders in food safety from Queen's University of Belfast (UK), and EU reference labs from UCT-Prague (Czech Republic). My strong analytical expertise was further extended to the research on new bioactive ingredients from food processing industry and other natural sources (plants and algae), making use of green extraction procedures, state-of-the-art high-resolution mass spectrometry-based metabolomic strategies and bioguided approaches. This research line was carried as responsible of several WPs in 3 MICINN Projects and participating in the EU Horizon2020 NeoGiANT project (9.3 M Eur.) as technical advisor of the coordinator. I could also transfer technology and "know-how" through R&D transfer contracts (1 as PI) to international companies of clinically-supported functional ingredients (BGG Europe SA, Switzerland; Sea Longevity ApS, Denmark) and multinational companies from pharma (Alcaliber S.A.U) sectors.

As a result of my research with an extensive network of international collaborations (64% of publications with international partners), I developed a multi-disciplinary research line to gain a holistic insight about the safety, the potential bioactivity and the mechanisms of action of food-related compounds in preventing two major pathologies (colon cancer and neurodegenerative diseases); a current hot topic in Food Science research.

I have co-authored 58 SCI articles (31% in D1, 84% in Q1 journals, 84% in relevant position) and 8 book chapters (all as 1st author). I have actively participated in 3 competitive projects from the European Commission, 6 competitive national projects (AEI- MICINN) and 15 contracts with international and multinational companies. I am (co)director of three MSc Thesis two PhD Thesis. I was lecturer in Analytical Chemistry at USC and in an international course. I was invited speaker in 4 international meetings, and member of the Organizing Committee of three national conferences. In November 2022 I have submitted a proposal to AEI-MICINN as PI to explore the impact of dietary phytochemicals on microbiota-gut-brain axis (197.000 Eur).

Resumen del Currículum Vitae:

I earned my International PhD degree in Chemical Science and Technology (Extraordinary Doctorate award) from the University of Santiago de Compostela (USC, June 2015), funded by a FPI Fellowship. During my PhD studies I developed and validated cutting-edge bioanalytical methodologies to cover an existing gap in the safety control of personal care products (PCPs), focused on preservatives analysis and unwanted photoproduct. In parallel I could transfer my methodology and know-how to the multinational company INDITEX, and one of these methods has been proposed as a European standard (CEN) multianalyte method (under evaluation). I also carried out a predoctoral research stay in Karlsruhe Institute of Technology (Germany, 3 months), gaining further insight into the potential hazardous photoproducts in PCPs.

My postdoctoral research activity was further developed in several top international research centers from Germany, United Kingdom and Czech Republic (17 months). From July to September 2015, I joined the Federal Institute of Hydrology (Germany). Working with Prof. Thomas Ternes, coordinator of the EU-Water JPI FRAME project, I pioneered in a hot topic area unraveling transformation products from emerging contaminants.

From April 2016 to May 2017, I held a Postdoctoral Research Fellow position at Queen's University of Belfast- QUB (UK) in the group of Prof. Christopher Elliott, UK government's independent reviewer for food safety issues. In UK I focused on contaminants (e.g., mycotoxins and pesticides) and their biomarkers in food matrices and humans (Horizon2020 MultiCoop project, 1 M Our). In this project I also worked in the EU reference lab of Prof. Jana Hajšlová, a world-class leader in food contaminants analysis from UCT-Prague (Czech Republic).

In June 2017 I joined CIAL-CSIC as Juan de la Cierva-Formación Researcher (MICINN), in the group of Prof. Alejandro Cifuentes, top 1% World Scientists, and the first researcher that defined the discipline Foodomics. From March 2021, I hold a highly competitive Juan de la Cierva-Incorporación (MICINN) Research position in CIAL-CSIC, where I am consolidating my own research career, leading several WPs of two ongoing MICINN projects, and participating in the EU Horizon2020 NeoGiANT project (9.3 M Eur). I also transfer technology and "know-how" to international companies of clinically-supported functional ingredients (BGG Europe SA; Sea Longevity ApS) and multinational companies from pharma (Alcaliber S.A.U) sector.

I have co-authored 58 SCI articles (31% in D1, 84% in Q1 journals, 84% in relevant position) and 8 book chapters (all as 1st author). My research has been presented in 91 national and international conferences, 40 of them oral presentation, with 3 award-winning communications (2 international). I am (co)director of three MSc Thesis two PhD Thesis, and I was lecturer in Analytical Chemistry at USC and in an international course (COST Action ES1202 Water2020). I was invited speaker in 4 international meetings, and invited by the IARC-WHO to present my research in a highly specialized EMBO Metabolomics course. I have been member of the Organizing Committee of three national conferences. I am also member of the Editorial Board and invited Guest Editor of several SCI journals. I have participated in the Evaluation Committee of several national and international research agencies.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	VELASCO RUBIAL, CRISTINA
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Título:	Regulation of basic physiological mechanisms to improve feed efficiency and maximise the final product quality in EU aquaculture relevant species.

Resumen de la Memoria:

Cristina Velasco (CV) decided to focus her research on fish nutrition because aquaculture is perceived as the activity with greatest potential to meet increasing demand for quality marine products, with the commitment of a sustainable use of aquatic resources, meeting different United Nations 2030 Agenda goals. Both the sustainability of aquaculture and the quality of end products mainly depend on dietary formulations, so a deep knowledge of the nutritional fish feeding behaviour and the physiological mechanisms behind, were her main goals. In 2014, CV began her PhD studies under the supervision of Prof. José Luis Soengas, focusing on the evaluation of basic physiological and endocrine mechanisms involved in the regulation of fish appetite to improve feed efficiency in species of relevance to EU aquaculture. Although fish feeds have undergone continuous advances, further improvements are still needed to increase the efficiency of nutrient utilization and minimize environmental losses. CV¿s fundamental knowledge provided her with useful tools able to be implemented in the development of an applied research line in collaboration with leading entities in the sector, thus approaching fish nutrition as a practical discipline that integrates basic nutritional biochemistry and physiology with fish husbandry, with the aim of providing high quality food for a growing global population with finite global resources. Hence, CV¿s current research interests and motivation are focused on the selection of feeding strategies to valorize new agri-food by-products as ingredients for aquafeeds, able to improve fish performance, maximizing final product quality using a market-orientated approach. These interests go hand in hand with the search for solution around three fundamental ways "Food Safety and Sustainability"," Food for Health and Well-being" and "Safe Food and Quality". At present CV is working on her own research line with the main objective of identifying and demonstrating the potential of sustainable functional ingredients to promote fish growth and robustness. In this regard, CV hypothesized that the use of hydrolysates from peptides-rich by-products, could boost feed utilization, through the modulation metabolic mechanisms, improving fish nutritional status, thereby enhancing both growth performance and resistance to stressors. CV¿s skills and knowledge allow her to optimize resources, carrying out preliminary in vitro studies before moving on to the animal demonstration with those prototypes of ingredients that can have a real benefit, thus working holistically and efficiently while keeping in mind the 3Rs principle. Overall, this research line will create new knowledge for the scientific community and will lead to the creation of novel solutions for the aquaculture sector with actions that fit into context of circular economy, working towards Zero waste concept and One Health initiative to balance and optimize the health of people, animals and the environment. Addressing at the same time, the 2030 Agenda goals by creating a more effective aquaculture production system, ensuring access by all people to safe, nutritious and sufficient food (Goal 2); and reducing inclusion of marine ingredients, thus contributing to the conservation of wild resources and sustainable use of ocean resources at all levels (Goal 14).

Resumen del Currículum Vitae:

Cristina Velasco (CV) started her research career during an Erasmus stay at the U.Tromsø (Norway), being involved in an EU research project and contracted by Nofima AS, leading institute for applied research on aquaculture. In 2012, she was awarded a 1-year grant from the Spanish government (Beca-Colaboración), to work at the department of "Ecology and Animal Biology" at U.Vigo to improve the viability of Octopus vulgaris production, acquiring important knowledge about nutritional requirements. This work resulted in 1 article, under the FAO Project "MedSudMed". In 2014, CV began her PhD studies under the supervision of Prof. José Luis Soengas regarding involvement of fatty acid sensing mechanisms in feed intake regulation in fish. During this period, she also carried out a 3 months' stay at U.Saskatchewan (Canada) in 2017. In November 2018, CV defended her international PhD Thesis obtaining cum laude distinction and being awarded with the 1st PhD Extraordinary Award of Natural Sciences by U.Vigo. In 2020, she was granted a post-doctoral position at the Portuguese Interdisciplinary Centre of Marine and Environmental Research (CIIMAR), under the scope of the international project "MOBFOOD" and the supervision of Prof. Luisa M.P. Valente. After 6 months, she was selected for a "Juan de la Cierva" contract (FJC2019-040367-I), but she gave up being hired in CIIMAR as researcher through a competitive process. In 2022, CV submitted the "Colmafeed" project to the "Individual call for scientific stimulation of employment", successfully obtaining funding for the next 6 years from FCT (Portuguese Government) (2022.04213.CEECIND). The fundamental approach acquired during her PhD, provided multidisciplinary useful tools for her postdoctoral work, during which CV collaborates with major companies in the agri-food sector. This has allowed her to develop her own line of applied research in the aquaculture sector, with the main objective of identifying and demonstrating the potential of sustainable functional ingredients to promote fish growth and robustness. In this context, she has participated in 7 international projects in collaboration with public and private R&D institutions, and industrial partners, evidencing a great technological transference. In the last years, she submitted different international projects as PI and recently she coordinated an EU project proposal (EEA Grants) involving public and private institutions from Portugal and Norway. This research line also allowed CV to develop her leadership, supported by the number of students under supervision (2 PhD, 1 master, 3 BSc, and 2 Erasmus+), being co-author of 1 paper already published (Pereira et al., 2022) and 2 in final phase of writing; corresponding author of 2 papers under review (Aquaculture Reports & General and Comparative Endocrinology journals) and 2 in the final phase of writing, and first author of 2 articles to be submitted. Since 2020, this research career has been combined with a contract as assistant professor at the School of Medicine and Biomedical Sciences (U.Porto). In summary, throughout her scientific career (2014-2022) the main achievements were the publication of 37 papers in SCI journals (5 articles/year, 482 citations, h index 14), 15 book chapters, and more than 46 works presented in international conferences, proving great interest for knowledge dissemination.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	FONTANA , ARIEL RAMÓN
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Título:	Recovery, Identification, Functionality and Applications of Bioactive Compounds from Foods and Their By-Products

Resumen de la Memoria:

PhD in Chemical Sciences (2012), Independent Researcher at CONICET of Argentina and assistant professor at the Faculty of Agricultural Sciences of the National University of Cuyo (UNCuyo), with experience in areas of Analytical Chemistry and Food Analysis. Currently, has 8 years of experience as a CONICET researcher, with two promotions in this period. Has carried out 3 postdocs in Argentina, Spain and Germany in leading international groups and financed by recognized institutions, highlighting the Alexander von Humboldt Foundation. Has participated in at least 20 competitive research projects, financed by national and international public funds, of which in 8 of them is the Principal Researcher (PR). Among them, 4 from the National Agency for Scientific and Technological Promotion (ANPCyT) of Argentina corresponding to the Young Researcher, Recent Formation Group and Research Group categories obtained consecutively between 2014 and 2022 are highlighted, summed to one from the Organization for the Prohibition of Chemical Weapons. The candidate has been the PR on all of them. He is the scientific director of a project with a company, responsible for a collaborative research agreement between UNCuyo and the Argentinean Association of Cosmetic Chemical Professionals (AAQC), and technical manager of two technological services for the provision of analytical services.

Author of 53 scientific articles with a total of 109 different co-authors (22 as first, 19 as corresponding and 10 as last or senior author) published in journals in the areas of Analytical Chemistry, Food Science and Technology, Agricultural Sciences and Plant Science. Of these, 42 are in journals from the first quartile of the aforementioned areas with a total number of citations of 1.593, an average of 208 citations per year in the last 5 years and an h-index of 21. From 2017, he was the director of 2 doctoral theses (one defended), 1 TFG and 2 TFM that will be defended soon, added to co-directors of 1 TFG, 2 doctoral theses, 1 post-doctorate and a CONICET researcher. His main research areas are:

• Valorization of by-products and wastes from agri-food to obtain functional compounds with high added value
• Chemical and functional characterization of bioactive compounds from natural sources
• Development and validation of analytical methods for the determination of phytochemicals in food, plants and biological samples
• Chemical and sensory analysis of wines for authentication/typification of origin
• Characterization of geographical indications of varietal wines and their potential in fraud detection

Since 2012, he has focused his research on the development of new strategies for the re-utilization of agro-industrial by-products in a circular economy environment, focused on the recovery, chemical and functional characterization, and applications of natural bioactive compounds. Since 2015, he has scientifically led a project with a wine company dedicated to demonstrate the typicity of Argentinean wines. He maintains scientific collaborations with various national and international groups. Among the firsts, he closely collaborates with groups from the Faculty of Medicine and the Faculty of Applied Sciences to Industry of UNCuyo (Argentina), between others. Renowned international centers include the University of Santiago de Compostela (Spain) and the University of Bonn (Germany)

Resumen del Currículum Vitae:

Professional expertise and research interest in:

-Bioactive compounds recovery and determination (phenolic compounds profile, carotenoids, volatile compounds (VOCs) profile, trichloroanisoles, ethylphenols, methoxypirazines, fungicides, micotoxins) in a variety of food and plants derived products with different analytical techniques (HPLC-UV, HPLC-DAD, HPLC-FLD, LC-QTOF-MS/MS, UHPLC-QQQ, GC-MS/MS, GC-QTOF-MS/MS, GC-FID).

-Bioactivity and functional properties stablishing the relationship between composition and properties.

-Development, application and validation of novel sample preparation approaches: SPE, liquid-liquid microextractions, QuEChERS, SPME, counter current chromatography).

-Development and validation of LC methods: HPLC-UV, DAD and FLD for phenolic compounds, carotenoids, ethylphenols, tenuazonic acid (mycotoxin), LC-QTOF and QTOF-MS/MS for fungicides, GC-MS and QTOF-MS/MS for methoxypirazines and VOCs.

During my postdocs, I collaborated with international referent groups and was awarded by prestigious institutions like the Alexander von Humboldt Foundation from Germany and the American Chemical Society from United States. In addition, I received additional awards from public and academic organizations of Argentina.

With 15 years of experience in research and development in different scientific-academic scopes, I was the leader researcher of different projects focused on food chemical analysis, recovery of bioactive compounds and phytonutrients from different natural sources aligned with circular economy objectives and authentication of origin of regional food products like wine.

The evidence of my knowledge and experience in the previous topics is verified by my publications record which accounts a total 53 articles (22 as first author, 19 as corresponding author and 10 as last or senior author), most of them located in Q1 of Scimago and 3 book chapters. The publications have received the attention of the scientific community, accounting 1.592 citations registered by Scopus, with an h-index of 21. I am the single author of an article in the Trends in Analytical Chemistry (Actual ranked 5 in Analytical Chemistry) and a chapter in The Encyclopedia of Food and Health. I maintain scientific collaborations with various national and international groups, as can be observed in my publications record. I worked in collaboration with a total of 109 co-authors from different areas and countries.

I lead as PR different projects in my research topics, including those awarded by the most competitive call in Argentina (ANPCyT) and the novelty of my proposals is evidenced by the consecutive awards since 2014 up to now. Also, the research developed had a component of transfer to the private sector and society through the development of joint projects with companies that also support the research.

From my first years as a postdoc, I was actively enrolled in teaching and formative activities, including a position as assistant teaching in UNCuyo and the direction of Bachelor, Master, PhD and Postdoc students, recently summed to researchers.

The resources have given me independence and leadership, allowing me to finance my own research lines and since 2020 to be co-director of the Plant Biochemistry Group in IBAM. In addition, between 2017 and 2021, I was elected as Board Member of the direction of IBAM-Mendoza, having also management experience.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	LÓPEZ DE LAS HAZAS MINGO, MARÍA DEL CARMEN
Referencia:	RYC2022-037626-I
Correo Electrónico:	mcarmen.lopez@imdea.org
Título:	Efectos de la dieta y la ingesta accidental de nanoplasticos sobre el epigenoma

Resumen de la Memoria:

La Dra. Lopez de las Hazas inició su carrera investigadora en el CIAL (UAM-CSIC) (2010-2013) estudiando la extracción y caracterización de compuestos bioactivos de diferentes matrices alimentarias mediante diferentes técnicas de extracción innovadoras y evaluó su actividad biológica (Ind Crops and Prod 54, 159-166; 52, 475-480; 67, 121-129; J Sci Food Agric 95, 722-729).

Posteriormente, se incorporó al grupo de investigación Antioxidantes (Universidad de Lleida) (2013-2017) donde realizó su tesis doctoral dirigida por el Dr. Motilva y Dr. Piñol. Su doctorado (marzo de 2017) fue calificado con Excelente Cum Laude y Premio Extraordinario de Doctorado. Su línea de investigación se centró en el metabolismo de fase II de compuestos fenólicos del aceite de oliva, su biodistribución y actividad biológica (Mol Nutr Food Res. 59, 1395–1399; J Funct Foods 22, 52–63). Evaluó la actividad antiaterogénica del hidroxitirosol (HT) y sus metabolitos circulantes (Mol Nutr Food Res. 60, 2114–2129), así como el metabolismo colónico de compuestos fenólicos y sus actividades anticancerígenas (J Agric Food Chem 65, 6477–6487; J Agric Food Chem 65, 6467–6476). En esta etapa realizó una estancia en el ITQB/IBET (Oeiras, Portugal) y evaluó otras bioactividades del HT (J Funct Foods 46, 110–117).

En 2017, inició su etapa Postdoctoral en IMDEA Alimentación. En 2020 obtuvo un contrato Juan de la Cierva incorporación. Su línea de investigación se relacionó con el estudio de los RNAs no codificantes en el metabolismo lipídico intestinal (Sci Rep, 10, 18921; Front Genet, 11, 707). miRNAs circulantes en la ECV (Nutrients. 2019, 11:1326.), hepática (Nutrients. 2020 12;3372) y su modulación por la dietética (Mol Nutr Food Res. 62, 1800619; Nutrients, 14, 1473). Además, describió los efectos potenciales de los miRNAs dietéticos (plantas) sobre la salud (Br J Pharmacol. 2021, 178:2218-224; Sem Canc Biol., 2021,73:19-29) y su estabilidad al procesado (J Agric Food Chem. 2021, 69: 9326-9337; Front Nutr. 2022, 9:1065543).
Su investigación independiente se centra en el estudio de la biología y función de las vesículas extracelulares (VEs) tanto endógenas como alimentarias. Describió por primera vez, el transporte de polifenoles en VEs de ratas (Food Funct. 2020, 11:7784-7792) y humanos (Nutrients., 2022, 14, 3632). Además, describió la estabilidad y la función de los miRNA vehiculizados en VEs de leche (Eur J Nutr. 2022,61:1043-1056) y el posible uso de VEs dietéticas en leche (Int J Mol Sci. 2021, 22:1105) y brócoli (Pharm Res, 2022; 185,106472) como nanotransportadores de ncRNA y polifenoles (Int J Mol Sci. 2022, 23: 2860) para uso terapéutico. También ha ahondado en el campo de la nutriepigenética (Adv nutr. 2022, 13(5), pp. 2039–2060), la nutrición de precisión (ISBN 978-3-031-10152-6) y la metilación inducida por el HT (Pharm Res. 2022 187:106612).
Ha abordado líneas de investigación pioneras e independientes, como la epitranscriptómica (Wiley RNA. 2022, e1753.; RNA Biology, 18[S2], 586–599) y el riesgo potencial derivados de la ingesta involuntaria de nanoplásticos en el desarrollo y el epigenoma (Adv Nutr. 2022,13[4]:1310-1323).
Durante este periodo Postdoctoral ha realizado dos estancias de investigación, uno en la Universidad de Aarhus (Dinamarca) (Eur J Nutr. 2022,61:1043-1056) y otro en el Departamento de Medicina Molecular de la Universidad de Padova (Italia).

Resumen del Currículum Vitae:

El Curriculum Vitae de la Dra. Lopez de las Hazas Mingo se resumen en 4 diferentes categorías:

EXPERIENCIA Y CALIDAD CIENTÍFICA. Desde 2011, la Dra. Lopez de las Hazas ha trabajado en 6 centros de investigación diferentes que le han permitido publicar 47 artículos científicos (Scopus). De los cuales, 44 son del primer cuartil (Q1) y 20 del primer decil (D1). Tiene un h-index de 21 y más de 1041 citas. Ha obtenido el Premio Extraordinario de Doctorado y dos proyectos competitivos postdoctorales (Juan de la Cierva 2020 y Comunidad de Madrid 2017). Ha participado en 9 proyectos de investigación competitiva de los cuales es IP en 1. Además, tiene una patente de invención.

Sus contribuciones científicas más importantes se han realizado en: i) el campo de la epigenética y la dieta; ii) la regulación del genoma a través de los miRNAs de la dieta; y iii) el campo de las vesículas extracelulares.

Ha realizado tres estancias de investigación en centros internacionales. 3-meses en el ITQB (Oeiras, Portugal); 4-meses en la Universidad de Aarhus (Aarhus, Dinamarca); y 4-meses en la Universidad de Padova (Padova, Italia) (en progreso). Además, ha realizado varias colaboraciones internacionales: Oliver Briand (U. Lille, Francia); F. Visioli and P. Brun (U. Padova, Italia); J. Rasmussen (U. Aarhus, Dinamarca); W. Perez (URFJ, Brazil),

CONTRIBUCION A LA SOCIEDAD. Ha realizado diferentes actividades de divulgación y comunicación a la sociedad, incluyendo: a) Curso online de la European Institute of Technology (EIT) "Revolutionising the food chain with food technology". b) Actividades de divulgación de la EIT Food. c) Diferentes actividades de divulgación como "la noche de los investigadores", "Mujer y ciencia", "Semana de la ciencia". d) Publicaciones en las redes sociales del grupo y la institución Instagram (@loquehacelaciencia), Twitter (@nutriepigen), y LinkedIn (@ImdeaFood) y videos en Youtube #AnnualFoodAgende https://www.youtube.com/watch?v=vFqklCmD4S0

EXPERIENCIA EN FORMACIÓN Y TUTORÍA. Es directora de una tesis doctoral y actualmente dirige 2 tesis doctorales. Ha dirigido 22 trabajos de fin de máster (TFM). Ha sido Profesora Asociada a la Universidad VIU desde 07/ 2018 a 07/2022 en el "Master de Nutrición y Salud", y responsable de las asignaturas de "Dieta Mediterránea y Salud" 7 ediciones (ECTS: 6); y "Educación Nutricional y Psicología de la Salud" 3 ediciones (ECTS: 6).

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OTRAS CONTRIBUCIONES ACADÉMICAS y CIENTÍFICAS. La Dra Lopez de las Hazas además es parte del Comité Editorial las Revistas SCI: BMC Nutrition (NPG), ExRNA (Ames Group) y ha sido editora de tópicos especiales en las revistas Foods y Nutrients.

Ha participado en las siguientes Acciones COST: Eur. Epitranscriptomic Network (CA16120); Delivery of Antisense RNA Therapies (CA17103); Network for implementing multiomics approaches in atherosclerotic CVD (CA25477).

Ha obtenido los siguientes premios y reconocimientos: Premio Extraordinario de Doctorado en in Ciencias Experimentales (Lleida, 2021). Premio al mejor poster en las I Jornadas Nutraceútica (Tarragona, 2022).

Además, es propietaria de una Patente de Invención: Inventores: Alberto Dávalos, María-Carmen López de las Hazas, Francisco Marín y Javier Señorans. Titulo: "Nuevo procedimiento para la obtención de exosomas a partir de subproductos de la industria láctea (mazada)". P202330029. Ref: 297/22. 17/01/2023.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	CASTEJÓN CABALLERO, NATALIA
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Título:	Unlocking the potential of eco-friendly approaches to produce high-value compounds for nutraceutical products: oilseeds, seaweeds, and microalgae

Resumen de la Memoria:

The demand for new bioactive compounds with health benefits has risen rapidly in recent years, leading to a focus on novel sources like oilseeds, seaweeds, and microalgae. From a nutritional point of view, these alternative sources clearly show potential to meet the population's needs for more sustainable food solutions and novel ingredients (e.g., omega-3 fatty acids, carotenoids, phenolic compounds, peptides, among others). However, traditional processing and extracting of these valuable compounds involve high volumes of organic solvents and high energy requirements, making them unsustainable in light of the current climate crisis. In response, my research promotes sustainable methods that minimize the environmental impact by using advanced extraction techniques, eco-friendly solvents, and enzymatic modification approaches. Additionally, my current REWIRE COFUND grant has allowed me to establish workflows for evaluating the bioactivity of extracted compounds by a spectrum of in vitro cell-based assays, measuring potential endpoints of interest (cytotoxicity, antioxidant, and anticancer activities).

Internationalization and mobility have been fundamental aspects of my research career. After my Ph.D. thesis, I joined three public universities with outstanding reputations. To highlight my last achievement, I was awarded a highly competitive REWIRE grant funded by Horizon 2020, which allowed me to join the group of Prof. Doris Marko (University of Vienna) as Principal investigator of the BioactALGAE project in 2021. This opportunity gave me access to cell culture facilities for evaluating biological activities (e.g., our first study of cell viability suggests that the microalgal lipid extract has a selective effect, acting only on the human colon carcinoma cells but not against the healthy cells). Additionally, my independent role should be stressed here since I opened a new research line, bringing my green chemistry and microalgae expertise to the host group.

Since the start of my research career, I have made noteworthy contributions as a first and corresponding author in high-impact and Q1 journals. I have demonstrated my versatility and ability to move between different topics and push scientific boundaries by opening new research fields. My independent research capabilities are evident through my 11 first-author papers (64.7% of my publications) and 4 papers as the corresponding author, some without the participation of my Ph.D. supervisor. Moreover, my contributions have been recognized with two prestigious awards, demonstrating my significant impact on the field. My multidisciplinary research approach combines food chemistry, biotechnology, and biochemistry elements, giving me a unique perspective. Over the past years, I have acquired the skills and expertise necessary to reach professional maturity and independence as a researcher, making me well-suited to pursue my independent career. Thus, the Ramon y Cajal grant will provide me with the ideal setting to further my research career to the next level and continue making significant contributions to the field.

Resumen del Currículum Vitae:

I started my research career in the "Bioactive extracts and Healthy lipids" group at the Universidad Autónoma de Madrid (UAM, Spain), where I did my Ph.D. in Food Science (Summa Cum Laude honors) with a pre-doctoral FPU fellowship (2013-01796) from the Spanish Ministry of Education. My Ph.D. thesis primarily focused on producing omega-3 oils from novel plants and microalgae, using green extraction approaches to obtain functional lipids. Moreover, during my pre-doctoral period, I did two temporary stays at scientific groups with an outstanding reputation in biocatalysts and enzymology: (i) Institute of Catalysis and Petrochemistry (ICP-CSIC, Spain) for 5 months and (ii) Institute of Biochemistry at the University of Greifswald (Germany) for 3 months, where I studied the use of enzymes as innovative tools to design health-promoting lipids.

After finishing my Ph.D. (Oct. 2018):
(i) I did a postdoctoral stay (Jan. 2019 – Dec. 2019) at the University of Iceland (Faculty of Food Science and Nutrition) in collaboration with TARAMAR LTD (Icelandic cosmetic company), investigating environmental-friendly processes to extract bioactives from Icelandic seaweeds to be used in sunscreens and new skincare products.
(ii) In 2020, I joined the Université de Pau et des Pays de l'Adour (UPPA, France) as an Assistant Professor (May 2020 – May 2021). Among my research responsibilities, I was actively involved in teaching activities (64h/year). My research focused on developing alternative and greener approaches for valorizing red seaweeds.

These experiences not only provided me with new knowledge and strengthened my research portfolio but also gave me a huge push forward in my career, launching into prestigious and highly competitive grants. Two years ago, I received a 3-year position (2021-2024) from the REinforcing Women In Research (REWIRE) Programme, a Marie Sklodowska Curie Actions co-funded by the University of Vienna and the European Commission (HORIZON 2020). As the Principal Investigator of the project, I am leading the initiative of BioactALGAE, which explores for the first time the valorization of microalgal biomass by exhibiting biological activities of produced extracts using a multi-step extraction method implying eco-friendly techniques.

I am a co-author of 17 scientific articles in SCI international journals (11 as first author and 4 as corresponding author) and have numerous contributions to international congresses (including invited and keynote talks). Moreover, I have been extensively involved in university teaching (lectures and practical courses) about food chemistry and technology, and nutritional sciences, with more than 400 hours in different international institutions, including the UAM, UPPA, and the University of Vienna. Besides, I officially supervised 8 master's and 7 bachelor's students in the mentioned institutions.

Regarding scientific recognition and honors, I was awarded the H.P. Kaufmann Award 2020 granted by the German Society for Fat Science (DGF) for my contributions to the eco-friendly production of healthy lipids using green technologies and enzymatic methods. Moreover, the American Oil Chemists' Society acknowledged my carrier in 2021 with the recognition "Young Scientists to Watch". This recognition is given to feature scientists conducting transformative research in fats and oils.

Área Temática: Ciencias de la educación
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Título: Literatura infantil a juvenil

Resumen de la Memoria:

La postulante tiene una trayectoria interdisciplinaria destacada en la investigación sobre literatura infantil y juvenil (LIJ) y lectura que integra aproximaciones desde los estudios literarios con estudios culturales en educación. Su investigación comienza en 2010, tras graduarse de un máster en estudios culturales en la Universidad de Maastricht donde obtiene el premio a mejor estudiante, y cuya tesis es galardonada como mejor tesis de la Facultad de Artes y Ciencias Sociales (FASOS). Esa tesis sobre libros infantiles y blogs con relatos para/sobre niñas adoptadas desde China por familias españolas fue publicada en dos artículos en revistas indexadas. Tras graduarse, obtiene una posición como investigadora en el Centro de Estudios sobre Diversidad y Género. Para su doctorado, obtenido en 2015, trabaja con Ingrid Tomkowiak, especialista en literatura, cultura y medios para la infancia de la Universidad de Zurich. Su proyecto obtiene financiación de Becas Chile y del competitivo Fondo Nacional Suizo (SNF), institución que también financia una estancia postdoctoral. La tesis estudia la literatura infantil recomendada por instituciones españolas para educar en diversidad y multiculturalidad. Tras guardarse con máximos honores, publica una monografía sobre este trabajo en la prestigiosa serie "Children's Literature and Culture" de Routledge. En este libro, Origin Narratives. The stories we tell children about immigration and international adoption, combina la participación observante en procesos de selección de literatura infantil con análisis crítico de textos. Su investigación desde entonces se ha ampliado desde la atención a lo multicultural y las narrativas de racialización hacia otras dimensiones de exclusión como son el género (sexismo) y la edad (edadismo). Entre 2018 y 2022 dirige el proyecto de investigación "Repertorios éticos y literarios para la infancia" que estudia las relaciones que se establecen entre la literatura infantil y la educación de las emociones. En el marco de este estudio, la postulante estudió la producción de literatura desafiante o transgresora a lo que se considera apropiado para la infancia y estudió la recepción de estos textos en espacios de educación formal y no formal. Sus aportes teóricos han sido ampliamente reconocidos en el campo de estudios de literatura infantil y juvenil tanto en su formulación teórica para aproximarse a los estudios sobre diversidad y género, como en sus propuestas metodológicas para repensar la función de la crítica literaria desde la filosofía posthumanista. Desde 2021 dirige también el proyecto Inclusión BioSocioCultural en el que estudia prácticas de lectura y escritura de niños y adolescentes. En 2020 publica un artículo sobre posthumanismo y nuevo materialismo en la revista International Research in Children's Literature, una de las revistas más prestigiosas de este campo de estudios, que es, a la fecha, el artículo más citado de la historia de esta revista. En este artículo plantea, junto a la Profesora Justyna Deszcz-Tryhubczak, de la Universidad de Wroclaw, que la investigación en literatura infantil y juvenil ha de repensar las asimetrías de poder entre adultos, niños y niñas atendiendo a lo material y las formaciones material-discursivas. Tras ese trabajo, la postulante ha seguido trabajando sobre las posibilidades conceptuales y metodológicas de la crítica de LIJ.

Resumen del Currículum Vitae:

Investigadora con una formación interdisciplinaria en estudios culturales reconocida por sus aportes al campo de estudios en literatura infantil a juvenil. Tiene un magíster en estudios culturales de la Universidad de Maastricht, en Holanda, un doctorado en estudios culturales y antropología social de la Universidad de Zúrich, un postdoctorado de la misma universidad, y ha dirigido dos proyectos de investigación financiados por la Agencia Nacional de Investigación en Chile dirigiendo a equipos de 4 a 9 investigadores. Actualmente es Marie Curie Fellow en la Universidad de Glasgow, Escocia, con un proyecto financiado por dos años que contempla un secondment en España y colaboraciones con grupos de investigación en las Universidades de Aarhus en Dinamarca, Wroclaw en Polonia y Pompeu Fabra en España.

Ha publicado más de 30 artículos y capítulos de libros en publicaciones indexadas sobre literatura y cultura infantil y juvenil. Es también autora de dos monografías señeras en el campo de estudios en dos prestigiosas series editoriales: en Routledge y Metales Pesados, reconocida editorial hispanoamericana en estudios culturales donde ha publicado su investigación postdoctoral. Ha realizado estancias de investigación financiadas en Suiza, Alemania y Austria y ha sido invitada como profesora visitante por las universidades de Wroclaw (en Polonia) y Antwerp (en Bélgica). Es vicepresidenta de la International Research Society for Children's Literature y estuvo a cargo del 25avo congreso de esta sociedad en la que se celebraron sus 50 años, un congreso con más de 400 ponentes y 700 participantes. Es hoy también la chair del programa de mentorazgo de la asociación, un programa en el que trabaja con más de 40 mentores de Europa, Asia y América. Ha recibido muchos reconocimientos durante su trayectoria: ha recibido las más prestigiosas becas y contratos de investigación en los países donde ha trabajado (Becas Chile para Magíster, Attracting and Coaching Talent en Países Bajos, doctorado financiado por la Swiss National Foundation y la Marie Curie Grant de la European Comission). Además ha dirigido uno de los prestigiosos proyectos Fondecyt de la Agencia Nacional de Investigación Chilena (ANID) y ha sido la más joven investigadora principal en el Centro de Estudios Avanzados de la Universidad Católica (financida por ANID). Su tesis "Princesses for China. Spanish adoption narratives for Chinese adoptees" recibió el premio a la mejor tesis de la Facultad de Artes y Ciencias Sociales de la Universidad de Maastricht y su libro Enseñando a sentir. Repertorios éticos en la ficción infantil, recibió el premio a mejor libro de teoría según el International Board of Books for Young People. Es hoy una de dos investigadoras asociadas de la revista Children's Literature in Education, una revista señera en el campo de estudios (indexada en Wos y Scopus) y es parte del consejo editorial de otras cuatro revistas. Ha participado de distintas iniciativas de transferencia, entre ellas el diseño y elaboración metodológica de un programa piloto para el desarrollo de una política pública sobre lectura del Ministerio de Educación chileno.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias de la educación
Nombre:	UBAGO GUISADO, ESTHER
Referencia:	RYC2022-038011-I
Correo Electrónico:	esther.ubago@gmail.com
Título:	The importance of physical activity on cognitive performance, mental health, physical health and health-related quality of life in cancer survivors returning to school.

Resumen de la Memoria:

In 2013, I started my PhD at the University of Castilla-La Mancha focused on physical activity and body composition at school age, and school sports facilities. This research contributed to advising schools in planning the types of sports in physical education sessions and extracurricular activities, and in the selection of the type of sports surface for their facilities. I continued with this line of research in the field of young health and physical education within the University of Exeter as part of the PRO-BONE study. Back in Spain and after an important career-break (maternity leave in 2019), I started working on an new research line of physical activity, mental health and paediatric cancer survivors, with the University of Castilla-La Mancha, the University of Granada, and at the Andalusian School of Public Health of Granada. This research line is one of the mission-oriented researches of Horizon Europe.

I am part of a network of researchers from various universities and hospitals in Spain and I am applying for funds (recently applied as principal investigator for a 2022 Knowledge Generation Project) to run a multicentre study aiming to undertake a novel and ambitious randomised controlled trial that will analyse the influence of an 6-month exercise intervention on cognitive/academic performance in paediatric cancer survivors at school stage. In addition, it will analyse the effect on physical (body composition, fitness and physical activity levels) and mental health (stress, anxiety, depression, self-esteem, affect and happiness). Advances in these research areas are of interest to the physical education teacher with the aim of promoting active lifestyles that improve the present and future health of our paediatric cancer survivors.

During the past 50 years the survival rate in children with cancer has improved substantially with a 5-year survival rate of >80%. Unfortunately, cure has its own consequences and the long-term complications of the disease and its treatment have become increasingly important. Exercise interventions delivered during cancer treatment seems to be successful in modifying some factors such as physical function, mental health, or health-related quality of life, but there is no research in relation to academic performance in this population. Improving these variables will help improve other aspects that affect child cancer survivors, such as school attendance or social activities.

For childhood cancer survivors, going back to school is a key milestone in returning to "normal life", with 20% to 25% of survivors experiencing peer-related difficulties upon returning to school. Approximately 22% of the survivors suffered from lack of friends, and bullying was reported by 30% of survivors. Therefore, in addition to emotional and psychosocial support, exercise programs can help schoolchildren to improve their mental health (stress, anxiety, depression, self-esteem, affect and happiness), necessary for a successful return to school. In addition, exercise seems to improve cognitive/academic performance, thus contributing to overcome low academic achievement. Should this research line succeed it will positively improve participants' quality of life and well-being, which will have a huge economic and societal impact.

Resumen del Currículum Vitae:

- Post-doctoral fellowship María Zambrano (from 2023 to 2024) and Post-doctoral fellowship by PAIDI 2020 (from 2021 to 2023).
- Pre-doctoral fellowship for researchers (from 2014 to 2017), and Post-doctoral fellowship for researchers (from 2017 to 2018) both through the European Regional Development Fund (ERDF).
- Other fellowships: from 2017 to 2018 by the European Regional Development Fund (EDRF), in 2019 by Junta de Comunidades de Castilla-La Mancha (co-financed with EDRF funds), from 2019 to 2020 by La Caixa Foundation.
- Participation as researcher in projects yielding >5 million EUR.
- Involvement in day-to-day management and development of 19 research projects (14 nationals and 5 internationals funded by EDRF funds, FP6, FP7 or Erasmus+, among others).
- Project Manager of two projects funded by La Caixa Foundation and by Ministerio de Ciencia e Innovación).
- 50 JCR publications, >70% in Q1-top25% and 88% in Q1 or Q2.
- H-index of 17 and i10-index of 28.
- Top publications, e.g. J Sport Health Sci (IF>13). Impressive media coverage: Altmetric score of 308, top 5% of 12.389.012 research outputs ever scored by Altmetric (99th percentile).
- First author of my top most-cited article (79 citations).
- >55 works presented at international and national scientific conferences as keynote speaker, invited speaker, oral communication or poster communication.
- Member of the scientific and organising committees of some international scientific conferences.
- Involved in 19 R+D+i transfer contracts of special relevance with industry and the private sector, entities or public institutions. Total amount of almost 100.000 EUR.
- International reputation. Topic editor for Frontiers in Physiology (impact factor: 4.755, Q1), and Review editor at Frontiers in Endocrinology (impact factor: 5.555, Q1). Reviewer for >10 JCR journals such as the J Sport Sci Med (IF>3.9) or Scand J Med Sci Sports (IF>3.6), among many others.
- International stay within the number 1 Faculty of Sport in the United Kingdom and whose University is among the 100 best in the world.
- Panel member of PhD Theses in Spain.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

- Part of the "Public Health and Health Services" Research group of the Andalusian School of Public Health in Granada, the "Epidemiology, aetiology and prevention of cancer and other chronic diseases group" belonging to the Biosanitary Research Institute of Granada (ibs.Granada), and the "Epidemiology and Prevention of Cancer and other Chronic Diseases group" of the CIBER Epidemiology and Public Health of Granada.
- Recognition as Extraordinary Doctorate Award by University of Castilla-La Mancha (2018), Award for the oral presentation in the 8th International Conference on Children's Bone Health in Germany (2017), and Award for the best poster presentation in the XXV National Congress of SEIOMM in Spain (2021).
- Teaching experience: Undergraduate and postgraduate level and International invitation talks. Cumulative teaching load: >500 hours.
- Supervisor of undergraduate dissertations, Master's Thesis and practicums.
- Supervisor/director of an ongoing Doctoral Thesis
- Coordinator and tutor in several editions of 8 university-specific Degrees (Títulos Propios) (4 Experts, 3 Specialists and 1 Master) from 2013 to 2018 at the University of Castilla-La Mancha.

Área Temática: Ciencias de la educación
Nombre: FRANCO , EVELIA
Referencia: RYC2022-036278-I
Correo Electrónico: e.francoalvarez@gmail.com
Título: Procesos motivacionales en educación física en estudiantes sin y con discapacidad.

Resumen de la Memoria:

Me licencié en 2009 obteniendo el Premio Fin de Carrera en la Universidad de Granada. En 2016 obtuve mi Doctorado Internacional (también galardonado con el Premio Extraordinario) en Ciencias de la Actividad Física y el Deporte en la Universidad Politécnica de Madrid. Durante mi doctorado, participé en un Proyecto Internacional desarrollado por diferentes instituciones de Argentina, Brasil, Chile, Ecuador y España. La participación activa en este proyecto me llevó a pasar 6 meses en la Universidad de Flores (Argentina) y 3 meses en la Universidad del Quindío (Colombia). Me centré en el análisis de los procesos motivacionales de los estudiantes en Educación Física (EF). Los hallazgos de esta arrojan luz sobre la comprensión de la desmotivación en la EF abriendo nuevas líneas de estudio tendientes a mejorar las experiencias de los estudiantes en este ámbito y aumentar la adherencia a la actividad física (AF).

Desde 2017 trabajo en la Universidad Pontificia Comillas, donde he desempeñado puestos de liderazgo. Entre 2017 y 2022 fui Coordinadora del Grado en Ciencias de la Actividad Física y del Deporte y, desde septiembre de 2022, desempeño el cargo de jefa de Estudios de Educación y Ciencias de la Actividad Física y del Deporte, siendo responsable de 3 títulos y coordinando a más de 90 profesores. En cuanto a mi actividad docente, he impartido asignaturas de Didáctica de la Actividad Física y el Deporte y de Desarrollo Curricular tanto en Grado como en Máster. Además, he impartido formaciones de Desarrollo Profesional Continuo para profesores e investigadores de EF en España, Reino Unido y Ecuador.

En términos de investigación, he dirigido siete proyectos de que han estimulado una estrecha alianza con investigadores de la Universidad de Flores (Argentina) y la Universidad de Loughborough (Reino Unido; Universidad nº 1 del mundo en temas relacionados con el deporte desde 2017 según el Ranking QS), donde disfruté de una estancia de investigación de 3 meses.

Actualmente, persigo aplicar los conocimientos existentes sobre los procesos motivacionales en la AF)y otros contextos relacionados con la actividad física en personas con discapacidad. La investigación sobre este tema es una vía prometedora para promover la práctica de AF entre esta población, lo cual puede ser beneficioso sobre su bienestar y calidad de vida. En esta línea de investigación, actualmente dirijo, el Proyecto "Actividad física, deporte e inclusión en personas con discapacidad intelectual: procesos motivacionales y calidad de vida (DEIN-DI)" financiado por la Agencia Estatal de Investigación (AEI).

He dirigido 7 trabajos fin de máster y actualmente dirijo tres tesis doctorales. Soy miembro de la Red Internacional de Investigación en Educación Física y Promoción de Hábitos Saludables" financiada por el Consejo Superior de Deportes (23/UPB/20). He participado en la evaluación de proyectos de investigación para The British Academy y colaboro regularmente como revisor para revistas de alto impacto en el ámbito educativo como Journal of Teaching in Physical Education o European Physical Education Review.

Basándome en mi investigación previa, una dirección hacia la que busco ampliar mi línea de investigación en caso de ser beneficiaria de esta ayuda es el análisis y mejora de los procesos motivacionales en EF entre estudiantes con discapacidad.

Resumen del Currículum Vitae:

La solicitante desempeña su labor profesional investigadora y docente en la Universidad Pontificia Comillas desde 2017 y hasta la actualidad. Tiene reconocido un sexenio de investigación (2015-2020) y está acreditada como Profesora Titular de Universidad (PTU) por la ANECA. A continuación, se presentan de forma resumida los méritos de su currículum:

Publicaciones

-        39 artículos publicados en revistas indexadas en ranking JCR o SJR (11 de ellas ocupando en el primer cuartil de su categoría), como Journal of Teaching in Physical Education, Psychology of Sport and Exercise, or Revista Complutense de Educación.
-        18 artículos publicados en revistas indexadas en otras bases de datos, como Revista de Educación Física y Deportes, Universitas Psychologica, o Sport TK.
-        5 capítulos en libros, dos de los cuales han sido publicados por la editorial Dykinson (relevante en la categoría de Educación según SPI)

Los trabajos de la solicitante han recibido más de 1000 citas y, según Google Scholar, su perfil investigador tiene un índice h de 13 y un índice i10 de 19.

Congresos

-        6 participaciones como ponente invitada en relevantes seminarios/conferencias científicas internacionales (como el Congreso Europeo de Ciencias del Deporte)
-        Alrededor de 50 contribuciones en varios congresos internacionales y nacionales relevantes en los que he presentado (como el Congreso Europeo de Psicología del Deporte y del Ejercicio, FEPSAC)

Proyectos de investigación

-        Participación como investigador en 8 proyectos de investigación internacionales que han recaudado más de 25.000 euros

-        Investigador principal en 7 proyectos de investigación que han recaudado más de 75000 euros. Cade destacar el proyecto "Actividad físico-deportiva e inclusión en personas con discapacidad intelectual: procesos motivacionales y calidad de vida" (PID2020-114051RA-I00) financiado por la Agencia Estatal de Investigación, actualmente en marcha

Transferencia de conocimientos y colaboraciones usuarios finales de la investigación

Los usuarios finales de los resultados de la investigación durante mi carrera investigadora serían los profesores de educación física. Por tanto, las actividades formativas o de colaboración con ellos se posicionan como los ejemplos más claros de transferencia de conocimiento. En esta línea, he participado en el diseño e implementación de diferentes cursos basados en los resultados de mi investigación. Cientos de profesores han participado en estos programas de formación. Algunos de ellos son el programa de formación nacional impartido en 2014 para profesores de educación física de colegios Maristas (grupo Edelvives), o el programa de formación orientado a guiar a profesores de educación física sobre cómo motivar e incluir en contextos con alumnos con discapacidad, impartido en 2021 dentro del proyecto de investigación   "La formación docente como estrategia para la inclusión".

Premios y otros méritos

-        Premio extraordinario fin de carrera del Grado en Ciencias de la Actividad Física y del Deporte en 2010 por la Universidad de Granada

-        Premio Extraordinario de Tesis Doctoral en 2016 por la Universidad Politécnica de Madrid
-        Ayuda del Consejo Social de la Universidad Politécnica de Madrid en 2015 para financiar una estancia de investigación
-        Ayuda de movilidad José Castillejos del Ministerio de Educación y Formación Profesional en 2022

Área Temática:	**Ciencias de la educación**
Nombre:	OCEJA CASTANEDO, JORGE
Referencia:	RYC2022-038521-I
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Título:	Videojuegos y educación: Cuestiones sin resolver e implementación de programas exitosos

Resumen de la Memoria:

There is deficiency of information regarding the assumptions and processes of meaning making that actors involved in formal education (including students, teachers, and families), as well as game designers, have about games and about learning through games. Thus, our main purpose is decoding and exploring the way our subject groups develop their ideas about games and learning, understanding their perception on their role as educational agents that may use games in learning contexts. We anticipate this knowledge to be the basis for training programs and resources that help participants to understand the educational potential of videogames (through playing, discussing, and designing games) and implement game utilizations based on a rich and deep understanding of the medium from historical, social, and artistic perspectives.

To answer this questions, we will adopt a multiparadigmatic approach combining interpretative and critical elements and using a traditional mixed-methods design. However, as one of our goals is to generate theories that lead us to solve problems through the design of educational projects, our approach may also include elements of design-based research (DBR).

Using a mixed-methods design implies designing and validating both quantitative instruments, primarily questionnaires, in addition to qualitative tools such an interviews and scripts for group discussions. Expert panels will verify the content validity of our qualitative instruments, while our quantitative tools will be subjected to exploratory and confirmatory factor analysis after conducting pilot studies. We will also consider the peculiarities of investigating cultural producers and consumers in the context of cultural studies (Pickering, 2008).

We will work with representative samples of teachers, students, and families in schools. Game designers (specifically indie game designers) will also be accessed.

Our quantitative research questions will be answered using descriptive, inferential, and correlational statistics. For answering our qualitative questions, we will use computer-assisted qualitative data analysis software to encode the data and reveal relevant concepts and categories. After analyzing the relationships among these categories and the levels and sub-levels to which they belong, we will generate semantic networks for each research question and group. We expect several categories to match concepts from our theoretical framework, and other categories to emerge inductively from the research.

In conclusion, my main goal is to identify the assumptions and misconceptions that these groups may have about games and the educational use of games, and consequently propose ideas for designing research-based training programs that help participants to achieve a diverse, rich, and deep understanding of the medium by appreciating their value as cultural artefacts.

This proposal addresses in an interdisciplinary manner topics such as the meaning and form of games (we study how particular collectives attribute meaning to them), the creation and production of games (we will help teachers and students to design games and reflect about this process), players and communities (we focus on the peculiarities of students and teachers as players), and the societal framing of games (as the assumptions and misconceptions of these groups are a central part of our work).

Resumen del Currículum Vitae:

I am an assistant professor in the Faculty of Education at the University of Cantabria, Spain. My training background is in Educational Psychology and my master's degree in Educational Technology at California State, obtained through a Fulbright Scholarship, allowed me to understand the implications of game culture in different sectors of society, especially in the educational field.

Scientific contributions

In 2017, I completed my doctorate with the thesis Design of Game Experiences to Promote Civic Competence (https://jorgeoceja.com/intro_conc_final.pdf). This work integrated the views of players, international academic experts and videogame designers to obtain guidelines on how to design experiences that could foster active and democratic participation.

Since then, I have been presenting consistently at the main conferences on game studies while building up a research record publishing in high impact journals (JCR and Scopus) in the intersection of game studies and education.

A quick look at some of my articles exemplify these potential connections as they target topics such as gender and videogames (https://epaa.asu.edu/index.php/epaa/article/view/4181) or the way that independent games are represented in Wikipedia (http://shorturl.at/bHMU0).

My proficiency as a Social Sciences qualitative and quantitative researcher has allowed to become principal investigator of several innovation and transfer projects.

Contributions to society

My previous experience directing the educational branch of the Botín Foundation (https://www.centrobotin.org/en/), the biggest private foundation in Spain, provided me the opportunity to forge closer links to the local industry in Cantabria (game studios, theatre and film production companies, etc.), and to create schemes to optimize their talent for the benefit of students, teachers and families. I would also highlight my teaching experience at every stage of the educational system in different countries. Being also a certified elementary and secondary teacher, I was able to participate in international exchange cooperation programs through public administrations and work as a teacher in Texas and California as well as in the UK. I will also point out my ability to bridge building between fields such as education, psychology and game studies. On this matter, the Botín Foundation has recently asked me to design an educational resource for promoting social and emotional education, which shows their confidence on my skills as an applied researcher (Principal investigator responsible for the transfer project Playing Emotions: http://shorturl.at/arAZ2).

Contributions to training and mentoring

Currently, I teach subjects related to research methods, innovation, and creativity, while I keep publishing and expanding my knowledge in the field of game studies and, especially, in game literacy, which is my main research line. Among my contributions I would highlight my experience supervising

teachers' practicums and directing final year dissertations both at a graduate level (8) and postgraduate (5). I am also part of the reviewers' team in the journal Comunicar (JCR Q1) and trainer on multiple courses on video games, education and ludic culture.

Other contributions

Throughout my doctoral process, I completed research residencies at the Gamification Lab at Universidad do Minho, The Center for Applied Game Research a in Copenhagen and in the Gamification Lab in Luneburg under Mathias Fuchs' supervision

Área Temática:	Ciencias de la educación
Nombre:	MORA LUNA, ANTONIA MARÍA
Referencia:	RYC2022-037531-I
Correo Electrónico:	ammoraluna@gmail.com
Título:	La educación literaria como vehículo de formación identitaria nacional/nacionalista

Resumen de la Memoria:

En diciembre del año 2012 obtuve el título de Doctora en Educación por la Universidad de Granada con la cualificación de Apto Cum Laude y mención internacional. La tesis doctoral recibió posteriormente, en 2015, el Premio Extraordinario de Doctorado.

Con la obtención de este título se culminó el recorrido iniciado en el año 2008, fecha en la que me concedieron una beca-contrato de investigación FPI pre-doctoral de Excelencia de la Junta de Andalucía que dio inicio a mi trayectoria investigadora (2008-2012) en el área de la Historia de la Educación Literaria, línea de investigación poco atendida por pedagogos y filólogos porque requiere de un perfil formativo híbrido como el mío.

Tras la defensa de la tesis comenzó mi andadura postdoctoral. Desde entonces mi trayectoria como investigadora se ha venido desarrollando, a lo largo de estos casi diez últimos años, en diferentes instituciones universitarias extranjeras de primer orden a las que me referiré con mayor detenimiento en el próximo apartado.

Durante mi experiencia de investigación internacional comencé a desarrollar una segunda línea de trabajo: la que recupera la Historia de una de las Instituciones Educativas españolas en el exterior.

La movilidad y la internacionalización son, sin lugar a duda, el hilo conductor de mi actividad científico-técnica. Mi itinerario académico e investigador se sustenta en la concurrencia a convocatorias competitivas en organismos internacionales de reconocido prestigio que han implicado la movilidad durante casi una década.

De los más de 120 meses de trayectoria postdoctoral, 108 los he desempeñado como contratada o becaria de investigación en las diferentes universidades extranjeras que paso a exponer:

-fui, en un primer momento Visiting Scholar Junior en la Université Paris IV-Sorbonne, Francia (2012-2013);

-seguidamente continué trabajando en la en la Université Paris IV-Sorbonne gracias a un contrato de investigación postdoctoral (2013-2014) financiado por el Proyecto de Investigación de Excelencia de la Junta de Andalucía que me permitió realizar la investigación pre-doctoral;

-posteriormente fui contratada de investigación en la Université Paris 3-Sorbonne Nouvelle (2014);

-al término de este último contrato, obtuve la prestigiosa beca postdoctoral "Fernand Braudel (International Fellowships for Experienced Researchers)" de la Comisión Europea (Action Marie Curie -COFUND- 7th PCRD) (2014-2015).

-Desde 2015 y hasta finales de 2021 he desempeñado en la Universidade de Lisboa, Portugal, las tareas pertinentes como investigadora postdoctoral y como profesora auxiliar invitada (2019-2021);

-un transcurso de investigación internacional que, desde enero de 2022, ha desembocado en un contrato de investigación "María Zambrano" para la atracción del talento internacional en la Universitat de València (como investigadora destacada).

Resumen del Currículum Vitae:

La candidata presenta una selección de méritos y un itinerario académico e investigador con una importante trayectoria postdoctoral cimentada en la concurrencia a concursos altamente competitivos en organismos internacionales de reconocido prestigio (más de 120 meses en total, de los cuales 108 los ha desempeñado como contratada o becaria de investigación en diferentes universidades extranjeras). Esta experiencia culmina en la actualidad con la reciente obtención de la ayuda María Zambrano, financiada por el Ministerio de Universidades, para la atracción del talento internacional (Instrumento Europeo de Recuperación Next Generation EU dentro del PRTR); un contrato como investigadora distinguida con la Universidad de Valencia que le está permitiendo, además, liderar por vez primera un pequeño equipo de investigación emergente en el seno del grupo de "Políticas educativas, interculturalidad y sociedad" (POLISOC), grupo que acompaña la implementación de su nuevo proyecto de investigación.

Ha sido becaria de colaboración (2007) y becaria de investigación predoctoral de Excelencia en la UGR (2008-2012 –doctorado con mención europea y premio extraordinario-), Visiting Scholar Junior (2012-2013) e investigadora contratada (2013-2014) en Paris IV y posteriormente en Paris 3-Sorbonne Nouvelle (2014-2015), becaria de investigación postdoctoral "Fernand Braudel"-Action Marie Curie (2015), becaria de investigación postdoctoral en el Instituto de Educación de la Universidad de Lisboa (2015-2021), además de profesora auxiliar convidada en este último centro (2019-2021).

En su experiencia investigadora destacan varios aspectos que constituyen una sólida base de partida de gran valor y garantía para el desarrollo del programa de investigación Ramón y Cajal al que pretende optar; de entre todos ellos subrayamos la importante labor editorial académica llevada a cabo entre 2010 y 2019 para la creación -junto a otros colegas- de la Revista Internacional de Estudios Literarios Impossibilia, una revista de nueva planta que durante sus primeros años de andadura fue indexada en la WoS. De los 17 números publicados bajo su supervisión como co-editora mencionamos en el apartado siguiente los 7 monográficos que la candidata editó y coordinó con cuidado para dar visibilidad y difusión a los investigadores más jóvenes del área.

De los otros aspectos de su producción científica señalamos la decena de proyectos de I+D+i financiados en convocatorias nacionales e internacionales competitivas en los que ha participado desde que comenzara su tesis doctoral, la treintena de publicaciones (numerosos capítulos de libros indexados en SPI, la coordinación de 4 libros colectivos, los artículos y los números de revistas monográficos coordinados, todos indexados en Q2 y Q3), así como la notable iniciativa en la organización de eventos científicos (codirección festival artes[h]oy), le han ayudado a establecer una posición de relevancia en el área de la educación literaria y le han permitido explorar otras formas de transmisión del conocimiento (la candidata está realizando una película documental, en fase de montaje, con fondos públicos que parte de la investigación realizada en Paris 3-Sorbonne Nouvelle con la que pretende lograr una más amplia difusión y transferencia de su investigación).

Área Temática:	Ciencias de la educación
Nombre:	HERAS LÓPEZ, MARÍA
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Título:	Exploring innovations for transformative learning: arts-based methods in Environmental and Science Education

Resumen de la Memoria:

I am a socio-environmental scientist specialized in Environmental and Sustainability Education (ESE) and Science Education. The complex nature of current sustainability challenges and the need for competent citizens able to adequately respond to them, require responsive educational approaches, in both fields, able to engage people in the solution of problems. This need has generated attention in ESE and science education research to better understand the learning processes and capacities needed to resolve complex sustainability challenges. Paradigms such as transformative learning and sustainability learning have emerged focusing on critical reflection, meaning-making, and relational experiences. My research focuses on the exploration of innovative and participatory arts-based methods seeking transformative learning in formal and non-formal ESE and Science Education contexts and with different age groups.

Initially trained in Environmental Sciences (UAM, Madrid, 2003-2007), my interest in learning processes started during my interdisciplinary masters' programme (UAB, 2007-2008) where I realized the importance of transformative learning to approach current sustainability challenges. Such interest got consolidated through my PhD (ICTA-UAB, 2010-1015), in which I explored the emerging field of arts-based practices within sustainability science, learning and practice with students from secondary school. In 2015 I defended my thesis, entitled Towards New Forms of Learning: Exploring the Role of Participatory Theatre in Sustainability Science, with Cum Laude. As a postdoc, I continued to explore these innovative methods, conducting research around three interconnected, main areas: i) building conceptual frameworks to advance scientific understanding of the role of transdisciplinary arts-based approaches within sustainability learning and science education, ii) the development of learners' and teachers' competences in both sustainability and science education; and iii) the development of evaluation criteria and tools to evaluate such transformative learning processes.

My research has involved strong collaborations throughout my career with multiple types of actors and end users (schools, local communities, research institutions, public administrations, social movements). As a result, I have consolidated a diverse international network of researchers and practitioners. In the last years, I have managed to develop a well-funded, internationally-based research career, proving my leadership, my fund-writing capacities, and my orientation towards socially-relevant research and outreach activities involving different types of social actors. I have participated in 8 highly competitive national and international projects, among them, 6 EU-funded (H2020, Erasmus +). My plans for future research include the production of a solid evidence-based research benchmark in arts-based sustainability education through the creation of the first global systematic data-base on arts-based methods and assessed impacts, through both an extensive, systematic literature review, and the generation of cutting-edge empirical data.

Resumen del Currículum Vitae:

I am a socio-environmental scientist, specialized in Environmental and Sustainability Education (ESE) and Science Education. My research explores the use of arts-based methods to foster transformative learning, linking sustainability, participatory methods and open science. My work has been echoed nationally and internationally, both within the fields of ESE and Science Education: I have been invited as keynote speaker to 9 international conferences and seminars, and I have been involved in 8 highly competitive national and international research consortiums and award-wining projects. Among them, the H2020 PERFORM project, recognised by the EC as one of their best practices for two consecutive years (2017, 2018), and by the SWAFS program as one of the five successful science education projects among all projects funded; or the Erasmus + project A Rounder Sense of Purpose, twice awarded with the prestigious Green Gown Award, delivered by the UN Environmental Programme to recognise exceptional sustainability initiatives undertaken by universities. I was PI and Workpackage leader at the EPSN 2021; co-PI and Work-package leader at PERFORM; task leader at projects Erasmus + RSPII and SPOON; and scientific coordinator in the FAS Pilot Project (2018) and the transference project Terra-Teca, Traca (2021). I have shared my scientific results in articles in peer-reviewed journals, book chapters, scientific reports, dissemination conferences and policy briefs. In 2021 I got the research aggregate accreditation by the Agency for the Quality of the Catalan University System (AQU).

My entire career has a strong international orientation thanks to an active international network across several EU countries, Latin America, and North America. I have conducted research in collaboration with research centres, universities and civil society organisations in México, Sweden, UK and France, among others. I am member of the ground-breaking educational network 'Educere Alliance', based at Oxford University, and the EC Education For Climate international network. Moreover, I have focused on fostering participatory research, integrating multiple types of actors and end users (schools, local communities, research institutions, public administrations, social movements). I have contributed to disseminate research in education outside classical domains, communicating results in cultural and ICT contexts (Museu d'Art Contemporani de Barcelona, Centro Atlántico de Arte Moderno, Art + Science = Makers, International Symposium on Electronic Art), and engaging the general public in innovative science communication events (EPSN 2021 immersive installation, Terra-Teca-Traca festival, IMPRESSIONS performance). All these interests have converged in my involvement in postgraduate and early career researchers' training. I coordinated 2 trainings to early career researchers (UAB, 2016, 2017) and co-authored the Introductory Module of the course Responsible Research and Innovation for Researchers, Escola de Doctorat (UOC). I have supervised 6 master theses and I have been member of 5 national and international techno-scientific evaluation committees. I have also opened a line of research and postgraduate training at the Institute of Environmental Science and Technology (ICTA-UAB, twice-awarded María de Maeztu Excellence Award), where I have been teaching between 2018 and 2023.

Resumen de la Memoria:

I am passionate about research, and for this reason, I have been motivated to leave my home country and move abroad to study at top research universities on the specific topic of inclusive education. I believe that as much as I could experience more, I am able to share and discuss critically with my academic peers. Therefore, I have also managed to find opportunities to work in organizations with a direct impact on children¿s lives who are at risk of social exclusion in countries such as Italy, Greece, Norway, Great Britain, Spain, Denmark, Australia, and Belgium. In the last year of my degree in psychology I decided to travel to Norway as I needed to learn English I opted to work in a nursery as it was attractive for me to experience a low teacher-student ratio and the quality of the Nordic educational system. I traveled around Oslo (Norway) and I learned about the umbrella of services around the families with children with disabilities, in that way I was writing reports as compulsory for the latest subject of my degree. I was lucky to get access to the master's on inclusive education and learn the methodology of how to analyse the qualitative data using the SPSS and leading to the research article on hippotherapy. After that rich experience, I was granted the Talentia Scholarship and I was admitted to one of the 100 worldwide universities, Monash University (Melbourne Australia). During that stay, I learned together with the leading researcher Johanne Deppeler, about leadership and inclusive practices leading to both of the academic articles I published in 2010. After that experience, I moved to Greece, where I worked in CEDEFOP as a trainee and I coordinated two publications on VET systems, together with national experts from Sweden and Spain. After that, I was invited to an interview in Chelmsford, UK where I accepted the Ph.D. grant where I did a longitudinal and comparative study of the professional development of inclusion in two primary schools and at the same time I started working as a part-time researcher for the European Commission agency, The European Agency for Special Needs Education and Inclusion (Brussels, Belgium, and Odense, Sweden). From 2009 until 2015, I was collecting data from more than 25 countries per project, and on each visit, I was expending 5 days per country. Working as a leader in a British School in Spain also offered me the opportunity to collaborate with several European Institutions (such as Norway, UK, and Hungary), High schools, and Universities in which I signed specific Erasmus plus contracts to establish mentoring relationships with the staff, teachers, and students. Then I started to apply for postdoctoral opportunities in August 2019, last week I have received an invitation to work in 2020 at the University of Trondheim (Norway) with a specialised research team. In 2020, during the first 3 months before the pandemic crisis, I was highly motivated to continue to develop my research skills in the areas of school organisation and inclusion and child welfare with the experienced research group at the Department of Teacher Education at the University of Almeria, Spain. In just a month I sold the school I founded, and I moved for a short time to Almeria as I received a temporary invitation from the University of Almeria as a researcher at the teaching education department. Still, I moved back abroad,

Resumen del Currículum Vitae:

Since 2020, Positive Evaluation for Profesor ayudante doctor, Profesor contratado doctor y Profesor universidad privada by the DEVA (Junta de Andalucía) and ANECA. In 2005, I obtained a scholarship from the Norwegian ministry to participate in the master's degree in "Special Educational Needs" at the University of Oslo, Norway. During that stage, I collaborated with the CERNEP Research Group of the University of Almería and published a JCR impact article of the first quartile (referenced in 178 scientific documents). I obtained several competitive internationally awarded scholarships. I.e. Talentia Grant to study a master's degree in "Leadership Policies and Change" at the University of Monash, Australia, and just after that, I published two scientific articles (SJR). In 2008 I collaborated on two research projects in Melbourne, one on the educational inclusion in Infant and another about the training of teachers in reflection techniques based on inclusive practices with impact at the regional level. In the same year, I obtained a competitive internship as a researcher at the department of educational policy at Cedefop (European Centre for the Development of Vocational Training) in Thessaloniki, Greece; where I published a political study on professional training in Sweden "Vocational Education and Training in Sweden Short Description" (2009) with an international impact. In the same year, 2009, I obtained the Doctoral Scholarship from the Faculty of Education of Anglia Ruskin University. My doctoral thesis was published in British Library and develop an article was accepted (JCR Q1), it is pending publication. In 2009, she started as a researcher at the European Agency for Special Educational Needs and Inclusive education (Brussels, Belgium) to work on two European projects, one on Childhood Education and Educational Inclusion and the other, on professional training and educational inclusion. In both, I finished with international impact publications and with the coordination of two hearings in the European Parliament, and the coordination of an international conference and two European presidencies, one in Madrid (2010) and another in Cyprus (2012). In that period I had a girl in 2012 and a boy in 2017. Based on my experience, I opened a center with innovative methodology, ASPNET (UNESCO Associate Center) and British Primary and infant school from 2015 to December 2019; Where she directed Erasmus Plus collaboration agreements, tutoring students from different European centers. Based on it, an article (Q1, SJR) is published. At the same time, in November 2017 I started working as an associated professor at the University of Alicante, participating in a group of teaching innovation, and in collaboration with the University of Almería, I published two articles (JCR) and three books chapters. I have conducted courses and seminars and participated in international prestige conferences (IAFOR, Aera, Dec, Ece, Nera) which are accredited through this curriculum. In the year 2020, I obtained the postdoctoral scholarship of the NTNU University in Trondheim incorporating into the Nordic Unequal Childhood research group in which I continue and have published an article (Q1 JCR), and two articles accepted pending publication (Q1 JCR). Being part of two other research groups and collaborating in publications that are in a review period (5 articles). Evaluator in Teacher and Teaching Education peer-review journal (Q1).

Área Temática:	Ciencias físicas
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Título:	Quantum Thermodynamics and Quantum Sensing

Resumen de la Memoria:

I did the PhD in the the Quantum Information Group of Prof. A. Acín in ICFO-The Institute of Photonic Sciences, where I worked in the interface between quantum information and quantum thermodynamics. Some of my articles, linking quantum correlations to thermodynamics, have been highly influential. For example, I showed that entanglement can speed-up the extraction of energy from quantum batteries, a result that motivated numerous articles on potential quantum advantages in such devices. During the PhD, I also provided a deep insight in the definition of quantum work fluctuations through a no-go result: I proved that there cannot exist a measurement scheme that satisfactory extends the classical notion of fluctuating work to fully coherent systems. This result clarified a long-standing question in the field.

After the PhD, I moved to the Theory Division led by Ignacio Cirac in the Max Planck Institute of Quantum Optics (MPQ). Here, my career progressed in two complementary ways. On the one hand, I started working on new markedly different topics in the interface between quantum optics and quantum metrology. In particular, we characterised the potential of non-linear photonic states emitted in superradiant decays for quantum metrology. On the other hand, I made further progress in quantum thermodynamics and started developing my own research ideas. These were in fact crucial years in my career and I derived some of my most important contributions, including a quantum generalisation of a central relation in stochastic thermodynamics, the work fluctuation-dissipation relation (FDR), and a geometric framework for finite-time quantum thermodynamics.

After a 3-years Postdoc in MPQ, I moved to the University of Geneva as an independent researcher (Scientific Collaborator) with a SNF Ambizione grant. This was the first large scientific project that I obtained, providing funding for four years for myself and a PhD student. In Geneva I am having the most prolific years of my career, and have been working on several topics within quantum thermodynamics (optimisation of finite-time processes, characterisation of work and heat fluctuations) and quantum metrology and sensing (quantum thermometry, quantum critical metrology). Furthermore, I started collaborating with experimentalists, including a nice collaboration with the group of Ville Maisi with expertise in semiconducting single-electron devices. With his group, we performed the first experiment that showed the potential of thermodynamic geometry for minimising dissipation.

Overall, my main research lines are quantum thermodynamics and quantum sensing. In the first one, currently my main goal is to develop an understanding of optimal protocols for composite systems of few or many particles. I am particularly intrigued by the possibility of reducing dissipation through collective processes. Characterising fluctuations in these processes is another important goal. In the second research line (quantum metrology), motivated by the unprecedented experimental level of control of quantum systems, I am interested in understanding the potential of few-body interacting probes for sensing temperature and magnetic fields (again, motivated by potential collective advantages in sensing).

Resumen del Currículum Vitae:

I am a theoretical physicist working on several topics within quantum physics. I developed my career in top groups in quantum science: a PhD in the Quantum Information Group of Prof. A. Acín in ICFO-The Institute of Photonic Sciences, a Postdoc in the Theory Division led by Ignacio Cirac in the Max Planck Institute of Quantum Optics (MPQ), and currently I am leading a research project in the Group of Applied Physics of the University of Geneva. These experiences exposed me to scientific projects at the highest level and provided me with a broad expertise in quantum science (non-equilibrium physics, quantum information, quantum metrology, many-body physics...).

I have published 46 papers and 9 preprints, with a total of 2.522 (1.488) citations according to Google Scholar GS (Web of Science WoS). I was actively involved in all these works, with 12 articles as a (shared) first author and 11 articles as a senior author. Several of them have been published in highly prestigious Physics journals (14 Phys. Rev. Lett., 2 Phys. Rev. X), and all of them in international peer-reviewed journals (Phys. Rev. A/B/E/D, NJP, Quantum, SciPost Physics, Sci. Adv.).

My main contributions are in the field of quantum thermodynamics, but I have also contributed to quantum metrology and sensing, quantum information, quantum optics, and stochastic thermodynamics. Some of my most relevant contributions include (i) a generalisation of a central relation in stochastic thermodynamics, the work fluctuation-dissipation relation (FDR), to coherently driven quantum systems, (ii) the development of a geometric framework to optimize finite-time quantum thermodynamic processes, (iii) the derivation of universal corrections to the second law of thermodynamics due to strong coupling, (iv) and the establishment of fundamental limits in on the precision of quantum thermometer probes. These results have provided profound impact on our understanding of thermodynamics in the quantum regime, and they were very well received by the community. They clarified some long-standing questions in the field, e.g. on the nature of quantum work fluctuations and the form of optimal protocols, and triggered further research in the interplay between quantum thermodynamics and geometry. I received the prestigious NJP Early Career Award for these contributions.

My research results are often presented in international conferences. Indeed, I have given more than 25 talks and presented 6 posters in International Conferences or Workshops, and about 20 seminars in different Universities. As I gained scientific recognition, I also started receiving invitations: in the

last 3 years, I have been invited to 7 international Conferences or Workshops and given two invited lectures. I have also co-organised several international conferences, and participated in outreach activities during my PhD in ICFO and in the University of Geneva.

I have been able to obtain funding in all stages of my career: FPU fellowship during the PhD, a Humboldt fellowship during the Postdoc, and a SNF Ambizione grant in the University of Geneva (which provides funding for the principal investigator and a PhD student). This not only illustrates my capability of obtaining research funds, but also of pursuing my own ideas and projects. Besides leading research projects, I have also supervised one PhD and two master students.

Área Temática: Ciencias físicas
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Título: Senior Fellow

Resumen de la Memoria:

We do not know what the next hint of new physics will be or where it will come from. This challenge has driven me to craft a multi-directional research program. Why are the fundamental particles so light when this seemingly requires a cancellation of terms in the equations of the Standard Model of Particle Physics (SM) to 32 decimal places? What is the nature of dark matter (DM) —the indirectly inferred, but yet to be directly observed, missing component of matter in the Universe? What dynamical mechanism generated the asymmetry of matter over antimatter in the early Universe that resulted in a Universe of stars, planets, and people rather than nothing? How does gravity fit into our understanding of the fundamental particles of the SM? With all the theoretical motivation for the existence of new physics, and therefore new particles beyond the SM (BSM), why have experiments not yet detected any?

Resumen del Currículum Vitae:

As experiments continue to constrain many of the most aesthetically pleasing models of BSM physics, it is becoming critical to leave no stone unturned in the pursuit of discoveries. This notion has motivated me to focus a large branch of my research program on "data driven theory"—considering new signals of BSM physics that could be discovered with searches at current and future experiments, while in parallel constructing novel mechanisms that display a rich phenomenology and address multiple problems of the SM. This necessitates a broad approach which tackles many avenues simultaneously. For instance, I have proposed the new class of DM direct detection signals dubbed Fermionic Absorption, which experiments have begun searching for; limits for Fermionic Absorption have recently been released by the PandaX-4T, Majorana Demonstrator, and CDEX-10.

Another branch of my research program focuses on the proposal of novel (and testable) mechanisms explaining the generation of the asymmetry of matter over antimatter (baryogenesis). By organizing workshops and through my involvement in the Snowmass process, I have taken on a leading role in emphasizing to the community the importance of "thinking out of the box" in this field. In recent and on-going work, I have developed a class of novel mechanisms of baryogenesis which also explain DM abundance of the Universe. Mechanisms of Mesogenesis operate at low scales and as such have signals at B-factories, hadron colliders, Hyperon factories, and neutrino experiments. The Belle-II collaboration conducted a search, for which I served as a EXO-200 collaborations . On the model building front, I have recently pointed out that there exists a maximum direct detection cross section for sub-GeV DM scattering off nucleons. I introduced a novel DM candidate, HYPER dark matter, which can achieve this maximum cross section by utilizing a dark sector phase transition (DSPT). A late time DSPT is interesting in its own right as it is evoked in many BSM models. In ongoing work, I am studying novel effects of a DSPT on the Cosmic Microwave Background (CMB), and on supernova and stellar cooling constraints. DM models that do not evoke a DSPT generically do not produce a large enough cross section to be discovered at direct detection experiments with a few exceptions that I am currently exploring. consultant, to directly test my proposal for B-Mesogenesis. The Belle-II search placed the first ever limits on one of the processes through which this mechanism can proceed . With upcoming searches proposed at LHCb3 and BaBar, the discovery (or exclusion) of Mesogenesis will play a key role in my research program in the upcoming few years.

Área Temática:	Ciencias físicas
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Título:	Innovative Biophysical Solutions for Biotechnological Applications in the Fields of Macromolecular Crystallography and Biomaterials

Resumen de la Memoria:

My research trajectory can be categorized into 3 main sub trajectories:
1. Biophysical solutions for macromolecular crystallography
2. Material engineering & synthesis of biocompatible materials for biomaterials applications
3. Exploiting the different electron microscopy methodologies to reveal high-resolution structural properties of materials designed for different (bio)nanotechnological applications.

These 3 sub trajectories originate from my main research line on biophysical applications that effectuate the self-assembly of building blocks from the molecular up to the macroscale level, whether they lead to homogeneous or heterogenous (surface) nucleation & subsequent growth of (protein) crystals or crystalline surfaces that can serve as (bio)materials (coating) & their consequent characterization methodologies.

Therefore, my prospective research is categorized into 2 independent, yet related research lines:

1. Primary line: Designing Means for Macromolecules Nucleation, Crystal Growth & in situ Characterizations
I plan to design a miniaturized system to explore the nucleation process using a combination of microfluidics & static light scattering technology to accomplish a "real-time" controlled probing of the crystallization phase diagram by monitoring the 2nd virial coefficient for small volumes of protein solutions at low concentration; followed by directly storing the successful nucleation hits to allow their growth & thereafter in-situ data collection. For this, tailor-made durable or biodegradable growth cells or nano-compartments will be designed to facilitate the growth of high-resolution crystals up to the required size (nano-, micro- or mesoscopic) as per the selected characterization crystallographic methodology. Beside the expected rational acceleration of the whole process, a vital aspect of the project is the environmental sustainability that would benefit from the decreased usage of plastics that are enormously consumed in these experiments & replace this with durable or biodegradable components.

2. Secondary (backup line): Bio-functional Metal Phosphates (MPs) & Metal-Organic Frameworks (MOFs) for Biomaterials Applications
I plan to utilize multifunctional & potentially applicable materials that possess nanostructure & high flexibility, MPs & MOFs, as repositories for antimicrobial nanoparticles/ions. The advantage of these materials is that they are easily degradable & would not have adverse effects on the environment if synthesized from non-toxic precursors. Currently, I work on MPs & have proved that through their intercalation with antimicrobial ions they provide an effective biocompatible alternative to bio-cements & promising coating layers for medical alloys. On the other hand, MOFs could be promising reservoirs for bio-functional nanoparticles & ions for many bio-functional metals (silver, gold, zinc, or copper) that can be uniformly distributed over their surface area & possess a controlled release to achieve their durable antimicrobial activity. Moreover, MOFs could be tailored to trap & encapsulate bacteria & viruses & isolate them from their media and thus inhibit their reproduction & growth at a specific site. Therefore, my prospective research would potentially provide new alternatives to the biomaterials classically used for bio-cements, scaffolds & biomimetically-inspired coating methodologies.

Resumen del Currículum Vitae:

I am a Dutch scientist with 15+ years' experience in scientific research, academic education, & mentoring fellow students at 4 Universities in 3 countries & had short research stays in 3 other countries.
Constantly, I amend my skills by attending international courses (8 in last 10 years) on macromolecular crystallography, (cryo)electron microscopy, microfluidics, light scattering technologies & other relevant (bio)physical & (bio)chemical methodologies.
I conduct multidisciplinary research, generating knowledge in (nanostructured) [bio-]materials, [bio-]nanotechnology & macromolecular crystallography with a focus on the applicability of the research output in products providing rational solutions for current scientific demands. An example is the ceiling crystallization method, implemented for proteins, that I approved & designed its applicable kit during my PhD project & was commercialized through Radboud university to NOVARTIS. This work has been highlighted in different international media.
I am involved in successful collaborations: During her PhD, I worked at the solid-state chemistry & biochemistry departments & cooperated with other researchers within Radboud University & from other Dutch universities (Groningen, Utrecht, Leiden). Moreover, I had concert collaborations with researchers in Granada, ES & Gothenburg, Sweden that resulted in joint publications. During the execution of my first postdoc, I cooperated with a researcher in Oviedo, ES, whereas my second postdoc was conducted at the drug design & pharmaceutical analysis departments, Groningen University in collaboration with researchers from a Japanese company (Daiichi Sankyo). Now, I collaborates with several groups at different departments at Oviedo University, Malaga University, national institutions (INCAR, CINN & IDONIAL) & other international institutes. My role varies from participating in their research to guiding their PhD students. I am an official member of SYSTAM group at Oviedo University & participated in writing their research proposal that led to the acquisition of their latest MINECO funding.
Since 2018, as my initiative & based on available resources in Oviedo, I conceived & lead a research project on the synthesis of biocompatible antimicrobial materials for biomaterials applications. Within this research, I supervised a PhD (cum laude 2021) & 3 B.Sc. students & collaborate with researchers at CINN & the chemistry, engineering & dentistry faculties at Oviedo University. The project resulted in a PhD thesis , 6 published articles (1 selected as Asturias-RSEQ best chemistry article of 2021 & 6 conference proceedings & delivered 3 invited talks.
To date, I co-authored 40+ scientific communications (20+ since 2018, 14+ as first author & 16+ as the responsible author, 2 chosen among Asturias-RSEQ best articles in 2021 & 2022; 1 editors' choice in 2022). Besides, I presented my research in 30+ international meetings with 20 posters (1 best

poster award in 2013) & 14 (5 invited) oral talks (1 best talk award in 2009). Alongside, I reviewed 48 articles for 23 WOS-indexed journals in ACS, RSC, Elsevier & other societies; academically edited 2 articles; chaired a conference session & I am an evaluation committee member of GWIS grant 2023. Moreover, I manage macroscale scientific facilities (SEM/HRTEM) & I am involved in scientific voluntary societies (e.g. GWIS)

Área Temática:	Ciencias físicas
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Título:	The chemistry of stars

Resumen de la Memoria:

My research is mostly focused on the chemical abundances of solar type stars and low mass stars with a twofold objective. First, to understand the star-planet connection. Second, to study the Galactic chemical evolution (GCE) and the nucleosynthesis processes in the Galaxy. Complementary to the above research lines, I am also interested in the search and characterization of exoplanets (especially around evolved stars), stellar variability and atmospheres.

I carried out my PhD at the Instituto de Astrofísica de Canarias with a thesis project that studied the impact of the formation and presence of planets on the chemical abundances of their hosting stars. My thesis work led to three first-author articles and a Nature paper as second author, focusing on the chemical abundances of light elements (Li, Be, C and O) in the atmospheres of exoplanet host stars and how the formation of planets can influence the chemical content of such elements. We found that solar analogues hosting planets present enhanced Li depletion as compared to stars without detected planets pointing to an effect of planet formation on the angular momentum evolution of parent stars and hence on rotationally induced mixing. Moreover, our analysis of C/O and Mg/Si mineralogical ratios showed that a large variety of planetary systems is present in our Galaxy.

After my PhD I joined the Instituto de Astrofísica e Ciências do Espaço where I expanded my research interests towards Galactic Archeology and the estimation of stellar ages with the use of chemical clocks (abundance ratios with a significant sensibility to age). I published a work where we demonstrated that the correlation with age of those abundance ratios has a clear dependence with metallicity and we provided empirical relations to determine ages for a wide range of stellar parameters. Moreover, I led an article showing for the first time the decrease of Li abundances for stars of super-solar metallicities, something unexpected from standard stellar theoretical models on Li production and depletion. During this period I have also worked on the derivation of homogeneous and precise abundances for the HARPS-GTO sample (carbon, sulphur, neutron-capture elements), either as first author or with my student. These series of papers based on very high resolution data have been extensively used by the community to compare to results from lower resolution instruments and to validate GCE models.

Given my extensive experience on stellar spectroscopy I got involved in several collaborations that are searching for Earth-like planets and I regularly contribute to the characterization of planetary systems by the determination of chemical abundances and ages for the host stars. Furthermore, I became interested in the search for planets around massive red giant stars, a stellar population barely studied in the literature. I am the PI of a program searching for planets around evolved stars in open clusters (with 18 nights of awarded observations with HARPS, so far) with the aim of finding which kind of planets are formed around massive stars (and whether we can detected them or not) and studying the origin of long term radial velocity (RV) variations not related to planet presence.This program will be expanded in the next semesters by collecting NIR RVs within the NIRPS GTO, a new high resolution spectrograph installed in La Silla.

Resumen del Currículum Vitae:

After finishing my PhD at the IAC in October 2011 (marked Sobresaliente Cum Laude) I became a FCT (Portuguese Science Foundation) postdoctoral fellow at Instituto de Astrofísica e Ciências do Espaço (IA). After that, I developed my independent research career in the same institution with an Investigador FCT contract, a highly competitive 5 years research grant (success rate 12%). Recently, I started a new 6 year contract, awarded in the 4th Stimulus FCT call (assistant level, 11% success rate) to further establish my research independence. So far, I have published 110 papers (95% in SJR-Q1 journals, including Nature, Science and Nature Astronomy), 11 as first author and 10 as second author, with 4640 citations and an h-index of 38 (based on ADS statistics as of 24th January 2023). I have presented 22 oral contributions in international conferences, 4 oral contributions in national conferences and 5 invited research seminars. During my research career I secured a funding of 765k€ as PI of 4 projects (including my own salary) and I have been Co-I of 6 large projects since 2009 (with a total budget of more than 800k€). I am involved in several international consortia, being member of PLATO 2.0 (ESA mission) WP dedicated to stellar parameters and a Co-I of the Gaia-ESO Survey. I belong to the Science Core Team of NIRPS, as well, a new NIR high-resolution spectrograph installed in La Silla Observatory (Chile). Furthermore, my long experience in the chemical characterization of planetary host stars allowed me to be the leader of the ARIEL (ESA mission) sub WG on stellar abundances. I am also the Portuguese representative of the Euro-Planet Society and Member of Mauna Kea Spectroscopic Explorer (MSE) Science Team

I am co-supervisor of three PhD thesis (one of them finished in June 2020) and the sole supervisor of a part-time PhD thesis. I also co-supervised three Msc thesis and seven undergraduate research grants. As a member of the Executive Board of my institute I was in charge of the management of research centre budget and I have participated in many evaluation panels for contracts and grants, among other activities. I was jury for four PhD thesis defences in Nice, La Laguna, UCM and Porto. I was also jury for the 2018, 2021 and 2022 Annual evaluation sessions of the Astronomy PhD program at University of Porto. I have extensive observational experience, being PI of 14 successful observational proposals (ESO, ORM-La Palma, IRTF-Hawaii) and co-I of 44 observational campaigns (including several large programs). I served as OPC member to evaluate ESO proposals during the periods 97 and 98 (2015-2016) and I have been external evaluator for OPTICON proposals and for research projects funded by the Argentinian Ministry of Science. Moreover, I have refereed papers for the journals ApJ, A&A, MNRAS; Nature and PASP.

Regarding the organisation of scientific events, I was in charge of the seminar program of IA for 4 years. Moreover, I have organised splinter sessions in large international conferences (Cool Stars 2016 and Pathways towards habitable planets 2015). I have also organised (as LOC and SOC) two large conferences and a workshop in Porto (2014, 2019 and 2023). Finally, I have also participated in different outreach events including radio and TV interviews, public talks, online debates, press releases and the Women and Girls in astronomy day.

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Título: Quantum opto-electronics in moiré materials

Resumen de la Memoria:

Quantum opto-electronics in moiré materials

In recent years, a new paradigm has emerged in solid-state physics thanks to a new class of designer quantum materials termed Van der Waals heterostructures, in which two-dimensional materials are assembled on top of one another to create novel solid-state systems that do not exist in nature. Of particular significance are 2D more superlattices, in which neighbouring 2D layers are twisted slightly, offsetting the crystallographic axis and generating nanometer scale superlattice structures that strongly perturb electronic properties of materials. A striking example is twisted bilayer graphene, where the twist-angle tunes the electron interactions into a strongly correlated regime with a rich phase diagram spanning superconductivity, correlated insulators, Chern insulators and ferromagnetism. In addition, the flattening of electronic bands and smallness of the moiré Brillouin zone strongly enhances quantum geometric quantities such as berry curvature and the quantum metric, making 2D moiré superlattices an exciting platform for uncovering the interplay of topology and strongly correlated phenomena, as well as designing novel quantum materials. However, many of these broken symmetries are not well understood, hindering the development of novel quantum materials. So far, only three experimental tools have been used including quantum transport, scanning tunneling microscopy and compressibility measurements. Whilst offering strong application advantages, the techniques are either too limiting or too specialized so that only a handful of works exist in the community.

Photocurrent experiments, that describe the conversion of photo-excited electrons to a direct current, are quickly emerging as a versatile tool for probing fundamental electronic properties of solid-state systems. Tracking the photo-excitation process through its various stages provides insight into electronic structure, Bloch band quantum geometry, quantum kinetic processes and collective excitations to name a few. Of particular significance is the family of polarization dependent photocurrents, termed quantum geometric photocurrents, that are driven by broken symmetries of quantum materials and allows direct access to the geometry of electron wavefunctions in mesoscopic experiments. On the other hand, photocurrent experiments are also at the beginning of any opto-electronic application. The reduced crystalline symmetries of 2D moiré superlattices make them ideal candidates for opto-electronic devices based on the bulk photovoltaic effect, where rectification is achieved in the crystal lattice itself, making them strong candidates for next-generation of photovoltaic applications including photodetectors. Because of the narrow bandwidths and milli-electron volt energy scales in 2D moiré superlattices, devices are expected to exhibit strong terahertz photoresponse whilst maintaining ultra-low dark currents – an essential requirement for the development of highly sensitive photodetectors for space applications.

In this proposal, I will employ a combination of far-field terahertz photocurrent with quantum transport techniques to probe topological properties of broken-symmetry states in moiré superlattices related to twisted bilayer graphene and develop novel types of opto-electronic devices based on the quantum materials.

Resumen del Currículum Vitae:

I am a solid-state experimental physicist focused on studying the fundamental electronic and opto-electronic properties of quantum materials based on two dimensional (2D) heterostructures, specifically, graphene-based moiré superlattices. My current research employs state-of-the–art quantum transport and photocurrent techniques for probing out-of-equilibrium and topological phenomena in quantum materials based on moiré superlattices. For my PhD I worked in the lab of Professor Andre Geim, on quantum transport in high quality graphene heterostructures. During this time, I trained in quantum transport performing some of the first groundbreaking experiments on electron hydrodynamics (Krishna Kumar et al Nature Physics 2017), and studying the magnetic spectrum of graphene superlattices where I discovered a new class of quantum oscillations caused by magnetic-field induced Bloch states unique to moiré superlattices (Krishna Kumar et al Science 2017).

Following my PhD, I accepted an offer to join Frank Koppens' group as an independent research fellow specialising in quantum optoelectronic experiments in twisted graphene superlattices. My main research line has been studying the non-equilibrium properties of electrons in moiré superlattices induced by photoexcitation and/or induced by high electric bias. In particular, I made significant efforts in studying Bloch oscillations in graphene superlattices – along the way finding a curious high-field phenomena related to the Schwinger effect (A. Berdyugin et al Science 2022). I also work on polarization resolved photocurrent measurements, an emerging subject beginning to gain more traction because of its ties to the second order conductivity that encompasses topological properties of electrons.

My technical skills combine a variety of quantum transport and photocurrent techniques. For quantum transport, I have experience with several different types of cryogenic measurements including dilution fridge, 4 K liquid helium, helium-3 insets & Cryogenic-free systems (10 mK – 300 K), that operate with high magnetic fields (up to 20 T). Additionally, I have specialized in non-linear (high electric bias) transport experiments and DC/AC measurement techniques. As for photocurrent, I have worked with several techniques for probing light matter interactions including near-field scanning probe (N.C. Hesp et al (Nature Communications 2021)) and several different types of far-field photocurrent techniques at infrared and terahertz wavelengths including polarization resolved measurements (linear and circular), power dependent measurements, broadband fast-Fourier infrared transform photocurrent, spatial scanning techniques and high-frequency measurements for single-photon counting.

In addition to development of my own research abilities over the years, I have been fortunate to gain significant senior management experience. I have supervised five PhD students of different backgrounds, skill sets and personalities, and have been guiding them with experiments, writing papers and supporting them through their defense. Second, I have extensive experience with grant writing, securing my own stipends from the start of my PhD (Marie Curie, PROBIST post-doctoral fellowship, EPSRC post-doctoral prize and EPSRC PhD), and grants based on my own ideas (Flagera, PhotoTBG)

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Título: Exploring the Cosmic Frontier with High-Energy Messengers

Resumen de la Memoria:

My research encompasses high-energy cosmic rays (CRs), gamma rays, and neutrinos. My primary goals are:
(i)   to unveil the origins of the most energetic particles in Nature;
(ii) to understand the innerworkings of extreme cosmic accelerators;
(iii) to use high-energy messengers to probe fundamental physics;
(iv) to search for imprints of the elusive dark matter in multimessenger data.

On the experimental side, I have been working for years in observatories of the triad of messengers, namely: the Pierre Auger Observatory, the Giant Radio Array for Neutrino Detection (GRAND), the Cherenkov Telescope Array (CTA), the ASTRI Mini-Array, the Global Cosmic-ray Observatory (GCOS), and the Fermi Large Area Telescope (Fermi-LAT).

I have made a substantial impact in the field of astroparticle physics as a core developer of CRPropa, the state-of-the-art open-source framework for simulating the propagation of high-energy particles in astrophysical environments. CRPropa is widely regarded as the most comprehensive software for multimessenger studies at high. My PhD thesis describes it in detail, helping lay the foundations for this valuable tool.

I have worked on many sub-fields of astroparticle physics and adjacent areas. During my first postdoc I explored the consequences of high-energy radiation from gamma-ray bursts and supernovae to planetary habitability. This is likely my work with the highest visibility among the public.
Later I explored the effects of intergalactic magnetic fields (IGMFs) on electromagnetic cascades and its consequences for gamma-ray astronomy and CTA-related science. In one of my most insightful articles I introduced a novel multimessenger (neutrinos+gammas) method for constraining IGMFs, obtaining the first-ever constraints on both the strength and the coherence length of IGMFs.

My work in UHECRs has had substantial impact. I established that even if IGMFs are strong, at least a fraction of the sources can still be identified. This is important to decide whether to build future UHECR observatories. I also found new ways to extract UHECR information from high-energy neutrinos. In one of my most important works, I studied the production of cosmogenic neutrinos (and photons) from UHECRs. This calculation is now used as a benchmark for several planned neutrino experiments. In fact, GRAND is optimising its design targeting the flux levels I computed.

Recently I have focussed on exploring the impact of uncertainties related to particle propagation on searches for new phenomena. I have studied the of quantum gravity (QG) on the triad of messengers. I demonstrated that transient sources of very-high-energy (VHE) gamma rays with hard spectra are not reliable indicators of QG phenomena due to competing propagation effects, rendering Lorentz invariance violation (LIV) searches with VHE gamma rays challenging. Similar problems could be found in searches for axion-like particles (ALPs), so my group is currently revisiting the expected gamma-ray signatures of ALPs with improved models.

In summary, I am uniquely positioned to leverage my theoretical and experimental knowledge of the triad of messengers (CRs, gamma rays, neutrinos) to consolidate my research group and explore the (ultra-)high-energy universe. This will deepen our understanding of the highest-energy particles, and give us insights into the fundamental laws of Nature.

Resumen del Currículum Vitae:

I am currently a La Caixa Junior Leader and Marie Curie Fellow at Universidad Autónoma de Madrid. I lead the project "Multimessenger Probes of the High-Energy Universe". Previously I was a Radboud Excellence Fellow at the Radboud University Nijmegen, a postdoctoral fellow at the University of São Paulo and at the University of Oxford. I obtained my PhD (with honours) from the University of Hamburg in 2015.

My primary research focus is on high-energy cosmic particles (cosmic rays, gamma rays, and neutrinos). Using these messengers, I aim to: study extreme astrophysical environments; probe the large-scale properties of the universe; search for dark matter; test fundamental physical theories. My approach is both theoretical and experimental.

I am particularly known for my work as a key developer of the open-source software CRPropa, which is the most widely used code for simulating the propagation of astroparticles in the universe. Since 2019 I have been leading the CRPropa Team.
I am a member of several collaborations of current and planned observatories for the study of this triad of messengers, namely: the Giant Radio Array for Neutrino Detection (GRAND); the Global Cosmic-ray Observatory (GCOS); Cherenkov Telescope Array (CTA); ASTRI Mini-Array; Fermi Large Area Telescope (Fermi-LAT). I was involved in the Pierre Auger Observatory in the past. In GCOS I am in the steering committee of the project, and I also serve as convener of the astrophysics working group.

I have a solid track-record in other fields, having published articles in astrobiology and physics education, and book on (Fine-Tuning in the Physical Universe, Cambridge Uni. Press) on the foundations of physics.

I am part of the project "Particles, Astroparticles, and Dark Matter in the Universe", funded by the Spanish government. I am also actively involved in a project funded by the European Cooperation in Science and Technology (COST) on "Quantum gravity phenomenology in the multimessenger approach", where I have been playing a leading role in the scientific outputs of the project.

I published over 80 articles, more than 20 as first/corresponding author, in addition to a book. I have an h-index of 41 (Google Scholar), with over 7700 citations. I am first author of 4 among the 50 top cited papers on ultra-high-energy cosmic rays (UHECRs) since 2010 (NASA-ADS, search term ' uhecr') and 1 among the top 10 in intergalactic magnetic fields (NASA-ADS, search term ' igmf'). I have been a referee for more than 15 journals including Nature Rev. Phys., ApJ, ApJL, ApJSS, JCAP, MNRAS, A&A, and EPJC. Furthermore, I am external reviewer of grant proposals for multiple funding agencies. I have served as a member of a grant evaluation panel.

I have taught 10 courses in both physics and astrophysics in universities in the United Kingdom, the Netherlands, Germany, and Brazil. I currently supervise 1 PhD, 1 master, and 1 undergraduate student. More than 5 students have successfully obtained their respective degrees under my official (co-)supervision. I was also involved unofficially in several other supervisions (1 PhD, 3 Master, 3 undergraduate).

I was in the scientific organising committee of 11 events. I have given nearly 40 talks in conferences, 9 of which were by invitation, in addition to several invited departmental colloquia and tens of seminars in institutions worldwide.

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Título:	Formación y evolución de galaxias con inteligencia artificial

Resumen de la Memoria:

My work focuses on Galaxy Formation and Evolution from an observational point of view and Artificial Intelligence applied to astronomy. The ultimate aim of my research is to understand how and why the properties of galaxies have changed across the history of the Universe.

I did my PhD at Osservatorio Astronomico di Bologna, (INAF-OaBo, 2009-2012). As part of my PhD I derived the stellar mass function of high redshift COSMOS galaxies (DS+2011) and I compared star formation rate indicators, including Herschel far-IR observations for the first time (DS+2012). I continued my research with Herschel data (DS+2014) during my first post-doc at Instituto de Astrofísica de Canarias (2013-2014, PI: J. Cepa). Afterwards, I did a post-doc at Universidad Complutense de Madrid (2014-2015, PI: P.Pérez González) to derive the star formation histories of high redshift quiescent galaxies using data from SHARDS narrow-band filters survey (DS+2016). Im 2016 I moved to the USA, where I started a joint post-doc position at University of Pennsylvania (UPenn) and Observatoire de Paris (2016-2019) where my expertise with Deep learning exploded thanks to the mentoring of M. Huertas-Company. I applied deep learning techniques to all the surveys in which the department of Astronomy and Physics was involved, constructing and releasing morphological catalogues for SDSS, MaNGA and DES surveys (DS+2018, DS+2019, Fischer, DS+2019a, Vega-Ferrero, DS+2020), I also played a major role in the definition, proposal writing, management and supervision of the NFS proposal "Deep Learning for Galaxy Morphology in the Big Data Era" ($200k; 2019). Simultaneously, I used the MaNGA survey, under the supervision of M. Bernardi, to study the impact of Initial Mass Function gradients in stellar mass estimates (DS+2019b, Bernardi,DS+2023), and the differences of the stellar populations of Elliptical and S0 galaxies, divided according to their kinematics - fast and slow rotators - (Bernardi, DS+2019; DS+2020; Bernardi, DS+2020). In September 2019 I was awarded the first ICE Research Fellowship, becoming an independent researcher, where I established fruitful collaborations with researchers from ICE. For example, we unveiled more than 20 hidden AGNs in dwarf galaxies by exploiting the MaNGA data (Mezcua&DS+2020). I also became a co-supervisor of the PhD student J. Tous (ICCUB) sharing my expertise on MaNGA data to study S0 galaxies (Tous, DS+23). I established collaborations with ML experts from UK, comparing different classification methods for the DES survey (Cheng, DS+2023). In 2021 was awarded a JIN proyecto from Plan National (DILEMA, Deep Imaging and deep LEarning for galaxy Mass Assembly) to develop DL algorithms for the detection of low surface brightness tidal features. The first results from the project are presented in DS+2023 (submitted to MNRAS). Since September 2022 I hold a tenure track position at CEFCA (Centro de Estudios de Física del Cosmos de Aragón), where I aim to characterise the J-PAS and J-PLUS galaxies by deriving robust morphological classifications and stellar populations. Since January 2023 I am the coordinator of the Work Package 'Structure analysis' of the ARRAKIHS consortia, as well as PI of the coordinated project ARRAKIHS: Primera Fase de la Próxima Misión Espacial Clase-F de la Agencia Espacial.

Resumen del Currículum Vitae:

General Quality Indicators (according to ORCID):

Publications in Q1 journals: 66 (17 as first/second author)
Total number of citations: 3967 (625 from first/second author publications)
Total number of citations in the last 5 years: 1445 (289/year)
Average citation per item: 60
H-index: 29
Oral contribution in conferences: 18 (7 as invited speaker).

I study the formation mechanisms and quenching processes of massive galaxies with a holistic approach by combining different datasets (photometry, imaging, spectroscopy, IFU) and analysis techniques. I have studied in detail the structure, kinematics and stellar populations (integrated and resolved) of galaxies from the local to the distant Universe exploiting state-of-the-art galaxy surveys (DES, MaNGA, Euclid, SHARDS, SDSS, COSMOS, PEP-Herschel).

I am a pioneer on the use of deep learning algorithms for the analysis of galaxy images. Since 2018 I have co-authored 10 publications on the topic with more than 500 citations, 6 of them as 1st or 2nd author. I have led the construction and release of some of the largest morphological catalogues up to date (SDSS, DES, MaNGA). I am a proficient coder and I have a strong expertise on Big Data management and GPU computation.

I am an independent research since 2019, when I was awarded the first post-doctoral fellow at ICE-CSIC. In September 2022 I become a tenure track researcher at CEFCA, developing deep learning techniques for the exploitation of J-PLUS and J-PAS surveys. I have obtained funding to develop my own research from the National Science Foundation (USA) and the Spanish Ministry worth ~500k € I have a strong mobility record, having worked at 6 research institutions in 4 different countries, and visited distinguished centres around the world. The combination of technical and theoretical knowledge to develop high-impact research by applying state-of-the art machine learning techniques to Big Data surveys makes my profile unique.

I supervise students from all levels (3 PhD students, 3 master students, 2 undergradute students and 2 JAE-intro grants) and I have been member of 3 PhD defense committees. I was the organiser of the 4th ICE Summer School lecturer of the Severo Ochoa School "Machine Learning, Big Data, and Deep Learning in Astronomy" and Mentor of the Kavli Summer Program on Astrophysics:" ML in the era of large astronomical surveys" (UCSC, 2019).

I was the SOC chair of the EAS meeting Special Session 24 "Critical challenges for Machine Learning in astronomy" (Valencia,2022) and organiser of the Sinergia SEA: "The Impact of AI in Astrophysics". I have given conferences and seminars around the world, with 7 invited contributions. My work has appeared in 3 press releases, attracting the mass media attention. I participate in outreach activities every year and I am pro-active in Diversity and Inclusion in astrophysics.

Área Temática:	Ciencias físicas
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Título:	Active programmable self-assembled molecular systems

Resumen de la Memoria:

El tema central de mi investigación es la programación de la materia, desde la escala atómica hasta la molecular y la micrométrica. Mis primeros trabajos experimentales en el Centro de Átomos Ultrafríos (Instituto Tecnológico de Massachusetts) se centraron en controlar las interacciones atómicas, atrapando mezclas cuánticas ultrafrías en cámaras de vacío y enfriándolas a temperaturas de nanokelvin usando el enfriamiento por láser. Esta investigación dio como resultado una mezcla triplemente degenerada de gases cuánticos ultrafríos y la captura y enfriamiento de hasta cinco especies atómicas diferentes a temperaturas de nanokelvin.

Después de especializarme en física biológica, mi investigación se centró en controlar las interacciones a nivel molecular utilizando ácidos nucleicos para crear nanoestructuras autoensambladas de ADN. Me doctoré en la Universidad de Oxford, donde utilicé la programabilidad del ADN para explorar el ensamblaje dirigido de nanomateriales. Creé nanoestructuras autoensambladas hechas puramente de ADN (DNA Origami y cristales de ADN) y sinteticé redes de nanopartículas guiadas por ADN, diseñando el control flexible de la valencia y los ángulos de enlace de las nanopartículas de oro encapsuladas en ADN. La síntesis controlable de nanomateriales es otro aspecto de mi investigación. Dirigí proyectos sobre la síntesis de varios materiales de nanocarbono y encontré su aplicación como sensores de alto rendimiento.

Una de mis principales contribuciones ha sido el estudio de la materia activa en la nanoescala, es decir, los materiales que transforman la energía química para generar movimiento. Desarrollé nanoapartículas de 15 nm capaces de autopropulsarse, que son uno de los nanomotores metálicos sintéticos más pequeños de la literatura. Además, he desarrollado nuevos métodos para detectar nanopartículas activas individuales en solución, en particular la electroquímica de colisión y el seguimiento 2D en bicapas lipídicas. El trabajo sobre nanoimpacto para rastrear nanoestructuras biomoleculares como ADN y proteínas es novedoso y proporciona una importante alternativa a los métodos de detección existentes.

He desarrollado independencia académica liderando más de 3 proyectos independientes, supervisando a 4 estudiantes de posgrado y publicando más de 7 artículos como autor correspondiente. Participo activamente en la difusión de la investigación en programas de divulgación (e.g. Teknopolis), " Un Paseo por el Nanomundo" (CSIC; UPV) y como coeditor del primer libro de texto sobre programación molecular titulado "The Art of Molecular Programming".

La línea de investigación que lidero actualmente como IP en CiC Nanogune se centra en la robótica blanda a nanoescala basada en ADN. Se basa en mis conocimientos obtenidos de los principales institutos de Europa, el Reino Unido y los EE. UU. y colaboraciones a largo plazo con más de 5 grupos a nivel internacional.

Resumen del Currículum Vitae:

Ibon Santiago is a physicist working at the interface between physics, biology and material science. He currently holds a Gipuzkoa Research Fellowship at Cic Nanogune in San Sebastian. He obtained a bachelor degree in Physics at the University of the Basque Country in 2008. He was a visiting student at the University of Texas at Austin and the University of Wurzburg. In 2007 he worked at CERN in accelerator physics research under the supervision of Dr Frank Zimmerman, where he investigated proton beam instabilities in the LHC accelerator.

He later obtained the Walter Rosenblith Presidential Fellowship, to work at MIT at the Research Laboratory of Electronics. His early experimental work centred on laser cooling and trapping of quantum mixtures of ultracold atoms in the group of Prof. Martin Zwierlein (Center for Ultracold Atoms), leading to the first triply degenerate mixture of ultracold Bose and Fermi gases. He specialised in Biophysics becoming the first student to complete the MIT Biophysics Certificate Program. He later worked at the University of Oxford (Prof. Andrew Turberfield) where he obtained his doctorate in Physics in the field of DNA nanotechnology. He has held postdoctoral positions at the University of Oxford, developing advanced electrochemical sensors with carbon nanomaterials and single-particle detection methods for active nanoscale particles and at the Cavendish laboratory in Cambridge working in lipid vesicles development and its interaction with DNA nanostructures. In 2019 as a Humboldt Fellowship recipient, he joined the Technical University of Munich, where he has worked on DNA nanorobotic structures actuated by electric fields, and active soft matter physics.

Ibon speaks Basque, Spanish, English and German fluently. He has published 18 peer reviewed articles and is reviewer for several journals and grant funders. He has taught and mentored students as a tutor in Oxford Colleges and supervised 3 master students and a PhD student at the TUM. He holds teaching accreditations from MIT (Kaufman Teaching Certificate), Oxford University (Oxford Learning Institute Descriptor 1) and Unibasq Profesor Agregado en Ciencias Experimentales (equivalent to Profesor Contratado Doctor from ANECA). He has served as founder and first director of the Society of Spanish Researchers in the UK in Oxford and has taught physics in several summer programs and outreach events both in the UK and Spain. He co-edits a textbook on molecular programming. In parallel to research activities, he has actively promoted scientific findings to the general public through multiple channels, engaged with science policy groups and industrial partners, and served as a technical consultant to several local biotech companies

Área Temática:	Ciencias físicas
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Título:	New Physics at the Top: from precision measurements to f(l)avoured searches

Resumen de la Memoria:

We live in a special moment in particle physics, where the established theory, the Standard Model (SM) of particle physics, cannot explain several cosmological observations nor address important conceptual questions, such as why the Higgs boson is so light compared to the Planck scale or why the masses of the fermions are so dramatically different from each other (fermion-flavour mass hierarchy), with the top quark being the heaviest elementary particle. In order to push the boundaries of our current knowledge, the experiments must guide us to the next stage. The ambitious plan of the LHC until 2040 aims to provide a unique source of precision measurements and new physics searches in the current data-driven times.

Having made outstanding contributions to the ATLAS physics program in the areas involving top quarks, Higgs bosons, and searches for new physics, and being a leading expert in the field in the experimental topology with multiple leptons, my goal is to place my new team at the forefront in the pursuit of new physics. I will do so by exploiting features underexplored so far, with intriguing connections to other LHC and particle physics results, and with real discovery potential using the current and future datasets recorded by a mature detector.

Even though the LHC has not discovered any BSM physics, there are multiple hints in various areas of particle physics which are showing tensions with the expectation from the SM and which could point to the start of a new Higgs and Flavour Era. Could it be that the detector footprints of new physics resemble so closely those of SM processes that the signal has been hiding behind complex SM signatures, or could it be that BSM particles couple to the SM particles with a strength that depends on the type (i.e. flavour) as is predicted by compelling BSM models that have not yet been explored? With my extensive breadth of expertise in particle physics and my appointed leadership roles across many physics groups within the ATLAS Collaboration, as well as the various collaborations with theorists, I have a clear vision of how to conduct the search for new physics at the LHC in the next data taking runs until 2040.

There are two main approaches that I intend to initiate in my new group to shed light on the open questions: (1) actively search for BSM physics coupled to third generation fermions that could address some of the shortcomings of the SM and potentially explain the observed tensions in the particle physics landscape, and (2) increase the precision of the measurements of rare processes involving the top quark. This ambitious physics program will be feasible with a starting group of 1 postdoc and 1 PhD student since I will be exploiting a common and BSM-sensitive detector final state with at least one same-sign pair of charged leptons and jets of hadrons.

Additionally, the increasing usage of heterogeneous architectures in Particle Physics data processing and Big Data analysis makes my project to blend GPUs and FPGAs with the ATLAS Trigger system a required next step to improve future data-taking in particle colliders. The outcome of my research will provide valuable input to the design of the next generation colliders and will help establish the research priorities in the upcoming years.

Resumen del Currículum Vitae:

I have been a CERN research junior staff since August 2020. This is a highly prestigious and competitive position across all CERN experiments. It identifies the future leaders in the field and is the laboratory equivalent of a tenure-track position. I have been working in the ATLAS Collaboration since 2010, and I am an established leader in the field.

I did my doctoral studies at the University of Göttingen with the focus of my thesis being top quark physics. In particular, I was one of the leading drivers of the measurement of associated production of top quark pairs and vector bosons (W or Z) in the first run of the LHC, leading to the first evidence of the ttZ and ttW production with the ATLAS detector. During my doctoral studies, I was awarded with the Dorothea-Schlözer Scholarship (2011-2014).

As a research associate at McGill University, I did crucial contributions to the observation of the associated production of a top quark pair and a Higgs boson (ttH) process. I coordinated the efforts of the ttH group analysing final states with multiple charged leptons from 2016 to 2019. In 2018, I was one of the key authors for the paper presenting first evidence of ttH production at the LHC. As a reflection of my proficiency, I led the global ttH efforts as "HTop convener" from 2019 until 2021.

Strongly motivated by the search for answers to the shortcomings of the SM, I started, initially as a CERN research fellow and later as a CERN research junior staff, innovative and novel searches for new physics in ATLAS over the past years which hadn't been probed in the experiment so far. I led the new physics searches in leptonic final states as "Lepton+X convener" from 2021 to 2022, and I was appointed convener of the ATLAS exotics group since October 2022, leading approx. 500 physicists. As Exotics convener, I am in charge of developing the ATLAS research strategy and overall management of the program corresponding to around 20% of the research output of the ATLAS experiment.

In parallel to my involvement with ATLAS, I have collaborated with theorists and authored two phenomenological papers on leptoquark reinterpretations and on a new physics model with a hierarchical coupling of the Z' boson that favours the top quark.

My expertise has resulted in invitations to speak at several international, cross-experiment seminars and conferences. In addition to the aforementioned collaboration with theorists, I have also worked together with CMS scientists for the Run-1 Higgs boson coupling combination legacy measurement and I am the ATLAS organiser of the CERN Collider Cross-Talks between experiment and theory since 2021.

As part of my commitment with the detector operation, I have developed excellent technical skills, working with the software of the Pixel subdetector, with the monitoring of data quality, with the trigger system, and with the reconstruction of the data delivered by the ATLAS detector as Prompt Reconstruction Coordinator (PROC) from $2017 - 2018$. I am also coordinating in parallel R&D studies with GPUs and FPGAs at the HLT for the High Luminosity LHC, directly supervising 2 CERN Research Fellows.

I have co-supervised a PhD student (LIP, Lisbon, Portugal), a Master student and a student throughout her Honour's Thesis (McGill University, Canada), as well as seven summer students at CERN since 2010.

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Título:	Large-Scale Structure and Cosmology

Resumen de la Memoria:

A. SCIENTIFIC AND TECHNICAL CONTRIBUTIONS

I am an astrophysicist with a broad and multidisciplinary set of interests and skills. In my work I use observations of the distribution of mass and energy in the Universe, called the large-scale structure (LSS), to answer deep open questions in cosmology and astrophysics: What is the origin of structure in the Universe? What are dark energy and dark matter? What is the law of gravity on large scales? How do galaxies form and evolve? I have worked on many diverse topics in cosmology and astrophysics, making several groundbreaking contributions. I am especially well known for my key contributions in four distinct areas of LSS science:

(a) dark energy & modified gravity;
(b) analyses of cosmic shear data (weak lensing);
(c) numerical simulations of galaxy formation;
(d) tests of the origin of structure in the Universe.

My most recent work has been focused on two important unsolved problems in LSS science: (i) the non-Gaussianity of the LSS and (ii) the invisibility of the LSS. These challenges need to be overcome in order to realize the full potential of LSS data to learn about the fundamental physics of our Universe. Doing so requires a combination of methods on theory, computation and observations, and expertise on both cosmology and astrophysics. My research has allowed me to make significant and pioneering contributions already, which puts me in an excellent position to address these two problems, which will shape the future of LSS research.

B. INTERNATIONALIZATION AND MOBILITY

I have carried out scientific work in three countries: Portugal (undergraduate and masters thesis), U.K. (PhD) and Germany (research fellowships).

I participated in the following world-renowned long-term workshops:

1) Aspen, U.S.A., 2016 (3 weeks) : Testing the Laws of Gravity with Cosmological Surveys.
2) MIAPbP, Germany, 2019 (4 weeks) : Dynamics of Large-Scale Structure Formation.
3) MIAPbP, Germany, 2021 (2 weeks) : The Physics and Astrophysics of Dark Energy and Gravitation
4) MIAPbP, Germany, 2022 (4 weeks) : Advances in Cosmology through Numerical Simulations
5) Aspen, U.S.A., 2022 (3 weeks) : Large-Scale Structure Cosmology beyond 2-Point Statistics

I have also visited many research institutions for conferences, workshops and collaborative work across 15 countries: Canada, Croatia, Finland, France, Germany, Israel, Italy, Japan, Norway, Portugal, Slovenia, Spain, Switzerland, U.K. and U.S.A.

C. INDEPENDENCE AND LEADERSHIP

My ability to carry out creative and independent work is highlighted by my fraction of first-author papers (32 of 49), including 5 papers as single author. During my PhD, I had the freedom to choose my own research directions. I continued to enjoy this freedom with my research fellowships at MPA and LMU, which were for independent research.

I had also the pleasure to mentor and supervise the work of different students: 3 PhD students, 1 masters student and 1 undergraduate student.

I have led two science projects inside the Euclid Satelllite Consortium: (i) Weak-lensing code comparison project (Hilbert, Barreira+, MNRAS 454 (2020), https://arxiv.org/abs/1910.10625), (ii) Modified Gravity N-body comparison project (Winther, Schmidt, Barreira+, MNRAS454(2015)4, https://arxiv.org/abs/1506.06384).

Resumen del Currículum Vitae:

WORK EXPERIENCE
2020:today : ORIGINS Research Fellow, Luwdig Maximilian University of Munich (LMU), Germany
2015-2020 : MPA Research Fellow, Max Planck Institute for Astrophysics (MPA), Garching in Munich, Germany.

EDUCATION
2011-2015 : PhD in Astrophysics, Durham University, U.K.

2009-2011 : Masters Degree in Theoretical Physics, University of Porto, Portugal.
2006-2009 : Undergraduate Degree in Physics, University of Porto, Portugal.

RESEARCH TOPICS
My work focuses on using observations of the large-scale structure (LSS) in the Universe to answer deep open questions in cosmology and fundamental physics: What are the physics behind cosmic inflation and the origin of structure? What are dark matter and dark energy? What is the law of gravity on large scales? My work has resulted in multiple groundbreaking contributions that made me well-known in several different areas, including (i) dark energy & modified gravity, (ii) cosmic shear analyses, (iii) numerical simulations of structure formation and (iv) tests of the origin of structure and inflation.

PUBLICATIONS
I published 49 papers in international scientific journals (5 as single-author, 32 as leading-author), which have been cited over 2300 times. The h-index is 28, 6 papers have over 100 citations and 18 have over 50 citations. I have given over 80 talks at international conferences, workshops and seminar series.

AWARDS
1) Michael Penston Thesis Prize for the best PhD thesis in the U.K. (Royal Astronomical Society, 2016, runner-up);
2) Springer PhD Theses Award, Springer Publishing (thesis published by Springer as a book under the Springer Theses program; https://www.springer.com/gp/book/9783319336954);
3) Alan Martin prize for the best PhD thesis (Durham University 2016);
4) Keith Nicholas Prize for outstanding PhD research (Durham University, 2014);
5) North Holland Physics Prize for outstanding PhD research (Durham University, 2012).

STUDENT SUPERVISION
I supervised the work of 3 PhD, 1 MSc and 1 graduate students: Anik Halder (PhD, ongoing at LMU-Munich, with one paper in the first year, https://arxiv.org/abs/2201.05607), Laurence Gong (PhD, ongoing at LMU-Munich with an upcoming paper), Rodrigo Voivodic (PhD, 2020 MPA Munich with one paper together https://arxiv.org/abs/2012.04637), Emma Winkels (MSc, Durham University), and Xiaoqi Yu (graduate project, MPA Munich).

MAIN INTERNATIONAL COLLABORATIONS
Euclid Satellite Consortium;
Novel Probes of Gravity.

REVIEW, ORGANIZATIONAL AND OUTREACH ACTIVITIES
Frequent referee of papers in international journals (PRD, PRL, JCAP, MNRAS) and research proposals (ERC, DiRAC-UK).
Organizor of (i) Cosmology Seminars at MPA; (ii) science workshop "Axion Day" in Munich; (iii) " LSS day" workshop in Munich (iv) youtube livestream https://www.youtube.com/watch?v=LQ5lHKm7c8M&feature=youtu.be, together Nobel Laureate Roger Penrose and Eiichiro Komatsu.
Organizer of the "Girl's Day" outreach events at MPA, Munich.

Área Temática:	Ciencias físicas
Nombre:	STRASBERG , PHILIPP
Referencia:	RYC2022-035908-I
Correo Electrónico:	philipp.strasberg@uab.cat
Título:	Nonequilibrium Quantum Statistical Mechanics

Resumen de la Memoria:

My career started as a PhD student in the theoretical condensed matter group of Tobias Brandes at TU Berlin, where we came up with the first idea how to hardwire a Maxwell demon together with the system it is acting on in one device without any phenomenological assumptions. Such devices are nowadays referred to as "autonomous Maxwell demons" and the research during this time equipped me with much background knowledge in quantum transport through low dimensional nanostructures (quantum dots), quantum feedback control and information thermodynamics.

However, at the end of my PhD I was frustrated by the fact that most "quantum systems" we studied could at the end be well described by a classical master equation. To go more into the quantum regime, I decided to study open quantum systems and their thermodynamic interpretation in the strong coupling and non-Markovian regime, a research direction I also pursued during my first postdoc with Massimiliano Esposito in Luxembourg. Here, my main idea was to rethink the system-bath partition and to redefine it such that one ends up again with an unambiguous description at weak coupling (reaction coordinate mapping, Markovian embedding strategy).

At the end of my time in Luxembourg, and continuing with an independent postdoctoral fellowship at the Autonomous University in Barcelona, I also developed my own approach to quantum stochastic thermodynamics by finding definitions for work, heat, internal energy and entropy valid for a general quantum causal model, allowing to take into account measurement backaction and to give a thermodynamic analysis of Nobel prize winning experiments done in the group of Serge Haroche.

Also in Barcelona, and partially in collaboration with Anna Sanpera and Andreas Winter, I developed a general thermodynamic framework for open quantum systems that does not rely on a static thermodynamic picture of the bath. Instead, we self-consistently defined temperature and chemical potential, valid also out of equilibrium, that give rise to Clausius' inequality and other thermodynamic identities. Very recently, I turned towards pure state statistical mechanics and worked on a new mechanism for classicality that starts from realistic isolated many-body systems and does not require the concept of decoherence (in fact, not even any system-bath tensor product structure is required).

My research is driven by the desire to get a wide perspective in nonequilibrium statistical mechanics: I successfully worked on quantum transport, stochastic and quantum thermodynamics, thermoelectricity, open quantum systems theory, multi-time quantum stochastic processes, many-body physics and pure state statistical mechanics. Moreover, I view my approach to research as dual, which means that I like to tackle deep and conceptual questions while having an eye on experimentally feasible approaches and theories that "work in practice". Consequently, some of my research is directly adapted to experimentally relevant platforms, one of my publications served as a direct inspiration for experiments, and I have collaborated with an experimental group.

Resumen del Currículum Vitae:

I am a theoretical physicist, who received his Bachelor (2007 - 2010) and Master (2010 - 2012) degrees from the Technical University of Berlin. Continuing at the Technical University of Berlin, I did my PhD in the group of Tobias Brandes from 2012 to 2015 and graduated with honors (summa cum laude). After a short (9 months) postdoctoral stay in the same group, I switched to the group of Massimiliano Esposito at the University of Luxembourg, where I stayed for almost two years (22 months). Since October 2018, I am a member of the Quantum Information Group at the Universitat Autonoma de Barcelona, partially under the supervision of Anna Sanpera and Andreas Winter.

In general, my research is characterized by three main features: (1) diversity, (2) duality and (3) independence. Diversity means that I have worked on an exceptionally broad range of topics within nonequilibrium quantum statistical mechanics (see above) and I continue to diversify my research interests further. Duality means that I prefer to get widely applicable analytical insights using sophisticated mathematical tools, but I carefully pay attention to come up with theoretical results that are practically relevant and experimentally feasible. Independence means that I work very successfully without supervision and I also like to depart from the main line of attack.

The above statements are clearly proven by my track record. I have written 35 publications with 26 collaborators from around the world. On 25 of the publications I am the first author and six are even single-author publications. Moreover, I am the last author on three publications, showing that I can successfully supervise research. My research is regularly published in high impact journals (with nine contributions in Physical Review Letters/X/X Quantum, Quantum or Nature Nanotechnology) and my papers are widely regarded as important contributions (more than 1,600 citations and an h-index of 19 according to Google Scholar), which is also exemplified by nine invitations to talk at international conferences and workshops. Moreover, I was awarded four competitive postdoctoral research grants (twice from the DFG, one Juan de la Cierva, one from "La Caixa"). Since I arrived in Barcelona in 2018 I am thus fully funded by my own independent postdoctoral fellowships.

Besides these figures of merit, I am engaged in (co-)supervision of students (4/2/2 Bachelor/Master/PhD students), I have (co-)organized two international workshops, and I have given two special sets of lecture courses for graduate and summer schools. I have further published a textbook with the title "Quantum Stochastic Thermodynamics: Foundations and Selected Applications", which is the first extensive (> 300 pages) and pedagogical exposition (aimed at graduate students) of the rapidly growing fields of quantum and stochastic thermodynamics (published in 2022 by Oxford University Press).

Área Temática:	Ciencias físicas
Nombre:	CALDERÓN BISTILLO, JUAN
Referencia:	RYC2022-036203-I
Correo Electrónico:	juan.calderon.bustillo@gmail.com
Título:	New frontiers in gravitational-wave astronomy: Tests of General Relativity, Exotic Compact Objects and Multi-messenger Astronomy

Resumen de la Memoria:

I co-lead the gravitational-wave (GW) group at IGFAE (University of Santiago de Compostela), which I joined in 2020 under a La Caixa Junior Leader Fellowship that confers me the status of Marie Sklodowska Curie Fellow. I have secured all of the external funding obtained by the group since its creation in 2018: my current fellowship as single PI (298k€) and a "Plan Nacional" project from the Ministry of Science and Innovation as lead PI (55k€). I am a member of the LIGO Scientific Collaboration (LSC) since 2012, to which I dedicate at least 50% of my research time.

My research targets the detection and interpretation of GWs emitted by the merger of compact objects like black holes (BHs) or neutron stars (NSs), recorded by the Advanced LIGO and Virgo detectors. Since 2015, GWs have provided us with drastically new information about the Universe, yearly delivering groundbreaking discoveries in astrophysics, cosmology and fundamental and nuclear physics to name a few.

More specifically, my research can be divided in two main tasks. First, the development of search algorithms for GWs emitted by mergers of both black holes and exotic objects. Second, the obtention of physical information from these signals, which includes both the theoretical identification of new observables and the design of the corresponding techniques and statistical frameworks. I have rare breadth and depth of skills and expertise that, combined with my leadership, has allowed me to produce independent high-impact results in a wide variety of sub-areas of GW astronomy, outputting 29 articles. Of these, I lead 14 that include 3 Phys.Rev.Lett (PRL), 1 Astrophysical Journal Letter (APJL) and 1 Communications Physics (Nature) and I co-lead 5 more. The mentioned sub-areas include tests of strong-field gravity, searches for physics beyond the Standard Model, cosmology, multi-messenger astronomy, astrophysics and the pure development of statistical frameworks. Within the LSC I have led high-impact projects targeting the detection of intermediate-mass black holes (IMBHs).

My main scientific contributions can be considered as:

1. First demonstration of consistency of a GW with a merger of exotic compact objects, namely boson stars [1].
2. Leading role in the LSC in the discovery of the first IMBH, known as GW190521 [2]. Led several GW searches for these objects in 2017-2022.
3. Discovery of a method to measure gravitational recoils from GWs [4]. Recent first measurement of such effect in the signal GW190412.
4. Novel BH spectroscopy technique delivering the most stringent test of the no-hair conjecture [5].
5. Pioneered the identification of the crucial role of sub-dominant GW harmonics (HMs) in GW data analysis [4 papers, 3 as lead author, 250 citations].
6. First and only search for GWs accounting for HMs, delivering sensitivity increments of up to 700%.
7. Novel technique enabling the study of GW signals using numerical simulations of compact mergers, in contrast to commonly used approximated semi-analytical models [1,3].
8. Novel technique to estimate the Hubble constant to percent precision with a single neutron-star merger [3].

[1] Juan Calderón Bustillo (JCB)+, PRL 126, 201101 (2021)
[2] JCB+ PRL 126, 081101 (2021)
[2] Abbott+ PRL 125, 101102 (2020)
[3] JCB+ APJL Volume 912, Number 1 (2021)
[4] JCB+ PRL 121, 191102 (2018)
[5] JCB+ Phys. Rev. D 103, 0240412 (2021)

Resumen del Currículum Vitae:

I obtained a "Licenciatura" in Physics from the Univ. Santiago de Compostela (USC) in 2011, a Master of Advanced Study from the Univ. of Cambridge in 2012 and a Ph.D in Physics from the Univ. of Balearic Islands with "Cum Laude mention" in 2015, receiving an honour mention within the 2015 "GWIC Thesis Prize". I have been an active member of the LIGO Scientific Collaboration (LSC) since 2012.

I have held postdoc positions at Georgia Tech (USA) from 03/2016 to 08/2018 and at Monash University (Australia) from 10/2018 to 03/2020. Next, I became a Research Assistant Professor at The Chinese University of Hong Kong (CUHK), obtaining a 70k€ grant from the Hong Kong Research Grants Council as sole PI. In 03/2020, I obtained a Junior Leader Fellowship, co-funded by La Caixa Foundation and H2020 program (298k€), with the status of Marie Curie Fellow, joining IGFAE (USC) on 10/2020, by then a "Maria de Maeztu Unit of Excellence". I am an "Adjunct Assistant Professor" at CUHK (Top50 in most World University Rankings), after declining an offer to return as a tenure-track Assistant Professor.

Excluding my production within the LSC, I have 29 articles, leading 14 of them - including 3 Phys. Rev. Lett, 1 APjL and 1 Nature Comms. Phys – and as co-leading 5 more. Of these, only 4 are co-authored by my Ph.D advisors (last in 2016), the rest resulting from numerous standing international collaborations that I have led in most cases. These include members from U.T. Austin, Aveiro, Max Planck Institute, Valencia, IIT Bombay, Monash or CUNY. This work accumulates 1191 citations (391 in 2022) with an h-index = 18. I am referee for journals like Phys. Rev. Lett and I have been asked to evaluate a 1M€ grant proposal by the Italian Ministry of University and Research.

Within the LSC (50% of research time), I have led high-impact projects targeting the detection and interpretation of BH mergers, highlighting: a) Discovery of the first IMBH, (GW190521), leading the interpretation of the source and imparting the corresponding public webinar b) Led searches for IMBHs during the several LIGO-Virgo observing runs.

I have delivered ~50 invited seminars in top-tier universities like Princeton, Cambridge or ETH Zurich and ~30 talks (4 invited) at international conferences. I have enrolled in ~40 outreach activities including ~20 talks at high-schools and public venues in Australia, Hong Kong, Spain; and interviews at BBC, ABC, TVE, YouTube, Instagram or Twitch.

I have supervised 12 undergrad and master students (6 female/6 male), including 2 "Trabajo de Fin de Grado" (USC) and 7 "Final Year Projects" (CUHK). This resulted in 9 publications and Ph.D offers from top US schools like Georgia Tech or U. Arizona. I officially supervise a Ph.D student and I am effective supervisor to two more, partially funding one of them, co-authoring 5 articles. I also supervise one Trabajo de Fin de Master.

I accrue ~425k€ of external funding as single or primary PI: 1 Junior Leader Fellowship (298k€, 11.4% success rate) as sole PI, 1 "Plan Nacional" grant of the Spanish Ministry of Science and Innovation (55k€) as lead PI and 1 GRF grant from the Hong Kong RGC (~70k€) as sole PI. The first two correspond to the all of the external funding obtained by the GW group at IGFAE since its creation in 2018. I am a node-coordinator of a MSCA Staff Exchange Grant (276k€), led by U. Aveiro.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: Ciencias físicas
Nombre: JONES , DAVID
Referencia: RYC2022-035957-I
Correo Electrónico: davidjones.pne@gmail.com
Título: Planetary nebulae as the key to understanding binary stellar evolution

Resumen de la Memoria:

According to the canonical picture, planetary nebulae (PNe) are a single star phenomenon and the fate of the vast majority of stars in the Universe. However, it is now becoming clear that this is not the complete picture with at least 20% of PNe hosting a post-common-envelope (post-CE) central star - far more than would be expected based on the binary fraction and orbital period distribution of Sun-like stars. Furthermore, the large fraction of PNe presenting aspherical morphologies is similarly indicative of the possibility that PN are a predominantly binary phenomenon, in which case the classical theory surrounding PN formation will need to be updated and textbooks rewritten. Furthermore, being its immediate after-products, post-CE PNe are an invaluable window into the CE process - a critical phase of binary evolution in the formation of a plethora of astrophysical phenomena ranging from cosmologically important type Ia supernovae through to binary black holes recently observed in gravitational waves.

My research career has been dedicated to trying to understanding the formation and evolution of PNe via CE evolution, as well as trying to use that understanding to constrain the processes at work in the CE and how they impact on the properties of other classes of post-CE phenomena. I began my doctoral studies by using spatio-kinematical modelling of post-CE PNe to constrain the shaping influence of the CE on the resulting nebular ejecta. To date, only 9 systems have been modelled with sufficient detail (with 6 of those by myself or students under my supervision) to test the expected correlation between nebular symmetric axis and binary orbital plane. Ultimately, this culminated in a correlation which constitutes the first and only statistical demonstration of the impact of binarity on the shaping of PNe, with a probabilty of chance alignment of less than one in five million.

Later, it became clear that the relatively small number of post-CE central stars known (now clearly a result of the intrinsic difficulty in their detection rather than a true paucity) was the principal obstacle to inferring more detailed correlations between binary and host nebula, thus preventing further understanding of the role of the CE in the formation of PNe. Therefore, I began a campaign, in collaboration with researchers in the USA, Chile, Germany and Australia, to reach a statistical significant sample of post-CE central stars using targeted photometric and spectroscopic observations as well as space-based photometric surveys. This resulted in a boom of new post-CE PNe where I played a role in the discovery of more than half of the current sample of more than 100. Following their discovery datasets, little can be discerned for these binaries beyond their orbital period, as such it has been (and continues to be) of critical importance to obtain follow-up observations that the binary stellar and orbital parameters to be determined through state-of-the-art modelling. Again, in this respect I have led the way, with my works clearly demonstrating, for example, that many systems experience a phase of prolonged mass transfer before entering into the CE, something which is not accounted for in hydrodynamic models. This is onnly the tip of the iceberg of what PNe can teach us about the CE, and my proposed research will advance us greatly along this path.

Resumen del Currículum Vitae:

I completed my PhD in 2011 at the University of Manchester (UK), having spent one year of my doctoral studies providing observational support at the 2.5m Isaac Newton Telescope (Observatorio del Roque de Los Muchachos). My observing expertise and scientific excellence led to me obtaining a prestigious fellowship at the European Southern Observatory (ESO) in Chile (2011-2014), spending three years combining independent research with science operations at the Paranal Observatory and the four 8.2m Unit Telescopes which comprise the Very Large Telescope. My career has always had a marked observational component, not only in the form of observatory support duties but also in the acquisition and analysis of astronomical data using a broad range of techniques (I have been awarded more than 1000 hours of observing time as PI at competitive international facilities, including ESO and GTC). The final year of my ESO fellowship was spent at the Universidad de Atacama (Chile), where I took on teaching duties in the form of a first year course, "Fisica 1" (taught in Spanish). I have also been responsible for the supervision of several Masters (nine completed, two in progress) and PhD students (one on course to defend in 2023, another successfully defended in 2014). I am ANECA-accredited at the contratado doctor level.

My dedication to teaching and formation of the next-generation scientists is underlined by my involvement as Spanish PI of two EU Strategic Partnership grants, awarded more than 600,000€to aid the international mobility of young researchers at the IAC and partner institutes abroad. These grants have supported the organization of three summer schools for early career researchers (including one I chaired in 2022), and a book of refereed reviews (published by Springer and edited by me). The grants also have a strong outreach component ranging from public talks and activities for school children through to a YouTube channel which I orchestrate. My passion for outreach is further highlighted by my winning of the STFC-organised outreach contest "I'm a Scientist, Get Me Out of Here!'' in 2014.

At the end of 2014, I joined the Instituto de Astrofísica de Canarias, where I have held a number of contracts, including a fellowship for independent research and another funded the aforementioned EU strategic partnership grant. In Spain, I have continued to establish myself as a world-leader in the study of planetary nebulae. The high regard in which the community holds me and my work is highlighted by my election to the Organising Committee of the International Astronomical Union's Commission H3: Planetary Nebulae in 2018, and my numerous review papers (including in Nature Astronomy). My leadership of the field is also highlighted by by 89 peer-reviewed papers, 18 of which are as first author while a further 11 were first-authored by students under my supervision. My works have garnered more than 2500 citations for an H-index of 30.

Since 2017, I am a member of the development team for the open-source binary modelling package PHOEBE2 leading the v2.2 release in 2020. I am also project scientist of the upcoming MAAT@GTC instrument. As part preparation for MAAT, I also implemented support for GTC-OSIRIS into the open-source spectroscopic data reduction package PypeIt, which is now the preferred pipeline for the GTC.

Área Temática: Ciencias físicas
Nombre: ASSENZA , SALVATORE
Referencia: RYC2022-037744-I
Correo Electrónico: salvatore.assenza@gmail.com
Título: Coarse-grained approaches in molecular biophysics

Resumen de la Memoria:

My research focuses on theoretical soft matter and molecular biophysics. Although being of theoretical nature, my research is strongly oriented towards a quantitative comparison of predictions against experiments, as attested by the many articles written in collaboration with experimentalists. Common patterns of my works include unveiling unknown universal properties of biomolecules and providing fundamental predictions which agree quantitatively with experiments, without the need of adjusting ad hoc parameters.

As an undergraduate student (University of Catania and SSC), I worked on complex networks, studying the effect of structure on the survival of cooperation and the mutual dependence of dynamics and topology in networks of coupled oscillators, which naturally emerges e.g. in neural systems.

Starting from my PhD at EPFL, under the lens of soft matter, I have studied the multiscale behavior of amyloid fibrils, unveiling the existence of universality in their mesoscale properties and analyzing their behavior in external environments like cholesteric droplets or nanoconfinement. By coarse-grained simulations, I have also inspected the molecular origin of the non-equilibrium physics of Hsp70 chaperones, unveiling the mechanisms underlying their function as importase and unfoldase.

During my Postdoc at ETH Zürich, I have provided the first theoretical insights on the molecular diffusion within lipid mesophases and on the anomalous properties of water therein, providing a common framework to the many experimental observations and rationalizing the outcome of enzymatic reactions under soft nanoconfinement.

As a group leader at UAM Madrid (2 PhDs + 1 Postdoc + 3 undergraduate students), I am pursuing the sequence-dependent elasticity of DNA, developing accurate coarse-grained models and exploiting them to address open questions in DNA biophysics. I have recently developed and benchmarked MADna, an accurate model for DNA elasticity and conformation. In our group, we are employing the model to study the rich phenomenology of DNA elasticity, e.g. in A-tracts. We are also performing detailed atomistic studies to address finer features, such as the change of elasticity under mechanical stress. As a second line of research, I investigate the physics of molecular transport in the nanoscopic domains of lipid mesophases. I employ multiscale approaches to estimate macroscopic diffusion coefficients starting from the knowledge of the nanoscopic features. My work is complemented by an extended network of collaborations both in Spain and abroad, where I interact mainly with experimentalists to engage the study of biomolecular and soft matter systems with a two-pronged strategy based on theory and experiments.

My future research lines will build on the current state of my research to explore novel pathways, including a significant extension of the applicability of the DNA model and the challenge offered by the study of nanoconfined water in mesophases with non-trivial geometries. These advances will not be incremental, but rather game-changing steps allowing to pursue genuinely novel horizons in these exciting fields.

Resumen del Currículum Vitae:

I have published 23 articles in high-impact journals (average IF 10.1), including papers in the Nature group (Nature Nanotechnology, Nature Reviews Physics, Nature Chemical Biology) and 4 Physical Review Letters. I currently have 1 manuscript and a book chapter under review. In 14 articles (+1 manuscript under review) I am either first, last or corresponding author. From my research, I have developed software openly available on my website to aid other researchers in my field, such as LAMMPS implementations of coarse-grained models and calculators of structural and transport properties of lipid mesophases from scattering data.

My trajectory is characterized by a strong international component, with a career path through three different countries (Italy, Switzerland and Spain) and characterized by various stays abroad (e.g. UK, USA). Moreover, during my academic career I have built an extended network of collaborations with researchers based in Spain, Switzerland, Australia and Germany. My international visibility and recognition are further endorsed by the 11 renowned international journals for which I am referee, as well as by my evaluation work for funding agencies and for tribunals of undergraduate and graduate students. Finally, my participation to international conferences and workshops further promotes my visibility.

My independence and leadership are demonstrated by my current position as a Group Leader (group made of 1 Postdoc, 2 PhDs and 3 undergraduate students). Moreover, in the past I have supervised 10 further MSc/BSc projects. My scientific maturity is also attested by the 14 articles in which I am the senior theorist, demonstrating a years-long ability to devise and pursue original research without external supervision. I have attracted significant funding for my research, cumulating >450k€ as a Principal Investigator and >2M€ in projects in which I was involved with different roles. Particularly, as a Principal Investigator I received a la Caixa Junior Leader Fellowship (11% success rate), which allowed me to start my independent career as a Group Leader.

All steps in my formation years were done in highly-selective centers. For my BSc and MSc in Physics at Univ. Catania (2005-2010, Italy), I attended in parallel also the excellence center Scuola Superiore di Catania (SSC), after passing a tough selection where only 20 students were chosen based on two written and an oral exams. At the SSC I was initiated to the research world from the first year. A generous allowance fully covered board, lodging and fees for the entirety of my studies. I then pursued my PhD in Physics at EPFL Lausanne (2011-2015, Switzerland, 16th worldwide in the QS University

Ranking), profiting of the highly-relevant profiles in Statistical Physics and Biophysics. Finally, a did a very productive Postdoc (12 articles, 2 as first/cofirst author in the Nature group) at ETH Zürich (2015-2018, 9th position of the world QS Ranking, 1st in continental Europe), which has a well-renowned tradition for material science.

Finally, I have an extended teaching experience, having taught courses at several levels (BSc, MSc, PhD) and under different roles (teaching assistant or main lecturer), for a total of more than 400 hours. For one of my courses, I have prepared original notes (250 pages) openly available on my website.

Área Temática:	Ciencias físicas
Nombre:	SOTO ONTOSO, ALBA
Referencia:	RYC2022-037846-I
Correo Electrónico:	alba.soto@ipht.fr
Título:	Bridging the gap between HEP and HIP with jets

Resumen de la Memoria:

My research aims at deepening our understanding of Quantum Chromodynamics (QCD) both in proton-proton and heavy-ion collisions at high energy colliders. To that end, I have worked on a broad range of topics such as non-linear QCD effects in astro-particle physics, sub-nucleonic proton structure, jet propagation in the Quark-Gluon Plasma, design and calculation of jet substructure observables, and parton shower development. Despite its theoretical nature, my work is closely linked to collider data. New observables that I have proposed have led to experimental analyses, and my theoretical predictions have appeared in experimental publications.

Nowadays, my primary interests are logarithmic resummation and parton shower development. In the past two years, I have calculated two jet substructure observables at next-to-next-to-double logarithmic accuracy (state-of-the-art in terms of precision). One of them is the properties of the splitting tagged by dynamically grooming, an algorithm that I proposed together with my collaborators during my BNL postdoc and that has been measured by ALICE. The second observable is a new definition of jet multiplicities that I developed during my time at IPhT. This has also triggered the interest of the experimental community and ATLAS is currently performing the measurement. On the parton shower side, I have contributed to the first next-to-leading logarithmic accurate parton shower for colour singlet production within the PanScales Collaboration. This corresponds to an order higher in accuracy than previous efforts in the literature and can be considered a stepping stone to precise phenomenology at the LHC and future colliders.

During my PhD and first postdoc at BNL I devoted most of my time to heavy-ion physics both in the soft (flow-like observables) and in the hard (jets) sectors. My main research highlights on this field are (i) a composite picture of the proton in terms of correlated gluonic hot spots, (ii) the study of the impact of these spatial correlations on flow-like observables in small systems, (iii) a semi-analytic calculation to the fully differential medium induced radiative spectrum that is in agreement within 10% accuracy with the exact numerical solution, and (iv) an in-medium analytic resummation of dynamically groomed observables that showcases their potential to measure colour decoherence signals in heavy-ion collisions.

In the coming years, I would like to bridge the gap between the high-energy physics (HEP) and heavy-ion physics (HIP) descriptions of the jet radiation pattern both from an analytic and a numerical perspective. In this context, I plan to develop an in-medium parton shower algorithm with controlled perturbative accuracy. This is a fundamental tool to meet the experimental accuracy requirements. On the proton-proton side, I would like to investigate the role of small-x logarithms (relevant at very high energies) in the PanScales framework. In addition, I will continue contributing to the project in various fronts with the aim of making the PanScales showers the de-facto standard choice in general purpose Monte Carlo event generators. This will impact multiple aspects of collider phenomenology, including applications to Higgs physics, searches for new particles and studies of heavy-ion collisions.

Resumen del Currículum Vitae:

I am a particle physics theorist and I have actively contributed to various branches of QCD both in proton-proton and heavy-ion collisions at high energy colliders. I did my PhD in less than 3 years (2015-2018) in between Granada and Frankfurt universities. Next, I have held 3 postdoctoral positions at top research institutions worldwide: Brookhaven National Laboratory (US), Institute de Physique Theorique (France), and CERN (Switzerland). My work has led to 19 papers and around 50 scientific presentations. Since 2020, I am a member of the PanScales Collaboration, an ERC-funded project at the forefront of parton shower development, one of the most widely used tools in particle physics. I collaborate with some of the most prominent researchers of my field including Leticia Cunqueiro (CMS, Sapienza), Keith Hamilton (UCL), Yacine Mehtar-Tani (BNL), Pier Monni (CERN), Gavin Salam (Oxford), Björn Schenke (BNL), Gregory Soyez (IPhT), Konrad Tywoniuk (Bergen) and Marta Verweij (ALICE, Utrecht). In addition, I have also published 4 papers with only early-career scientists in the author list. Concerning student supervision, I have co-supervised one bachelor thesis and one master thesis (1 publication) in addition to informally mentor 3 PhD students (2 publications with each of them). I have also teaching experience both at master course level (2 semesters in Frankfurt U.) and in summer schools for PhD students (discussion leader at CERN-FERMILAB 2021 and CERN-ESHEP School 2023).

Área Temática:	Ciencias físicas
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Título:	Dark matter ECOs in numerical relativity: a gravitational-wave catalog of bosonic star mergers in the LIGO-Virgo-KAGRA era

Resumen de la Memoria:

My field of research is Numerical Relativity, which studies the dynamics of astrophysical systems in the strong gravity regime, using numerical algorithms and computational resources to obtain their time evolution and their gravitational wave emission, a key contribution to real detections. The scenarios I am interested in involve black holes, neutron stars, and so-called exotic compact objects: theoretical models that, if discovered, would provide unbeatable insights to improve our understanding of gravity and fundamental physics. My work focuses on boson stars composed of fundamental bosonic fields as potential dark matter. I investigated their stability and formation using state-of-the-art numerical simulations to examine their viability as potential dark matter candidates, with important conceptual contributions, such as obtaining for the first time the non-linear development of the superradiant instability of a black hole.

In the context of bosonic stars, I addressed through numerical-relativity simulations the issue of the dynamical robustness of rotating scalar boson stars, vector Proca stars, self-interacting boson stars in ground and excited states, l-BS, and mixed stars. In addition, I have also proposed new solutions, such as multifield boson stars or mixed stars in excited states.

Recently, in connection to potential observable phenomena, I have been generating and comparing numerical gravitational waveforms from Proca star mergers with real events detected by the LIGO-Virgo-KAGRA (LVK) collaboration, of which I am a member. We managed to find an outstanding match with GW190521, the first demonstration of a source degeneracy for a real event. If confirmed, the existence of these stars would provide the first evidence for the nature of a dark matter particle. My catalog comprises over 2000 waveforms, allowing to carry out a more detailed study of massive events observed in the LVK O3 run. This research is timely as it will be developed in parallel with the O4 run of the LVK network of advanced detectors which will start in May 2023.

Because of my expertise in astrophysics and numerical relativity, I am a versatile researcher working on different topics related to relativistic systems and new interesting phenomena.

I first acquired the experience to conduct this research during my PhD at the University of Valencia. During my postdoctoral stays at the Instituto Superior Técnico in Lisbon and at the University of Aveiro (Portugal), two world reference groups in gravitation, I collaborated with experts in compact objets, showing a complete adaptation to both groups. I am currently a María Zambrano Distinguished Researcher at the University of Valencia.

I have published 44 papers (outside the Virgo collaboration, 145 in total) on numerical relativity, gravitational waves, and gravitation, including 8 in Physical Review Letters. Along these years I have become one of the leaders in the field of dynamical bosonic stars, having participated in conferences, workshops, and seminars as invited speaker, and in outreach activities; been active part of several research projects (in three as task leader, one as a co-PI) and international collaborations (Virgo Collaboration, First Division of the Einstein Telescope Observational Science Board); and leading young researchers (co-supervision of two Master thesis and three PhD students).

Resumen del Currículum Vitae:

In 2018 I defended my PhD thesis at the University of Valencia (UV) supervised by Prof. José A. Font, obtaining an excellent Cum Laude and the 'Premio Extraordinario de Doctorado'. After my PhD, I was a postdoctoral researcher at the Instituto Superior Técnico (IST), Lisbon (Portugal) and at the University of Aveiro (UA) (Portugal), two world reference groups in gravitation. From 2022 I am a María Zambrano researcher at the UV. I am accredited as Assistant Professor by ANECA.

My h-index is 51 (Scopus), with 145 papers (26.315 citations). I have published 44 papers (outside the Virgo collaboration) on numerical relativity and gravitation, including 8 in the prestigious Physical Review Letters, making important and impactful contributions to the study of ultralight bosons in the regime of strong gravity, at the interface between astrophysics and fundamental physics. I have led a research program on the dynamical evolution of fundamental fields and exotic compact objects as dark matter candidates; their interaction with neutron stars and black holes; their role and dynamics as solitonic stars; and extracting gravitational waves. This line of research and my work has played a pivotal role in attracting funding (7 related research projects, three as task leader and one as co-PI).

I am leading an effort to build a complete catalog of gravitational waveforms from binary bosonic star mergers that could be used to search for these objects in the LIGO/Virgo/KAGRA data. I have already compared gravitational waveforms from collisions of Proca stars with real gravitational-wave events (e.g., GW190521) with very positive results. Confirmation of the Proca hypothesis would lead to the first evidence of the existence of an ultralight bosonic dark matter particle, opening up a synergy with particle physics.

Since 2016 I am a member of the Virgo collaboration with over 60 published papers. My work consists in calculating the gravitational waves produced in mergers of black holes and bosonic stars. I am part of the Fundamental Physics Division of the Einstein Telescope Observational Science Board (since 2021).

I have given 35 talks at international conferences, workshops, and seminars, 5 as invited speaker. I made research stays at the Max Planck institute for Astrophysics (Germany), UA (Portugal), and UNAM (México).

Co-supervisor of three PhD students: Nuno Santos and Marco Brito (UA, 2020 and 2021-ongoing) and F. Di Giovanni (UV, 2019-2023, thesis defended on 12/01/2023). I co-supervised the master thesis of A. Escorihuela (supervisor: J. A. Font, 2015-2016) and F. Di Giovanni (supervisors: P. Pizzochero and J. A. Font, 2017-2018) at the UV. My supervision of F. Di Giovanni during his PhD led to 9 publications.

I have refereed papers for CQG, PRL, PRD, and GRG. Since 2019, I am a Section Editor of Universe Letters and Guest Editor of a Special Issue on compact objects. I am the secretary of the 'Grupo Especializado en Astrofísica' of the Spanish Royal Society of Physics since 2020. I collaborate in the translation into Spanish and Catalan of the scientific summaries of Virgo press releases; I wrote 7 outreach articles with M. A. Sanchis-Lozano in DAUALDEU and one in the Gazeta de Física of the Portuguese Physics Society. I was interviewed in the podcast Coffee Break Señal y Ruido Ep. 269 (2020) and by the Youtuber 'QuantumFracture' (email, 2021).

Área Temática:	Ciencias físicas
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Título:	Quantum-HPC algorithms and applications

Resumen de la Memoria:

Soy doctora en computación cuántica por la Universidad de Barcelona (2019), con un postdoc de dos años en la University of Toronto (2019-2021). Actualmente soy investigadora sénior en el Barcelona Supercomputing Center y coordinadora del proyecto nacional Quantum Spain.

Mi carrera investigadora se ha focalizado en aplicaciones de la computación cuántica a corto-plazo, las conocidas como Noisy Intermediate Scale Quantum (NISQ). Tengo una extensa experiencia en el uso de ordenadores cuánticos actuales. Fui una de las primeras usuarias de ordenadores cuánticos en la nube. Soy autora de varios algoritmos cuánticos NISQ. Lideré la "review" del campo (publicada en Review of Modern Physics), y recibí un premio internacional por mi trabajo en algoritmia y aplicación cuántica (Qiskit award, 2018).

Como PI y coordinadora de Quantum Spain, lidero un proyecto de 22 M€ con las 13 instituciones de la Red Española de Supercomputación cuyo objetivo es crear una infraestructura de computación cuántica pública en España y fomentar la investigación y ecosistema a su alrededor. Soy directamente responsable de crear esta infraestructura singular que consistirá en un ordenador cuántico integrado con el superordenador del BSC MareNostrum5. Además, soy la responsable técnica del proyecto europeo EuroQCS-Spain, uno de los seis seleccionados para ser los primeros nodos Europeos en computación cuántica.

Por todo ello, mi línea de investigación se centra en desarrollar todas aquellas herramientas y aplicaciones que aúnen la computación cuántica y la computación de altas prestaciones (HPC). En concreto, desarrollo e investigo los tests necesarios para certificar la calidad de los chips cuánticos que se instalen en nuestro centro. También he colaborado y sigo desarrollando herramientas de software para programar y optimizar ordenadores cuánticos y sus aplicaciones. En cuanto a aplicaciones, me centro en aquellas relacionadas con el "quantum machine learning", es decir, toda aplicación que requiera de utilizar circuitos cuánticos para procesar datos clásicos o cuánticos. Además, también investigo si técnicas de "machine learning" clásico se pueden utilizar para optimizar los algoritmos cuánticos o incluso asistir a la calibración de tales dispositivos. Por último, también colaboro en el uso de técnicas híbridas de computación cuántica para la simulación de sistemas cuánticos de interés para el campo de la física de la materia condensada.

Resumen del Currículum Vitae:

Soy graduada en física por la Universidad de Barcelona (UB). Tengo un máster en física de partículas por la misma Universidad. Me doctoré en información cuántica también en la UB en 2019. Durante mi doctorado, realicé una estancia de 4 meses en la University of Oxford. Después de mi doctorado, hice una estancia postdoctoral en la University of Toronto (2019-2021). Ahora soy investigadora sénior en el Barcelona Supercomputing Center y coordino el proyecto nacional Quantum Spain (2021-2025, 13 instituciones de la Red Española de Supercomputación, 22 M€ de presupuesto). Mis publicaciones más destacadas han sido en el desarrollo de algoritmos cuánticos a corto-plazo (los llamados NISQ). Soy autora única de un trabajo con más de 100 citas (Google Scholar) por el cual además me dieron un premio internacional (Qiskit award, por la empresa IBM). Lideré la "review" más grande de mi campo (sobre algoritmos NISQ), en una colaboración de más de 5 instituciones internacionales de alto prestigio. Soy desarrolladora de la librería de programación cuántica open-source Tequila, utilizada por más de 20 trabajos independientes. Lideré un experimento en remoto para generar el primer estado cuántico entrelazado de altas dimensiones con qutrits superconductores. También lideré un proyecto que utilizaba inteligencia artificial basada en lógica para diseñar experimentos de óptica cuántica. En estos momentos, acumulo más de 1200 citas y mi índice h es de 10 (según Google Scholar).

He asistido a numerosos congresos nacionales e internacionales y presentado mi trabajo en 19 de ellos. Destaco mi "keynote" en el congreso CARLA 2022 (Porto Alegre, Brasil), que constituyó la primera keynote en computación cuántica de un congreso de HPC latinoamericano. También he presentado mi trabajo en el CERN (QT4HEP 2022) y Stony Brook (2018). He dado más de 20 seminarios en varios grupos de investigación, tanto presenciales como online. También he participado en 9 mesas redondas, de las que destaco la ACM European Summer School (2022) que compartí con profesores distinguidos de ciencias de la computación.

Soy miembro de los consejos asesores Quantum Goberning Board (Unión Europea) y del Consell de Tecnologies Quàntiques (generalitat de Catalunya). También asesoro a la Secretaría de Estado de Digitalización e IA en la estrategia para las tecnologías cuánticas (segunda fase de Quantum Spain).

Además de toda mi trayectoria científica, tengo una amplia experiencia en divulgación científica. He participado en numerosas entrevistas en medios de comunicación nacionales e internacionales para hablar de computación cuántica. Fui maestra de ceremonias de los Premios Nacionales de Investigación 2022, donde además moderé una mesa redonda con alguno de los premiados. He participado en muchos eventos de divulgación tales como charlas TEDx, Noche Europea de los Investigadores, El País con tu Futuro, Mujeres y Digitalización, entre otros.

Área Temática:	Ciencias físicas
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Título:	Liquified noble gas TPCs for particle physics: analysis and hardware aspects

Resumen de la Memoria:

I conducted a PhD in Physics based on data analysis for the International Pierre Auger Experiment (Uni. Granada, 2017). This allowed me to acquire crucial skills about programming, simulations and statistics that were key for the fruitful results of my PhD thesis and my later publications. To further expand my knowledge, I spent for 4 years as a postdoc in a world-leading group on hardware and R&D for liquified noble gas TPCs, (Uni. Zurich, 2017-2021), where in addition to strengthen my facet as analyst, I gained wide expertise on photosensors, cryogenics and TPCs while working on the DARWIN collaboration. At the present time, back at the University of Granada with a more senior position (Juan de la Cierva researcher, Jan. 2022), I am facing the challenge of leading a cryogenic lab dedicated to argon TPCs while promoting competitive studies for the neutrino experiments DUNE and SBND.

Throughout my career I built up a scientific profile that combines pivotal skills on both hardware and analysis aspects, including a sound expertise on liquified noble gas TPCs. Nowadays, as chief researcher of a cryogenic lab and being part of the DUNE and SBND collaborations, I have the tools and the know-how to develop a line of research based on neutrino physics that can significantly contribute to the different needs of these two experiments.

The SBND experiment will start taking data at the end of 2023. In DUNE, the design of the first two modules is already decided, while the latter two are still in an extensive R&D phase. My research plan, which fits the time scale of both experiments, pursues to consolidate two different lines. However, the long-term goal is to fully exploit the synergies between SBND and DUNE:

1) HARDWARE ACTIVITIES FOR DUNE

1A) Hardware tasks for the construction of DUNE: This is the part of the research line that I have started to develop at the University of Granada in 2022. I will continue contributing to essential technical aspects of DUNE during the construction of the first two modules (validation of the photon detection system) with the goal of strengthening my position within the collaboration and consolidate the activities of our cryogenic lab.

1B) R&D toward an improved light sensor for DUNE: I will focus on increasing the light collection (the current one is ~3%) of the latest DUNE modules, aiming to improve the energy resolution of the detector. I will collaborate with an American group to investigate a novel sensor that integrates charge and light detection. This part of the research plan has a clear component of technological transfer that also looks for industrial applications of such a device.

2) ANALYSIS OF THE UPCOMING SBND DATA

The intention here is to use SBND data to learn properties of neutrino interactions that can be later exported to DUNE. The coherent pion production by neutrino interactions in argon offers this possibility: it is a process than can be measured in SBND with a precision never achieved before and at the same time will be fundamental to evaluate the composition of the neutrino flux in DUNE. The plan is to use novel techniques based on neural networks to identify this particular interaction. The idea behind this is to establish a multidisciplinary line of analysis that can be used to search for other neutrino interactions.

Resumen del Currículum Vitae:

My PhD research, supervised by Prof. A. Bueno (Uni. Granada) and co-mentored by Prof. A.A. Watson (Uni. Leeds), co-founder of the Pierre Auger Observatory, was focused on the composition of ultra-high-energy cosmic rays. I developed a new analysis technique that demonstrated for the first time the potential of the surface detector to infer the composition of cosmic rays and constrain hadronic models over a broad energy range (0.3-100 EeV). My analysis was published as a full-author-list paper of the collaboration and currently counts 127 citations in Inspire. I also presented the results as an oral contribution in the most important international conference in the field, the ICRC2017. This technique opened a new research line that gave rise to subsequent analyses and new thesis projects.

At the end of 2017 I joined, as a postdoc, the newly established ERC-funded DARWIN group of the University of Zurich, led by Prof. L. Baudis and whose main goal is to develop R&D for DARWIN, the future European Observatory for dark matter and neutrinos physics. I coordinated a group formed by 3 PhD students, a younger postdoc and a technician that built in 3 years a 2.6m length DARWIN prototype. I supervised the commissioning, the successful first run and the publication of the technical design report. At that time, I was also the responsible of the first dual-phase xenon TPC with SiPMs, built and operated in our lab in Zurich. The successful performance of this detector allowed us to publish calibrations with low energy sources and a measurement of the W-value in liquid xenon. I am a main author of both publications.

In parallel to the R&D activities, as a postdoc, I took the lead on investigating possible science channels for DARWIN. I coordinated the simulation and sensitivity working group of the DARWIN collaboration from 2019 to 2021. I also carried out the study about the DARWIN sensitivity to the neutrinoless

double beta decay of Xe-136, published as a full-author-list paper of the collaboration. In addition, I presented this study in 2 international conferences (CNNP2020, WIN2021), 1 symposium (Kashiwa2021) and 3 invited talks. Thanks to these achievements and the organisation of 2 collaboration meetings I enjoyed a high visibility within DARWIN.

In January 2022, I joined the experimental neutrino physics group of the University of Granada, whose research focuses on the experiments SBND and DUNE, both based on the technology of the argon TPCs. I was assigned the task of leading the cryogenic lab of the group, training the staff and coordinating the hardware activities. After a year of committed operations, we have significantly contributed to DUNE by characterising part of the SiPMs installed in both DUNE prototypes at CERN. After that, our lab has been designated as one the five DUNE characterisation nodes in Europe.

Thorough my career I have also developed skills to mentor younger scientists, teach and outreach: i) I have mentored several bachelor and master students and I co-supervised 2 PhD theses. ii) I have taught at both bachelor and master level iii) I gave lab tours, participated in large outreach events, produced YouTube videos and I collaborate with rural schools organising activities for the International Day of Women and Girls in Science.

Área Temática: **Ciencias físicas**
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Título: Ultra-compact X-ray binaries

Resumen de la Memoria:

My research career is focussed on the study of accreting black-holes and neutron stars in X-ray binaries. I am internationally recognised for my work on sub-luminous X-ray binaries, the extreme population of ultra-compact systems, and the physics of accretion processes. My publication record includes 21 papers as main author (first author in 13), for a total of 51 refereed publications in the best journals. My work has already collected more than 1100 citations, with more than 245 corresponding to my first-author refereed papers. This leadership has allowed me to have a strong visibility in international conferences, with more than 30 contributions up to now, including the invited review on the X-ray Universe 2023 Symposium (Athens), the invited review on Low-luminosity accretion processes (the Netherlands 2019) and an invited talk on ultra-compact X-ray binaries (China 2019).

I obtained my PhD at the University of Amsterdam in November 2013. Subsequently, I worked in other internationally renowned centres, such as the Universities of Oxford and Kyoto. I have also visited several other institutions (MPE-Munich, Michigan Univ., Southampton Univ.) thanks to short-term personal fellowships. As a matter of fact, my entire research career has been funded by fellowships from highly competitive programs: I was awarded a Juan de la Cierva-Formación fellowship (2016), a Juan de la Cierva-Incorporación (2018) and in 2020 an Advanced Fellowship at the Instituto de Astrofísica de Canarias. My extensive international experience also comprises the organization of international conferences and the participation in international Time Allocation Committees and outreach activities.

My leadership and institutional responsibilities are well exemplified by the fact that I am the PI of the "Black holes, Neutron Stars and White Dwarfs" project in the IAC, one of the largest teams of the centre with 20 researchers. Additionally, I have been awarded (Princival Investigator, PI) funding in the most competitive regional and national programs, such as the Generación de Conocimiento project and the I+D+i project (Gobierno de Canarias). This has allowed me to build (2021) my own research team, which is formed by two post-docs and a PhD student.

The next step in my career in order to keep leading my group and consolidate my research line is a Ramón y Cajal fellowship: a program in which I was already ranked in the very top part of the final reserve list last year (#9 out of 182).

Resumen del Currículum Vitae:

I am Advanced Research Fellow at the IAC, where I am the Principal Investigator (PI) of the group "Black holes, Neutron Stars and White Dwarfs" (20 researchers), one of the largest of the centre. Here, I lead the ultra-compact X-ray binary (UCXB) group that I formed in 2021. It comprises two postdocs and one PhD student, in addition to myself.
I study accreting black holes and neutron stars in X-ray binaries. I am internationally recognised for my work on (i) sub-luminous X-ray binaries; (ii) the extreme population of UCXBs; and (iii) the physics of accretion processes.

Independent and international researcher: my PhD thesis in Amsterdam was followed by a 6-month stay at Oxford Univ. Subsequently, my entire post-doctoral employment was carried out outside of my PhD centre and funded by competitive fellowships: the Japanese Society for the Promotion of Science (Univ. Kyoto, Japan); and the Talento Tricontinental, JdC-incorporación and JdC-formación (IAC, Spain) grants, that led to my current Advanced Fellowship. In addition, I have performed long visits to other leading international institutions (e.g. MPE-Munich). I am member of the LSST, eXTP and HAWKs international consortia. I am part of the IAU, EAS and SEA. I have led observing programs (PI) in top facilities, including X-ray observatories (Swift and XMM-Newton), and optical/infrared telescopes (GTC).

Group leadership and funding: I have obtained (PI) funding in the most competitive national and regional programs (PID2020 and GOBCAN2021), which allowed me to form my own research group.

Productivity and Impact: I have published 51 refereed papers in the best journals (Nature, MNRAS, ApJ and A&A). I am first author in 13 of them and main author in 21, including two papers led by my PhD student. Considering all my research contributions, I have more than 100 publications and 1150 citations (245 by my first-author publications).

International speaker: I have presented my work in conferences (>30), seminars and dissemination lectures. I have been invited to give four reviews/talks in international conferences, four colloquia, and three dissemination lectures. I was also invited to three "invitation-only" specialist conferences.

Conference organizer: I chaired the SOC and the LOC of the international meeting "La Gomera Accretion Week 2017", one of the most successful in the field in recent times, with contributions from more than 60 world-class researchers from the five continents.

Supervision and teaching: I am supervising two postdocs and one PhD thesis. In the past, I supervised two M.A.Sc. projects, one IAC-Summer project and one Erasmus+ project. I have been teaching assistant in the Bachelor and MSc in Astrophysics at the Univ. Amsterdam. I am lecturer of "Astronomy for secondary school teachers", Univ. Menéndez Pelayo.

Commission of trust: I am referee of ApJ, MNRAS, Science and PASJ. I have been member of the Time Allocation committee of the XMM-Newton, a PhD viva panel and several M.A.Sc. Evaluation committees. I am member of the IAC Research council.

Outreach: I have given dissemination lectures and outreach talks for children in schools and summer camps. I organised "la semana astrofísica de la Gomera 2017" and participated in "Talk to them: Women in Astronomy" and "Chatea con una astrónoma". I am a regular collaborator of the newspaper El Dia (8 articles).

Área Temática:	Ciencias físicas
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Título:	Enabling new insights in 2D materials by multidimensional electron microscopy

Resumen de la Memoria:

The experimental realization of graphene triggered an unprecedented research activity that paved the way to explore a whole new family of two-dimensional (2D) crystals almost unexplored so far. Since this discovery, the investigation on 2D materials has garnered great interest and is one of the hottest topics in materials science. Currently, more than 6000 2D materials have been predicted to be stable and the global market on 2D materials is projected to reach ca. $1bn by 2032. The broad range of electronic properties of these atomically thin crystals make them not only attractive for fundamental physics but also auspicious candidates for future generation devices. Moreover, in recent years, there has been a continuous discovery of emergent physical phenomena in 2D materials such as unconventional superconductivity or novel topological phases, many of which are still beyond our understanding. The development of next generation 2D materials requires thus the understanding of complex physical phenomena governing their functional properties at the atomic scale, which supposes an exceptional experimental challenge.

The overacting goal of this research line is to harness emergent physical phenomena in 2D materials-based systems by developing innovative multidimensional electron microscopy techniques. To this end, the use of experimental techniques capable of studying materials with atomic resolution such as the scanning transmission electron microscope (STEM) become essential. The geometry of the STEM allows the acquisition of a 2D image of the transmitted electron beam at the diffraction plane for each probe position as the beam is scanned over a 2D area of the material in real space. The resulting data cube exhibits a four-dimensional nature (4D-STEM) and contains a vast amount of information about the material that should provide the full picture of the beam-specimen interaction. The richness of this data is overwhelming, allowing diffraction experiments such as pattern classification or strain mapping and transferred momentum sensitive experiments for the direct imaging of local electromagnetic fields in materials.

To achieve our goals, I will develop a full methodology composed of 2D materials fabrication, development and application of new multidimensional 4D-STEM methods and data analysis and simulation. I will apply this methodology to the study of twisted Moiré heterostructures and to the exploration of novel 2D materials such as highly correlated oxide membranes. I will analyze the formation of modulated electronic phases and test the in-situ dynamical response of these materials to the application of external stimuli.

The success of this research line will help harnessing the physical properties of these 2D materials by linking their macroscopic properties to emergent physical phenomena occurring at the atomic scale, which ultimately govern functionality. This knowledge will enable the design of disruptive technologies based on 2D materials with potential improvements in performance, including energy conversion, computational power or information storage capacity, while reducing energy consumption. The results will thus contribute to the development of next generation highly energy-efficient nanodevices, addressing one of the most important challenges of our present society.

Resumen del Currículum Vitae:

I obtained my Ph.D. in Physics in 2015 at UCM as a researcher of the ERC-STEMOX project. My research was devoted to the study of complex oxides systems by advanced electron microscopy techniques. During my PhD, I conducted 10 short research stays at the Oak Ridge National Laboratory (USA). In 2015 I joined the University of Tokyo (Japan) as a postdoctoral researcher on study of localized electric fields in materials by differential phase contrast in the electron microscope (DPC-STEM). In 2017 I obtained a Juan de la Cierva Formacion and joined the ICMM-CSIC, applying my research to the study of new 2D materials. In 2018 I was awarded with a Canon Foundation Fellowship that financed a three-months research stay at the University of Tokyo. In 2019, I received the Wenner-Gren International Fellowship at Chalmers University (Sweden) and worked on in-situ studies of materials by DPC-STEM and monochromated electron spectroscopy. In November 2019, I joined the Dept. of Materials Physics at UCM as PI of the Jóvenes Investigadores JIN project IMAGING2D to work on in-situ electric field studies of devices based on 2D materials. In 2020, I was awarded with a Juan de la Cierva Incorporación.

I have focused my research on the field of materials physics and the development of advanced electron microscopy techniques. I have worked on the study of complex oxide materials, where I have used electron microscopy and spectroscopy techniques to study how emerging phenomena at interfaces and domain walls between highly correlated materials determine their functional properties (Nat. Nanotech. 2017, Nat. Phys 2016). I have been responsible for the development of DPC-STEM, work done in collaboration with industrial partners such as JEOL Limited and SONY Corporation (Japan), (Nat. Comms. 2017, Acc. Chem. Res. 2017, ACS Nano 2018). More recently, I have focused my research on 2D materials based on van der Waals heterostructures and the development of multidimensional 4D scanning transmission electron microscopy (Nature 2023 peer-review, Adv. Mater. 2021, Nano Lett. 2020, 2022). I have contributed with 50 scientific publications (41 peer reviewed), Q1:32 (>80%), D1:25 (>60%), with �707 1180 citations, h-index 20 and i10-index 27. I have participated in 11 research projects (3 as principal investigator).

I have been an invited speaker at 11 conferences, participating in a total of 58 conferences, 27 as presenting author. My research has been recognized with the Presidential Scholar Award in 2014 and 2016 by the Microscopy Society of America and the Seal of Excellence by the European Commission.

I have a valuable teaching experience, with 325 teaching hours at the UCM. I have supervised two end-of-degree theses, a student with Beca de Colaboración (MEFP), one Master thesis and I'm currently supervising a PhD thesis, this being the first in the field in Spain. I have international postgraduate teaching experience by participating in the 2018-22019 IDEA League Doctoral School Program at Chalmers University (Sweden). Since

2020 I am certified by ANECA as Profesor Contratado Doctor. My research and teaching activities are completed with outreach actions: I have given outreach talks for a broad audience at Chalmers University, UCM and Universidad de Almeria and I have participated in the 2018 International Day of Women and Girls in Science at ICMM-CSIC.

Área Temática:	Ciencias físicas
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Título:	Amplitude analyses in flavour physics

Resumen de la Memoria:

I am an experimental physicist specialised in data analysis, where my main research focuses on amplitude analyses of exclusive B meson decays with data from the LHCb experiment, but my expertise covers much wider topics. I am an LHCb author since June 2013 and I have reviewed physics analyses at several stages during the LHCb internal review process.

Radiative B decays
My recent research focuses in the measurement of the photon polarisation in B to KpipiGamma decays, an observable sensitive to strengthened right-handed couplings, which are predicted by many New Physics models. I am the maintainer of the fitting framework and the developer of the strategy of the multidimensional amplitude fit. I supervise a PhD candidate on her work in this topic and I have supervised 2 MSc students working on related analyses. I coordinate the LHCb Radiative working group and I have presented LHCb results on radiative decays at the ICHEP22 conference.

Charmless B decays
I have been the leading analyst in the study of the B0 to rho0(770)K*(892)0 mode, a 5-dimensional amplitude analysis simultaneously dealing with 14 partial decay, and I have also contributed to two other amplitude analyses of charmless B0(s) decays. Among the main results of my thesis is the first evidence of direct CPV in polarisation fractions of charmless B decays. These results were made public at the Workshop on the Implications of LHCb measurements and future prospects, where I presented a plenary talk. These results triggered significant new publications from the theory community and I was invited to a theory workshop at MITP Mainz. From the technical side, I used the MultiNest algorithm in the main fitter for the first time in a LHCb analysis, conducted one of the first analyses profiting from GPUs and designed a novel strategy to deal with backgrounds. These activities were funded with pre-doctoral grants by the Galician and the Spanish governments. I was awarded the prize for the "Best PhD thesis in Experimental Particle Physics" presented in 2019, given by the DFTP of the Royal Spanish Society of Physics and a prize for the "Best professional trajectory for young female researchers" awarded by the Galician node of AMIT.

Top, Exotica, Semileptonics and Ions WGs
I have worked in a CMS analysis (alternative method for top quark mass measurement) and two other LHCb analyses, with leptons and jets in the final state (searches for the B to munu and the H to b bbar processes). These projects were each funded with individual grants (see C.3). I presented the results of the H to b bbar search at the YSF of the Moriond-EW conference in 2018. I have also worked on an analysis measuring the inelastic pp cross-section with LHCb data, where my contribution enabled a new analysis, studied in O. Boente's PhD thesis (USC). I am involved in an analysis studying the Lambda0b to Lambdac* decay dynamics, which will enable precision measurements in these decays.

Detector and Hardware
I am involved in three projects related to the SciFi tracker: simulation oriented (generating light attenuation maps), alignment related (obtaining inputs for the real-time alignment) and monitoring oriented (designing and coordinating the installation of a 3D system to track long term geometry deformations).

Resumen del Currículum Vitae:

I am currently a researcher at the Laboratoire de Physique des Hautes Énergies (LPHE), of École Polytechnique Fédérale de Lausanne (CH), where I work on radiative B decays. I am convener of the Radiative subWG of LHCb since January 2021. I have experience organising LPHE group seminars and the topical presentations at the weekly meeting of the LHCb collaboration.

I was appointed Deputy Coordinator of the LHCb Early Measurements Task Force in July 2022. This is a collaboration-wide effort aiming to drive the commissioning, with the exploitation of the early Run3 data, of the upgraded LHCb detector.

Since January 2020, I am responsible for the installation and commissioning of a 3D monitoring system for the new SciFi tracker and Work Package coordinator for the offline alignment of the SciFi detector. I am responsible for the survey campaign to align this tracker before the start of the LHC Run3 in March 2023.

I obtained my PhD in 2019 at the Universidade de Santiago de Compostela (USC), for which I single-handedly performed the amplitude analysis of B0 to (pipi)(Kpi) decays at LHCb. I was awarded the prize to the "Best PhD thesis in Experimental Particle Physics" (2019) by the DFTP of the Real Sociedad Española de Física.

As of 22/11/2022, I was awarded a 2-year CERN Research Fellow position, at CERN, Switzerland. Before that, I have been awarded pre-doctoral grants by the Galician government (Axuda predoutoral) and by the Spanish Ministerio de Educación, Cultura y Deporte (FPU grant). I have obtained individual funding for research projects at the laboratories CERN (2014), DESY (2013), at the USC ('Beca de colaboración', 2012) and for a 6-month stay at CERN ('Becas de la Fundación Barrié', 2016).

I have over 500h of official teaching experience and I have mentored several PhD candidates in both physics analysis and detector-related projects. At EPFL I have mentored many MSc and PhD candidates, and I supervise M. Bachmayer, whose thesis focuses on the analysis of radiative B decays, and V. Kirsebom and D. Kaminaris, on alignment related projects. At USC, I also mentored several PhD candidates. I have organised tutorial sessions on the use of the EPFL computing resources for other researchers in the group, as well as some LHCb trainings for newcomers to the collaboration. I have organised and participated in many outreach activities, with different platforms, contexts and targeted audiences, as detailed in section C.4.

Finally, I have ample experience during LHCb operation as Shift Leader (since 06/2017), Data Manager (since 10/2015) and in test-beams for the VELO upgrade program (2015-19).

Área Temática:	Ciencias físicas
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Título:	Planetary Exploration by Spacecraft-based and Ground-based observations

Resumen de la Memoria:

My research interest is minor bodies in the Solar System, such as asteroids, comets, trans-Neptune objects, because they record extremely primitive materials on the Solar System, before configuring the planets. I would like to answer the question "Where do we come from? What are we? Where are we going?" through the minor bodies. Thus, I am enthusiastic about the life-forming materials over our Solar System. Especially dark carbonaceous asteroids are known to contain much water and organics. I have developed several techniques while building my research career, such as numerical simulation, image processing, telescope observations, and laboratory experiments.

The spacecraft missions are the best way to describe the real situation on the planetary bodies. I have participated in several missions so far, Hayabusa2 by JAXA, OSIRIS-REx by NASA, Comet-Interceptor by ESA/JAXA, MMX by JAXA, and Hera by ESA. The asteroid sample-return missions Hayabusa2 and OSIRIS-REx have finished their proximity in-situ observations from 2018 to 2020. I have worked deeply on the image calibrations and processing of the cameras onboard these missions. I have revealed the compositional distributions and evolutions on the asteroid Ryugu and Bennu based on the multi-band images. Currently, I am working on the Martian Moon Explorer (MMX), and Hera missions, which are currently preparation phase and will be launched in 2024. My main contributions to these missions are the camera calibrations and the high-level product developments.

Furthermore, I have made laboratory experiments and simulations to support and demonstrate the hypotheses raised from spacecraft observations. I have experience in hyper-velocity impact experiments to simulate the cratering phenomena on asteroid surfaces. Additionally, I have done simulations of solar irradiation on the asteroid surfaces using the observed detailed shape models and the physical information obtained by the spacecraft in-situ observations. In this way, I tackled the interesting phenomena of asteroids.

To give contexts of these space mission targets, I consider the ground-based observations are the key. The advantage of telescopic observations is that we can observe numerous targets, while the spacecraft cannot visit many targets at once. Thus, telescopic observations are crucial to understanding the big picture of the Solar System. I have been leading the observations of asteroids in near-ultraviolet wavelength. The near-ultraviolet wavelength is a complicated wavelength from the ground, but this wavelength is believed to have strong relation with hydration and organic composition. There are no systematic spectroscopic observations in this wavelength so far, but I have established the observation technique and obtained ~100 asteroid spectra. Based on the observations, I try to depict the life-forming material (water, hydrated minerals, organics) distribution in our Solar System.

Nevertheless, from the ground, it is impossible to observe the short wavelength <350 nm due to the atmospheric extinction. Especially organics has strong absorption in this wavelength. Currently, I am developing the instrument of near-ultraviolet wavelength onboard the small space telescope IACSAT by Instituto de Astrofísica de Canarias. I believe this will open the door to a new stage of understanding the origin of life.

Resumen del Currículum Vitae:

I obtained my bachelor's and master's degrees in Space Engineering Department at Kyoto University in Japan. I investigated rarefied gas dynamics with numerical simulation in Master thesis. In this way I built a foundation of computation. I started my career in Planetary Science at the University of Tokyo in 2012. I obtained my PhD in Planetary Science from the University of Tokyo in 2016. As the PhD theme, I designed and conducted the cratering experiments using the hyper-velocity impact facility at JAXA. This experiment is to understand the impact mechanism at the asteroid surfaces. After the PhD, I participated the Hayabusa2 mission especially in the camera team during my first postdoc. Before arrival, I led the plans and operations of inflight calibration of cameras onboard Hayabusa2. After arrival at the target asteroid (162173) Ryugu, I processed the multi-band image data. By making the global map of the asteroid, I contributed to decide the sampling site of Hayabusa2. Besides, I also contribute largely to archive the raw data to high-level products obtained by the cameras.

There is another mission to the asteroid (101955) Bennu by NASA, called OSIRIS-REx. Since the mission timeline was similar, there were a lot of interactions and exchanges of knowledge and people between the two missions. I have stayed in US and collaborated with the image processing working group in the OSIRIS-REx project. I have led also the project on characterizing exogenic materials on Bennu and on cross-calibration of multi-band imagers between OSIRIS-REx and Hayabusa2.

Based on these achievements through Hayabusa2 and OSIRIS-REx, I was awarded the Encouraging Young Scientist Award in Space Science in 2020 and JSPS Outstanding Young Scientist Award in 2021. These awards are one of the most prestigious awards in Planetary and Space Science in Japan.

Moreover, I have been involved in several international space missions such as JAXA's Martian Moon Explorer, ESA/JAXA's Comet Interceptor, and ESA's Hera. I have been working on the operational plan, image acquisition, calibration, and scientific analyses in these missions. Through these missions, I could construct worldwide interactions and collaborations with researchers around the world.

Since 2019 I started the ground-based observations at Instituto de Astrofísica de Canarias (IAC), Spain. I learned how to observe and reduce the spectroscopic and photometric data obtained by the telescopes. I led proposals and have been awarded the time for my projects at several telescopes at Canary Islands and Mauna Kea Observatory from 2019 to 2023. At the same time, I am contributing to the design and evaluation of the optical system of the small NUV space telescope developed by IAC.

To date, I have published 8 papers (including Nature Astronomy and Nature Communications) as the first author and 59 papers as a co-author under the collaboration in the international teams.

Not only research, I believe the education for students from wide areas is very important because space missions can be successful based on many people's commitments. I have co-supervised three Master students and one PhD student so far. The supervised students managed to publish papers in scientific journals. Among the Master students, two students are working in the private sector related to space engineering and one continued on the PhD degree.

Área Temática:	Ciencias físicas
Nombre:	TAYLER , MICHAEL
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Título:	Extreme magnetic sensors for health technologies and fundamental sciences

Resumen de la Memoria:

Dr Michael Tayler investigates extreme magnetic-field sensor technologies at the interfaces of atomic physics, photonics and chemistry. With these, he aims to deepen insight into structures and dynamics of materials as well as realize sensing applications with commercial potential in healthcare.

In his doctoral work at Southampton University, Tayler pioneered "long-lived nuclear spin states" to extend the time scale of dynamic processes that can be studied using nuclear magnetic resonance spectroscopy (NMR) and imaging (MRI) and utilized to preserve transient spin states in hyperpolarized MRI tracers.

Two postdoctoral fellowships broadened his skills in experimental, state-of-the-art rf, microwave and optical detection. In ERDF project ULTRASENSE NMR (2011-16) he used miniature rf-stripline antennae to detect NMR of microfluidic samples and apply these to high-throughput medical screening. Then undertaking a 36-month Marie Curie Individual Fellowship at UC Berkeley, Cambridge University and collaborations with Shell Plc., he pioneered ultralow-field NMR detection with optically pumped atomic magnetometers (OPMs). New territories that he established in the basic sciences included: (i) ultra-precise chemical analyses using long-lived nuclear spin coherences to achieve millihertz spectral resolution; (ii) probing molecular diffusion on pore surfaces via nuclear spin relaxation in the sub-kHz Larmor band; (iii) investigation of low-field relaxation-based MRI contrast agents; (iv) low-field optical and electron-mediated hyperpolarization of nuclear spins. These areas span first-principles theory to cutting-edge experimentation, for which designs, including whole spectrometer systems have been released as open source for teaching, and fostered collaborations with institutes in San Francisco, Mainz, Gottingen, Krakow and Cambridge under support of Marie Curie ITN project ZULF (H2020, 2018-22, co-PI).

In Spain, the scope of Tayler's research has widened beyond applications of atomic sensors in next-generation NMR, to development of the sensor technologies themselves. OPMs are becoming a preferred option for low-frequency magnetic field detection in clinical research, e.g. magnetoencephalography, and MRI. Microfabricated atomic devices are now a strategic focus of EU/ERC funding. At the Institute of Photonic Sciences in Barcelona he has contributed in these areas first-hand, taking leading roles in projects macQsimal (H2020 FET-FLAG, 2018-22) and QuantumCAT (H2020 ERDF, 2018-21), in the technical development of "point of care" OPM sensors for these industries. These activities continue in EIC transition project OPMMEG (2022-25) with his participation. He is also currently developing atomic sensors to detect radiofrequency magnetic fields, supported by project MARICHAS (Plan Estatal I+D+i, 2022-25, as principal investigator) where such sensors shall be developed to give unprecedented materials tolerance and sub-mm space resolution in MRI of microfluidic devices, to pioneer high-throughput screenings of synthetic tissue culture. Other implementations of rf atomic sensors are being developed for nuclear quadrupole resonance (NQR) applications in defence, in project ADEQUADE (EDF, 2022-25) where he leads OPM and NQR technical areas. Soon, his portfolio will expand to also miniaturized NMR sensors based on nitrogen-vacancy centers in diamond.

Resumen del Currículum Vitae:

Michael Tayler (MSci Chemistry 2008, Cambridge Univ.) is an expert in magnetic resonance (NMR) and quantum optics, two distinct fields within the general remit of "Quantum Technologies" intersecting physics and chemistry.

He obtained a PhD in the group of Malcolm Levitt for pioneering studies of memory-prolonged nuclear spin-singlet states (Southampton Univ., 2013), earning two international prizes and 7 papers. He then occupied a junior postdoctoral position on microfluidic NMR (Kentgens lab, Radboud University Nijmegen, NL 2012-14), before attaining a Marie Curie IOF fellowship to engage with cutting-edge optically detected NMR research in the USA, using ultraprecise magnetic sensors known as atomic magnetometers (Alex Pines and Dmitry Budker labs, UC Berkeley, 2014-16); the return phase of the fellowship saw him establish first atomic magnetometry and NMR activities in Europe (Lynn Gladden lab, Cambridge Univ. 2016-18, as Senior Research Associate), investigating systems of relevance to chemical engineering and a 1-year industry collaboration with Shell R&D. Excellence was recognized by an award from UK Institute of Physics and attendance at Lindau Nobel Laureate meeting 2017.

Since late 2018, Tayler has been a research fellow at the Institute of Photonic Sciences (ICFO) in Barcelona, Spain. He has worked closely with the Atomic Quantum Optics research group led by Morgan Mitchell contributing to development and commercialization of atomic sensors through large consortium projects including macQsimal (EU FET FLAG, collaboration with medical industrial MEGIN and microfabrication institute CSEM), QuantumCAT (ERDF, collaboration with Autonoma University of Barcelona and Institute for Bioengineering of Catalonia, WP leader) and OPMMEG (EIC Transition, 2022-25, researcher + board member).

At the same time, supported by a la Caixa Junior Leader Fellowship (2019-22) Tayler has developed his own independent research line and team focused on cross-species interactions of angular momenta in atomic, nuclear and photonic spin systems. A core concept is that such interactions provide disruptive opportunity for measurement that single-species systems cannot provide, thus form a cornerstone of next-generation quantum sensing and metrology. Tayler has led several projects at ICFO as PI, notably Marie Curie ITN ZULF (2018-22) proposed with 8 EU partners while in Cambridge, where he has supervised one PhD student (completion 2023), hosted visiting students on secondments, led collaboration and supervisory board activities. He is supervising his second PhD student under Plan Nacional project MARICHAS (2022-25, PI) which seeks to utilize atomic sensors in super-resolution MRI and chip-scale MRI. He also founded the open-source spectroscopy platform NMRduino (2021). Together with Mitchell, he leads

part of European Defence Fund project ADEQUADE (2022-25, WP leader) on atomic and nuclear spin sensing for security. He has under evaluation Retos Colaboración Público-Privada, ERC, EIC Transition grants and is shortlisted for 2 Serra Hunter lectorships at University of Barcelona.

Tayler has also co-supervised 5 TFM students (with Mitchell, ICFO) and has 27 publications in SJR top-quartile journals; 15 first, 14 corresponding, 5 senior author. and reviewed 30+ articles for Nat. Commun., Science Adv, PRA, and abstracts for Lindau Nobel, ISMRM congresses.

Área Temática:	Ciencias físicas
Nombre:	ALBALADEJO SERRANO, MIGUEL
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Título:	New exotic hadrons with unitarized effective field theories

Resumen de la Memoria:

Quantum Chromodynamics (QCD), one of the components of the Standard Model, is the theory of quarks and gluons interactions. Strong theoretical and experimental efforts are devoted to understanding the hadronic spectrum, i.e., the states and resonances that emerge from these interactions. Constituent quark models are able to describe most of the so far known hadrons, but there are many exotic states that do not fit into these models.

The conventional quark models have successfully described many of the experimentally observed hadrons as bound states of a quark and an antiquark, called mesons, or three quarks, called baryons. But nothing in QCD, the underlying theory, prevents the formation of different and more exotic forms of hadrons, such as tetraquarks, pentaquarks, glueballs, hadron molecules, hybrids (q qbar plus a gluon), and so on. Although speculations about these other states have long been around and despite some strong indications, no definite confirmation of their existence has been found so far. More importantly, even if they were confirmed, we still would not know what type of exotic they are.

I have used Effective Field Theories for light (ChPT) and heavy (HQSS) quarks, together with non-perturbative unitarization methods (UChPT, KT equations, etc.). In my activity I frequently compare with the experimental data obtained in powerful accelerators/colliders worldwide, and also with results of the latest simulations of LQCD. My research has given rise to important contributions to the establishment and the understanding of the nature of several exotic resonances.

My research area is Theoretical Hadron Physics, and my activity is focused around the following goals: i) a better understanding of the hadron spectrum including the search of new particles and resonances, and ii) the interpretation of their nature, i.e., whether they are conventional quark model states or more exotics states, such as compact multiquarks or hadron molecules, etc.; iii) the development of new theoretical amplitude analysis methods, to be used in the data analyses carried out by experimental collaborations.

Resumen del Currículum Vitae:

I presented my Ph.D. thesis in Dec. 2012 in U. of Murcia, being my advisor J.A. Oller (mark: summa cum laude). I then spent a few months at IFIC–CSIC, where I started to collaborate with E. Oset and J. Nieves.

I have four years of international postdoctoral experience. I was awarded a one-year postdoctoral contract (Hadron Physics 3 European project) at the prestigious IPN-CNRS, where I started my collaboration with B. Moussallam. In 2018-2021 I spent three years as a postdoctoral fellow in Jefferson Lab, one of the most important particle accelerators/colliders for Hadron Physics, where I started a close collaboration with A. Szczepaniak (IU/JLab), and I became a member of JPAC, an innovative international collaboration. In contact with members of experimental groups, we aim to settle theoretical foundations for the analysis of current experiments and to perform calculations to foster the physics case for the construction of new experimental international facilities, such as the recently approved EIC (Brookhaven, USA).

My postdoctoral experience in Spain has proceeded through public calls. My current position at CSIC-IFIC, is financed through a CIDEGENT Grant ("Investigadores de Excelencia"), from Generalitat Valenciana, obtained in 2020. In 2017 I had a contract "Reincorporación de doctores" at U. of Murcia. In 2014 I was awarded a "Juan de la Cierva" position, a national-level competitive call.

I have published more than 50 articles in first-level international peer reviewed journals, including 3 articles in Physical Review Letters, the most prestigious journal in my field. According to the INSPIRE database my contributions have around 2300 citations and 350 citations/year in the last years, and I have an h-index h=26. Eight of my papers are cited by the Review of Particle Physics (RPP) by the Particle Data Group (PDG). I have presented nearly 50 talks as a speaker at international conferences and/or workshops. In around 20 of them I acted as an invited or plenary speaker.

I have advised one PhD and one Master thesis students. Currently I am supervising two PhD students. I have recently received the I3 certificate. I have also established my own research lines, such as my investigation on Khuri-Treiman equations, or my recent article on the Tcc+ tetraquark as a single author.

I have been granted two projects in which I was Investigador Principal. In 2020 I was awarded a CIDEGENT Grant, endowed with 400k € (including my contract, a PhD student contract and other research expenses). In 2015, I was granted a 16k € project for "emergent groups" by the Generalitat Valenciana for the term 2016–2017 (which I had to decline due to incompatibilities with my contract length). I have taken part in 10 additional funded projects at national and international level.

Área Temática:	Ciencias físicas
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Título:	The Large Scale Structure of the Universe

Resumen de la Memoria:

The Large-Scale Structure of the Universe (LSS) is one of the observational pillars of Observational Cosmology. It is also one of the most promising areas to better understand open questions in cosmology and fundamental physics such as the nature of dark energy, the nature and abundance of dark matter, the mass and effective number of neutrinos, the consistency of General Relativity on cosmological scales and the physics of inflation.

My research focuses on the study of the LSS via Galaxy Clustering (GC), mostly on the study of Baryonic Acoustic Oscillations (BAO), Primordial Non-Gaussianities (PNG) and the effect of the galaxy-dark matter connection on the LSS. On the one hand, I have tackled those topics from the data analysis perspective with large involvement in international galaxy surveys. On the other hand, I have also largely approached the field by leading, coding, designing, running, post-processing and analysing cosmological simulations for different specific challenges (covariances, methodology development and validation, understanding the galaxy-dark matter connection, etc.).

With my international expertise on Galaxy Clustering, I acquired (08/2021) the role of convener of the Dark Energy Survey (DES) primary Science Working Group (SWG) for LSS during its final analysis. This group is in charge of the BAO key project and the GC half of the 3x2pt (GC + weak lensing) main cosmological analysis for the final dataset. I am also coordinating the PNG analysis team of DES and the 'Simulations for Galaxy Clustering' work package (WP) in Euclid. I have also made key contributions to the final eBOSS/SDSS-IV results and I actively participate on the DESI survey and the SKA cosmology SWG. I am also a core member of the UNIT simulations international collaboration. I am PI of the PNG-UNITsim program, having secured several grants with Millions of CPU-h to construct and exploit a unique PNG simulation suite.

I am supervising 4 funded PhD (Walter Riquelme, Bernhard Vos-Gines, Guillermo Reyes-Peraza Adrian Gutierrez-Adame, UAM) and I have completed the supervision of 1 PhD (Mike Shengbo Wang, now postdoc at U. Edinburgh) and 3 MSc students (Vos-Gines, Adame and Sanchez-Cortón).

Spain has invested tens to hundreds of millions of euros in large cosmological experiments to unravel the mysteries of the Universe. With this fellowship, I plan to build a stable group leading the scientific exploitation of those instruments at the forefront of the LSS international research, addressing major challenges in the field to achieve increasingly precise and accurate cosmology with ongoing and upcoming international experiments.

Resumen del Currículum Vitae:

Biography:

I studied at UCM, Nottingham U. (BSc) and Paris-VII, where I did my MSc thesis on DBI inflation. I did my PhD at UAM, working on computational cosmology. First, I analysed several methods to post-process N-body simulations. Later, at the core of my PhD, I developed a method (HALOGEN) to generate halo catalogues 1e5 times faster than N-Body simulations. Finally, I applied that method to generate 1800 galaxy simulations of the DES Year-1 (Y1) BAO sample. I was at the core of the DES Y1 (and later Y3) BAO analysis.

That project was concluded at ICG (UK), international hub for LSS and observational cosmology, where I worked at the group led by W. J. Percival. There, I developed new skills on the LSS data analysis. I got involved in Euclid and eBOSS, gained managing positions and started supervising students. I expanded my work on BAO and the Halo Occupation Distribution model and I started working on PNG.

In 2019, I won a competitive MSCA fellowship at the DFT & IFT, where I matched local interests (inflation at IFT, galaxy formation at DFT) to the realm of LSS experiments. I became member of SKA and DESI. I built an LSS group bridging the DFT & IFT, working on PNG, the effects of Galaxy-DarkMatter relation on LSS, BAO and cosmological simulations.
I recently (08/2021) became DES LSS SWG convener to coordinate the final analysis of BAO, PNG and the GC half of the main cosmological results (3x2pt). I obtained several grants (PI) to run a unique suite of simulations to understand the galaxy-formation effects on PNG analyses.

Recently, I joined IFAE to continue (1) driving the DES LSS group, (2) understanding the theoretical and observational systematic errors for PNG analyses and (3) quantifying the effect of the galaxy-halo connection on LSS

Research impact:
My research has led to 180 articles with 9000+ citations and h-index of 50 (ADS). I have 7 first-author papers, 14 being top-3 author (8 since 2020). One paper with only myself and a student . I have participated in over 65 conferences/meetings, mostly giving talks, sometimes chairing/organising sessions, under invitation or as plenary speaker. I gave seminars at institutions in Spain, UK, US & Brazil. I have observed 5 nights at CTIO in Chile for DES and 5 nights at WHT in La Palma for PAUS. I referee for A&A, MNRAS and was part of 2 PhD panels. I am member of the Euclid STAR prize committee.

Academic impact:
I am supervising 4 PhD students (Riquelme, Reyes, Vos-Gines, Adame). I have supervised 1 PhD (Wang) and 3 MSc (Vos-Gines, Adame, Corton).
I lectured LSS at the UAM MSc and I taught at BSc.

Managing:
I was PI of a MSCA grant. I led 3 computing grants with 3.8 M CPU-h. Main organiser of an international PNG workshop at IFT. I participated in the organisation of the DES 2015 meeting, Euclid-UK 2017 meeting and INFIERI school 2021. I am part of the COSMO'23 SOC. 2 PhD panels. Referee for A&A & MNRAS.

Outreach:
I wrote for Investigacion y Ciencia, Fronteras de la Ciencia magazine and Madri+d blog. I gave talks in 3 museums: Madrid Planetarium, CEART in Mexico and MUNCYT. I gave talks in 5 high schools and paticipated 3 outreach festivals (Avila, 2 x Portsmouth). I recorded videos (>40k views) for 3 YouTube channels: IFT, UAM-observatory, Anideanisotropia (science advisor). I participated in 4 press-notes, having co-led one. I disseminate science in the social media.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias físicas
Nombre:	STARNINI , MICHELE
Referencia:	RYC2022-037932-I
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Título:	Network science approach to socieatal challenges: opinion polarization and echo-chambers

Resumen de la Memoria:

My career has been entirely devoted to the study of complex systems, now an established research domain within the Physics community. My research vision is fully rooted in the cross-fertilization between different disciplines, as demonstrated by my publication track in physical, biological, sociological and computer science journals. Even if my research interests are quite widespread, the core of my scientific activity is based on methods, concepts, and approaches from Statistical Physics: the statistical mechanics of complex systems.

At broad, I study the topological and dynamical properties of complex systems and their impact on the dynamical processes running on top of the corresponding network representations. I mainly apply my theoretical background to the study of human behavior and the dynamics of social interactions. Summarizing, my scientific career has developed along four, interconnected lines of research:

1) Understanding the dynamics of empirical social interactions. I mainly focused on the modeling of empirical face-to-face interactions in different social gatherings, with the aim of uncovering and reproducing the universal features arising in time-varying face-to-face interaction networks. My works have been studied and extended by several research groups, and led to the design of experiments to validate the analytical relations we found.

2) Analytical modeling of time-varying networks. I showed how the dynamics of social interactions impact the topological properties of the corresponding empirical, static networks. I proposed the first analytically tractable model in which interactions among the agents are ruled by a renewal process replicating a bursty behavior, showing the topological properties of the integrated networks.

3) Bursty and non-Markovian dynamics in networked systems. My seminal 2012 paper describing the behavior of random walks on temporal networks became a reference for scientists addressing diffusive processes on time-evolving topologies. In a PRL paper, I proposed a general formalism to reduce a Non-Markovian epidemic process to an equivalent Markovian one on the same network substrate, opening a new avenue in the emerging field of Non-Markovian dynamics of complex systems.

4) Emergence of echo-chambers and polarization in social networks. In a recent PRL paper, I proposed an analytically tractable model able to reproduce empirical data of polarization dynamics in social networks. In a paper published by PRX only this week, we proposed a formalism in which opinions evolve in a multidimensional space where topics form a non-orthogonal basis, able to reproduce extreme and correlated opinions found in survey data. I am the senior author of these papers, reflecting the research independence I reached at this stage of my career. Finally, in a recently PNAS paper, I quantified the presence of echo-chambers in controversial topics across four social media platforms: Facebook, Twitter, Reddit, and Gab.

The new line of research I plan to start is related to the last one (point 4). It is however a completely novel line of research for me, since it involves experiments with human subjects to validate the echo-chamber phenomenon about vaccines. I have been worked about vaccine hesitancy in several papers, such as Falling into the echo chamber: the Italian vaccination debate on Twitter.

Resumen del Currículum Vitae:

Scientific excellence. During my career, I authored 40 papers, being the first author of 18 papers (i.e., being the author leading the theoretical or experimental development of the paper) and the corresponding or senior author of 12 papers (i.e., being the author leading the conceptualization of the paper and designing the research framework). My works collected 2400+ citations (source Google Scholar, 1500+ according to WoS), for an h-index of 22. The interdisciplinarity of my scientific activity is witnessed by my works being published in physics, sociological, biological, and computer science journals.

Leadership. I have led and managed several national, European, and extra-European research projects, including one project as Principal Investigator (JSMD fellowship). I have organized and coordinated many scientific activities, such as workshops and doctoral schools. I visited and have been invited by several research groups around the world. I taught the course Computational Physics and Laboratory of Physics in the Physics bachelor's degree program. I also directed younger scientists, including 7 master thesis. I am currently the co-director of one PhD student.

Impact on society: I have been an elected membe of the Complex System society. I regularly act as a reviewer for major Physics and interdisciplinary journals (PNAS, PRL, PRX, PRE, PRR, SciRep, EPJDS, etc), as well as a member of the program committee of major computer science conferences (ICWSM, WWW). I am Associate Editor of Frontiers in Complex Networks, a new OA jornal launched in February 2023. Some of my works have been covered by the (Spanish) national press or in podcasts. I regularly divulge general Physics (interviews to experts in different fields) on a Youtube (Italian) channel. During my years at ISI Foundation (2018-2022) I collaborated with the largest Italian bank to develop industrial applications of my research, regarding the analysis of financial transaction networks aimed at anti-money-laundering goals.

Scientific trajectory: In 2008 and 2010, I earned my Bachelor's and Master's degrees in Physics and Theoretical Physics, both with honors, at the University of Pisa, Italy. In 2010, I moved to the Carlos III University of Madrid, to complete my Master's thesis under the supervision of Prof. Angel Sanchez. In 2011, I won the competitive procedure to start my PhD studies at the Universitat Politecnica de Catalunya, under the supervision of Prof.

Romualdo Pastor. In 2012 and 2013, I won two competitive mobility grants, which I used to visit Prof. Alessandro Vespignani, at Northeastern University (Boston) and Prof. Andrea Baronchelli, at City University London. In October 2014, I obtained a PhD Degree in Computational and Applied Physics, awarded with the outstanding PhD thesis award and with a PhD international mention. In 2014, my research project won the Complex Systems postdoctoral fellowship awarded by the James S. McDonnell Foundation, an American-based foundation active in supporting the scientific cause globally. With this grant, I became a principal investigator at the University of Barcelona until 2018. In 2018, I moved to the Institute for Scientific Interchange, located in Turin (Italy), as a researcher. In 2022, I won the Maria Zambrano fellowship to attract international talent to Spain, and moved to the Universitat Politecnica de Catalunya.

Área Temática:	Ciencias físicas
Nombre:	BAGGIOLI , MATTEO
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Título:	Applied holography and effective theories for complex phases of matter

Resumen de la Memoria:

My research lies at the intersection between high energy theory and condensed matter physics, and it is highly multidisciplinary.
Broadly, my main interest is to classify, describe and predict complex phases of matter which cannot be rationalized within the standard scientific paradigms. In order to achieve such a goal, I focus on the usage of effective theory methods based on a few relevant degrees of freedom and fundamental principles such as symmetries. Importantly, I employ high-energy theory techniques, such as gravitational models, field theory and the holographic correspondence to tackle low-energy challenges.

Since my PhD, one of my main areas of investigation has been the study of strongly coupled systems with broken translations, and without quasiparticles, and the generalization of hydrodynamics, effective field theory and holographic models for such scenarios. In the past 5 years, I made important contributions in this direction (4 papers with more than 100 citations, 3 PRL and 1 Science Advances) which culminated in the writing of a Review of Modern Physics as a first author. Some of the results include: the first holographic model to implement spontaneous and pseudo-spontaneous breaking of translations using massive gravity theory, the discovery of a violation of the viscosity to entropy bound due to viscoelastic effects, the proof of the inconsistency of the previously accepted hydrodynamic framework for pinned charge density waves, and a new effective field theory to explain the diffusive nature of the phason mode in quasicrystals.
From a theoretical perspective, I am interested in the foundations of hydrodynamics and effective field theory, and in particular in generalizing these two frameworks to the case of broken spacetime symmetries and non-hydrodynamic modes. This extension is important both from the condensed matter perspective (strange metals, high-Tc superconductors) but also to understand the dynamics of the QCD critical point.

Since my second postdoc, I have also been working on the theoretical understanding of liquids, solids and amorphous systems and in particular of their vibrational and thermodynamic properties using the same effective techniques mentioned above. In 3 years, I have already made important contributions in these fields. Among them, I could mention the proposal of a new theory for the boson peak in ordered and disordered systems (PRL, >100 citations), the discovery of a new universal law for confined solids (Nature Communications: experiments, simulations and theory), the explanation of the linear in frequency density of states of liquids using the concept of imaginary modes (PNAS), the discovery of topological defects in glasses and their relation with yielding (PRL), and the description of collective shear waves in liquids (Physics Reports, >80 citations).

More recently, I started exploring the nature of generalized symmetries and their role for condensed matter systems. In particular, I am investigating the dynamics of topological defects using higher-form symmetries, the definition of topological objects in amorphous systems, and the dualities between tensor gauge theories and elasticity of complex systems. The final dream of my research is to rationalize the universal low energy properties of solids, liquids and glasses using symmetry principles and rigorous mathematical structures.

Resumen del Currículum Vitae:

I obtained my PhD in theoretical physics (summa cum laude and extraordinary award) in 2016 from the Universidad Autonoma de Barcelona under the supervision of Prof. Oriol Pujolas. During my PhD, I earned a PIF fellowship to visit University of Illinois under the supervision of Prof. Philip Phillips. After graduating, I have been postdoctoral fellow at the Crete Center for Theoretical Physics (2016-2018) under the supervision of Prof. Elias Kiritsis and Severo Ochoa postdoctoral fellow at the Instituto de Fisica Teorica, IFT Madrid (2018-2020) under the supervision of Prof. Karl Landsteiner.
Since December 2020, I am a tenure track associate professor in the School of Physics and Astronomy at Jiao Tong Shanghai University. I am leading an international research group composed of 4 postdocs, 1 PhD student and 1 bachelor student with earned fundings of ~400k euros for the next 3 years.
My research lies at the interplay between high-energy theory, condensed matter and soft matter. My fields of expertise are applied holography, hydrodynamics and effective theories, especially for systems with broken symmetries. I have published more than 75 articles in international Q1 journals including 1 Review of Modern Physics, 6 PRL, 1 PNAS, 1 Science Advances, 1 Nature Communications, 1 Physics Reports, 31 JHEP, 8 PRD, 6 PRB and 4 PRE. Only 13% of them are together with my PhD supervisor and in 62% of them I am first author. My research has received more than 2480 citations (source: Google scholar), 2200 of which in the last 5 years and more than 1000 of which in the last two years. My h-index is 28 and my i-10 index is 62. I am single author of a book on Applied Holography published by Springer in the collection Briefs in Physics. I am first author of a review published as a Colloquium in the most renowned journal for Physics, Reviews of Modern Physics (IF 54.49).
I have been recently nominated among the Emerging Leaders 2022 by the Journal of Physics: Condensed Matter. In 2022, I have been awarded a Distinguished Visitor Grant at NORDITA, Stockholm and a Guest Researcher Grant at CPHT Ecole Polytechnique, Paris. I have also been awarded the Yangyang Young Scholars Talent plan from Jiao-Tong Shanghai University, the prestigious 1000 Talents plan from the Chinese National Science Foundation and the Municipality Talents plan by the Shanghai Government.
I have given more than 90 talks in international workshops and institutions including two department colloquia at the University of Milano (Italy) and the Dalian University of Technology (China). I served as referee for Nature Communications, PRL, JHEP, PRD, PRE, PRB, Scientific Reports, SciPost Physics and also for National Research and Development Agency of Chile. I am one of the founders of the webinars network on holography "Holotube", which runs since more than 2 years. I supervised 1 master student [2021-2022], co-supervised 1 bachelor student [2019-2020] and I am currently supervising 1 PhD student (since September 2022), 1 bachelor student (since Spring 2022) and co-supervising a master student (2022-2023). In the last 2 years, I have been in charge of a full semester undergraduate course on "Electrodynamics". In the past, I also taught in the PhD program in Theoretical Physics at the University of Madrid UAM and in several international schools in India, Russia and Korea.

Área Temática:	**Ciencias físicas**
Nombre:	KUCKEIN , CHRISTOPH
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Título:	Solar flares in the chromosphere

Resumen de la Memoria:

My scientific expertise is in the field of solar physics, in particular in filaments, magnetic fields, and spectropolarimetric data analysis. My main scientific result was the determination of the magnetic field in the chromosphere in active region (AR) filaments on the sun (4 refereed articles, >215 citations). The publications are still used as the main reference for strong magnetic fields found in filaments. My main line of research includes all phenomena related to filaments, such as erupting filaments, arch filament systems, etc. Secondly, I have broadened my scientific horizon specializing in extreme or explosive events on the sun, such as flares (MC fellowship awarded) and strong plasma movements in the solar atmosphere, with a focus on magnetic fields. I research in solar physics since 2007 (about 15 years). Hence, I have contributed to many other subfields within solar physics, such as bright points, sunspots, ARs, coronal holes, waves, or in interdisciplinary fields such as exoplanet transmission spectra. My knowledge has been communicated in 49 refereed publications, 16 proceedings, 31 oral contributions to conferences and workshops and 3 invited talks, as well as 11 seminars at international institutes. I have obtained international funding as principal investigator (PI) of 2 projects, among them my own H2020 Marie-Curie Individual Fellowship, and another one as a co-PI. I am PI and coordinator of the "Solar and Stellar Magnetism" group of the IAC (composed of 5 senior researchers, 1 RyC, 2 postdocs, and 2 PhD students). I collaborate in 3 international H2020 projects: SOLARNET II, ESCAPE and PRE-EST. I was/am part of the research team of 3 Spanish national projects.

My technical capacities include high-level programming of observational data-analysis tools and data-reduction pipelines for telescopes (e.g., VTT and GREGOR). I am an expert in operating large-scale ground-based telescopes (29 observing campaigns since 2008; >300 days at the telescope; 11 PI campaigns) and I have participated in the development of new instrumentation at GREGOR.

As part of my scientific responsibilities, I am a member of the Science Advisory Group from the European Solar Telescope project (EST) (since 2017). I was a referee of various international journals. Due to my involvement in several EU and national projects I have numerous international collaborations. I am leading the "Solar and Stellar Magnetism" group at IAC, as well as my own Marie Curie fellowship in collaboration with other 6 researchers.

I have built research teams on the topic of "filaments" during my 2-year joint bi-national research project between Germany and Slovakia, which involved 11 researchers and was funded by the German Federal Ministry of Education and Research via the DAAD. As evaluating activities, I was a referee of Astronomy & Astrophysics (2015, 2018, 2021), The Astrophysical Journal (2020), and Astronomy and Computing (2021). I am regularly contacted by the German Academic Exchange Service (DAAD) to evaluate research grants (last time in 2022) and I was part of master and bachelor defence committees from universities. As editorial experience I have co-edited 2 outreach books. I gained new university teaching skills acquiring the "International Teaching Professionals" certification (120 hours) from University of Potsdam in 2019.

Resumen del Currículum Vitae:

I was awarded a grant from the Instituto de Astrofísica de Canarias (IAC) in a competitive call to carry out my PhD studies at the Universidad de La Laguna (ULL) and the IAC on the topic of astrophysics (solar physics). The title of the thesis was: "Study of the magnetic structure of active region filaments". I defended my thesis in July 2012. From 2012 until 2019 I worked as an internally funded postdoctoral researcher at the Leibniz Institute for Astrophysics Potsdam (AIP, Germany). Between 2019−2021 my position at AIP was partially funded by the H2020 projects SOLARNET and ESCAPE, allowing me to significantly expand my network of collaborators and to work on cutting-edge topics in the field, such as machine learning. Since 2021 I work at IAC with my own funding by a Marie Sklodowska-Curie fellowship (competitive call H2020-MSCA-IF-2019). In 2022 I was awarded with the I3 certification (I3/2021/1339) granted by the Spanish State Research Agency (Agencia Estatal de Investigación; Ministerio de Universidades) for an outstanding research career.

I am currently the coordinator of the "Solar and Stellar Magnetism" group at the IAC composed of 5 senior researchers, 1 RyC, 2 postdocs, and 2 PhD students. I have been awarded three projects in competitive calls as PI (H2020-MSCA-IF-2019, German Federal Ministry of Education and Research via DAAD in 2019, and Deutsche Forschungsgemeinschaft (DFG)). The total awarded research funding amounts approx. 375,000 Euro. I am an expert in operating large-scale ground-based telescopes (29 observing campaigns; >300 days at the telescope; 11 PI campaigns). I have published 49 papers in top peer-reviewed journals, including one single-author publication in 2019 in A&A, two ApJ Letters, and one ApJ Supplement Series. Most of my publications (about 90%) are not co-authored by my PhD supervisors. I did 41 contributions to conferences or workshops, including 31 talks, 3 invited talks at international conferences. I organized two international symposia and splinter meetings as the chair of the SOC. I held 11 seminars or colloquia at research institutes worldwide. I participated in 10 research projects (3 national and 7 international) awarded by H2020, DAAD, DFG, and the Spanish Ministry. I am regularly contacted by journals (for example, A&A, ApJ, PASJ) to carry out referee duties and I am member of the scientific review committee for observing proposals of the largest solar telescope DKIST. I evaluate research grants for the German Academic Exchange Service (DAAD). I am a member of the Science Advisory Group (SAG) from the European Solar Telescope project (EST) since 2017. My active collaborators are hosted in international institutions, such as NSO, AIP, MPS, KIS, AISAS, ASU, RoCS, University of Geneva, NOA, University of Graz (Austria), CAS Key Laboratory of Solar Activity (China), and Universidad Nacional de Colombia.

I significantly contributed to the development of the High-Resolution Fast Imager (HiFI) at GREGOR and to the data reduction pipeline sTools for GREGOR. I lectured a M. Sc. semester course at University of Potsdam (Germany) and obtained the International Teaching Professionals certification

(120 hours). I have co-supervised PhD and master students. My involvement in outreach activities covers public talks at schools, social media series, documentaries, and magazines.

Área Temática:	Ciencias físicas
Nombre:	CERDÁN PEDRAZA, LUIS
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Título:	Laser physics and photonic molecular materials

Resumen de la Memoria:

In 2006 I completed my studies on Physics at Universidad Complutense de Madrid (UCM). As a follow-up in my university education, I enrolled in the Master in Fundamental Physics, oriented to Optics, offered by the same University. It was at this time when I was introduced to the scientic research under the supervision of Prof. R. Weigand, dealing with the theoretical and experimental investigation of the reduction in the group velocity of light signals by means of coherent population oscillations in saturable absorbers.

Afterwards, I joined the Laser Materials Group at Instituto de Química Física "Rocasolano" (IQFR-CSIC), Consejo Superior de Investigaciones Cientícas (CSIC), to conduct research on organic lasers under the supervision of Prof. A. Costela and Prof. I. García-Moreno. During the PhD thesis period, the problem of the optimization and characterization of the laser effciency and photostability of solid-state dye lasers was tackled. We demonstrated that the use of nanoparticle-based systems allowed obtaining record-breaking laser efficiencies and photostabilities (Nat. Photonics 6, 621-626 (2012)). As part of the doctoral training, I spent three months at the School of Physics and Astronomy, University of St. Andrews University (UK), to undertake a collaborative research project with Prof. G. A. Turnbull on the fabrication and characterization of nanostructured organic lasers (J. Mater. Chem. 22, 8938-8947 (2012)). Thanks to my achievements during this time, I was awarded the "Extraordinary Doctoral Prize 2012-2013" by the Faculty of Physics, UCM.

After the consecution of the PhD degree in 2013 and until 2017, I became a postdoctoral research assistant and visitor at IQFR and, for some months, at the Faculty of Chemistry, UCM. There, I conducted research on dyes with novel and exotic photonic properties. In addition, in 2013 I pioneered and spearheaded the discovery of the first laser borane (Nat.Comm. 6, 5958 (2015)). Later, I was involved in two research lines: analysis of gain properties in active waveguides (Opt. Laser. Tech. 121, 105814 (2020)), and simulation of nanolaser dynamics (Ann. Phys. (Berlin) 2100122, 1-11 (2021)). With the aim of leveraging and consolidating my data analysis skills and expanding my professional and scientific horizons, I coursed a Master in Big Data Analytics (UC3M). Thanks to this academic upgrade I was recruited, in April 2021, by Dr. Roca-Sanjuán (Institute of Molecular Science, Univ. of Valencia) to apply Machine and Deep Learning techniques to problems on quantum chemistry of the excited state (J. Chem. Theory Comput. 18, 3052-3064 (2022)).

Since July 2022, I am a Postdoctoral Researcher at the Theoretical Nanophotonics Group led by Dr. A. Manjavacas at the Instituto de Óptica (CSIC), conducting research on the optical response of plasmonic nanostructures with gain (J. Phys. Chem. C, 2023, DOI: 10.1021/acs.jpcc.2c07558). The RyC grant would help me strengthen my current research lines, not to mention the opportunity to tackle new ambitious projects with better perspectives and stability in the long run. In this sense, the proposed research line for the RyC grant will focus on the simulation of laser processes in nanocavities, with an emphasis on the fundamental understanding of the ultrashort pulse generation and the active control of the laser dynamics.

Resumen del Currículum Vitae:

I am a Postdoctoral Researcher at the Theoretical Nanophotonics Group led by Dr. A. Manjavacas at the Instituto de Óptica (CSIC), conducting research on the optical response of plasmonic nanostructures with gain. Along my research career, I have specialized in the simulation and characterization of light/mater interactions in molecular laser materials. My greatest strength is the use of analytical, statistical, and numerical methods to elucidate the underlying physics in active materials and devices.

All my research has taken place within the field of "Laser physics and photonic molecular materials". Initially, during my stay at the Institute of Physical Chemistry "Rocasolano" (CSIC), I mainly focused on the optimization of the laser efficiency and photostability of molecular lasers. We demonstrated that the use of nanoparticle-based systems allowed obtaining record-breaking laser efficiencies and photostabilities (Nat. Photonics 6, 621-626 (2012)). Then, I spearheaded the discovery of the first laser borane (Nat. Comm. 6, 5958 (2015)). More recently, I have been involved in three research lines: analysis of gain properties in active waveguides, theoretical active nanophotonics, and Machine Learning (ML). I developed a new methodology to determine the optical gain in waveguides that allows retrieving from a single experiment what previously required three of them (Opt. Laser. Tech. 121, 105814 (2020)). In addition, I proved that the adequate choice of active material and cavity design enables the generation of ultrashort pulses in nanolasers without the need of resorting to neither mode-locking nor Q-switching techniques (Ann. Phys. (Berlin) 2100122, 1-11 (2021)). Finally, during my stay at the Instituto de Ciencia Molecular, Univ. of Valencia, we developed a new approach to predict electronic spectra, from quantum chemistry computations, based on an ML approach that systematically outperforms all existing alternative methods (J. Chem. Theory Comput. 18, 3052-3064 (2022)).

I have co-authored 48 papers (44 in Q1) in top-tier journals including Nat. Photonics (1x), Nat. Comm. (1x), Adv. Func. Mater. (3x), Adv. Opt. Mater. (2x), ACS Photonics (1x), J. Mater. Chem. (2x), Sci. Rep. (1x). I am sole author in 3, first author in 25, and corresponding author in 24. My publications have a mean IF of 5.6. They have 1360+ citations, granting me an h-index of 21. I have contributed to 45 communications in national and international conferences and have imparted several seminars at national and international institutions. I have actively participated in Spanish and international projects that have attracted more than 2.5 M€

I am currently a supervisor of 1 Master Thesis and have been a co-supervisor of two Bachelor final year projects. I am an Editorial Board Member for Applied Sciences (Optics and Lasers Section), I have been a referee for ~50 publications in 28 different journals and a Grant proposal external reviewer for the Polish National Science Center. I have been involved in science spreading activities and have been building up a role as a scientific advisor. Finally, I have been recognized with several awards, including the INNOVA Scientific award to the best work in experimental photonics (2012), the "Extraordinary Doctoral Prize 2012-2013" by the Faculty of Physics (UCM), or the European Physics Letters Presentation Award (2017).

Área Temática:	Ciencias físicas
Nombre:	CASTELLO MOR, NÚRIA
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Título:	Search for light matter: from the detector construction to the underground lab searches

Resumen de la Memoria:

I am an experimental physicist interested in the study of dark matter (DM), how it can be detected, and what we can learn about it. I also strongly believe that an experimental physicist should be trained in a multidisciplinary scope to acquire knowledge and concerns about the whole landscape around their work and the best tools to use in each case. Respecting the latter premise, my main line of research has grown and evolved towards the dark matter problem. I have been and am member of several experiments and R&D collaborations. Currently, I am member of DAMIC@SNOLAB, DAMIC-M, Oscura and the R&D collaborations RD50 and RADAC. I have been member of XMM Newton, and ATHENA.

In 2010, I started my research career as PhD student in the field of astrophysics at IFCA studying supermassive black holes. I was fully involved in the analysis of data taken with Metal Oxide Semi-conductor (MOS) and pn CCDs on board of the XMM-Newton spacecraft.

After my PhD. I move to Tel Aviv University (2014-2017) as postdoc on the topic of fast accreting systems modeling the spectral energy distribution. My research activities evolved naturally with the use of several data sets from several detectors (CCDs, MOS, UV space telescope, etc.) to data image reconstruction, data analysis and physical interpretations. My work reveals how our understanding and knowledge of fast accreting systems is very sparse and none of the theoretical or numerical calculations (or simulations), available so far, come close to a real description of the geometry of fast accreting systems. An explanation that came out was whether the effects of dark matter in the vicinity of fast accreting systems could reduce the energy to such an extent, but simulations where not yet available.

In 2017, I moved to the University of Geneva to work on DM, in my opinion the most fundamental mystery in modern science. There, I joined the DAMIC-M collaboration, a dark matter direct search experiment using solid state devices as a sensitive detection volume. Since 2018, I have been a postdoc at IFCA working on direct-detection DM detectors from R&D activities to data analysis. I was based at CERN from 2018 to 2022, where I received a Corresponding Associate on 2021. This allowed me to start a new line of research with the RD50 collaboration that I joined then: spectroscopy of crystal defects on CCD by using several techniques (TSC, DLTS, or TPA-TCT) with the main motivation to reduce dark current on such devices, but also to see if we can distinguish between nuclear and electronic recoil interactions. In this context, I create the multidisciplinary RADAC collaboration focused in the study of the radiation damage using CCDs.

In addition to the active participation at all levels of a HEP and astronomical experiments, from R&D studies, installation and commissioning, to data analysis or coordination activities, my career is complemented by years of teaching, including the supervision of PhD and Master thesis, and also the participation in outreach activities mostly for woman in science.

Resumen del Currículum Vitae:

My research work had led to 16 publications (6 as the first author, and 3 as second author) in prestigious international peer-reviewed journals, which accumulate around 180 citations, and several contributions to several international conferences

Main achievement:
* Convener of the Analysis group of DAMIC-M
* Convener of the Software group of DAMIC-M
* Convener of the Simulations group of DAMIC-M

Main skills:
Language and software: C/C++, Python, Fortran, Git, Docker, high-performance computing
Specific Scientific tools: Geant4, Fluka, MCMP, Mathematica
Others: Machine learning algorithms, N-body simulations

Supervision of Students:
I have supervised a very varied list of master's theses: from more technical works like the development of a data quality monitor system for data taking, to more theoretical works like "Cosmology and direct detection of the Dark Axion Portal" in collaboration with theoretical physicists. Going through machine learning works to search for dark matter particles in silicon detectors.
- 5 Master's theses (3 already finished, 2 ongoing)
- 5 final degree projects (3 already finished, 2 ongoing)
- 2 PhD thesis (1 will be defended at the end of 2023, the other in 2025)

Outreach:
* Woman in science. During my postdoc in Israel, I was part of the "Woman in Science" group. The monthly meetings aim to provide an opportunity for female researcher students to take part in a scientific discussion and speak about their research in a friendly, collaborative environment.

* Science for kids. Around 5 times per year, I do different activities (art, water, ice, concoctions, planetarium, electric circuit, gravity, etc.) to kids with the objective to show that science is all around us, in almost everything.

Área Temática:	Ciencias físicas
Nombre:	MONTES QUILES, MIREIA
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Título:	Discovering the Universe at low surface brightness

Resumen de la Memoria:

I have conducted my research career in three countries and three continents, a total of 8 years abroad. This has allowed me to curate an extensive network of international collaborators and to experience other work cultures and methodologies.

I obtained my PhD in the Instituto de Astrofísica de Canarias (IAC), thanks to an 'Astrofísico Residente' PhD grant. I worked as a postdoctoral researcher at Yale University (2014-2017), the University of New South Wales Sydney (2017-2020). From 2020 to 2022, I held a prestigious prize fellowship at the Space Telescope Science Institute (STScI) in Baltimore. Since June 2022, I am a research fellow at the IAC thanks to a PRTR-Next Generation EU grant.

I am very committed to the institutions I am part of. I have been a seminar/colloquium/journal club organizer, and I actively mentor and supervise master, PhD students and postdocs. Likewise, I have been a panel member for postdoctoral hiring, and I have also experience in teaching undergraduate courses.

Because the low surface brightness (LSB) field is on the rise, most of my work to date has been done within small collaborations. However, in the recent years I have become an active member of large international collaborations (e.g., Euclid, LoVoCCs, LSST,…) contributing to the efforts of the LSB community to improve the data processing of these surveys for LSB science.
As one of the few experts on LSB in Spain, my contribution in these international collaborations is crucial to the visibility of the Spanish community.

My career and achievements to date highlight my ability to successfully lead different projects and develop cutting edge skills in the research I am conducting. This is demonstrated by the papers I have published, the funding I have been awarded and the talks I have given in international institutions and conferences. In addition, I am the sole author of two key review papers in the topic of ICL showing the recognition to my expertise and leadership in the field.

Our understanding of the physical processes shaping the Universe is strongly determined by the objects and structures that we can observe, the ones brighter than the observational limits of the survey used. The research project I am proposing is the natural follow up of the work I have carried to date bringing together galaxies of all masses and cluster of galaxies, simulations and observations.
I am well situated to leverage important science from many new (or upcoming) deep imaging surveys (Euclid, LSST, ARRAKIHS, …). In the coming years, I expect to continue building my profile as one of the world leaders in the study of the LSB Universe, galaxy clusters and the evolution of structure in the Universe.

Resumen del Currículum Vitae:

My scientific interests touch on a wide variety of topics in modern astrophysics, including the assembly of galaxies and galaxy clusters, and the ultimate nature of dark matter. My expertise lies in the study of the diffuse intracluster light (ICL) that permeates galaxy clusters, and, more broadly, in the state-of-the-art analysis of deep imaging to probe low surface brightness extragalactic structures in the Universe. I have also made crucial contributions to other areas like the properties of the intriguing ultra-diffuse galaxies as well as massive galaxies, their globular cluster systems, to name a few.
I obtained my PhD in the Instituto de Astrofísica de Canarias (IAC), focused on understanding massive galaxy formation through their stellar populations and globular clusters, under the supervision of Dr. Almudena Prieto and Dr. Jose Acosta. In addition, I started to study the Low Surface Brightness (LSB) Universe, pinpointing for the first time, the physical origin of the ICL in clusters of galaxies. During my first postdoc at Yale University (2014-2017, USA), I focused on the UV part of the spectrum, processing and analyzing data from the Hubble Space Telescope. At the same time, I was also advancing in the knowledge of the ICL, expanded at the University of New South Wales Sydney (2017-2020, Australia) where I pioneered the use of ICL as a tracer of the dark matter distribution in galaxy clusters. In 2020, I was awarded a prestigious STScI Prize fellowship to conduct my own research at the Space Telescope Science Institute (USA), adding the exploration of LSB galaxies to my interests. I recently started a Marie Curie-like fellowship (PRTR-Next Generation EU grant) at the Instituto de Astrofísica de Canarias (June 2022) where I am using all the expertise, I have acquired world-wide to uncover the LSB Universe.
I have authored 44 articles that have been cited more than 1160 times with an h-index of 20 (as of January 2022). My independence and my capacity to lead is demonstrated by the papers I have led (10 as first author, 2 reviews as sole author and 6 as second/third), the funding I have been awarded (>1.8M Euros, 640k as PI, 260k of Spanish projects) and the 52 talks I have given in international institutions and conferences (14 invited), including a high-profile invited review talk at the 2019 IAU Symposium 355. Recently, I set up, and I am leading, the Low Surface Brightness group at the IAC (9 researcher at the IAC + 12 national and international collaborators).

I have served as member of several time allocation committee panels (HST, JWST, Canadian TAC, Spanish TAC) and acted as referee of high-impact scientific journals in astronomy (MNRAS, ApJ, A&A, PASP and Frontiers in Astronomy and Space Sciences). I have also been evaluator for the French research agency (ANR). I have also organized 3 international conferences and have been also scientific organizer of 3 other. I am a very active member of numerous international collaborations and working groups (LSST, Euclid, HDUV, LoVoCCs, BUFFALO, LIGHTS, …). For example, I am co-chair of the LSST LSB Working Group, the Cluster Physics and Dark Matter Working Group in BUFFALO and coordinator for the ARRAKIHS Working Package S8.

I am very passionate about communicating to the public, shown by my extensive participation in outreach activities: public talks, article writing, participating in podcasts, etc.

Área Temática:	**Ciencias físicas**
Nombre:	MENDES FERREIRA , TIAGO FILIPE
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Título:	Soft matter characterisation with solid-state NMR and MD simulations

Resumen de la Memoria:

My main interests are the physics of soft matter and Biophysics, bridging the physical chemistry of model systems with complex studies of biological samples. My career profile is unique with respect to the combined use of solid-state Nuclear Magnetic Resonance (NMR) spectroscopy and Molecular Dynamics (MD) simulations to study these systems.

These techniques are fully complementary since the experimental observables measured can be calculated from the simulations. This combination enables to emulate a molecular microscope for soft matter systems that are otherwise inaccessible with Cryo-Electron Microscopy and X-ray Crystallography due to their size and intrinsic disorder. Prominent examples are liquid-crystal-forming molecules, lipid self-assembly systems, membrane proteins and associations between these. I have been contributing with novel methods that enable improving the structural/dynamical characterisation of these systems, both in precision and applicability, as described in detail in the main document of this application.

I have been responsible for significant methodological improvements of solid-state NMR methodology, and my expertise in solid-state NMR spectroscopy is renowned in the scientific community. This is demonstrated by a number of publications (for which I am the main contributor and corresponding author) and also a number of invited lectures in important events, e.g. 45th Mitteldeutsches Resonanztreffen 2020, NMRlipids summer school 2022, 5th G-NMR school 2023, and ACS National Meeting 2023.

I am also responsible for contributions that enabled progress in the field of computational chemistry. These contributions have been made accessible by using open data policies (references in section C1 and C3). In this context, I have a been a key contributor in the collaborative platform NMRlipids that brings a community of more than 60 researchers from different countries to work together combining MD simulations and experimental data (details in section "Internationalisation" in the main document). In the NMRlipids project I have been the main responsible for the NMR experiments published. These results are now part of an open database currently in progress.

In the last few years, there has been an emerging interest for self-assembled partially disordered systems, such as membranes, lipid nano-discs with associated proteins, membrane proteins, and lipid nanoparticles for drug or mRNA delivery. I am presently in a timely position to use the techniques described above to characterise these systems. I have recently optimised part of the methodology used previously to be successfully applied on such complex systems (pre-print A. Wurl et al, Magn. Reson. 2023)

Presently, I am specially interested in the application and further optimisation of the methods described above to characterise a fundamental biological system in the brain: myelin, the highly complex lipid-protein cellular membrane-based system that insulates axons and whose lack of integrity is involved in a number of neurodegenerative diseases. Other examples of potential systems to apply these techniques include: mRNA lipid-nanoparticles, lipid-nano disks with membrane proteins associated or model bacterial membranes.

By using the above mentioned methodologies, it will be possible to obtain an unprecedented molecular characterisation of such soft matter systems.

Resumen del Currículum Vitae:

I am responsible for highly relevant scientific contributions in the field of soft matter, by using and optimising solid-state NMR experiments and MD simulations, with a total of 17 peer-reviewed published articles in high quality journals (e.g. PNAS, JACS, PCCP, Langmuir, JCP and Sci. Rep.) for which I am the corresponding author of 9 publications and first author to 7 with a total of 470 citations.

After obtaining my Chemistry Degree in the University of Coimbra, my research career has been entirely carried out in highly international environments: Lund University, Sweden; University of Paderborn, Germany; my present host institute, Martin-Luther University Halle-Wittenberg (MLU), Germany and as visiting researcher (1 month) in the Aalto University in Helsinki, Finland. I have built a vast network of collaborators around Europe (Sweden, Norway, Finland, Germany, Portugal, France and Spain). In Germany, I have obtained prestigious grants from the German Foundation for Research (DFG) both as a single independent researcher (2-year temporary principal investigator, "Eigene Stelle") and as a member of a group of PIs in a Transregional Collaborative Research Center (CRC). I am the main responsible for the NMR experimental part of a renowned collaborative project called "NMRlipids" that brings together more than 60 researchers (using both MD simulation and experimental techniques) from different countries in Europe. In the last few years I have been invited and selected to give lectures/presentations in several international workshops and meetings. More recently, I was invited to give a presentation in the prestigious American Chemical Society National Meeting in San Francisco (August, 2023) in the symposium "NMR for materials characterization" (Division of Chemistry).

After the "Eigene Stelle" grant I was offered a Junior Research Group Leader position for 5 years funded by the State of Saxony-Anhalt (2019-2023). As a Junior Group Leader, I applied successfully to a 4-year SFB grant to obtain funds for hiring a PhD student to work in my research group (Anika Wurl, now in her 4th year). An SFB project is by definition part of a collaborative research center (CRC) with research groups from various German Universities and Institutes, and is one of the most prestigious forms of funding in Germany. As a principal investigator I have also obtained funds (from the DFG SFB TRR102 and my Junior Research Group contract) to finance two high-performance workstations (each approx. 10.000 EUR) for MD simulations and NMR (Quantum) numerical simulations using high performance GPU calculations and multiple-processors for parallelisation.

During my career I have also acquired a vast experience in teaching which was highly profitable in terms of progressing my scientific knowledge (approximately 50 hours of lectures, 69 hours of tutor lessons, 24 hours of lab teaching).

In summary, I am a top researcher in the field of soft matter with strong expertise in two of the most powerful techniques for atomistic-level characterisation of such systems (NMR and MD simulations). My track record demonstrates my independence and internationalisation, the know-how gained from such an international experience, my leadership skills and capacity to obtain research funding, and the ability to communicate my research by means of high quality publications and presentations in international conferences.

Área Temática:	Ciencias físicas
Nombre:	GIARDINO , PIER PAOLO
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Título:	Precision physics in the LHC era

Resumen de la Memoria:

My research focuses primarily on precision physics and the study of the properties of the Higgs boson as tools to investigate new physics. The sheer amount of data collected at the LHC in the search for new physics allows us to use it as a precision physics machine. This is indeed one of the central objectives of the high luminosity upgrade of the LHC, and a top priority for the 2020 update of the European Strategy for Particle Physics. However, for the measurements to be meaningful, our knowledge of the Standard Model (SM) predictions must be on par with the experimental precision. For this reason, the precise calculation of quantities in the SM is of great importance. This argument extends also to Beyond the Standard Model (BSM) theories, and it becomes particularly relevant in the case of Effective Field Theories (EFT), where the inclusion of these corrections can greatly affect the size of the bounds on new physics. I had the opportunity to contribute to this field in different ways: from the calculation of the radiative corrections to the Higgs boson pair production and to EFT observables, to the study of the possibility of constraining the Higgs-trilinear coupling through single Higgs production processes. Consequently, I have developed expertise in EW multi-loop calculations that I used in this line of research and for more far-reaching projects such as the stability of the EW vacuum.

Resumen del Currículum Vitae:

I obtained my bachelor's and master's degrees in physics at the University of Rome "La Sapienza" in 2007 and 2009, respectively.

Thereafter, I enrolled in the doctoral program of the University of Pisa, with a three-year scholarship from the INFN. There I earned my Ph.D. in Physics in 2013, under the supervision of Prof. Alessandro Strumia. During my last year of doctoral studies, I spent 5 months at CERN, funded by the scholarship "Fondazione Angelo della Riccia", under the supervision of Dr. Gian Francesco Giudice.

Afterward, I was hired for two years as a Postdoctoral Research Fellow by the University of Rome Tre, where I started a fruitful and lasting collaboration with prof. Giuseppe Degrassi. In 2015, I accepted a three-year Research Associate position at the High Energy Theory department of the Brookhaven National Laboratory, one of the major centers of research in the United States, where I collaborated mainly with Dr. Sally Dawson and Dr. Hooman Davoudiasl.

Later I started working as a Postdoctoral Researcher at the Instituto de Física Teórica (IFT) of the University "Autónoma" of Madrid. In 2020 I accepted a position as "Global Talent" Research Associate at the Instituto Galego de Física de Altas Enerxías (IGFAE) at the University of Santiago de Compostela, where, in 2021, I obtained the position of Investigador Distinguido (Junior staff), which I currently hold.

Since 2018 I have had a guest appointment at Brookhaven National Laboratory, and in 2020 I obtained the Italian national habilitation as an associate professor.

In my career, I have published 33 works, of which, 28 have been published in leading peer-reviewed internationally recognized journals. According to INSPIRE, the published papers received a total of 2972 citations at the time of writing, which corresponds to an h-index of 17 with an average of 102 citations per paper.

I have presented my work at 16 conferences and workshops, most of the time as an invited and/or plenary speaker. Notable congresses include LoopFest 2018, LCWS 2019 and HEFT 2020. In 2016 and 2017 I organized the weekly seminar for the High Energy Theory department of the Brookhaven National Laboratory. In 2022 I was a member of the Local and Program Committee for DIS 2022, and I chaired one session of the Higgs Pairs 2022 workshop. I am currently organizing the MWdays23 workshop that will take place at CERN in April 2023.

Since 2020 I am teaching BSM physics, part of the course on Particle Physics II directed at students of the master's in physics, at the University of Santiago de Compostela. I am currently a PhD supervisor and director of the thesis "Analytical techniques for the calculation of multi-loop amplitudes", to be defended by late 2023, at the University of Santiago de Compostela.

Since 2014 I am a referee for JHEP for which I reviewed 5 papers. Subsequently I reviewed papers for EPJC (1 paper since 2017), PRD (7 papers since 2019), PLB (1 paper since 2021) and PRL (1 paper since 2023).

Área Temática:	Ciencias físicas
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Título:	The origin of astrophysical dust

Resumen de la Memoria:

My research line follows a chemical-kinetic bottom-up approach to describe the formation of astrophysical dust particles.
In particular, I am interested in the nucleation species and processes pertaining to the circumstellar envelopes of oxygen-rich evolved stars. The nature, i. e. chemical composition, energies, and structures of nanometer sized clusters, representing the nucleation species, is not well understood.
More recently, I contributed to several collaborations investigating the cloud formation in gaseous exoplanet atmospheres.
The cloud formation in these atmospheres is also triggered by cluster nucleation.
Overall, I developed core expertise in chemical rate theories, global optimisation techniques and quantum chemical calculations.

Resumen del Currículum Vitae:

In 2011 I started my PhD studies in theoretical physics at the University of Basel, Switzerland, under the supervision of PD Dr. Isabelle Cherchneff. In 2015 I concluded my studies with the PhD thesis titled "Molecule and dust synthesis in the winds of oxygen-rich Asymptotioc Giant Branch (AGB) Stars ". Following my PhD I pursued my first PostDoc position at the astronomical observatory in Teramo, Italy, where I collaborated with Dr Sergio Cristallo. In 2017 I continued my research as an ERC-funded PostDoc in the group of Prof. Leen Decin at KU Leuven in Belgium. In the ERC project "Astrochemistry of old stars: direct probing of unique chemical laboratories" I took a key role in the theoretical modelling of non-equilibirum chemistry and dust formation. Moreover, I took the responsibility for four PhD students. As a direct tutor I advised my students from day one onward. In the beginning of 2022 I joined the group of Prof Gunnar Nyman in Gothenburg, Sweden, working on the collaborative project "The origin and fate of dust in our universe."

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias físicas
Nombre:	FERREIRA DA SILVA , RUI EMANUEL
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Título:	Attosecond phenomena in 2D materials

Resumen de la Memoria:

This project builds on my own experience and discoveries in the fields of strong field physics and condensed matter. In particular, three groundbreaking discoveries that established strong laser fields as a perfect tool for the study of strongly correlated materials, topological insulators and valleytronics, resulting in three recent publications in Nature Photonics as first/co-first and corresponding author (IF=31.6).

My hybrid formation in Physics and Chemistry (BSc in Physics, MSc in Theoretical Chemistry and PhD on the subject of strong field physics in molecules) gave me a broad knowledge in many fields of science (from quantum chemistry to condensed matter theory, ultrafast physics and molecular polaritonics) and proficiency in high performance computing. This, combined with my passion for science and creativity, allowed me to establish new bridges between seemingly unconnected fields, opening the door for strong field physics to two major fields in condensed matter physics: strongly correlated and topological physics. This experience and expertise helped me to shape this project as a theoretical platform for the understanding of novel quantum materials under intense tailored light fields, paving the way for ultrafast control of electronic dynamics in strongly correlated, topological and 2D materials.

The possibility of creating tailored intense ultrafast laser pulses, shaping the individual crests of the light down to the sub-cycle regime, enables new routes towards the imaging and control of electronic dynamics in solid state materials. Of particular relevance is the study of ultrafast phenomena in 2D materials. Due to their incredible electronic properties and in combination with the latest advances in lightwave engineering, the in-depth study of attosecond phenomena in these materials may open the door to new ways of performing electronics and quantum information processing at ultrafast speeds.

The first step on this path requires adequate quantitative description of the many mechanisms involved in the strong field dynamics in 2D materials. Up to now, the theoretical works in the field, despite providing some insights, have paid little attention to three crucial aspects in these materials: the microscopic origin of dephasing in strong fields; the role of excitons, very important in 2D materials, in strong field phenomena; and the study of strong field dynamics in Moiré heterostructures.

The proposed project will address all of these key challenges. I will develop new theoretical and computational methods mainly exploring a real-space perspective of strong-field phenomena, demonstrating how it offers major advantages over traditional reciprocal space methods when describing attosecond response in solids driven by intense fields. The new approach will allow us to (1) resolve the controversy surrounding the appearance of remarkably fast dephasing times in strongly driven solids and shine new light on the possibilities of coherent information processing in 2D solids at PHz rates, (2) provide recipes for utilizing strong excitons in 2D materials for PHz electronics, information processing, and compact solid-state devices for generating bright coherent XUV light, and (3) open the door to high harmonic spectroscopy as an imaging tool for Moiré heterostructures.

Resumen del Currículum Vitae:

I got my BSc in physics with minor in chemistry at Porto University, Portugal, in 2010 with a final grade of 18 out of 20. I pursued my studies at UAM in an European Master in theoretical and computational chemistry, finishing with a final grade of 9.4 out of 10. This hybrid formation provide me with a broad background in physics, chemistry and computational techniques.

In 2012, I joined the group of Prof. Fernando Martín and started my PhD thesis under the subject of "Study of diatomic molecules under intense laser pulses". I was awarded with a PhD grant from the Portuguese government in 2012, where I was placed first in the area of Physics. Within the research done in my PhD thesis, I learned and mastered the area of strong field physics and a special emphasis was given to high performance computing to solve quantum dynamics problems. Some important contributions to the topic of correlated electron and nuclear dynamics upon laser excitation were published including one Phys. Rev. Letters. Also work on the high harmonic spectroscopy in diatomic molecules resulting in a publication in Scientific Reports.

After the completion of my PhD in 2016, I moved to the Max Born Institut, Berlin, where I started working with Prof. Mikhail Ivanov on the subject of high harmonic generation in solids. A ground breaking work published in 2018 in Nature Photonics on the high harmonic generation spectroscopy of ultrafast insulator-to-metal phase transition is now opening the door for experiments in which phase transitions can be resolved in time by looking at the HHG response. A recent work, published in Nature Photonics in 2019 on high harmonic generation on topological insulators provide new ways to probe topological phase transitions. In collaboration with an experimental group at the Weizmann Institute, Israel, we were able to see the effects of Van Hove singularities in the high harmonic response of MgO, a work that was recently published in Nature Photonics.

In 2018, I moved to the MMUSCLES group led by Johannes Feist, and started to study ultrafast molecular polaritonics, changing completely my research field. Within this project, we proposed an original setup for the study of ultrafast molecular dynamics using plasmonic nanocavities, a theoretical work published in Nature Communications.

In 2021, I was awarded with a Juan de la Cierva Incorporación Fellowship, that I have declined to accept the LaCaixa Junior Leader - Retaining fellowship. In March 2021, I was awarded with the highly competitive LaCaixa Junior Leader - Retaining fellowship to start my own group at the Instituto de Ciencias de Materiales de Madrid. I was ranked first among 186 applications in the panel of Physical Sciences, Mathematics and Engineering.

In 2022, I was awarded a spanish national project (Proyectos de Generación de Conocimiento 2021) as PI, with Pablo San-José from ICMM also as PI, in the topic of "Many-body attosecond optoelectronics in two- dimensional crystals". The project will have a funding of 96.800€ and will count also with an additional PhD student (FPI grant).

Up to now, I am co-author of 23 published-accepted articles including many high-impact papers (5 Nature Photonics, 2 Physical Review Letters and 1 Nature Communications). I attended over 30 international conferences and gave 8 invited talks.

Área Temática:	Ciencias físicas
Nombre:	GONZÁLEZ JIMÉNEZ, RAÚL
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Título:	Electron- and neutrino-nucleus interactions

Resumen de la Memoria:

My research has focused on modeling the nuclear response to leptons. This research interconnects different areas of nuclear, hadron and particle physics, with implications in astrophysics and cosmology. I differentiate two research lines in my career: i) parity-violating electron scattering (PVES), and ii) neutrino-nucleus interactions; though, there are strong connections and synergies between them.

PVES serves to study the weak interaction using electrons as probes, instead of pure weak particles like neutrinos. This has obvious experimental advantages, since electrons can easily be accelerated and detected. PVES provides information on the structure of the nucleon, weak couplings, and nuclear properties like the neutron radius. The advent of a new generation of measurements (G0, HAPPEX, APV and Qweak) triggered a surge of activity in the last decade. The precision reached by these experiments has confirmed the potential of PVES to search for physics beyond the Standard Model (SM) in the low-energy high-precision frontier. I published 5 peer-reviewed articles on this subject in the period 2013-2016 (including a Physics Reports).

Since I finished my PhD (2014) I have worked mainly on the study of neutrino-nucleus interactions. This topic has received a lot of attention in the last years due to the confirmation of neutrino oscillations, that opened the door to physics beyond the SM. In particular, it allows for charge-parity violation in the lepton sector, which may play a key role in explaining why the Universe is made of matter rather than matter-antimatter in equal proportions. Neutrino experiments, such as MicroBooNE, T2K, NOvA, HyperK, and DUNE, require intensive simulations and complex theoretical models of the neutrino interaction with the nuclear target. Neutrino-nucleus Monte Carlo (MC) event generators are an essential tool for the analysis of the data obtained in the experiments. A major problem is that, currently, MCs are based on extremely simplified theoretical approaches, due to the lack of knowledge on a given process or simply because incorporating more physics involves an unaffordable computational burden.

My work focuses on providing a more elaborate description of the neutrino-nucleus interactions. Our theoretical models serve to guide the developments of MCs, and some of them have already been implemented in the MCs. With this we contribute to minimize the systematic errors, which is needed to achieve the goals of the neutrino experiments. The intense worldwide activity in this field has facilitated my participation in several international collaborations, a good number of workshops and conferences, and a rich production of peer-review articles.

My next goals are i) to continue with the development of realistic neutrino-nucleus interaction models, and ii) to initiate new paths for incorporating state-of-the-art neutrino-interaction models into MC event generators. In particular, to accelerate the computations and reduce the required resources, we will focus on artificial intelligence (AI), particularly on the use of neural networks. This effort will contribute to the implementation of AI methods in the analysis of nuclear and particle physics experiments. The methods to be developed in this project are easily exportable and applicable to many other problems in other research fields.

Resumen del Currículum Vitae:

I am assistant professor at Complutense University of Madrid (UCM). I did my PhD thesis in Seville (2014), obtaining two awards for the best thesis. I worked as a postdoc at Ghent University from 2015 to 2018. Then, I moved to UCM thanks to an 'Atracción de Talento' fellowship. In 2020 I changed to my current possition. So far, I have taught about 500 hours in master and bachelor degrees, both in Spanish and English. I am coordinator at UCM of the Erasmus Mundus Joint Master Degree in Nuclear Physics. I have supervised 5 master theses, 6 final degree projects and 2 collaboration fellowships. I am supervisor of two PhD theses in progress, one of them is a joint PhD between Ghent and Complutense.

My main research line is the study of neutrino-nucleus interactions. I am (co)author of around 50 publications (SCOPUS), including a Physics Reports and a Physical Review Letters. These publications accumulate around 620 cites (900 cites according to Google Scholar). I am principal investigator of two different research projects funded with about 55k€each. I keep an intense international activity that includes collaborations in research projects and the participation, as speaker or convener, in international events.

Área Temática:	Ciencias físicas
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Título:	Revolutionizing fundamental physics using cosmological galaxy surveys

Resumen de la Memoria:

Cosmological research in the coming decade aims to resolve some of the most pertinent scientific questions in our time, such as the nature of the accelerated expansion of the Universe, the particle nature of the dark matter, and the absolute masses of the neutrinos. These advances will be enabled by the greater constraining power of the forthcoming cosmological galaxy surveys, but will only be possible if we fully utilize the information obtained from these surveys and control the systematic uncertainties to well below the statistical noise.

The most promising approach to achieve these objectives is through the combined analysis of the complex data from the different surveys. Through my proven track-record and leadership in the most powerful current and future cosmological galaxy surveys, such as the Kilo Degree Survey (KiDS), the Dark Energy Spectroscopic Instrument (DESI), the Rubin Observatory Legacy Survey of Space and Time (LSST), and Euclid, I am in the unique position to spearhead the precise and accurate analysis of the large cosmological datasets that will help revolutionize our understanding of physics. As a result, I propose to carry out the following research program:

1) In my role as the lead of the Euclid Likelihood Inter-Science Working Group Task Force, I will create the likelihood code needed to perform self-consistent combined analyses of weak lensing and galaxy clustering with Euclid. As the Euclid satellite is launched into space in mid-2023, I will lead the efforts to obtain the cosmological parameter constraints.

2) Perform combined analyses of cosmic shear, galaxy-galaxy lensing, and overlapping redshift-space galaxy clustering with DESI and the Stage-III photometric surveys of KiDS, the Dark Energy Survey (DES), and Hyper Suprime-Cam (HSC). Assess possible tensions in the constraints on the clustering amplitude of matter and present expansion rate with that inferred from the cosmic microwave background. From 2026 and beyond, transition to combined analyses of DESI and the Stage-IV surveys of Euclid and LSST.

3) Perform the first self-consistent combined analysis of the full set of observables from overlapping photometric and spectroscopic surveys. Achieve this by considering all of the possible cross-correlations of galaxy positions and shapes between KiDS, the 2-degree Field Lensing Survey (2dFLenS), and the Baryon Oscillation Spectroscopic Survey (BOSS). Use the observables to measure the photometric redshift distributions at each point in the likelihood analysis. Provide world-leading constraints on extensions to the standard model, in particular the dark energy equation of state, the sum of neutrino masses, and modified gravity through the effective gravitational coupling strengths to matter and light.

Given my leadership in large international collaborations (KiDS, Euclid, LSST, DESI) and strong publication track record (H-index of 36, over 1000 citations as corresponding author), I am in a unique position to successfully carry out this research program. This research will favorably position Spain at the forefront of the expected future discoveries using computing and telescope facilities in which it is significantly invested.

Resumen del Currículum Vitae:

I have been an active researcher in the field of cosmology, reflected in the large number of publications in top international journals (60 publications, H-index of 36). My overall science goal is to test cosmological physics through careful statistical and systematic analysis of current and future data. My extensive research experience has helped me develop a diverse skill set ranging from theoretical modeling, statistical analysis, data systematics, and supercomputing. These skills will together be crucial to accurately infer the underlying cosmology as the next generation of cosmological galaxy surveys begin to collect an unprecedented wealth of data during the next few years.

My expertise in cosmology has further led to leadership appointments within some of the most prominent current and future cosmological galaxy surveys. I am currently the co-convener of the Photometric Redshifts Working Group in the Rubin Observatory Legacy Survey of Space and Time Dark Energy Science Collaboration (LSST-DESC), the co-lead of the Likelihood Inter-science Working Group Task Force (IST:Likelihood) in the Euclid Consortium, and the coordinator of the 6×2pt Working Group of the European Southern Observatory Kilo Degree Survey (KiDS). I am moreover a member of the Spokesperson Nomination Committee in LSST-DESC and the Membership Committee in the Dark Energy Spectroscopic Instrument (DESI) collaboration. These surveys will provide an unprecedented wealth of data to explore in the coming decade, and I will be in a unique position to play a crucial part in robustly extracting and assessing the cosmological information.

I am frequently invited to give talks at major international conferences and workshops along with seminars and colloquia at universities around the world (over 60 to date). I locally organized the Euclid Theory Science Working Group meeting at the University of Oxford in 2019 and scientifically organized both Euclid and LSST-DESC workshops in 2022. I organized the cosmology journal clubs at Swinburne University of Technology during 2014-2015 and the cosmology seminars at the University of Oxford during 2017-2019. Given my leadership roles in three of the most prestigious cosmological galaxy surveys of KiDS, Euclid, and LSST, I have additionally organized working group sessions in 19 collaboration meetings since 2019. During my postdoctoral years, I have actively mentored 14 students and taught courses ranging from classical physics to cosmology and General Relativity.

I engage in public outreach, most recently as a member of the DESI Education and Public Outreach Committee, and my work has been featured in press releases, newspapers, magazines, blogs, and YouTube.

My well-rounded profile has led to the receipt of multiple high-caliber awards and the successful application for computing grants. This includes a GAANN Fellowship from the United States Department of Education which fully funded my PhD studies, a CAASTRO Fellowship from the Australian Research Council that partly funded my postdoctoral position at Swinburne University of Technology, and a three-year Research Fellowship at Wolfson College in Oxford. In total, this has amounted to more than €240,000. It also includes the successful application for over 49 million CPU hours in supercomputing resources during my postdoctoral years in Australia, the United Kingdom, and Canada.

Área Temática:	Ciencias físicas
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Título:	Visual Optics and Biophotonics

Resumen de la Memoria:

My scientific career has been focused on the development of new medical imaging technologies, with photonics as a key enabling technologies for the analysis of the anterior segment of the eye and ocular aberrations. In 2015, I obtained with honors my PhD in Visual Sciences at the Visual Optics and Biophotonics Lab (CSIC). Major achievements were the design, development and validation of novel high-resolution imaging techniques (e.g., Optical Coherence Tomography) and the development of image processing algorithms and complementary computational simulations routines to link wave aberrations and ocular surface irregularities. Also, I would like to highlight that I am founding partner of 2Eyes Vision SL (spin-off company of the CSIC) and that during this period my individual project "smartphone-based corneal topographer" was awarded in two innovation mentorship international programs.

In 2017, I joined the Biomedical Research Institute-Fundación Jiménez Díaz with a competitive postdoctoral fellowship (Juan de la Cierva: FJCI-2015-27101) where I started to develop new diagnostic tools for Ophthalmology based on 3D-DIC technology (patent: PCT/ES2018/070757), I obtained my own funding as principal investigator and scientific coordinator in different competitive calls (FIPSE 3388-18, HealthStart 2018 and DTS18/00107, >110k€), I led R&D&I projects with international companies (Ophtec BV, Plenoptika Inc) and I actively participated in building an interdisciplinary consortium with the Center for Microsystems Technology (CMST, imec and Ghent University) and the Department of Aeronautics (UPM).

In 2018, I completed a post-doctoral stay at the CMST, where I collaborated in the development of an artificial iris for smart contact lens vision correction applications. The short-stay was the seed of a successful collaboration that culminated with the award of the very competitive and prestigious Marie Sklodowska-Curie Individual Fellowship (European Commission, 180k€) and my incorporation at imec and Ghent University (2021). In this period I started working with stretchable microsystems for smart optical systems and I also obtained my own funding at UGent for International Research Collaboration, establishing a new collaboration with the Microfluidics Cluster UPV/EHU.

I have participated in 13 R&D&I competitive projects, I have written and led 5 projects. My scientific record is reflected in 43 high-impact publications (13 as leading author), 5 book chapters, one popular science book and more than 50 congress contributions and 10 invited talks. I supervised 1 Master student and 2 Final Year Projects. In 2023 I obtained the i3 certificate (area: Physics).

The research periods at the University of Valladolid, CSIC, Biomedical Research Institute-Fundación Jiménez Díaz / UAM and imec and Ghent University provided me with a vast experience in visual optics, ocular imaging, smart optical systems and microfabrication in a clean-room environment, and importantly provided me with leading skills and scientific management, independent thinking and international networking. The combination of these skills is an important guarantee of success for my future research lines focused on the development of smart optical systems that combine multimodal operations in sensing and enhanced visual functionalities.

Resumen del Currículum Vitae:

Dr. Pérez-Merino scientific career is reflected in 43 high-impact publications (Q1: 39, Q2: 2, Q3: 2; h-index: 24 and more than 1350 citations (google scholar); 13 publications as leading and corresponding author, one patent, 5 book chapters, one popular science book, more than 50 congress contributions and 10 invited talks. He has long experience in the development of biomedical devices with gradual increasing complexity: (i) novel high-speed and high-resolution imaging technology (i.e., aberrometry, optical coherence tomography and three-dimensional digital image correlation) and (ii) customized innovative solutions for ophthalmic applications (e.g., smart optical systems).

Leadership qualities, independent thinking and capacity to transfer knowledge:

- Demonstrated capacity for managing individual projects (written and led by Dr. Pérez-Merino), which launched new research lines. NiCO project awarded in two innovation mentorship programs (IDEA2 2014 program Madrid-MIT MVision Consortium and 2015 innoSmart European Competition), DYNAMO project funded in different competitive calls (FIPSE 3388-18, HealthStart 2018 and DTS18/00107) and GRAVITEYE (Marie Sklodowska-Curie Individual Fellowship).
- Principal inventor of the patent: WO/2019/102056, PCT/ES2018/070757 (IISFJD-UPM).
- Founding partner of a spin-off company of the CSIC: 2Eyes Vision, SL (SimVis Technology).
- Scientific advisor of a spin-off company of imec/UGent: Azalea Vision (smart contact lens).
- Demonstrated capability in successful completion of sophisticated experimental developments of going beyond the state-of-the-art with Optical Coherence Tomography technology (Pérez-Merino et al., 2013, 2014, 2015, 2017) and 3D-DIC technology (Souto Janeiro et al., 2023).
- Leading role in R&D projects, from design to development, with major international ophthalmic industry: HOYA Surgical Optics, Oculentis BV, PlenOptika Inc., OPHTEC BV, among others.
- Supervision of 1 MSc and 2 final year projects.
- Member of 4 PhD Thesis Committee.
- Associate Editor in Frontiers in Neuroscience (IF: 4.677) and Frontiers in Psychology (IF: 2.990): Perception Science. Lead Guest Editor: Photonics (IF:2.536) and Journal of Ophthalmology (IF:1.974).
- Reviewer panelist (idea2 Global, MIT).

- Popular science book (Co-author): Discovering light: Fun experiments with optics. Co-published by: SPIE, CSIC and OSA, 2021. ISBN: 9781510639355
- Successful Collaborations with research groups worldwide (>10 scientific publications): Center for Microsystems Technology (CMST) – Ghent University and imec (Belgium), Wroclaw University of Science and Technology (Poland), Wellman Center for Photomedicine (Boston, MA, USA), Newcastle University (Australia).

Área Temática:	Ciencias físicas
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Título:	Experienced Researcher in Radiation Effects on Electronics and Particle Detectors

Resumen de la Memoria:

I have carried on a sound research path in the confluence of the study of the harmful effects of radiation on electronic components and the conception of new strategies for particle detection in very harsh radiation environments, as the ones expected in the next generation of high energy and particle physics experiments. I have acquired deep insight in the radiation-induced failure mechanisms and I can demonstrate an extensive knowledge of the modeling and simulation techniques to analyze the radiation damage. I hold a solid background in the semiconductor fabrication techniques, with wide experience in the design and optimization of silicon particle detectors and other radiation-hardened electronic devices. In addition, I have accumulated reliable expertise in radiation testing (including the logistic and organizational skills, together with the more technical aspects), the hybridization of the sensors with their read out electronics, module assembly production and a large range of different electrical characterization techniques. All this together, place me in an optimal position to take a leading role in the future challenges in the fields of radiation detection and sensor development, in particular for particle tracking and timing applications.

Cemented on a solid background in power electronic technology, I was able to combine my expertise in solid-state physics simulation with my experimental skills to carry out a relevant research on the radiation effects field. During both my early career and my postdoctoral period, I was entrusted at the IMB-CNM-CSIC with the leadership of two research lines. The first one, targeted at the implementation of the novel silicon sensor technology (LGAD) for particle physics experiments, opened a prolific research line with high demand and broad applications. My experience as a Senior Fellow at CERN has expanded my know-how in radiation effects testing and allowed me to gain insights in the physical mechanisms involved in the interaction of radiation with electronic devices. Working as the test coordinator and supervising several students I have strengthened my leadership skills and my ability to carry out my research in a highly-expert and worldwide collaborative research network. Presently, I am enrolled at IFAE where I am participating in the building up of two of the future sub-detectors of the upgrade for HL of the ATLAS detector: The ITk pixel detector and the HGTD. In addition, and thanks to the endorsement provided by the recently won Beatriu de Pinos fellowship, I am leading the new R&D line on timing detectors.

Presently, I am considered as a highly experienced researcher in the field of radiation effects on electronic components, with demonstrated ability to lead and carry out research projects oriented at analyzing the radiation sensitivity of both commercial and custom designed rad-hard components, in particular in the power electronics and particle detector fields. My research line has been proved to be of crucial relevance for high-energy and particle accelerator applications. My work has already contributed to the progress of the field, enhancing radiation detectors capabilities, providing new technological solutions for the implementation of rad-hard power devices and expanding the community know-how on modeling, testing and analysis of radiation-induced effects in electronic devices.

Resumen del Currículum Vitae:

I am an experienced researcher in the fields of particle detection technologies and radiation effects on electronics. Along my career, I have built up a solid knowledge of all the steps involved in the design and fabrication of semiconductor devices. My earliest activities on power electronics allowed me to attain deep insight into semiconductor physics and efficient device optimization strategies. I hold wide expertise on high-energy physics instrumentation and radiation detector testing and deep understanding of radiation effects on semiconductor devices. Besides, I am widely skilled in electrical and technological TCAD simulations.

I have been engaged with the development of strategies to harden electronic devices against the harmful effects of radiation. I was focused on the study of the damaging mechanisms, through simulation models and a reliable knowledge of the involved technologies. Thanks to my background, I have extensively worked on the identification of relevant design or technological trends responsible for the increase of radiation sensitivity in power components. These interests naturally evolved towards the design and fabrication of radiation-hard devices. At the IMB-CNM, I was commended the development of two technologies for the extremely harsh radiation environment expected in the upgrade for High Luminosity of the CERN¿s LHC experiments.

The first of these technologies was the Low Gain Avalanche particle Detectors (LGAD), conceived during my pre-doctoral stage, which has acquired a high level of maturity and is now a common candidate for particle tracking detection, timing, calorimetry and other high-energy physics applications. Since my PhD thesis, and largely thanks to the pioneer work therein, the LGAD technology has made a disruptive impact on the next generation of experiments at the energy frontier.

The second technology, V-JFET transistors, whose developing I superintended during my first postdoctoral period, has attracted remarkable interest in the community dedicated to the development of future high-energy particle accelerators. It was accordingly patented in 2016 and the original design was object of further development after my departure from the IMB-CNM.

My experience as a senior fellow at CERN has broadened my knowledge of radiation effects on commercial electronic components, but also on components based on cutting-edge wide-bandgap technologies, such as SiC and GaN power devices. My work within the R2E unit has enriched my experience in the field of radiation effects testing, since I have coordinated more than 20 irradiation test campaigns, supervising and collaborating with international research groups belonging both to the academic and industrial spheres, as well as with several space agencies.

I have shown a resolute engagement with the dissemination of my research outcome. I authored more than 50 publications in international journals, and over 50 contributions at national and international conferences. I have been invited to give several lectures in international schools and workshops. In addition, I have actively participated in internal dissemination events both at the IMB-CNM and CERN. I have enthusiastically embraced mentoring tasks with my younger research colleagues, having supervised 5 Bachelor and Master projects and tutoring several undergraduate internship students.

Área Temática:	Ciencias físicas
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Título:	Challenging the paradigms: stellar bars and Milky Way-like galaxies

Resumen de la Memoria:

My main field of expertise is the observational analysis of galaxies with integral-field spectroscopy (IFS). I focus on i) galaxy evolution during the latest half of the age of the Universe, when secular processes mainly driven by stellar bars prevail, and ii) the formation of Milky Way-like galaxies, which do not fit within our current LambdaCDM paradigm of galaxy evolution. I am also interested in exploring new ways of studying stellar populations in galaxies and in exploiting spectrophotometric decompositions: a new technique for disentangling the light coming from different galactic structures.

My work about single- and double- barred galaxies is pioneering at exploiting IFS data of such structurally complex systems. I started working on this topic during my PhD at the Instituto de Astrofísica de Canarias and Universidad de La Laguna (Spain). I discovered the sigma–hollows, only known kinematic signatures of inner bars, and performed the first ever study of the stellar populations of double bars.

During my posterior fellowships at the University of St Andrews (UStA; UK), Universidad de Granada (UGr; Spain), Universidad Nacional Autónoma de México (UNAM; México), IAC, and Universidad Complutense de Madrid (UCM; Spain), I widened my research portfolio for analysing other aspects such as the complex structure of barred galaxies through 2D and innovative 3D photometric decompositions. I disentangled the long-living nature of inner bars and the unexpected non-presence of secularly-formed bulges in double-barred galaxies. I am recognised as a world-renowned expert in the observational study of multiple-barred galaxies, as demonstrated by 3 invited talks at international conferences on galaxy evolution since 2019.

More recently, I have started exploring new approaches for studying stellar populations in galaxies, like the sensitivity of the red optical spectral range for detecting superyoung stars and the fitting and derivation of abundance ratios of Mg and Fe, that provide the timescale of the star-forming process. In 2019 we presented C2D, an innovative spectrophotometric decomposition code that uses IFS data for separating the light coming from galactic structures (bars, discs, bulges). C2D represents the state-of-the-art in Extragalactic Astrophysics and there are only two codes capable of performing spectrophotometric decompositions worldwide.

Since 2021, I am a Severo Ochoa Advanced Fellow at the IAC where I am developing my project GaBIAS: Galactic Bars Influence on AGN and Secular evolution. This project builds on my expertise and uses superb IFS data (from successful observing proposals I led as PI and from forefront international projects I belong to) for determining whether bars actually contribute to secular evolution and supermassive black hole feeding.

Since 2022, I am coPI of CoBEARD, a MICINN PDI project for studying the stellar structures and stellar populations of Milky Way-like galaxies. CoBEARD exploits the wealth of data from various telescopes at the Roque de los Muchachos Observatory as provided by two successful International Time Programmes awarded by the Scientific International Committee (CCI). CoBEARD aims at determining whether bulgeless galaxies like our Milky Way can or cannot be fitted within the Lambda Cold Dark Matter scenario, the current paradigm for explaining the evolution of the Universe.

Resumen del Currículum Vitae:

I am an Extragalactic astrophysicist particularly interested in the study of galaxies hosting stellar bars and Milky Way-like galaxies with integral-field spectroscopy (IFS), innovative spectrophotometric decompositions, and the analysis of stellar populations. As such expert, I am often invited to deliver talks at international conferences and research centres (2 and 2 since 2019, out of a total of 17 after my PhD) and have been Chair/member of Scientific Organising Committees of various international conferences (5 since 2019, including chair of SOC/LOC of the next major conference about stellar populations to be held in 2023).

I am coPI of CoBEARD, a successful MICINN PID project for studying Milky Way-like galaxies (141570 euros, including a postdoc researcher). I had a major role in the inception and scientific design of 5 additional forefront international projects for analysing galaxy evolution: BEARD (2 successful International Time Programmes), TIMER (benchmark for studying barred galaxies), CBS (benchmark for studying bulge structures), (CA)TARSIS (new IFS for CaHa Observatory and its main survey), and 4MOST-STePS (new ESO Public Survey for studying stellar populations). I played a key role (data quality control, pipelines, etc) in the success of CALIFA and AGN-STORM, benchmark projects for studying galaxy evolution and the structure of active galactic nuclei, respectively. I also belong to the Scientific team developing HARMONI at IAC.

I currently hold a highly competitive Severo Ochoa Advanced Fellowship at the Instituto de Astrofísica de Canarias (success rate <6%; besides my contract, it includes 7500 euros for supporting my research). My international career (almost 4 years abroad) includes fellowships at the University of St Andrews (UK), Universidad Nacional Autónoma (México), Universidad de Granada (Spain), and Universidad Complutense de Madrid (Spain), as well as >1-month stays at Leiden Observatory and European Space Agency (The Netherlands), and European Southern Observatory (Germany). I have vast experience in obtaining international funds, including a >100000 euros research grant (declined due to personal reasons), bursaries for students, and three FECyT applications (>75000 euros).

I own 62 refereed publications in Q1 journals, 8 as first author and 6 as main (2nd-3rd) author, with >4700 citations (>350 as main author).

I am highly committed to the transfer of knowledge. I have supervised 4 MSc students, 1 BSc student, and 5 summer students, and I contribute to the formation of PhD students. I have acquired several teaching duties during my career (University of La Serena, Chile; University of St Andrews, UK; Universidad de La Laguna, Spain). I have been evaluator and internal referee of 4 and 2 PhD theses, respectively.

I participate in many outreach activities, with a special focus in promoting the role of women in Astronomy. Among the many actions, I coordinate "Chatea con una Astrónoma" (for the Spanish Astronomical Society -SEA- since 2018) and "Gaveta de Astrofísica" (outreach section in El Día newspaper, since 2016). These duties demand leadership skills and managing large teams. I am editor of the SEA magazine and former member of the SEA "Woman and Astronomy" (2015-2022). I am Editor of the Proceedings of the XV SEA Meeting (2023).

Área Temática:	Ciencias físicas
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Título:	Aplicaciones nanomagnéticas y espintrónicas controladas por luz mediante magnetotermoplasmónica

Resumen de la Memoria:

Como física, me fascinan los efectos magnéticos y espintrónicos que surgen en cristales masivos y nanoestructuras magnéticas artificiales, y mi objetivo es descubrir propiedades emergentes y funcionalidades únicas, y cómo pueden medirse y controlarse con luz. He realizado notables contribuciones al campo de la lógica nanomagnética, las transiciones de fase en sistemas de espín artificiales y el control de dominios en multiferroica magnetoeléctrica. Basándome en la amplitud de mis experiencias investigadoras en diversos campos contemporáneos del magnetismo, combino experimentos complementarios de mesa (como el efecto Kerr magneto-óptico y la óptica no lineal) y de instalaciones a gran escala (con neutrones, rayos X y muones) con modelos teóricos y simulaciones micromagnéticas para observar y explicar fenómenos novedosos.

Mi visión es crear una novedosa plataforma experimental que permita el control preciso y la reconfigurabilidad óptica de las distribuciones de temperatura a nano y microescala, y aplicarla a las principales aplicaciones magnéticas. Estos metamateriales funcionales magnetotermoplasmónicos controlados por la luz permiten tecnologías de la información rápidas y energéticamente eficientes. Combinando conceptos del campo del magnetismo y la plasmónica, esta plataforma proporcionará una forma novedosa de sondear la física fundamental de los sistemas magnéticos y plasmónicos y crear aplicaciones para la captación de energía, la espintrónica y el movimiento y control de bits de información magnéticos.

Combinando ideas clave de los campos de la fotónica y el magnetismo, y basándome en mi amplia experiencia en estos campos de investigación, preveo utilizar distribuciones de temperatura controladas ópticamente para el control inmediato de propiedades de materiales magnéticos como la anisotropía, la magnetización de saturación y respuestas dinámicas que permitan aplicaciones novedosas. En concreto, el campo de la espincaloritrónica pretende aprovechar los diferenciales de calor omnipresentes -los gradientes térmicos- para posibilitar funcionalidades útiles, como la generación de electricidad o corrientes de espín, o el accionamiento de texturas magnéticas de espín.

Mi método permite un control rápido, eficiente y versátil de los paisajes térmicos mediante la polarización de la luz, la potencia y el patrón de iluminación. Gracias a su enfoque híbrido, el método puede combinarse con distintos materiales y, en consecuencia, los gradientes térmicos pueden aplicarse como fuerza motriz de texturas de espín cuando los campos magnéticos (en el caso de los antiferromagnetos) o los pares inducidos por corriente (en los aislantes) no son viables. Por tanto, la magnetotermoplasmónica ofrece una vía versátil hacia la optoespintrónica en chip. Teniendo en cuenta estas ventajas, desarrollaré funcionalidades magnetotermoplasmónicas, con el objetivo general de mejorar la eficiencia energética de los dispositivos espintrónicos.

Resumen del Currículum Vitae:

A lo largo de mi carrera hasta la fecha, con estaciones en Alemania, Suiza, Japón y España, he demostrado habilidad y capacidad para impulsar una investigación de vanguardia ambiciosa y novedosa. Trabajando en grupos de investigación dirigidos por líderes en la vanguardia de sus respectivos campos, he acumulado una amplia experiencia en magnetismo y espintrónica, así como en nanomateriales, nanofabricación, (magneto)óptica y plasmónica. Mi trabajo ha sido reconocido con el premio Hertha-Sponer 2021 de la German Physical Society (DPG) por " outstanding contributions for the investigation and characterisation of artificial metamaterials and ferroic systems " .

Combinando de forma creativa diferentes enfoques, he llevado a cabo tareas de investigación en equipos interdisciplinares que combinan esfuerzos experimentales, teóricos y de simulación, que hasta ahora han dado lugar a 24 publicaciones revisadas por pares en revistas de alto nivel (9 in D1 y 15 in Q1), incluidas seis con sugerencias del Editor. He tenido 8 propuestas exitosas como IP (y 8 como CI) para tiempos de haz en instalaciones a gran escala, utilizando rayos X, neutrones y muones. He coorganizado 7 sesiones temáticas en conferencias internacionales (por ejemplo, JEMS 2020, CMD/GEFES 2020, SPS 2016 y 2017, DPG 2017), así como un taller sobre "Frontiers in Artificial Spin Ice" (Suiza, 2019), que reúne a investigadores del amplio campo del nanomagnetismo. Más allá del ámbito científico, he generado impacto a partir de mi investigación y he demostrado mi capacidad de liderazgo y excelentes dotes de comunicación participando en diversas actividades de divulgación, como en 2021 con la publicación de un artículo de premio titulado "Ising can't get no satisfaction" en la revista DPG, con una distribución de unos 50.000 ejemplares.

He conseguido financiación para una beca de la Japan Society for the Promotion of Science para una estancia de cuatro meses en 2018 en la Universidad de Tokio, donde tomé contacto por primera vez con el campo de la espín-caloritrónica. Además, obtuve una beca Marie Curie de dos años de la Comisión Europea sobre "Computación nanomagnética controlada por luz", durante la cual desarrollé la idea de plataforma magnetotermoplasmónica presentada en esta beca. Hasta ahora, he dado 8 charlas invitadas en conferencias internacionales (por ejemplo, DPG 2019 y 2021, JEMS 2019, taller SPICE "Topology matters" 2017) y 9 charlas en seminarios, además de dar una conferencia en la escuela de verano ETHZ/EPFL 2022 sobre "Spin-based architectures for Neuromorphic computing and storage" en Lausana, Suiza.

Área Temática:	Ciencias físicas
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Título:	Universal Quantum Gravity constraints on Particle physics and Cosmology

Resumen de la Memoria:

My research lies at the intersection of String Theory, Cosmology, and Particle Physics. I am one of the leaders in a novel approach to quantum gravity research, dubbed the Swampland, which focuses on universal constraints that quantum gravity places on low-energy physics. My research has had an impact in a wide range of fields ranging from Particle Physics and Cosmology, to the geometry and topology of string compactifications, and pure mathematics. My work since the PhD (IFT-Madrid, 2016) has been instrumental in the fast development of this new field, evolving from a fringe subject to one of the main approaches in String Phenomenology nowadays. To highlight some of my contributions:

1) My first paper on the subject, in which I had the leading role (currently 204 citations), we showed that universal quantum gravity instanton effects limit the field range that can be traversed during inflation, and was directly involved in the huge explosion of the field. Immediately after, I pioneered the use of Swampland techniques to constrain other models of interest in particle physics, such as the relaxion proposal for a solution of the electroweak hierarchy problem (a paper with currently 155 citations).

2) I have pioneered the use of holography and the AdS/CFT correspondence to provide the first rigorous analysis of Swampland constraints in anti de Sitter space. In the final stages of my PhD, I initiated and led a project establishing a proof of the Weak Gravity Conjecture, the most important Swampland constraint, in three dimensions (155 citations). Later, I wrote a single author paper that counts 55 citations which proved the general case, relating WGC to rigorous theorems about entanglement entropy of the dual CFT.

3) I have produced the first Swampland constraint that apply to spacetimes of positive cosmological constant, the Festina Lente bound, and provided evidence for it in String theory. This conjecture makes nontrivial experimental predictions about dark matter.

4) I have introduced and pioneered the use of novel techniques from algebraic topology (cobordism groups) to constrain models of particle physics (113 citations) and in a series of recent papers, I have used them to establish string universality: we have proven that, in high dimensions, any consistent quantum theory of gravity looks like the low-energy limit of a known String Theory.

My leadership in the field has been recognized with plenary talks at conferences like StringPheno ' 18 and ' 19, SUSY 21, April ' 22 APS meeting and invited review talks at IFT Madrid , Munich, and two BIRS workshops, as well as lecturing at two Phd Schools. This recognition is also reflected in my career, of increasingly prestigious postdoctoral positions (Utrecht, competitive FWO postdoctoral fellow at KU Leuven, Harvard University). Won highly competitive international contests, such as a Montalcini tenure track grant in Italy (2021, declined), Maria Zambrano(UAM, 2021), and ATCAM (2022). I am an organizer of a worldwide series of highly attended Swampland online meetings and workshops, and have been convener of the EPS 2019 and APS 2022 meetings.I have been invited to lecture about my research at two international PhD Schools and supervised 3 bachelor' s students, one masters student, and a PhD student. My leadership has been recognized by 60 invited seminars and 50 talks at conferences, 30 plenary.

Resumen del Currículum Vitae:

Undergraduate studies at UAM until 2012 (3.88/4), winner of the National Prize (Premio Nacional de Fin de Carrera).Undergraduate research: JAE Intro at IFF (Madrid), resulting in 9 publications in Q1 journals, presented in plenary talks at RQI 2011,2021. Winner of the prestigious Arquimedes prize (2012).

Ph.D in String Theory (Summa Cum Laude, IFT, Madrid, 2016), supervised by Prof. Angel Uranga, with a "La Caixa" scholarship. During my PhD I developed a novel research line at Madrid, on the "Swampland", which evolved to become one of the main directions in String Theory and Gravity nowadays. My seminal Swampland papers from 2015 now have 204 and 153 citations respectively (Google Scholar, 2023), and resulted in seminar invitations from IAS Princeton and Harvard University near the end of my PhD (2016). I was also an organizer of the 1st Swampland conference (IFT Madrid, 2016).

Postdoc at Utrecht University (2016-2018). Invited to speak at major conferences and seminar series (StringPheno 2018 and 2019, Delta ITP Joint meetings, Recontres Theoreticiens, DESY Theory workshop, CERN). Pioneered the use of holographic techniques in the Swampland research in a single-authored paper. I also introduced modern anomaly techniques to high-energy theory (85 citations, Google Scholar, 2022), presented at a seminar in Perimeter institute.

Winner of competitive 3-year FWO grant at KU Leuven (2018-19). Plenary talks at StringPheno 2019, Amherst and ICTP (Trieste). Online seminars since COVID-19 at ICTS, Caltech, Madrid, Vienna, Munich, Hamburg, Padova, IAS, UPenn, ICTP, Simons Center, Bangalore, CERN, Belgium among others, totalling 50 talks at conferences and 60 invited seminars.

My work has 1817 citations (google Scholar, 2023), I have an h-index of 23, and my yearly citations increase quicky, with 477 citations in 2022 up from 342 in 2020. I have published 44 research papers, with 5 TopCite 100+, and 10 TopCite 50+. Plenary speaker at StringPheno 2018, 2019, 2022, 203, KITP, Strings 2022, and SUSY 2021 conferences. Recognized as one of the young leaders of the Swampland program, given review talks on the field at the XXVII Christmas Workshop and a BIRS workshop, and a plenary talk at the 2022 April Meeting of the APS.

 Postdoc at Harvard University for Sept 19-Dec 22. Originator and organizer of the worldwide Swampland seminar series and Youtube channel. Thanks to the online discussions I have organized, a 1st-year PhD student anywhere in the world can interact directly with the leaders in the field. Convener and editor in EPS-2019, APS 22, and organizer of the "Zooming in the Swampland" Harvard (March 2021).

Competitive grants won: FWO Postdoc (2018), Montalcini (tenure track, Italy, 2021), Maria Zambrano (2021), ATCAM (tenure track,CSIC, 2022). Currently a Harvard Research Associate & MZambrano Scholar.

Reviewer for PRL, JHEP, PLB & more. Supervised three Bachelor's thesis and one Masters. I am a co-Director of a PhD student at UAM Madrid. I have done TA work, lecturer in the master's course at KU Leuven and at four international PhD Schools (Modave (2018), sIFTs (2019), Tehran (2022), GAS-IFT (2022)). I am active in outreach both personally (High schools, Madrid, 2014) and online (IFT outreach Youtube channel, 2022, 2023).

Área Temática: Ciencias físicas
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Título: Galactic Archaeology

Resumen de la Memoria:

My extended work on massive stellar spectroscopy surveys like RAVE, and GALAH led me to my prominent leadership role in APOGEE as 'Inter-Survey Science Working Group Chair' and to lead the construction of the stellar abundances pipeline for the Subaru PFS Survey. My main professional interest and contributions focus on the fields of Galactic Archaeology, Galactic structure, Galactic chemical and kinematical evolution, photometry and spectroscopy of Galactic and extragalactic globular clusters, stellar spectroscopy and fundamental stellar parameters determination, white dwarfs, wide and close binaries, chemical tagging and asteroseismology. My scientific interests also include a significant engineering component, where I have contributed to coordinate instruments commissioning, in areas of All-Sky photometric and spectroscopy surveys and their synergies with the Gaia mission and other missions like Kepler and TESS, statistical inference and automated data analysis via machine learning techniques. I have an outstanding record of working at several major research institutes and universities throughout the world where I have organized seminars, meetings and workshops. I was the lead teacher of three University of Virginia undergraduate courses, Introduction to Astronomical Research, Introduction to Astronomical Observation and Introduction to Stars, Galaxies and the Universe. My publications in the research literature include more than 60 papers in refereed journals, and more than 20 papers in conferences proceedings. I succeeded in obtaining SDSS, IAU, OPTICON and NSF funds, and I am an active member of the International Astronomical Union (IAU) and the American Astronomical Society (AAS), where in 2019 I was awarded with the AAS Chretien International Award.

Resumen del Currículum Vitae:

My Ph.D. research on the chemical and kinematical evolution of the stellar Galactic disk was performed at the Leibniz Institute for Astrophysics Potsdam and the Australian National University, under the supervision of Prof. Matthias Steinmetz and Prof. Kenneth Freeman through the German Research Foundation (DFG) priority program. My graduate research made heavy use of the RAdial Velocity Experiment (RAVE) survey, where I led key aspects of the survey, like the operation of the 6dF multi-object spectroscopy system and RAVE spectrograph, survey strategy, data-acquisition, and data quality checks. My work in RAVE stellar parameters calibration using globular cluster stars turned crucial for the validation of automated stellar parameter pipelines and the scientific exploitation of the survey. In 2012, I was awarded the prestigious Australian Research Council Super Science Fellow, and I got involved in a cutting edge Galactic survey, GALAH (GALactic Archaeology with HERMES). My leading role as ObsManager tasked him with HERMES commissioning, the preparation of the GALAH input catalog, survey strategy, data acquisition, data quality checks and survey scientific exploitation. In 2017 I moved as Research Associate to the University of Virginia, in collaboration with Prof. Steve Majewski, where I got involved in the SDSS - Apache Point Observatory Galactic Evolution Experiment (APOGEE). My work at UVa has ranged from fundamental stellar physics to the evolution of binary systems to the origin and evolution of stellar systems in the Milky Way and Local Group. A prominent leadership role on APOGEE as Inter-Survey Science Working Group Chair, tasked me with driving the collaboration's efforts to gain value-added benefits from the merging of the APOGEE database with other large-area surveys (e.g., LAMOST, Gaia, GALEX, SkyMapper, K2, TESS, etc.), generating new information with a direct impact in Galactic Archaeology science. I have not only led the technical aspects of merged catalog creation, but I was responsible for coordinating the efforts of the international APOGEE collaboration to explore and publish analyses of these database intersections making use of automated data analysis, and statistical inference. During this period I also served as SDSS Science Collaboration Council (CoCo) representative of UVa for more than 3 years. I was also co-mentoring 4 Ph.D. students and 2 undergraduate senior thesis. In 2019, I won the Chretien International Award from the American Astronomical Society for my intellectual leadership in the APOGEE survey. In 2021, I held a Resident Astronomer position in The University of Texas at Austin where I led the Hobby-Eberly Telescope night time science operations including observing with the facility instruments and its scientific exploitation at McDonald Observatory, as well as queue priorities as set by the PI and the Telescope Allocation Committee (TAC). I am currently a Research Assistant Professor at the University of Notre Dame, where I got involved in the Subaru PFS survey for Galactic and Local Group archaeology. I lead the development of the stellar parameters and abundances pipeline for the survey. Reviewer for MNRAS, A&A and AJ.

Área Temática:	Ciencias físicas
Nombre:	GÓMEZ VARELA, ANA ISABEL
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Título:	Laser printing technologies at the micro and nanoscale for biomedical applications

Resumen de la Memoria:

Since the beginning of my scientific career I have been fascinated by lasers and their broad range of applications. During my PhD (University of Santiago de Compostela, USC, Spain), I worked on the study of laser beam propagation in novel optical materials with unique capabilities for beam tailoring. I went one step further and worked on the translation of the theoretical results to the fabrication of these materials. The importance of this work relies on that the transformation of a laser beam and its control is critical for almost all current laser applications, particularly in medical procedures.

My experience was further expanded during my international postdoctoral stage at the International Iberian Nanotechnology Laboratory (INL, Portugal). In this period a made use of my knowledge on optical design and engineering to create a novel combined microscopy platform. This yielded the first worldwide demonstration of colocalized and simultaneous data acquisition with a combined super-resolution fluorescence microscopy and scanning probe microscopy set-up. This can improve the understanding on how cells communicate and eventually be related to the formulation of solutions to certain rare diseases known to be caused by the malfunction of cell protein transporters. We used novel CRISPR-Cas9 engineered cells to explore the newly developed microscopy system. In parallel, we started a new research line to advance the non-invasive characterization of nonviral cationic liposome-DNA complexes through a fluorescence technique. This breakthrough work on analyzing a non 1:1 stoichiometry sample has been selected as the front cover of the January 2021 Journal of Biophotonics, which focuses on the promising application of photonics for translational research in medicine.

My current research line at USC as principal investigator aims to push novel strategies against antibiotic resistant bacteria using additive laser technologies, which allows micro-/nanofabrication of three-dimensional structures. When developed, these new biomedical devices will be applied as antimicrobial susceptibility tests to confirm susceptibility to chosen empirical antimicrobial agents, or to detect resistance in individual bacterial isolates. My work covers the whole deployment process of the laser-based fabrication system, from the design and fabrication of these novel sensor devices until the final validation in collaboration with experts in the fields of biology and medicine. Additionally, I am also exploiting the capabilities of this technology to push the development of microrobots towards advanced cell-guiding therapy in cardiovascular diseases. This research is envisioned as an interdisciplinary and translational project with the participation of hospitals and biomedical companies that will ultimately demonstrate the real application of laser-based additive technology in the emergent field of engineered living materials. As a result of my research path, my profile shows a strong multidisciplinary nature, including physics and optical engineering, material sciences, chemical synthesis and biophysics, and cell analysis.

Resumen del Currículum Vitae:

I started my research career thanks to a Spanish competitive fellowship (FPU grant) where my work was focused on the study and fabrication of novel optical materials with unique capabilities for laser beam tailoring. I did secondments in Germany and Portugal that expanded my technical and soft skills. I hold a PhD in Photonics and Laser Technologies from the Universidade de Santiago de Compostela (USC) in January 2016 (Cum Laude, International Doctorate distinction, Extraordinary Doctorate award).

I then had the opportunity to pursue my research career abroad (2017 to 2020) with the award of a public competitive postdoctoral fellowship to carry out the project "Simultaneous Advanced Technologies" at the International Iberian Nanotechnology Laboratory. I performed some pioneering optics experiments, including the first worldwide demonstration of colocalized and simultaneous data acquisition with a combined super-resolution fluorescence microscopy and scanning probe microscopy set-up. In parallel, we started a new research line to advance the non-invasive characterization of nonviral cationic liposome‐DNA complexes through an optical fluorescence technique.

In 2020, I returned to USC working on designing in vitro models for effective personalized therapy with laser technologies. In 2021, I was awarded a new postdoctoral public competitive fellowship and become a principal investigator (PI) of a brand-new research line to develop organ-on-a-chip devices with laser and 3D printing technologies for biomedical applications, where one key line is the development of functionalized materials to fight multidrug resistant bacteria.

I got several competitive grants and awards to fund my career from the Spanish and Galician governments, European Commission, the International Society for Optics and Photonics, and Banco Santander. I am author of 36 publications indexed in Scopus, 5 book chapters, more than 45 communications to national and international conferences (5 invited, 25 oral), and 2 patents (1 granted and 1 pending). I have co-organized several scientific conferences (international, 8 national) and participated in numerous projects (3 international, 4 national, 9 regional), some in collaboration with SME's (5). I am also an associate editor of the Óptica Pura y Aplicada Journal and since 2017 I am expert evaluator of R&D projects for the Agencia de Certificación en Innovación Española.

I have a strong interest in outreach activities, i.e, development of educational software, demonstrations, and lectures. I promoted the creation of the USC-OSA and EPS-USC Student Chapters to spread Optics and encourage scientific vocations, serving as president and vice-president. I was part of the board of directors of the Young Area of the Spanish Optical Society (SEDOPTICA). Currently, I am part of the board of directors of the Committee for Dissemination, Teaching, and History of Optics and the Committee of Women in Optics and Photonics of SEDOPTICA.

I have had teaching responsibilities (>420h) at the Physics Degree, MSc in Physics and Optics, and Optometry Degree at USC. I have directed a MSc Thesis project (3 more ongoing), a TFG (one more ongoing), supervised the research expeditions of two international MSc students, and internship tutor of a MSc student.

Área Temática:	Ciencias físicas
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Título:	Magnetic connections of the different layers of the solar atmosphere

Resumen de la Memoria:

I obtained my bachelor's degree in Physics in 2012 (ULL) and my master's in Physics and Mathematics (University of Granada). I received a few research fellowships as an undergraduate student and a fellowship under the Leibniz Graduate School for Quantitative Spectroscopy in Astrophysics. I obtained my Ph.D. in 2017, which was distinguished Magna Cum Laude by the University of Potsdam. From 2017 until 2020 I worked as a postdoctoral researcher at the Astronomical Institute of the Slovak Academy of Science. In January 2019 I was granted a permanent position. I joined IAC with a ERC fellowship granted by the research group PI2FA "Partial Ionisation: Two-Fluid Approach" (IAC) thanks to the Consolidator Grant (CoG) that the European Research Council (ERC) awarded to Dr. Elena Khomenko.

Recently I joined the Leibniz-Institute für Sonnenphysik (KIS) under the Observatory and Instrumentation department with a Tenure Track Position. I was in charge for a year of science in the Observatorio del Teide group. Furthermore, during that year I was the deputy of the head of the group. Recently, I become Head of the German Observatorio del Teide and group leader of the solar telescope group with an annual budget of about 850,000 € Additionally, I am in charge of all the instrumental development for the telescopes and I have an additional budget for a new instrument that we are developing of around 500-600,000 €

I have been awarded two international projects in competitive calls as PI (DAAD 2018), and (Štefan Schwarz grant 2018). I have been awarded a total research funding of about 125,000 € This funding provides me with scientific independence and allowed me to collaborate with different international scientists. I have obtained a permanent scientific position in an international institute (Slovakia) a year and 8 months after my Ph.D. I have published 27 publications in peer-review journals, 5 as first-author papers, 2 submitted, and 6 more in preparation, in journals such as ApJS, ApJL, APJ, A&A. I have participated recently in 10 research projects (1 national, 9 international, total funding >15.5M€). I am a usual referee of the journals ApJ, ApJL, and JOAA and I am a member of the committee EAST TAC of the SOLARNET project, which allocates the observing time of all the European solar telescopes. I am also a member of the GERMAN TAC. I maintain active collaborations with researchers from numerous international institutions. I have developed my scientific career almost entirely outside Spain, including my doctoral thesis.

I have made remarkable contributions to the field of solar physics. Notably, I have studied the evolution of an arch filament system (AFS). These support the theoretical models of AFSs and shed more light to the connection between between the photosphere, chromosphere, and corona. I am one of the most productive researchers using data from GREGOR, the largest solar telescope in Europe, being now in charge to improve the science and instrument of the solar telescope. My teaching experience includes a summer semester (two hours per week) at the Humbold- Universität zu Berlin (Germany). Some of my research has been disseminated in national newspapers and international media and I am very active in outreach activities (Two books related to the European Solar Telescope). Being also a local organizing committee member of schools.

Resumen del Currículum Vitae:

Sergio Javier González Manrique (SJGM) performed his Ph.D. studies at Leibniz Institute für Astrophysik Potsdam (AIP) on high-resolution observations of emerging flux regions. His dissertation was completed in 2017 at the University of Potsdam. SJGM had the opportunity to supervise a summer Master's student. After his Ph.D., he moved to Tatranská Lomnica (Slovakia) for a postdoctoral position at the Astronomical Institute of the Slovak Academy of Science. In 2019, SJGM was granted a permanent position. He has been awarded the Štefan Schwarz grant for being one of the best young scientists in Slovakia. Additionally, he has been funded as principal investigator (PI) by the Deutscher Akademischer Austauschdienst (DAAD) for the project "the evolution of the solar magnetic field". He has also contributed to the supervision of the Ph.D. thesis of Dr. Martin Benko during the years 2017-2021.

In June 2020, SJGM joined the research group PI2FA "Partial Ionisation: Two-Fluid Approach" (IAC) thanks to the Consolidator Grant (CoG) that the European Research Council (ERC) awarded to Dr. Elena Khomenko. I was able to design and lead observing campaigns to detect multi-fluid effects.

In February 2022, SJGM joined the Leibniz-Institute für Sonnenphysik (KIS) under the Observatory and Instrumentation department. During this time, He was in charge of all the topics related to the organization and contribution to the scientific exploitation of the German Solar Observatory (OT), Spain, including Time Allocation Committees for German telescopes and scientific research.

In February 2023, SJGM started a position as Head of the OT and Group Leader (Solar telescopes). As Group Leader, he is in charge of two senior scientists, one postdoc, and three engineers plus one future open position to incorporate another senior instrumentalist scientist (7 in total). He is responsible for planning and organizing the scientific and technical maintenance and campaigns of all telescopes and observatory facilities at the German OT. SJGM also leads the development of new subsystems and instruments for GREGOT and VTT. He is responsible for the preparation and control of the OT budget annually (for the year 2023 > 850,000 €)

Over his whole carrier, he has been awarded a total research funding of about 125,000 € (including grants, fellowships, and awards). This funding has provided him with scientific independence and the capability of management. He has participated in a total of 10 research projects (1 national, 9 international) awarded by International and National Agencies (total funding >15.5M€).

SJGM has a unique combination of experience in theoretical, observational, and instrumental solar physics. He has demonstrated leadership and independence, as endorsed by an unusually high rate of publications in a broad scope of topics in solar physics (27 publications in peer-review journals, 5 as first-author papers, 2 submitted, and six in preparation, in journals such as ApJS, ApJL, APJ, A&A) He is an expert in high-resolution flux emerging regions, arch filament systems, the evolution of the solar magnetic field in both photospheric and chromospheric solar atmosphere, solar

instrumentation, and spectropolarimetry. SJGM maintains active collaborations from numerous international institutions (NSO, MPS, AIP, INAF, IAC, KIS, UiO:RoCS, Chinese Academy of Sciences, etc.).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: **Ciencias matemáticas**
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Título: Doctor en Matemáticas
Resumen de la Memoria:

Placeholder

Resumen del Currículum Vitae:

Placeholder

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias matemáticas**
Nombre:	GONZALEZ PEREZ, ADRIAN MANUEL
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Título:	Grupos, Álgebras de von Neumann y Análisis Armónico

Resumen de la Memoria:

El programa de cuantización tiene su origen en el desarrollo de los fundamentos rigurosos de la mecánica cuántica por John von Neumann. Podemos decir que dicho programa explora el tipo de matemáticas que aparecen cuando se reemplazan las funciones en un espacio clásico por operadores que no necesariamente conmutan entre si. Esta linea de indagación ha dado origen a versiones cuantizadas de teorías clásicas, de los grupos cuánticos y la probabilidad libre a la geometría no conmutativa de Connes.

Mi investigación yace en el punto de encuentro de varias áreas. Una de sus líneas conductoras es el uso de las álgebras de von Neumann para definir una transformada de Fourier no-Abeliana a pesar de la ausencia de un dual de Pontryagin. Este enfoque te fuerza a sustituir las funciones en el dual por operadores que no conmutan entre sí.

Mi interés en este área llega desde dos vías distintas. Por un lado, la extensión de resultados clásicos a este contexto a menudo se vuelve dependiente de las propiedades del grupo, estableciendo una conexión inesperada entre análisis armónico y teoría geométrica de grupos. Por otro, los resultados requieren desarrollar marcos más generales para trabajar, como series de martingalas, semigrupos de Markov, etc.

Entre los problemas que he investigado en mi carrera se pueden encontrar resultados de multiplicadores suaves, como el teorema de Hörmander-Mijlin, generalizados a álgebras de grupo. Al ser este resultado dependiente de la dimensión este enfoque requirió estudiar la dimensión de Sobolev de ciertos espacios y dio origen a un trabajo publicado en los Annales Scientifiques de l'ENS. También he de destacar los resultados, junto a Junge/Parcet, en teoría de Calderón-Zygmund no conmutativa en espacios Euclidianos cuantizados, un trabajo pionero que dio origen a una monografía publicada en los Memoirs de la AMS. Algunos de mis manuscritos recientes, como aquellos obtenidos junto a Conde-Alonso/Parcet/Tablate van en esta misma dirección pero se enfocan a resolver una conjetura de Mikael de la Salle en el caso de multiplicadores de Schur suaves.

Un tema en el que he estado especialmente interesando es la idea de transferencia. Parte de mi trabajo ha consistido en obtener técnicas de transferencia para acciones de grupos y sus productos cruzados. Esta línea de investigación me ha llevado a explorar la amenabilidad de acciones, tanto en el sentido de Zimmer como en el de existencia de una media invariante. Esta dirección ha dado pie a dos trabajos en solitario, uno aceptado en J. Func. Anal. y otro en revisión.

La última línea de investigación que me gustaría mencionar tiene que ver con la teoría ergódica sobre álgebras de von Neumann. Esta es un área abierta por las contribuciones de Lance y Yeadon en los 80 que ha sufrido un fuerte empuje desde la primera década de los 2000's debido a la disponibilidad de nuevas técnicas como los espacios mixtos introducidos por Pisier en el 98 o la interpolación maximal de Marcinkiewicz de Junge/Xu en 2007. En este campo, uno de mis trabajos, junto a Conde-Alonso/Parcet, ha sido publicado en Forum of Mathematics (SIGMA). En el exploramos la teoría ergódica multiparamétrica y aplicamos los resultados a un problema, aún abierto, en el grupo libre.

Resumen del Currículum Vitae:

Realicé mi doctorado bajo la supervisión conjunta de J. Parcet (CSIC) y M. Junge (U. Illinois en Urbana-Champaign). Mi conexión con la universidad de Illinois me permitió realizar cuatro estancias allí durante mi periodo doctoral. Finalmente, mi tesis dio lugar a tres publicaciones, dos de ellas en solitario.

Esta tendencia a la internacionalización continuó con dos postdocs, uno en la KU Leuven (Bélgica) bajo la supervisión de S. Vaes y otro en la U. Clermont-Auvergne (Francia), bajo la supervisión de C. Kriegler. En Bélgica completé, junto a Junge/Parcet una extensa monografía sobre la teoría de Calderón-Zygmund en álgebras de von Neumann que fue aceptada en los Mem. Am. Math. Soc. Simultaneamente continué profundizando en mi aprendizaje de aspectos más puros de las álgebras de operadores, incluyendo su conexión con la teoría ergódica y las propiedades de aproximación de grupos. En Francia me integré en el proyecto ANR (HASCON). Allí añadí a mis anteriores lineas de investigación un proyecto, que ha dado origen a una larga monografía, sobre la R-acotación del cálculo espectral de Hörmander-Mikhlin en espacios Lp-no conmutativos.

Durante el inicio del curso 2020-2021, comencé a trabajar en el Instituto de Matemáticas de la Academia Polaca de Ciencias (IMPAN) como profesor adjunto. Este es un centro de gran prestigio en análisis funcional en general y en el campo del análisis armónico sobre álgebras de von Neumann en particular. Mi estancia en Polonia fue corta ya que al cabo de un semestre allí me trasladé a Madrid para tomar posesión de una plaza como profesor ayudante doctor en la Universidad Autónoma de Madrid (UAM).

Mis intereses matemáticos se encuentran en la intersección de las álgebras de operadores, el análisis armónico abstracto y el análisis de Fourier. En particular, estoy interesado en el uso de técnicas de álgebras de operadores para estudiar la transformada de Fourier sobre grupos. El interés de este programa es doble: por un lado permite establecer conexiones entre el análisis armónico y la teoría de grupos. Por otro, es un área que suele requerir de técnicas de alta flexibilidad, como semigrupos de Markov, secuencias de martingalas, etc.

Como ilustración del segundo punto, puedo destacar el trabajo reciente junto a Jose Conde-Alonso, Javier Parcet y Eduardo Tablate que permite dar condiciones necesarias para garantizar la acotación de multiplicadores de Schur, resolviendo un problema de Mikael de la Salle. Como ejemplo del primero, puedo destacar mi trabajo relacionando la identidad de Cotlar en un grupo con las acciones de dicho grupo en un R-árbol.

Además de mis intereses investigadores, poseo un compromiso fuerte con la formación de nuevos matemáticos y con el trabajo de mentor. Estoy especialmente orgulloso de que una estudiante brillante (Lise Wouters) que realizó su TFG en Bélgica bajo mi supervisión, decidió continuar su carrera con un doctorado en análisis funcional y ya ha producido 3 pre-publicaciones sobre acciones de grupos en C*-álgebras. Además, actualmente co-dirijo, junto a Javier Parcet, a un prometedor estudiante de tesis (Jorge Pérez) que comenzó su doctorado el curso 2021-2022. Dicho estudiante se encuentra abordando un abanico de problemas en análisis armónico, algunos de los cuales se describen en la memoria investigadora adjunta.

Área Temática:	Ciencias matemáticas
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Título:	Knot theory and the topology of smooth 4-manifolds

Resumen de la Memoria:

Within the field of smooth topology, 4-dimensional manifolds occupy a special place, as many well understood phenomena either fail or are open only in dimension 4; for example, there exist closed manifolds with infinitely many pairwise inequivalent smooth structures only in dimension 4, and the last standing case of the generalised Poincaré conjecture is exactly the smooth 4-dimensional Poincaré conjecture. The latter, often abbreviated by SPC4, states that the 4-sphere carries a unique smooth structure, and has been the main open problem in the field since Perelman's solution of the 3-dimensional Poincaré conjecture.

In order to study smooth, 4-dimensional manifolds, one can leverage on deep connections between this subject and knot theory, and hence rely also on techniques typical of knot theory, such as the study of smoothly embedded surfaces in a 4-manifold with boundary a given knot, which in turn can be studied with Floer homology, gauge theory, and combinatorial techniques such as Khovanov homology.

My collaborators and I proved a new adjunction inequality for smoothly, properly embedded surfaces in punctured CP2's involving an invariant coming from Khovanov homology. As a corollary, we proved that a popular strategy proposed to disprove the 4−dimensional Poincaré conjecture fails on a wide class of potential counterexamples.

In the opposite direction, in joint work with Manolescu and Piccirillo I showed that null−homologous smoothly embedded discs sometimes detect exotic smooth structures on 4−manifolds. (If this is true for S^4, it would disprove SPC4.)

Other recent works of mine focused on the study of smoothly embedded surfaces in some relatively simple 4−manifolds, such as CP2, CP2#CP2, and K3 surfaces.

Much about the topology of smooth 4−manifolds is still unknown. In this research programme I propose to further the investigation of smooth 4−dimensional topology leveraging on knot theory (in particular knot homologies) and the study of smoothly embedded surfaces. Some research topics I am planning to work on are the following:

− a conjecture about the rank on knot homologies that could lead to an invariant theoretically capable of detecting exotic 4−spheres;

− constructing and obstructing smoothly embedded surfaces in some 4−manifolds (e.g., CP^2 and K3 surfaces);

− expanding combinatorial reformulations of knot homologies for knots in S^3 and surfaces in B^4, with the goal of making them more apt to computations;

− distinguishing between Lagrangian cobordisms using Heegaard Floer homology, hence exhibiting a new incarnation of the dichotomy between the smooth and the topological categories in dimension 4.

Resumen del Currículum Vitae:

1. Proof with C Manolescu, S Sarkar, and M Willis of an adjunction inequality for smoothly, properly embedded surfaces in a punctured CP^2. As a corollary, a popular strategy to disprove the Smooth 4-Dimensional Poincaré Conjecture (SPC4) proposed in 2009 cannot work on a large class of potential counterexamples. Accepted in Duke Mathematical Journal.

2. Proof with C Manolescu and L Piccirillo that the set of knots that bound smoothly embedded, null-homologous discs in a punctured 4-manifold X sometimes detects different smooth structures on X. (Note that if this is true for X=S^4, this would imply SPC4). Currently under review.

3. Non-vanishing result for maps induced by genus-0 knot cobordisms in Heegaard Floer homology, joint with A Juhász (Geom. Topol. 2016).

4. With C Manolescu, disproved a conjecture from 2002 about the structure of Khovanov homology (Proc. Am. Math. Soc. 2020).

5. Selected grants:

- Marie Sklodowska-Curie Action MM-CAFH, sponsored by the European Commission, 139.850 EUR, PI Marco Marengon;

- Postdoctoral Mobility Grant, sponsored by the London Mathematical Society, 5.200 GBP, PI Marco Marengon;

- Doris Chen Mobility Award, awarded by Imperial College London, 1.000 GBP, PI Marco Marengon.

6. Co-organiser of:

- 3 topology conferences reserved for PhD students, all held at Imperial College London;

- research semester on "Singularities and Low-dimensional topology" at the Alfréd Rényi Institute of Mathematics in Budapest. This includes the co-organisation of 3 research conferences and a winter school.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias matemáticas**
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Título:	Alberto Santini - Combinatorial Optimisation problems in logistics and emerging technologies

Resumen de la Memoria:

I describe some of the research lines I pursued in the past. One of them is Operational Research (O.R.) applied to Vertical Farming (VF). Together with my co-authors, we published the first work analysing optimisation problems arising in VF and solving them with O.R. techniques. This work has sparked the interest of start-ups and other researchers, leading to follow-up articles.

Another line concerns the systematic investigation of methodological aspects of metaheuristics. Despite the vast amount of literature on metaheuristics, there are only a few extensive computational studies aiming at rigorously explaining why and how certain popular frameworks work well. I have two papers on this topic, one about acceptance criteria in the popular ALNS metaheuristic, and another one analysing decomposition methods for large-scale vehicle routing heuristics. This latter paper goes beyond an analysis of the existing methods and introduces a new one which outperforms the state-of-the-art.

I also worked on real-time algorithms for train rescheduling, i.e., the problem of changing train schedules after a disruption, in a way that ensures safe operations and minimises delays. The novelty of our approach was that we mixed microscopic and macroscopic modelling, in a heterogeneous representation of the railway network which "zooms in" on critical congested parts, and "zooms out" on less important parts.

As part of my Marie Curie fellowship, I am analysing ways to make urban last-mile delivery more sustainable. The boom in e-commerce has brought many externalities, especially in large, dense cities. An increase in delivery vans has caused more traffic, pollution, noise, and incivic behaviours. Among the possible solutions, we study a system in which part of the parcels reaches the city centre using spare capacity on public transport. This work was motivated by the numerous pilot projects implemented internationally, which use public transit to move parcels (e.g., in London, Karlshure, Sapporo, Tours, and Vienna).

I am also currently interested in optimisation problems arising in statistics and machine learning. In a recently submitted paper, we showed that an optimisation problem which was solved heuristically in the statistics literature admits a polynomial-time algorithm running extremely fast in practice. Investigating this type of problem has the potential of benefitting both statisticians and operational researchers and fosters interdisciplinary collaboration between these two areas.

Another area of interest is that of stochastic problems with "catastrophic consequences", i.e., in which the source of uncertainty concerns events with a low probability of occurring, but with large consequences. In two recent papers, I studied the 0-1 Time-bomb Knapsack Problem (an extension of the classical knapsack problem in which some objects are time bombs with a low probability of exploding and destroying the entire knapsack), and the Hazardous Orienteering Problem (an extension of the orienteering problem, in which some parcels can explode, and the probability of exploding is exponential with respect to the travel time).

Finally, I am also interested in maritime logistics (I have several papers on this topic), and problems on graph such as colouring and longest common subsequence problems.

Resumen del Currículum Vitae:

I have a PhD in Automatic Control and Operational Research (O.R.) from the University of Bologna, defended in 2017. I am currently working at ESSEC Business School and CY Paris Cergy Université (both part of the "CY Alliance"), where I moved after being awarded a Marie Curie fellowship in 2021 (MSCA Co-fund). Previously, I was a tenure-track assistant professor at Universitat Pompeu Fabra and a post-doctoral researcher at RWTH Aachen University.

My main focus is combinatorial optimisation. I have worked on exact methods (such as branch-and-price and branch-and-cut) for mixed-integer linear and non-linear problems. I also worked on methodological aspects of heuristics and meta-heuristics. From the point of view of applications, my work focuses on: logistics and supply chain management, from maritime to railway contexts and more recently to last-mile delivery in urban environments; problems on graphs, such as colouring, max-cliques, and graph isomorphisms; problems arising from emerging technologies, such as vertical farming; stochastic problems with "catastrophic events".

I am the founder of AIROYoung, the youth branch of the Italian O.R. association (AIRO) and of EUROYoung, a "Forum" within the European association of O.R. societies (EURO). I also served on the board of directors of AIRO in 2019-2021. I organised several workshops, including AIROYoung and EUROYoung workshops, and the seminar series in O.R. and Marketing at Universitat Pompeu Fabra. I was part of the Programme or Organising committee of more than 10 international conferences, session chair at 9 of them, and gave talks at 16. I was an invited speaker at universities, meetings or training centres on 11 occasions.

I have currently published 17 papers, and have submitted two more. All the works appeared in peer-reviewed international journals such as the INFORMS Journal on Computing, the European Journal of Operational Research, Omega, Transportation Research, and Computers & Operations Research. My network of co-authors spans fifteen countries and more than forty colleagues. I have two published and one submitted single-author paper, and only three of my articles feature my PhD supervisors (who are Daniele Vigo and Silvano Martello). I published over 20 open-source repositories (available on my GitHub page) containing academic code. I regularly publish open data with the code, the instances and the computational results of my papers, to guarantee their reproducibility.

On top of my current Marie Curie MSCA fellowship, I was awarded a Juan de la Cierva Formación grant (2019-21), a Juan de la Cierva Incorporación grant (declined because incompatible with the MSCA), a BGSE Seed Grant (from the Barcelona School of Economics), a Planetary Wellbeing grant (from Universitat Pompeu Fabra). These are all personal or PI grants. I was also part of groups awarded I+D+i Retos grants (Spain) and PRIN grants (Italy). I was awarded the Best Paper Award (2018) by the journal Omega, and the Meritorious Service Award by the journal Science (2022).

I collaborated on research projects with the industry, including with Maersk Lines, Alstom Railways, Amazon (where I was a visiting scientist in 2016), Intelligent Growth Solutions, etc. I participated in outreach activities in Spain, Italy, and Armenia.

I have taught at the PhD, Master's, and Bachelor's levels.

Área Temática:	Ciencias matemáticas
Nombre:	TELLINI , ANDREA
Referencia:	RYC2022-038091-I
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Título:	Qualitative study of reaction-diffusion equations from population dynamics

Resumen de la Memoria:

During my research career I have worked on three research lines which cover the areas of partial differential equations, ordinary differential equations and calculus of variations.

During my Ph. D. at Universidad Complutense de Madrid, I have obtained new multiplicity results for superlinear indefinite problems. Such problems are motivated by ecology and population dynamics, since they are a modification of the classical diffusive logistic equation that takes into account also cooperative effects.

Then, I have obtained funding for a post-doctoral project at the Center of Social Analysis and Mathematics (Paris) on propagation phenomena in reaction-diffusion equations which exhibit diffusion and/or reaction heterogeneities.

Later, I have been a Juan de la Cierva Incorporation post-doc at Universidad Autónoma de Madrid, where I have started to work on nonlocal variational problems coming from peridynamics, a branch of material science that allows discontinuous deformations and long-range interactions.

Currently, I am Associate Professor (Profesor Contratado Doctor) at Universidad Politécnica de Madrid.
I am carrying on the research on propagation problems, and I am applying the techniques developed in my Ph.D. thesis to study multiplicity results for other boundary value problems. Moreover, I have recently started the study of multiplicity of nodal stationary states for the classical diffusive logistic equation with heterogenities.

More specifically, some of the main results that I have obtained up to now are:
- Development of techniques to get high multiplicity for second-order piecewise autonomous differential equations, and the corresponding analytical global bifurcation diagrams;
- Improvement of numerical bifurcation methods to compute complex bifurcation diagrams;
- Study of the qualitative properties of eigenvalue problems related to propagation phenomena in heterogeneous reaction-diffusion equations;
- Study of eigenvalue problems for systems of reaction-diffusion equations posed in different spatial dimensions;
- Numerical investigation of eigenvalue problems related to shape optimization;
- Derivation of optimality conditions for nonlocal variational problems with contraints; such optimality conditions have been used to compute the relaxation for a nonlocal variational problem with double-well potential.

To conclude, I wish to stress my versatility, internationalization and independence in the research, which are testified by the different areas in which I have been working, my 5 publications as a unique author, and the number of national and international collaborators on past and ongoing projects: H. Berestycki (Paris, France), B. Bogosel (Ecole Polithéchnique, Paris), C. Mora-Corral (Autónoma University of Madrid, Spain), J. Fang (Harbin, China), G. Feltrin (Udine, Italy), T. Giletti (Nancy, France), L. Rossi (Sapienza University Rome), E. Sovrano (Paris), E. Valdinoci (Univ. Western Australia, Perth).

Resumen del Currículum Vitae:

Since May 2021 I am Associate Professor (Profesor Contratado Doctor) at Universidad Politécnica de Madrid. From September 2018 to April 2021 I was Profesor Ayudante Doctor in the same university.

Before, I was a Juan de la Cierva Incorporation postdoct at the Mathematics Department of Universidad Autónoma de Madrid. There, I started a research on nonlocal variational problems arising in peridynamics, the part of continuous mechanics that studies deformations allowing fractures and long-range interactions.

From October 2014 to January 2017 I was a postdoc at the Centre for Social Analysis and Mathematics (Paris), under the supervision of Henri Berestycki. I worked on reaction-diffusion systems with heterogeneities arising in adjacent domains, possibly with different spatial dimensions. This work has been done in the framework of a project that was selected by the Institute of Complex Systems of Paris and of the ERC Project "ReaDi". It is related to the study of propagation in environments in which a biological species moves faster in some subdomains. I investigated several configurations of this general situation, showing new phenomena related to the qualitative behavior of the asymptotic speed of propagation.

Regarding my academic formation, I got my Ph.D. degree in Mathematical Research at the Univ. Complutense de Madrid (UCM) in June 2013, under the supervision of Julián López Gómez and Marcela Molina Meyer, and supported by a FPI grant of the Ministry of Science and Innovation. In the thesis I proved a new high multiplicity result for positive stationary solutions of a logistic equation with a sign-changing weight, which models environments where the individuals both compete and cooperate. The techniques combined PDEs and ODEs tools, and I have also improved some numerical methods to get complex bifurcation diagrams.

I did Bachelor and Master studies in Mathematics at the University of Udine (Italy) where I was supported by a 5-year grant of excellence of the same University, whose benefits were yearly renewed upon passing additional exams and satisfying other academic requisites. I also did a second Master in Mathematical Research at the UCM.

I have authored 13 publications in international journals (9 of which in Q1), 1 book chapter, 2 refereed conference proceedings and 2 preprints. I am the unique author of 5 of such works. I have given more than 50 seminars in workshops and conferences at national and international level (France, Italy, USA, China, Taiwan).

I have taught undergraduate courses at the UPM, UAM, UCM and Paris Dauphine University. I have also taught two hours in a Master course at Universidad Politécnica de Madrid.

I have supervised 8 final degree projects at UPM, co-supervised 1 master thesis in the Sorbonne University (Paris) and 2 collaboration grants for Bachelor degree students.
Currently I am co-supervising a Ph. D. student in Mathematical Engineering (UCM).

I have refereed for several international journals, I have organized 5 cycles of seminars, 4 international workshops, and I have organized and participated in activities for spreading science to wide publics.

Área Temática: Ciencias matemáticas
Nombre: GÓMEZ CASTRO, DAVID
Referencia: RYC2022-037317-I
Correo Electrónico: dgomez91@gmail.com
Título: Problemas de difusión no-lineales y no-locales

Resumen de la Memoria:

My thesis focused on the study of semi-linear reaction-diffusion equations in bounded domains, mainly on the study of homogenization problems, the behaviour of solutions under domain deformations and singular Schrödinger equations. During my doctoral training I visited H. Brezis in Haifa, Israel, for 3 months. I spent the period 2018-2020 focused on polishing the homogenization results until obtaining a complete theory, which we presented in a book; and working on fractional diffusion problems, mainly with Juan Luis Vázquez, which meant for me the first part of my postdoctoral training. My current postdoctoral contract aims to study aggregation-diffusion problems in collaboration with Carrillo. I have also devoted energy to the study of rearrangement problems, Functional Analysis, as well as to some interdisciplinary problems such as li-ion batteries, image compression problems and I collaborated in a cancer-research project.

During my career I have collaborated with several very distinguished mathematicians: H. Brezis (U. Rutgers), R. Temam (U. Indiana), J.I. Díaz (U. Complutense), J.L. Vázquez (U. Autónoma de Madrid), J.A. Carrillo (U. Oxford), J.M. Rakotoson (U. Poitiers), T.A. Shaposhnikova (Moscow U.), A. Ramos (U. Complutense), C. Zheng (Georgia Tech)... as well as younger mathematicians with promising careers: Y. Yao (U. Singapore), L. Brasco (U. Ferrara), F. del Teso (U. Autónoma de Madrid), H. Chan (ICMAT), N. Abatangelo (U. Bologna),...

I have published 1 book (in De Gruyter), 34 JCR papers, 2 preprints, and 3 conference proceedings. My articles have appeared in:
Archive for Rational Mechanics and Applied Analysis
J. de Math. Pures et Appliquées,
J. of Functional Analysis,
A. de l' Institut Henri Poincaré C,
Calc. Var. and PDEs,
Adv. In Nonlinear Analysis,
Discrete and Continuous Dynamical Systems,
Fractional Calculus and Applied Analysis,
Nonlinear Analysis,
Journal of Mathematical Analysis and Applications... and I have numerous citations: 361 citations in Google Scholar, 156 Scopus, and 145 MathSciNet

Resumen del Currículum Vitae:

Currently I hold a position of Profesor Ayudante Doctor at Universidad Complutense de Madrid since 2018. I took a 2 year leave of absense as Postdoctoral Research Associate at University of Oxford.

I received my Bachelor's, Master's and PhD degrees in Mathematics from Universidad Complutense de Madrid. I wrote my doctoral dissertation supported by a FPU scholarship from Spanish government, under the supervision of J.I. Díaz (including a long stay with H. Brezis). I received the degree of Doctor of Mathematics in December 2017 and was awarded the Vicent Caselles prize in 2018. I then worked for two year with J.L. Vázquez before moving to Oxford.

During my career I have collaborated with several very distinguished well-established mathematicians: H. Brezis (U. Rutgers), R. Temam (U. Indiana), J.I. Díaz (U. Complutense), J.L. Vázquez (U. Autónoma), J.A. Carrillo (U. Oxford), J.M. Rakotoson (U. Poitiers), C. Zeng (Georgia Tech), F. Brock, A. M. Ramos (U. Complutense), A. Mercaldo and A. Ferone (Naples), T.A. Shaposhnikova (Moscow State U.)…as well as younger mathematicians with promising careers: Y. Yao (U. Singapore), F. del Teso (U. Autónoma), H. Chan (ICMAT), N. Abatangelo (U. Bologna), …
Publications: I have published 1 book (in De Gruyter), 34 JCR papers (23 in Q1, 7 in D1), 2 preprints, 3 conference proceedings. My articles have appeared in some of the best journals in Pure and Applied Mathematics: ARMA, JMPA, JFA, AIHP, Calc. Var. and PDEs, Adv. In Nonlinear Analysis, DCDS, Fractional Calculus and Applied Analysis, Nonlinear Analysis, …

I was Guest editor (jointly with J.A. Carrillo and F. del Teso) of an special issue in DCDS-A in honour of JL Vázquez 75th anniversary (Vol.43 No.3&4). I have organised of international workshops and special sessions in conferences, and given numerous talks in international conferences and workshops.

I have done the following long-term research stays/postdoctoral positions for a total of 49 months:
23 months at the University of Oxford, 23 months at Universidad Complutense de Madrid, 10 months a at Universidad Pontificia de Comillas. I have also done several short-term research stays in institutions like: Imperial College (UK), Universitá Federico II in Naples (Italy), University of Oxford (UK).

I hold the habilitation for Prof Contratado Doctor (Associate Professor) in Spain (2019) and for Prof Ayudante Doctor (Assistant Professor) in Spain (2018).
I have supervised: 2 PhDs (ongoing) student; 3 Master Dissertations at Oxford; 5 Bachelor Dissertations (TFG) at Universidad Complutense de Madrid.
I have taught 500+ hours of Mathematics at the Bachelor level and Master's level, 3 PhD courses and given 3 science dissemination talks in high schools.

Área Temática:	Ciencias matemáticas
Nombre:	DOMINGUEZ , OSCAR
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Título:	INFUSE: INterpolation, FUnction Spaces and Euler equations

Resumen de la Memoria:

My research focuses on questions arising at the interface between function spaces, harmonic analysis, PDEs, interpolation theory and approximation theory.

My PhD (Universidad Complutense de Madrid) dealt with relationships between approximation spaces and Besov function spaces via modern interpolation techniques, namely, limiting interpolation.

After my PhD, I have broaden my research interests into a variety of topics. In particular:

- Bourgain-Brezis-Mironescu estimates. Jointly with M. Milman, we were able to solve several outstanding questions in the area such as a satisfactory fractional BBM methodology and an abstract version of the Brezis-Van Schaftingen-Yung formula in terms of families of operators. On the other hand, a joint collaboration with A. Seeger, B. Street, J. Van Schaftingen and P.-L- Yung characterises families of weak-type Gagliardo functionals, as recently introduced by Brezis et al., via interpolation spaces. In particular, this allows to solve a longstanding open question in non-linear approximation theory going back to the seminal work of DeVore-Jawerth-Popov in the 90's.

- New concepts of smoothness in function spaces and applications to PDEs. The classical theory of function spaces (Besov and Triebel-Lizorkin spaces) is well-understood from the middle of the 60's and beginning of the 70's. However, its scope is rather limited when dealing with modern aspects in PDEs and new measures of smoothness are required. In particular, jointly with S. Tikhonov we developed a comprehensive account on the theory of function spaces with logarithmic smoothness. On the other hand, joint work with D.D. Haroske and S. Tikhonov is concerned with log-Lipschitz spaces and their applications to controllability and observability of PDEs. Jointly with F. Cobos and H. Triebel we studied Besov spaces of smoothness near zero, a case of special interest in recent applications in PDEs (Bressan's conjecture), via Fourier-analytical decompositions, differences, wavelets and semigroups.

- Classical Marcinkiewicz interpolation theorem plays a central role in harmonic analysis. As is well known, this result does not apply to deal with end-points. I showed that this obstruction can be overcome via limiting interpolation. Indeed, jointly with S. Tikhonov we have applied limiting interpolation to improve and extend the famous BMO methodology due to Bennett-DeVore-Sharpley and the Stein-Zygmund embedding. On the other hand, with M. Veraar, we extended classical inequalities (as those of Pitt, Zygmund and Bochkarev) involving the Fourier transform from the scalar-valued setting to the vector-valued setting.

- Together with M. Cao, C. Martell and P. Tradacete, we established several characterizations of the A_∞ condition among elliptic measures. In particular, equivalence with Carleson measure estimates and elliptic boundary problems on rough domains, extending earlier results of Dindos-Kenig-Pipher in the smooth setting. Furthermore, interesting applications to perturbation theory of elliptic operators are provided.

- My joint work with F. Cobos and T. Kühn presents an abstract methodology to establish exact estimates for approximation and entropy numbers of embbedings between approximation spaces.

Currently I am interested in applying extrapolation theory and sparseness in connection with Euler equations.

Resumen del Currículum Vitae:

I earned my PhD on June 2016 at the Universidad Complutense de Madrid (UCM), obtaining the highest distinction of Sobresaliente-Cum Laude, as well as the Extraordinary PhD Prize in Mathematics. I got 2 postdoctoral appointments at the University of Lyon and the University of Coimbra. In addition, I spent 4 long periods working at some prestigious institutions: Centre de Recherches Mathématiques-Montreal, Isaac Newton Institute-Cambridge, University of California-Irvine, and University of Jena. Currently I hold a Profesor Ayudante Doctor position at UCM.

My research lies at the intersection between different research areas: harmonic analysis, PDE's, function spaces, interpolation theory and approximation theory. Some of my current research interests are Euler equations via extrapolation and sparseness and Bourgain-Brezis-Mironescu estimates. I am the author of 25 papers, of which 23 have been already published in some top journals like J. Math. Pures Appl., Adv. In Math., Trans. AMS, Calc. Var. PDE, J. Funct. Anal. (x2), Forum Math. Sigma or Constr. Approx., and 2 books, one has already appeared in the prestigious series Memoirs AMS. In particular, 4 of these papers are single author published in reputed journals. My work has already received a deal of attention, as can be illustrated by its high number of citations (314 according to Google Scholar) and an h-index of 10. I was able to create strong connections with some leading experts, as well as promising researchers, in my fields (from USA, France, Australia, Canada, Germany, Belgium, The Netherlands, ...)

I was invited by the Spanish Functional Analysis Network to conduct a team of promising master and fresh PhD students at the X Functional Analysis School. I was invited to deliver a 1-week PhD course on my recent research at the Imperial College London. I gave 16 plenary/invited talks in international/national conferences (e.g., Oberwolfach, Bedlewo, Isaac Newton Institute, ...) and 35 talks in specialised seminars (Oxford, Duke, Sorbonne, Ohio, South Carolina, Wisconsin, Leipzig, ..).

I organised 2 international scientific events, namely, special sessions within the 2022 Canadian Math. Soc. Meeting and the Conference for Young Researchers 2020 of the RSME. I co-organised the Corona Seminar, which became one of the most important online seminars in Analysis. In addition, I was running the research seminars "Approximation, Sampling and Compression in Data Science" and "Harmonic Analysis" during my stays at the Isaac Newton Institute and CRM-Montreal, respectively.

My research has already received several recognitions and grants. Indeed, I was awarded with the 2017 Vicent Caselles Prize, by the Royal Spanish Mathematical Society to the best young researchers (under 30) in Mathematics. I got several international/national research grants from the Simons Foundation, Juan de la Cierva, Fundacao para a Ciencia e a Tecnologia-Portugal, Del Amo Foundation, Instituto de Matemática Interdisciplinar, …My research has been supported by 3 international projects, 3 national MTM projects and 1 local UCM project.

I am currently mentoring a PhD student (Yinquin Li) from Beijing Normal University and I have supervised 2 bachelor theses at UCM. I have served as a referee for many journals, in particular, Adv. In Math., J. Eur. Math. Soc., J. Funct. Anal. and Nonlinear Anal.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: Ciencias matemáticas
Nombre: LONJOU , ANNE
Referencia: RYC2022-035851-I
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Título: A geometric group theoretic approach of Cremona groups and Thompson-like groups

Resumen de la Memoria:

My research lies at the intersection of birational geometry and geometric group theory. In particular, I perform a geometric group theoretic approach of the Cremona groups (groups of birational transformations of the projective space) inspired by groups coming from topology such as mapping class groups, or the modular group. Recently, I widened my interests in studying Thompson-like groups. My three best scientific achievements are:

-The construction of CAT(0) cube complexes to study Cremona groups of higher ranks, with C. Urech (published in Duke Math.J.). It is the only geometric construction known currently to study these groups. Finding such objects and actions where a huge issue. This construction gives a new tool to tackle them.

 -With A. Genevois and C. Urech, we constructed contractible cube complexes to study a family of braided Thompson groups constructed as asymptotically rigid mapping class groups and we solved Funar-Kapoudjian's and Degenhardt's conjectures about the finiteness properties of these groups (published in Geometry and Topology).

 -With A. Genevois and C. Urech, we embedded densely Cremona groups of rank 2 over a finite field in Neretin groups (group coming from low dimensional topology). This allowed us to do an unexpected connection between these two groups and we obtained properties for both these groups (accepted in IMRN).

Resumen del Currículum Vitae:

My results have been published in 7 scientific papers in international top level journals such as Duke Math. J., G&T, Int. Math. Res. Not., EPIGA, Ann. de l'Institut Fourier, Publicacions Mat., Confluentes Mathematici, 2 proceedings, 1 article is accepted in IMRN and 1 is submitted. I also communicated my work through an extensive list of invited talks (41 in research seminars, 16 in international conferences and 2 mini-courses) in several prestigious institutes such as the KIT in Karlsruhe, the IHP in Paris, at Oberwolfach, the CIRM, the EPFL, the HSE of Moscow, the UNAM in Cuernavaca. I am also invited two give 2 mini-courses this spring: one at a workshop on recent advances in geometric group theory at UC Riverside (USA) and the other one to the conference huge groups part of the thematic semester organized by the CRM in Montreal (Canada). This certifies of my established place inside my fields or research.

My leadership intensified when, in 2020, I have been hired as Maitre de conference (assistant professor, permanent position) in the Mathematical department of Orsay at the University Paris-Saclay and then hired as Ikerbasque research fellow at the UPV/EHU in 2022. Moreover, my research is currently supported by several grants (the Ikerbasque fellowship, a french ANR project and the Basque Government Ikerketa Taldeak Grant IT1483-22 "Groups, Topology and Applications' '), and I have been PI of two other grants (1 which I had to renounce because I got simultaneously a permanent position). I had several collaborations with internationally recognized researchers such as (S. Cantat who just got an ERC advanced grant, V. Guirardel, S. Lamy) but also with rising researchers of my career stage (A. Genevois, C. Urech).

I like scientific dissemination and during my Phd I had the opportunity to participate to the European Researchers' Night managing a stand ``Geometrie en main' ' with A. Cheritat and D. Bouloc and, to supervise small introductory research projects (Combinatorial games, Groups and Geometry) to several groups of high-school students and a 1-year project for 3 voluntary groups of middle school students. I would like to emphasize that I really like to teach; I taught to all level of university, exercise classes as well as lectures, on various topics of mathematic. I also got a Master in teaching and I passed the competitive French examination ``Agregation' ' which allows to teach in high-school. I also followed and validated an online formation for interactive teaching with boxes voting that I put into practice for a 1st year lecture on Maths 1. Finally, I also presented the university of Toulouse and my study path to groups of high-school students and to a group of female high-school students in order to encourage them to pursue studies in science.

Recently, I have been in two recruitment committees (University of Paris-Saclay and of Clermont Auvergne) to hire a Maitre de conférence (associate professor positions in France that are permanent), and I will be in a third one this spring for the University of Bordeaux. I also organized 3 conferences. I am currently one of the organizers of the online French speaking seminar on Groups and Geometry which is a weekly well known seminar gathering researchers from many different universities. To finish, in 2021, I supervised two groups of bachelor students for their bachelor thesis.

Área Temática: Ciencias matemáticas
Nombre: ROY , ARNAB
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Título: Complex fluid-structure interaction: Well-posedness, control aspects
Resumen de la Memoria:

The research project focuses on the two different fluid-structure interaction problems
where fluids have an elastic component. The first part focuses on the well-posedness of
the movement of colloidal particles in a nematic liquid crystal. We model a colloidal
particle as a rigid sphere and take the flow hydrodynamics to be described by the
incompressible Navier-Stokes equations with an additional elastic stress due to the
nematic liquid crystal orientational ordering. We want to establish global existence of a
weak solution and strong solution (under appropriate smallness condition on initial data)
to this interaction system and also want to analyze collision/no-collision
aspects of the colloid particle with boundary.
In the second part, we investigate the controllability and stabilizability aspects of
viscoelastic fluids interacting with a rigid body . The control problems deal with the
existence of a control (the forcing term, the boundary conditions etc.) by means of which,
the solution of the system can be brought to a desired trajectory. The stabilization
problems are related to analyzing if the solution of a system can be driven towards a
desired trajectory with a prescribed decay rate using a control. We aim to study the null
controllability (the solution of the system can be brought to the rest at some finite time) of
the linearized Oldroyd-B model with a moving control and to investigate the stabilizability
of the interaction of the nonlinear Oldroyd-B model with a rigid body. As the
Oldroyd-B model has structural similarities with the Landau de Gennes model, studying
control and stabilization in the context of Oldroyd-B-rigid body interaction model would
open a path towards studying control problems in the more complicated case of nematic
liquid crystal colloids. On the one hand, coupled Landau-de Gennes model has
additional diffusion, but on the other hand it has additional stress caused by liquid crystal
molecules which adds certain challenges.
Regarding the existence of weak solution we need to introduce a completely new approach for the
penalization due to the fact that we can't define weak solutions on the whole domain by
extending the unknowns appropriately as there is Neumann boundary data for the
directional tensor. Regarding the strong solution, we transform the moving domain problem to a problem on a fixed domain by change of variables
that acts on a neighborhood of the rigid body. We then use maximal regularity to obtain a unique, strong local solution to the coupled problem.
Regarding the second objective, we want to explore the no-collision paradox paradox and how it behaves in the presence of slip or no-slip boundary
conditions in the context of liquid crystal colloid interaction. Another approach is to study mathematically the roughness-induced effect on the collision
process by prescribing an appropriate curve as a boundary of rigid body where we can exploit the regularity. We need to handle the coupling between
velocity and stress tensor by establishing the Carleman
inequality for the Stokes equation in divergence free spaces with moving domain for the null controllability of the linearized viscoelastic flows. The
stabilizability problem of the interaction between rigid body and viscoelastic fluid can be established by verifying Hautus conditions for the linearized
system and set up the fixed point suitably.

Resumen del Currículum Vitae:

My primary research involvements are towards understanding certain classes of partial
differential equations, mainly fluid motions, fluid-structure interaction (FSI) models: 1. Motion of solids inside viscous fluid, 2. FSI on modeling blood
flow, 3. Control and stabilization, 4. Small rigid body limit. I have in total 14 accepted articles (including Journal of Differential Equations, SIAM J. Math.
Anal, Nonlinearity, Communications in Partial Differential Equations, Journal de Mathématiques Pures et Appliquées etc.), 2 book chapters (Springer
and EMS press) and 3 submitted articles. During the last 2-3 years I have attended several conferences and gave more than 40 invited or contributory
talks (to mention a few: Oberwolfach Workshop, CIRM-Luminy, SIAM-PD22, European Congress of Mathematics, French German Portuguese
Conference on Optimization), give lecture in several seminars (BCAM-UPV, University of Würzburg, University of Regensburg, Politecnico di Milano).
I have been funded by several prestigious agencies: 1. IFCAM-project (Indo-French Centre for Applied Mathematics) supported by DST-IISc-CNRS and
Université Paul Sabatier Toulouse, 2. ANR research project IFSMACS, 3. Czech Science Foundation (GACR) project, 4. Alexander von Humboldt Research
fellowship.

During my research career I have collaborated with several leading experts of the field
(Eduard Feireisl, Antonin Novotný, Jean Pierre Raymond, Takéo Takahashi, Sarka
Necasova, Boris Muha, Mythily Ramaswamy). I have received training on Gender Balance
and Gender dimension and I have taken care of this in all direct and indirect activities
organized. Although the number of female mathematicians is very low, I have been
interacting and I will continue to interact with Mythily Ramaswamy, Sarka Necasova and Anja

Schlömerkemper. I am planning to organize a workshop on Complex fluids and interaction models and I will ensure that at least one fourth of the participants will be female

mathematicians. I have contributed to the Oberwolfach report. I invited several people to the Oberseminar in TU Darmstadt. I have actively participated in the long night of Mathematics (Die Lange Nacht der Mathematik). I have worked with the PhD students and currently I am working together with PhD student Felix Brandt in TU Darmstadt. I am also associated with several journals as a referee (such as Boundary Value Problems, Journal of Mathematical Fluid Mechanics, Discrete and Continuous Dynamical Systems etc.).
During my research career I have been funded by several prestigious agencies. I have obtained the Alexander von Humboldt Research fellowship for 2 years. I have research experience in several institutes in Europe (France, Germany, Spain, Czech Republic) and it gives me an enormous amount of chances to expand my horizons and enhance my research.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias matemáticas
Nombre:	CROCI , MATTEO
Referencia:	RYC2022-036312-I
Correo Electrónico:	mat.mcroci@gmail.com
Título:	Mixed-precision and multilevel Monte Carlo algorithms for scientific computing and uncertainty quantification

Resumen de la Memoria:

My interdisciplinary research lies at the interface between different fields within computational and applied mathematics. Currently, I focus on:

1) Multilevel Monte Carlo methods, uncertainty quantification, and computational stochastics.
2) Reduced- and mixed-precision (RP and MP) algorithms, in particular for solving partial differential equations (PDEs).

** Multilevel Monte Carlo methods **

Multilevel Monte Carlo methods are efficient algorithms for estimating statistical properties of quantities of interests subject to uncertainty. I constructed one of the first optimal cost-complexity algorithms for the sampling of Gaussian fields. Furthermore, I designed new multilevel and quasi Monte Carlo methods for random PDEs with random field coefficients. I was also the first to establish the linear-cost complexity of supermesh constructions, which are key for the conservative transfer of fields between non-nested grids. During multiple stays at Simula Research Laboratory (Norway), I applied the new methods and theories to the modelling and simulation of brain fluids and their clearance (a phenomenon related to neurodegenerative disease). This work was reported as a "breakthrough" by the head of the EU Horizon 2020 WATERSCALES project at Simula: it led to new physiologically relevant insights and to the first study of the project to be published in a medical journal.

In my current work, which is part of a large multidisciplinary US DoE project, I am leading the development of new multilevel and multifidelity Monte Carlo methods that can tackle the complexity of plasma physics applications. For this purpose, I developed the first multi-output multilevel best linear unbiased estimators. These new methods are provably more efficient than any other multilevel Monte Carlo method and yield optimal estimators for any number of output quantities of interest.

** Reduced- and mixed-precision algorithms **

RP/MP algorithms are carefully crafted to maximise cost- and energy-efficiency by performing most (in MP) or all (in RP) operations in single, half, or even lower precision without significantly harming accuracy. I am currently pioneering the development of RP/MP methods for the numerical solution of PDEs:

- I am the first author of a review article on the advantages of stochastic rounding in RP.
- I designed new RP finite element and finite difference solvers for parabolic PDEs.
- I derived the first probabilistic rounding error analysis specific to the numerical solution of PDEs.
- I created MP time-stepping methods that are almost as cheap as their RP equivalents, yet as accurate and stable as their double-precision counterparts.
- In collaboration with researchers at the European centre for medium-range weather forecasts, I constructed one of the first prototypes of a climate forecast model running entirely in half precision.

The long-term goal of my research is to build a comprehensive RP/MP algorithmic framework for scientific computing that includes the numerical solution of PDEs, uncertainty quantification, and machine learning. Since the scientific community working on these topics is huge, this project will lead to high impacts in and outside academia.

Finally, the RyC fellowship will drastically increase my chances of settling in Spain as a permanent faculty member, which is a personal life and career goal.

Resumen del Currículum Vitae:

I obtained my PhD in Mathematics in 2020 from the University of Oxford (ranked #1 university in the world by THE). After my PhD, I stayed in Oxford to work as a postdoc with the head of the Mathematical Institute, M. B. Giles (highly-cited researcher). In 2021, I moved to the Oden Institute for Computational Engineering and Sciences (OICES, ranked #1 department in the world for interdisciplinary applications of mathematics by CWUR) at the University of Texas at Austin in the group of K. E. Willcox, director of the institute and highly-cited researcher.

My PhD research was supported by the Oxford-Radcliffe scholarship, which I applied for and won. I also received the 2020 Charles Broyden prize for the best Optimization Methods and Software paper. I have recently applied for a $7,500,000 US MURI grant as project leader in mixed-precision computing with the objective of advancing mixed-precision and deep learning algorithms for multiscale multiphysics problems. This brought me into a collaboration with 5 universities and 9 highly-cited researchers, including J. Nocedal (>84,000 citations) and Y. Saad (>60,000 citations). Notably, I am the only non-permanent faculty member in the project coordinating team. I have also recently submitted a Marie Curie individual fellowship application.

After less than 3 years from finishing my PhD:

- I participated in 8 international research projects (e.g., EU ERC, UK EPSRC, US DoE), including as a work package leader.
- I am the author of 13 articles (12 in Q1 journals, 1 submitted), of which 11 as first author and 7 without PhD/postdoc advisors. My papers include 22 co-authors across 11 different institutions and 7 countries.
- I was invited as the main speaker of 14 international seminars at some of the best institutions in the world (e.g. Courant/NYU, EPFL, Yale, Oxford).
- I organised the FEniCS' 18 international conference and I presented my work in 9 international conferences and study groups.
- I performed 6 research stays in international institutions and companies.
- I acted as a reviewer for 8 Journals (5 Q1).
- I independently supervised one Oxford MSc student, I acted as the coordinator of all Oxford Numerical Analysis PhD researchers, and I mentored 3 Oxford PhD/MSc students.
- I collaborated on research projects with 2 companies (Simula, Norway, and Nielsen, USA) which financially supported my research.
- I have contributed code to many open-source scientific computing libraries, including the finite-element library FEniCS which has tens of thousands of users in and outside academia.

These numbers show how ever since the late years of my PhD, I have always conducted my own lines of independent research. Indeed, the value of my independent work was recently recognised at OICES: I was just promoted to research associate (research fellow).

I strongly support equality in academia and I have always been active in outreach and dissemination activities:

- I helped in the organisation of an event aimed at promoting gender balance in mathematics and I delivered multiple high-school outreach lectures.
- I presented my work in front of representatives from over 20 companies and I gave a tutorial to end-users in the finance industry.
- I visited 5 multinational companies to promote collaborations between industry and academia and I participated in 3 technology transfer workshops.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias matemáticas**
Nombre:	BUSTO ULLOA, SARAY
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Título:	STructure prEserving and thermodynaminaLLy compAtible schEmes for continuum mechanics (STELLAE)

Resumen de la Memoria:

This project and my past and present research concern the design, theoretical analysis and practical implementation of new, efficient high order accurate numerical methods for the solution of time-dependent hyperbolic partial differential equations (PDE). Applications lie in computational fluid and solid mechanics for geophysical flows in environmental and coastal engineering and climate research, compressible flows in mechanical, industrial and aerospace engineering, plasma flows in tokamaks for the production of clean and inexhaustible energy via nuclear fusion and the simulation of blood flow in the human cardiovascular system based on real patient-specific data. Hence, my work has a direct and indirect impact on modern society and human wellbeing.

Structure-preserving (SP) schemes are built to satisfy structural properties of the continuous PDE exactly at the discrete level. For accurate and stable long-time simulations they must have the following properties: i) consistency with the asymptotic limit of the PDE when some characteristic scales tend to zero; ii) preservation of stationary equilibria (well-balanced), iii) satisfaction of curl and divergence constraints and iv) of an extra conservation law for the total energy to prove nonlinear stability in a rigorous manner. To my best knowledge, there are currently no schemes yet that simultaneously satisfy all properties above at the discrete level. Only a subset is verified by current state-of-the art methods. It is thus a main goal of this project to develop these missing schemes.

During my entire academic career I have been working on new SP methods. In my PhD thesis (2018, summa cum laude) and during my PhD and post-doctoral stays with E.F. Toro and M. Dumbser in Trento, Italy, I designed new well-balanced semi-implicit hybrid finite volume/finite element (FV/FE) schemes on fixed and moving staggered unstructured 2D and 3D meshes that are consistent with the incompressible limit of the compressible Navier-Stokes equations when the Mach number tends to zero. It combines the advantages of FV schemes for hyperbolic PDE with those of continuous FE for elliptic problems. I have also developed innovative SP and high order discontinuous Galerkin (DG) schemes for nonhydrostatic dispersive and turbulent shallow water flows, for magnetohydrodynamics (MHD) and for a first order hyperbolic reformulation of the nonlinear Schrödinger equation (HNLS) in quantum hydrodynamics. To satisfy the divergence and curl constrains of MHD and HNLS, I have proposed a new thermodynamically compatible generalized Lagrangian multiplier (GLM) divergence and curl cleaning approach that did not exist before.

Currently I develop new thermodynamically compatible FV and DG schemes for fluid and solid mechanics which satisfy an extra energy conservation law at the discrete level and thus are provably nonlinearly stable. This constitutes a major breakthrough in numerical analysis for hyperbolic PDE. For critical real-time applications I use my experience in reduced order modelling (ROM) gained during my research stays with G. Rozza at SISSA Trieste, Italy. I will develop new SP-ROM methods that include structural properties of the PDE, a completely new and unexplored field.

The research of this RyC project is very ambitious and far beyond the state of the art. It will lead to major progress in applied mathematics.

Resumen del Currículum Vitae:

My research focuses on the development, mathematical analysis and implementation of new, efficient numerical methods for the solution of time-dependant partial differential equations (PDEs). The main lines of research I develop include: hybrid methods, reduced order modelling (ROM), discontinuous Galerkin schemes (DG) and thermodynamically compatible schemes (HTC).

My research has led to 20 articles published in leading journals (Scopus ID: 57191528274): 16 Q1 (9 D1) and 4 Q2; 1 book chapter (Springer); 1 conference paper (Springer); 1 registered software; 2 articles under review. I have 310 citations resulting on an average of 61 citations per year during the postdoctoral period, H-index 11. I am Gest Editor of Applied Mathematics and Computation journal and peer reviewer in 8 high quality JCR indexed journals (more than 55 reviews).

I am PI of a HPC RES grant and I have been PI of 2 competitive projects: UNITN Starting Grant (2020-2021, regional, UNITN), INDAM-GNCS Young researchers (national, Italy, 2021). I have participated as research group member in 8 national (Italy, Spain) and regional projects and in 1 R&D contract. I won 7 grants among those the FPU grant for my PhD thesis and 2 competitive postdoctoral positions: one in the Progetto Premiale Foe-SIES (INdAM-INGV, 18 m), and a postdoctoral research grant from the Italian Ministero dell' Università e della Ricerca (14 m). I have won a competitive Juan de la Cierva-Incorporación in the 2020 call of the Ministerio de Ciencia e Innovación. I have been assistant professor in the Department of Applied Mathematics to Industrial Engineering at the UPM and, currently, I am assistant professor at the Department of Applied Mathematics I, UVigo.

I am supervisor of 1 PhD thesis (A Lucca, UNITN) on the extension of the hybrid FV/FE methodology to the context of FSI and moving meshes to be applied in computational haemodynamics. I have also supervised 1 MSc (UNITN, 2021) and 1 BSc students (USC, 2021). My teaching experience consists of 430h in BsC, 152h in MsC and 22h in PhD courses. Further experience includes participation in 1 innovative teaching project and coordination of 2 teaching innovation activities as well as the organization of the PhD course Advanced numerical methods for hyperbolic equations 2021(36 international participants). I have a scientific paper on the conception, testing and implementation of blended teaching at DICAM, UNITN. I participate in dissemination activities as the ESTALMAT project and the Matemáticas, habelas hainas journeys-USC. I am member of the RSME Commission for Women and Mathematics.

The novelty and quality of my research has given me the opportunity to participate in 19 leading international and 6 national conferences (8 minisymposium), 6 workshops, 4 seminars, 1 minisymposium organizer and an Oberwolfach workshop (invited). I have co-organized the international conference Numerical methods for hyperbolic problems (NumHyp 2021) and the IV EMI congress (299 participants) and organized the seminars of the Department of Applied Mathematics, USC (3 y). My international research collaboration network includes many leading international experts in the field of applied mathematics as M Dumbser, EF Toro (UNITN), A Bermúdez (USC), R Abgrall (UZürich); S Gavrilyuk (Aix-Marseille University); E Romenski (Sobolev Institute of Mathematics) and G Rozza (SISSA).

Área Temática:	Ciencias matemáticas
Nombre:	COSTA DE SOUSA, MATEUS
Referencia:	RYC2022-038226-I
Correo Electrónico:	mcosta@bcamath.org
Título:	Fourier Analysis

Resumen de la Memoria:

I am broadly interested in mathematical analysis, and its connections to other fields, and under the supervision of Prof. Carneiro I studied mainly harmonic analysis, focusing mostly on extremal problems in Fourier restriction theory and questions concerning smoothness properties of maximal functions, which are the core subjects of my Ph.D. thesis "Some sharp inequalities in harmonic analysis". Later I have also added to my interests the study of uncertainty principles connected to the Fourier transform and its connections to recent developments in Fourier interpolation theory.

I am heavily inclined to work on problems which can be explained with a relatively simple language
but demand intricate ideas to be solved. Based on that personal inclination, I have worked on projects related to extremal Fourier restriction theory, regularity properties of maximal functions, and also uncertainty principles and their related Fourier interpolation theory. Although I plan to keep exploring these lines of research, and I have ongoing projects related to all these topics, it is safe to say my current main topic of interest are Fourier interpolation formulas.

In the other documents which a part of this application, I explain in more detail my current lines of research and interests.

Resumen del Currículum Vitae:

I started my mathematical studies as an undergraduate at the Federal University of Pará, in my hometown of Belém, from 2008 until 2011. Later I moved to Rio de Janeiro, where I obtained a Master degree (2014), under the supervision of Felipe Linares at IMPA, and a PhD degree (2017), under the supervision of Emanuel Carneiro at IMPA.

Following the end of my PhD, I stayed from January to August of 2018 as a postdoc in the harmonic analysis and fractal geometry group of the University of Buenos Aires, under the supervision of Carlos Cabrelli. Starting in September 2018 I became a postdoctoral researcher in the Ludwig-Maximilians University of München, under the supervision of Rupert Frank. Following my period in Munich, I moved to Bilbao to work at BCAM as a postdoc funded by a Juan de la Cierva - Incorporación grant, under the supervision of Carlos Pérez, with whom I am co-supervising a PhD student.

Since the beginning of my PhD, I did a number of research stays. I was a visiting student at the University of Bonn twice, in 2016 (April-June) and in 2017 (March-June). I was also a visiting student twice at the ICTP, in 2016 (October) and in 2017 (September - October). Besides these research stays, I did a number of shorter visits around the world, including Argentina, Finland, France, Germany, Italy and Spain.

I have publication in different prestigious journals, such as Advances in Mathematics, Analysis & PDE, Annales Henri Poincaré (C), the Journal of the European Mathematical Society, among others. Besides my publications, I have always been involved in the organisation of local activities in the different institutions I have passed by, from student seminars during my time as a PhD candidate, to the group research seminars of my current institution. I have also co-organized thematic sessions in different congresses.

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Área Temática:	Ciencias matemáticas
Nombre:	ESTEVE YAGÜE, CARLOS
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Correo Electrónico:	carlosestevecast@gmail.com
Título:	Partial Differential Equations, Optimal Control Theory and Inverse Problems

Resumen de la Memoria:

My trajectory as a researcher starts at Université Sorbonne Paris Nod, where I earned my PhD degree in mathematics under the supervision of Professor Philippe Souplet. During my PhD, I studied several non-linear partial differential equations of parabolic type. These equations describe diffusion processes which are affected by non-linear phenomena. In my case, I investigated the formation of singularities for the solutions to these equations.

After my PhD, I joined the ERC project 'Dycon' led by Professor Enrique Zuazua, at Universidad Autónoma de Madrid. The main topic of the project was the study of optimal control problems associated to dynamical systems and the development of computational algorithms. My research during that time was mainly focused on the study of inverse problems associated to Hamilton-Jacobi equations. These partial differential equations describe the value function associated to finite-dimensional optimal control problems and game theory. My main goal was to develop algorithms to recover the initial condition out of the solution of the equation at some positive time, which is known to be a highly ill-posed problem.

During my postdoc with Enrique Zuazua, I also started to become interested in the mathematical aspects of Machine Learning. In particular, along with other members in the group, we investigated the connections between Deep Learning and optimal control theory.

After two years as a postdoc in Spain, in January 2022, I joined the Department of Applied Mathematics and Theoretical Physics, at the University of Cambridge, to work as a Research Associate under the supervision of Professor Carola-Bibiane Schönlieb. My main project at the University of Cambridge is concerned with the reconstruction of biological macromolecules from cryo-EM images. This is an interdisciplinary project in collaboration with the Laboratory of Molecular Biology at Cambridge, funded by the Alan Turing Institute.

In the recent years, cryo-EM has become one of the most popular techniques to obtain high-resolution reconstructions of biological macromolecules. The technique consists in rapidly freeze a molecular sample to a cryogenic state, to then obtain high resolution images in an electron microscope. This allows to image the macromolecules in their natural state. From a mathematical viewpoint, this is a challenging inverse problem which involves many difficulties. The fact that the electron dose is kept low in order to avoid the damage of the molecules results in images dominated by noise. Moreover, the pose of the particles in every image is unknown, and one also needs to account for possible deformations. In practice, the problem is addressed by combining classical methods from mathematics and statistics and modern machine learning techniques.

In parallel, I am also working in a project with Professor Richard Tsai, from the University of Texas at Austin. We study games of Surveillance-Evasion type with visibility constraints. Our goal is to analyze the game from a differential game theory viewpoint and to develop numerical algorithms for the design of quasi-optimal strategies.

My research line in the upcoming years will be based on the following three points:
1. Inverse problems arising in computational microscopy.
2. Computational algorithms for optimal control and game theory.
3. Mathematical aspects of Deep Learning.

Resumen del Currículum Vitae:

Education:
1. Bachelor's Degree in Mathematics at Universidad de Alicante (Spain) from 2010 to 2014
2. Master's Degree in Mathematics at Université Sorbonne Paris Nord (France) from 2014 to 2015. Funded with a full scholarship by Fondation Sciences Mathématices de Paris.
3. PhD in Mathematics at Université Sorbonne Paris Nord (France) from 2015 to 2019.
PhD advisor: Philippe Souplet.
PhD thesis: 'Étude qualitative de trois problèmes paraboliques non-linéaires'.

Experience as postdoc:
1. Postdoc at Universidad Autónoma de Madrid (Spain) under the supervision of Professor Enrique Zuazua. Funded by ERC grant project 'Dycon'. From September 2019 to May 2021.
2. Postdoc at Chair of Computational Mathematics at Universidad de Deusto, Bilbao (Spain), under the supervision of Enrique Zuazua. From November 2021 to December 2021.
3. Research associate at the Department of Applied Mathematics and Theoretical Physics, at the University of Cambridge. Supervised by Professor Carola-Bibiane Schönlieb. Researcher in the 'cryo-EM' project, in collaboration with the Laboratory of Molecular Biology at Cambridge and funded by the Alan Turing Institute. From January 2022 to present.

Teaching experience:
1. Teaching Assistant at Université Sorbonne Paris Nord from 2015 to 2018. Total hours of teaching: 196
2. Teaching Assistant at Sorbonne Université from 2018 to 2019. Total hours of teaching: 90

Experience in private companies:
1. Artificial Intelligence Researcher at Sherpa.ai from June 2021 to October 2021.

Research visits and programs:
1. Research visit at Departamento de Matemática de la Universidad de Buenos Aires (Argentina). Invited by Professor Julio Daniel Rossi in July 2018.
2. Core participant at IPAM long program on 'Computational Microscopy' at UCLA, Los Angeles, USA. From September to December 2022.
3. Research visit at the Oden Institute in the University of Texas at Austin, USA. Invited by Professor Richard Tsai in December 2022.

Research interests:
1. Inverse problems in Image Analysis (in particular cryo-EM).
2. Optimal Control Theory and Differential Games.
3. Partial Differential Equations (non-linear parabolic and hyperbolic equations).
4. Machine Learning Theory and Applications (in particular Deep Learning).

Language skills:
1. Spanish (native speaker)
2. Catalan (native speaker)
3. English (fluent)
4. French (fluent)

Área Temática:	Ciencias matemáticas
Nombre:	LUECKE , PHILIPP MORITZ
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Título:	Cardinales grandes, Definibilidad y Combinatoria infinita

Resumen de la Memoria:

I am a mathematician working in mathematical logic and set theory. The ground-breaking work of Cohen and Gödel on Hilbert's First Problem revealed that many natural mathematical questions are not answered by the standard axiomatization of set theory and thereby initiated the search for intrinsically justified axioms settling these questions. My research is centered around this search for the right axiomatization of mathematics, the consequences of the acceptance of new axioms throughout mathematics, and the special role of large cardinals in this search. Most of my contributions to this search fall into one of the following strands of inquiry:

- Large cardinals: Despite their central role in modern set theory, large cardinals are still surrounded by many open fundamental questions. To address this issue, I intensively worked on the development of uniform frameworks for large cardinals and isolated several canonical examples of frameworks that include important notions from all parts of the large cardinal hierarchy. This work revealed several new properties of well-studied large cardinal notions, unveiled patterns that repeat across the large cardinal hierarchy and provided strong arguments for the naturalness of these notions.

- Definability: Descriptive set theory is the study of definable sets of real numbers. This rich and canonical theory not only has fruitful applications throughout mathematics, but it also plays a central role in the evaluation of new axioms for set theory. Since these applications are limited to sets of reals, the aim to develop a generalized theory that studies of larger objects has recently grown into a popular new research area in set theory. While this theory developed, it soon turned out that the combinatorics of higher cardinals cause it to differ fundamentally from the classical theory. In particular, my initial work in this area showed that a direct transfer of classical complexity notions does not lead to a rich or canonical theory. These results were the starting point of my DFG-project that was highly successful in the development of alternative complexity notions that better reflect uncountable combinatorics and possess many of the desirable features of the classical theory.

- Infinitary Combinatorics: In contrast to the study of the first two infinities, very little progress in answering core questions concerning the combinatorics of higher infinities was made in the 20th century. This dramatically changed recently when new techniques led to many unexpected breakthroughs in this area. I participated in these developments by work on combinatorial objects of higher cardinalities that have no counterparts at the first two infinities. This work shows that the properties of these objects deeply reflect the combinatorics of the underlying model of set theory and thereby provide concrete measures for the consequences of new axioms for mathematics.

- Applications of set theory:
The use of set theory in other areas of mathematics is a constant factor in my research. In particular, I studied algebraic objects whose structure is so complicated that their basic algebraic properties depend on the underlying model of set theory. Main examples of such objects are automorphism groups of uncountable structures.

Resumen del Currículum Vitae:

I am a postdoctoral researcher at the University of Barcelona and a Privatdozent at the University of Bonn. Before I moved to Barcelona for a Marie Sklodowska-Curie Fellowship, I was an assistant professor at the University of Bonn, where I completed my Habilitation in Mathematics in 2018. I obtained my PhD in Mathematics at the University of Münster in 2012.

In my research, I have established multiple broad strands of inquiry that aim at central open questions in set theory and form the basis of an independent and consolidated academic profile. Two of these research lines served as the starting points for funded research projects: my nearly completed Marie Sklodowska-Curie project studies large cardinals, and a project funded by the German Science Foundation (DFG) studied generalized descriptive set theory, a young and very active field of set-theoretic research, in whose development I played a leading role not only through my research, but also through the organization of events gathering a steadily growing community of researchers. The results of my research are contained in 31 papers that are either published or accepted for publication in peer-reviewed journals or books, and 3 papers submitted to peer-reviewed journals. In addition, I presented my work at various international conferences and research seminars. Through my research, I have established a strong international network of collaborators. Finally, several of my research lines were also already adapted and continued by other researchers.

My research activities are complemented by the extensive teaching, supervision, and administrative experience that I obtained during the past years. In Bonn, I taught 6 lecture courses and 11 seminar series. Moreover, I supervised 6 Bachelor's theses and 4 Master's theses. Most of these thesis projects dealt with topics closely related to current developments in set theory, and in four cases, this setup has motivated the supervised students to become researchers in mathematical logic and continue as doctoral students at renowned universities. Among them was my own doctoral student Ana Njegomir, who completed her doctorate at the University of Bonn in February 2019. My activities also allowed me to obtain profound experience managing research projects, organizing scientific events, and securing funding for these activities. As the principal investigator of my two research projects, I was responsible for directing the collaborative research of the participating scientists, organizing outreach activities, handling financial matters and, in the case of my DFG-project, supervising the employed postdoctoral researcher. I organized three conferences and two symposia, and for three of these events, I secured grants to cover the arising costs. In September 2023, I will organize the Section Mathematical Logic at the Annual Conference of the German Mathematical Society. In Bonn, I was in charge of the organization of the teaching activities of the assistant professors, and I represented the scientific staff in the Board of the Institute, the Board of the Department, hiring committees and habilitation committees. In January 2023, I joint the editorial board of Mathematical Logic Quarterly for three years. Finally, I reviewed research grant applications for several funding organizations, including the DFG and the Austrian Science Fund.

Área Temática: Ciencias matemáticas
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Título: Matematicas

Resumen de la Memoria:

My research activities take place at the interface of discrete mathematics and computer science. My activity has focused on the areas of extremal combinatorics, Ramsey theory, edge-colouring and property testing. In each of these fields, I have made major contributions, resolving several long standing problems. I have a publication track record that includes 17 papers published/submitted in prestigious journals such as the Proc. Lond. Math. Soc., J. Lond. Math. Soc., J. Combin. Theory Ser. B, Combinatorica and Advances in Combinatorics.

In the area of extremal combinatorics, I have worked on minimum degree conditions for the existence of Hamilton cycles in hypergraphs. Together with my co-author Sanhueza-Matamala, we resolved an important conjecture of Reiher, Rödl, Rucinski, Schacht and Szemerédi regarding tight Hamilton cycles. We also developed a general framework for the embedding of large substructures in graphs, which answered a series of open questions in this line of research.

In Ramsey theory, I have worked on several long standing problems regarding the embedding of large monochromatic structures. Together with my co-authors, we determined optimal degree conditions for partitioning graphs into few monochromatic cycles. I have also worked in problems on infinite Ramsey theory, were we settled a longstanding conjecture of Erdös and Galvin for the upper density of infinite paths.

In the area of edge-colouring, I have developed a new local approach to list edge-colouring with my co-authors, which gives a very general description of near-optimal colourings. Together with Luke Postle, I have also proved the up to date best known bound on the Linear Arboricity Conjecture.

In the area of property testing, I have developed a new approach together with my co-authors that allows to bypass the use of the Regularity Lemma and thus results in a large simplification of the query complexity of random test functions.

Resumen del Currículum Vitae:

I am a postdoctoral researcher working at the interface of combinatorics and theoretical computer science with an emphasis on probabilistic methods. I have made major contributions in the areas of extremal combinatorics, edge-colouring, Ramsey theory and property testing resolving several long standing problems. My most important and ongoing work focuses on the development of a general framework for the embedding of large structures in hypergraphs.

I obtained my PhD in 2017 from the University of Chile under the supervision of Maya Stein. Since then I have held postdoctoral positions with Allan Lo at the University of Birmingham (UK) and with Luke Postle at the University of Waterloo (Canada). From 2020 to 2022, I was the PI of a project funded by the DFG at the Universität Heidelberg (Germany) in the group of Felix Joos. Since 2022, I am working as an MSCA Fellow funded by the EU at the Universität Hamburg (Germany) in the group of Mathias Schacht.

I have an excellent publication track record that includes 17 papers published/submitted in prestigious journals such as the Proc. London Math. Soc., J. London Math. Soc., J. Combin. Theory Ser. B, Combinatorica, Advances in Combinatorics and 4 abstracts in peer-reviewed conferences. As a consequence of my contributions to the research area, I have been invited to speak at high-profile conferences and seminars. Amongst others, Atlanta Lecture Series (Atlanta, USA) and the Tutte Colloquium (Waterloo, Canada). I have given invited talks in 14 international events, including the SIAM Conference on Discrete Mathematics (Atlanta, USA), the Rio Workshop on Extremal and Structural Combinatorics (Rio de Janeiro, Brazil), Congreso de Jóvenes Investigadores de la RSME (Léon, Spain) and the CanaDAM Conference on Discrete Mathematics (Canada). I have been invited to give a number of talks in seminars and colloquiums, including talks in Birmingham, London, Warwick (UK), São Paulo, Rio (Brazil), Atlanta (USA), Hamburg, Heidelberg, Ilmenau, Karlsruhe (Germany), Santiago (Chile) and Teheran (Iran). I have done numerous research stays at international institutions, including London School of Economics (UK, 2015), Universität Ulm (Germany, 2015), Universidade de São Paulo (Brazil, 2015, 2022), University of Birmingham (2016), Czech Academy of Sciences (Czech Republic, 2019, 2020) and Universidad de Concepción (Chile, 2023).

I was PI of 3 research projects (400k€in total), and co-investigator in one research project. I have co-supervised 1 PhD student (finishing in 2023) and supervised 1 Master' s student (finished in 2022). I have been invited to give 2 advanced courses in research schools. I have taught several lectures, seminars and exercise classes. Finally, as a referee, I have evaluated over 30 journal submissions.

Área Temática:	Ciencias matemáticas
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Título:	Global dynamics of fluid interfaces

Resumen de la Memoria:

My research lies within the area of analysis and partial differential equations of physical origin. The main question is to determine the range of validity of the equations used in the fundamental physics models: searching for finite-time singularities or showing on the contrary that solutions exist for all time. That is closely related to the Navier-Stokes Millennium Problem that makes clear the special role played by incompressible fluid mechanics. The PDEs involved are nonlinear and nonlocal, requiring tools from functional and harmonic analysis, dynamical systems, and numerical simulations.

For the 2D Euler equations, Yudovich theory states the global existence and uniqueness of solutions for bounded and integrable initial data, and thus it is natural to study the vortex patch problem: vorticity that is a constant value supported in a bounded domain. Different research groups became interested in the dynamics of such solutions. The trivial example goes back to the Rankine vortex (the circular vortex patch, that remains stationary since any radial vorticity is stationary). After this trivial example, Deem and Zabusky conjectured numerically the evidence of the existence of nontrivial rotating vortex patches, which was analytically proved by Burbea via bifurcation theory of the circular patch. After the work of Burbea, there have been many international research groups obtaining more information about the Burbea patches or obtaining more nontrivial rotating patches via the bifurcation of other steady patches: the ellipse or the annulus.

However, until very recently, all of these solutions were of patch type, that is, they are constants in some bounded domain. The fact that the vorticity is not constant inside the bounded domain makes the problem more complex, with no progress being made until 2019, when it was partially addressed simultaneously by two research groups in the case of the 2D Euler equations. First, A. Castro, D. Córdoba and J. Gómez-Serrano proved the existence of non-uniform rotating vorticities via a desingularization of the rotating patches. Second, C. García, T. Hmidi and J. Soler [CVA-C.1.3] developed the bifurcation of any quadratic initial density supported on the disk. The general question about the bifurcationfrom any ra
Nevertheless the general question remains unsolved: can we find periodic solutions around a generic monotonic radial profile for gSQG? One of the main objectives of my research is to construct periodic and quasiperiodic solutions around stationary states; and on the other, to see if other invariant manifolds can be also constructed in this setting (Kármán Vortex Street [C.1.4], general choreographies [C.1.2], singular corotating patches [C.1.8]).

Similar results have been obtained for other equations, such as the generalized Surface Quasi-Geostrophic equations, finding a family of global solutions whose evolution consists in a rotation or a translation in time, which is interesting here since global well-posed is not known. Following this question, we obtained a large family of self-similar solutions to gSQG [C.1.6]. Here we propose to look for a larger family of rotating smooth solutions via a bifurcation from a generic radial profile, and motivated by [C.1.6] study nonuniqueness for this system. Moreover, in[C.1.1] and [C.1.7] we find periodic solutions for the 3D quasi-geostrophic system

Resumen del Currículum Vitae:

My research deals with the analysis of Partial Differential Equations arising from Fluid Mechanics and Biology. The defense of my thesis Patterns in partial differential equations arising from Fluid Mechanics was in October 2020, with cum laude honors and the international PhD mention. The thesis was an international cotutelle between UGR and Université de Rennes 1 (UR1) in France, with J. Soler and T. Hmidi as advisors. The PhD thesis was funded by a Spanish FPU grant. Moreover, during my PhD I did 5 research stays during 2017-2019 of more than 9 months in total at UR1 with different funding (see CVA). Furthermore, I was awarded with the PhD prize "Blaise Pascal" for the best thesis in mathematics in France in my academic year.

From 10/12/2020 to 8/03/2021, I had a postdoctoral fellowship at UGR under the Spanish grant Ref. A-FQM-311-UGR18. From 10/03/2019 to 31/08/2022, I had a postdoctoral ERC fellowship at Universitat de Barcelona (UB) with J. Gómez-Serrano as PI. Moreover, I did a postdoctoral research stay of three months (8/9/2021-10/12/2021) at ICERM in Brown U. in Providence (USA), and a two-weeks stay at UAB. At the moment I am Profesor Ayudante Doctor at the Universidad Autónoma de Madrid (UAM) in the Mathematics department. At the same time that I got the Profesor Ayudante Doctor position at UAM, I got the first position at the Juan de la Cierva 2021 fellowship that I rejected.

My PhD and postdoc stage ended up with four publications in the highest-level journals of my research area (see CVA). Let me remark that I have contributed as only author in two of the previous publications. During my postdoc stage, I developed six preprints, see CVA. My research has high implications in the Fluid Mechanics community. Indeed, the international impact is apparent in view of the number of citations by prestigious researchers like D. Córdoba, N. Masmoudi, J. Mateu, J. Verdera, M. Wheeler, Y. Yao, among others. About my future research, I have works in progress with different experts in my area: A. Castro (ICMAT), J. Gómez Serrano (U. Barcelona), T. Hmidi (NYU Abu Dhabi), D. Faraco (UAM), J. Mateu (UAB), N. Meunier (U. Paris Cité), L. Vega (BCAM), among others. The developed research was presented in numerous international conferences (in total 33 in less than 5) and I am invited to give a talk in the next ICIAM conference in Tokyo (Japan) in August 2023.

About the training of young investigators, I have participated in the organization of international conferences for young researchers and workshops: Seminario de Jóvenes Investigadores de la UGR (2019-2020), Biomat 2019, MNAT 2019, Biomat 2018, Biomat 2017. During February 2023, I co-organize a special session at RSME jóvenes 2023 and a workshop at the Oberwolfach Institute. Moreover, I am organizing a reading group about the Ladysenskaya problem at UAM and ICMAT. I am also a research member in different national and international research groups (see CVA).

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About my teaching experience, I have a total of 225 hours of teaching at UGR. The last academic year at UB, I taught a Graduate Course in the BGSMath about an Introduction to Fluid Mechanics. The actual academic year I have a total of 120 hours of teaching at UAM. Finally, I have obtained the French qualification for Maître de conference (assistance professor), and the qualification for Profesor Ayudante Doctor from ANECA.

Área Temática:	Ciencias sociales
Nombre:	BAUTISTA PUIG, NÚRIA
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Título:	Organisations' contributions to sustainability: a bibliometric and citizen science approach

Resumen de la Memoria:

Dr. Bautista-Puig's research aims at understanding the performance of sustainability at organisations (higher education institutions but not limited to them). During her doctoral stage, she specialized in the intersection between the fields of bibliometrics and sustainability, albeit her expertise and perspective keep gradually broadening over time and becoming more interdisciplinary. During this stage, she carried out 4 research stays in prestigious centers related to bibliometrics (CWTS, Antwerp University), sustainability (University of Aveiro), and citizen participatory approaches (Leiden Observatory). This helped, not only enhancing the research design of the thesis (especially proposing new methodological venues for delineating sustainability/SDGs in academic research) as well as gaining interest in new research lines (e.g. citizen science). This collaboration resulted in publications (papers and conference proceedings) and co-joint project proposals.

In 2020, she obtained a postdoctoral contract at the University of Gävle, Sweden), oriented to the analysis of sustainability in organizations in a broader sense (e.g. ports, gender, sustainability competences). This resulted in new methods used (beyond bibliometrics), the generation of new knowledge/ideas (e.g. paradigm changes in the field), and the definition of frameworks, among others. Her work was presented in multiple national and international meetings, yielding 25 publications, 14 of which were as first author and being invited speaker in 9 events (2 as a keynote speaker). Moreover, she has been involved in 2 EC-funded projects (related to open science an participatory methodologies), 2 National projects and 1 regional project and 5 innovation and R&D contracts. Finally, she obtained a partnership with United Nations through the OSDG project, where she acts as a scientific leader in an OSDG project, specializing in the SDGs at the organization level as well as launching a citizen science approach. During her career, she has participated in many science outreach initiatives (e.g. citizen science initiatives; social communication of science events). The research line presented lies in the intersection between sustainability, citizen science and bibliometrics.

In addition to her research activities, she taught courses at graduate and undergraduate (~40 hours), seminars at the doctoral programmes, and has supervised two undergraduate and currently supervising 4 Master Thesis and two Ph.D. students (one on open science and predatory journals; the second, on GIS and libraries). She also has been a reviewer of Master thesis (University of Gävle and UCM).

Resumen del Currículum Vitae:

Graduated in Geography and Master in GIS. After practicing professionally as a geographer at the National Geographic Institute, she obtained an FPI contract from the Ministry of Economy and Competitiveness in 2015 at the UC3M to develop the thesis (on the analysis of sustainability research at universities, as well as its degree of commitment). She specializes in the fields of bibliometrics / scientometrics, organisational sustainability, institutions of higher education for sustainable development, and sustainable development goals. After obtaining her doctorate in 2020 (international mention, outstanding cum laude and extraordinary award), she obtained a postdoctoral contract at the University of Gävle, Sweden), oriented to the analysis of sustainability in organizations. She also enjoyed two R&I Technical Support contracts at UC3M (in two EC-Projects), was an Adjunct Professor (University of Lleida, Spain) and, since July 2022, holds an Assistant Professor position at the Department of Information and Library Science (Complutense University of Madrid). She is currently an affiliated researcher in Sweden.

With an h-index of 9, three book chapter and 25 peer-reviewed publications, including prestigious journals in the bibliometric (e.g. Research Evaluation; Scientometrics) and sustainability field (e.g. Sustainable Development), she established a large network of renown international collaboration. She co-authored publications with prestigious researchers in the intersection between bibliometrics (Henk F. Moed, Felix de Moya, Enrique Orduña-Malea or Rodrigo Costas) and sustainability (Rodrigo Lozano, Ulisses Azeiteiro). As well, she carries out 5 research stays/postdoc in prestigious centers related to bibliometrics (Center for Science and Technology Studies, and Antwerp University), sustainability (University of Aveiro; University of Gävle), and citizen participatory approaches (Leiden Observatory), providing her an interdisciplinary approach. Moreover, she obtained a partnership with United Nations through the OSDG project, where she acts as a scientific leader. She has been involved in 2 EC-funded projects, 2 National projects and 1 regional project and 5 innovation and R&D contracts.

She is engaged in disseminating science to broader audiences, having participated in +30 national and international conferences (being the presenter in +17), and being invited speaker in 9 (2 as a keynote speaker) from 9 international countries. During the thesis, she actively participates in the European SciShops project. She was one of the promoters of the new science shop at UC3M. In addition, she has been the organizer of several participatory activities such as co-creation events or knowledge cafés and participated in several dissemination events or events such as Congress of Social Communication of Science or the Researchers Night 2018 and 2019). In addition, she launched the OSDG Community Platform, a citizen science initiative, with a significant impact (articles, newsletter, training, press releases, etc.). In addition, she has won 7 awards: two for her doctoral thesis (international prize AASHE Campus Sustainability Research Award; Uc3m extraordinary award); three related with mobility stays (Early Career Grant to attend the 14th RDA Plenary; 1st YERUN Research Mobility Award; Erasmus+Training); one-conference related (Best paper ENANCIB).

Área Temática:	Ciencias sociales
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Título:	Feminist and Urban Political Ecology: health and immigration in the face of climate change

Resumen de la Memoria:

I am social scientist, with a natural sciences background, trained in international development and political ecology. My research is situated at the intersection of human health, social inequalities, and environmental change, and has closely looked at urban contexts and marginalized populations like ethnic and racial minorities. I have established expertise in different topics of my work and particularly in the fields of feminist political ecology and urban environmental justice, with a focus on human health. Because of that evolving expertise, I have been involved in international research networks and achieved research independence through successfully applying for competitive and prestigious grants, holding posts in world leading universities, supervising post-graduate students, and acquiring international acknowledgement, including invitations to give talks and contribute to book projects. Most of my peer-reviewed publications (18/30), including two books, are completely open access, especially those coming from EU-funded research projects.

I have so far joined publications with 60 co-authors and, simultaneously, I have established a leading role in the vast majority of my published work as evidenced in the fact that I am the 1st (12) or 2nd author (7) in 19 of my 30 peer reviewed publications. I have a long track-record of establishing my own research focus (as evidenced in the novelty of both my theoretical and empirical research, the new research areas I have proposed), while also being actively involved in large-scale collaborative networks. As the same time, I have been an active member of 7 leading research groups, namely: the WEGO network of feminist political ecology (2019-today), the Barcelona Lab for Urban Environmental Justice and Sustainability at ICTA-UAB (2016-today), the ENTITLE European network of political ecology (2014-today), the Degrowth Group at ICTA-UAB (2014-today), the Ecological Economics research group of ICTA-UAB (2008-2010 and 2014-today), the ZEF-A group on Political and Cultural Change, University of Bonn (2010-2014). I have been leading research teams involving master (6 defended), PhD (1 defended cum laude, 3 ongoing), and postdoctoral researchers.

My emerging strand of research sheds light on the under-explored question of what shapes climate health vulnerability for immigrants residing in European urban areas, and how their situated knowledge informs adaptation to such risks. Through an ethnographic and participatory social science approach, I want to investigate what knowledge(s) and strategies immigrants develop and employ to address these key climate-health impacts in urban environments, offering an intersectional justice perspective to the emerging field of climate health adaptation. This overall framework and objective, which proposes a postcolonial and feminist approach to climate urbanism, focusing on immigrants, was the basis of my proposal to the highly prestigious ERC-StG program of the EU in 2021, which made it to the interview stage (top 30% of the applications), and which I have improved and re-submitted (Feb 2023).

Resumen del Currículum Vitae:

I am an environmental and social scientist with interdisciplinary training and a focus on human health. I am currently a Juan de la Cierva incorporación fellow (ranked 4th in social sciences) at ICTA-UAB, a Maria de Maeztu Unit of Excellence, where I lead research on feminist and urban political ecology and environmental justice. I completed my PhD in 2014 (cum laude) in Development Studies and received the prize for Best Doctoral thesis from the University of Bonn, Germany. I have been a Marie-Curie postdoctoral fellow in the FP7 ENTITLE-ITN network (2014-2016), a leading postdoctoral researcher in two big EU H2020 projects (Naturvation, UrbanA) and a PI in the H2020 WEGO-ITN network.

In ICTA-UAB, I am coordinating the urban political ecology stream in the cutting-edge Barcelona Laboratory for Urban Environmental Justice and Sustainability (BCNUEJ), and I am a co-PI in the Established Research Group recognition and grant that BCNUEJ received from the Agència de Gestió d'Ajuts Universitaris i de Recerca (Generalitat de Catalunya). During my tenure I have received approximately €280k in fellowships and awards.

I have 1 first-authored (Routledge, 2022), 1 single-authored (Lit Verlag, 2016) and 2 co-edited book publications (Palgrave-Macmillan & Fernwood Publishing –accepted and to be published in 2023); 24 peer-reviewed papers (6 of which signed first author and 4 of which under review); and 7 book chapters (3 of which signed first author), all in Q1 journals and prestigious academic press. My h-index is 13 (i10-index 14) with 676 total citations in Google Scholar, and h-index 11 with 376 citations in Scopus. I have acted as a reviewer for over 30 articles in 10 different JCR journals, and as an invited editor in the Journal of Political Ecology. I am also a scientific evaluator for the ICTA-UAB PhD program, an advisor for the Postdoc Academy for Transformational Leadership of the Robert Bosch Stiftung Foundation, and an advisor for the National Research Agency of Spain.

I have participated in 17 distinct international scientific conferences with 18 presentations, 4 organized panels, 2 invited keynote lectures, and 3 scientific committee memberships. I have disseminated research outcomes through more than 16 public talks (e.g., King's College London; University of Oxford; MAAT-Lisbon, CCCB-Barcelona), 4 short documentaries, 21 policy- and action-oriented publications, and 7 interviews (online, television, radio), as well as through the organization of 3 international symposia (>200 participants). Moreover, I am a core editor in Undisciplined Environments (>4.500 followers), making openly accessible contributions in political ecology and the environmental humanities.

I hold the Outstanding Research Quality I3 Certification (Spanish Ministry of Education) and I also hold the Tenure-Assistant Professor Certification (Government of Catalonia). I have supervised 6 master students, two of which have continued to pursue a PhD, and 1 PhD student who successfully defended his thesis (cum laude) while I am currently the first supervisor of 3 PhDs, and I have mentored 2 visiting researchers (University of California Santa Cruz, Friedrich-Schiller-Universität Jena). For the last 5 years, I have been a course coordinator and lecturer in Political Ecology and Urban Environmental Justice, in ICTA's master programs (13 ECTS), receiving excellent student evaluations.

Área Temática:	Ciencias sociales
Nombre:	OLAZABAL , MARTA
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Título:	Adaptation to climate change in urban areas

Resumen de la Memoria:

I am an interdisciplinary scientist exploring enablers, pathways and progress on climate action in cities worldwide. I have a mixed background in engineering (BSc 2004 and MSc 2009) and social sciences (PhD, 2015). This helps me address urban environmental problems and societal transitions in cities in holistic ways. I use theories on environmental governance, urban planning, learning, systems thinking and transdisciplinary knowledge production to seek solutions for those problems. My current work particularly questions the assessment of the progress of climate change adaptation and aims to find ways to enable transformative and sustainable urban adaptation processes.

Adaptation to climate change is a critical challenge for our society. Impacts of climate change are already happening as a result of extreme temperatures, sea-level rise, storm surges or droughts. Communities and governments across the globe are preparing through actions to increase climate resilience. However, progress made to date to adapt is still poorly understood and tracked because the scientific community has not deciphered the means to evaluate how well the world is adapting. Barriers are the lack of goals and metrics for adaptation in the absence of an operative definition of successful adaptation. Finding a response to this question is at the core of the international debate and has particular significance at the local level where assets and lives of millions of people are at risk.

The research line that I will develop as a Ramon y Cajal fellow will revolve around the imperative of how to evaluate adaptation in urban areas as a contemporary complex phenomenon with implications across governance scales. This work will involve 3 timely contributions: First, I will work on an evolved conceptual understanding of successful adaptation at the local scale (Objective 1, O1). Second, I will work on the development of monitoring and evaluation tools and frameworks for transformative adaptation in urban areas (O2). Third, I will use mix-methods to produce comparable data on adaptation progress through the observation and analysis of local adaptation case studies rooted in a large sample of urban areas worldwide (O3). This work will yield high-impact scientific outputs contributing to the theory and practice of the evaluation of success in adaptation and will engage with international and local policy-level debates on the progress of urban adaptation globally.

I will develop this work program in the framework of the European Research Council (ERC) project IMAGINE Adaptation (Starting Grant, 2023-2027). The goal of this project is to advance pioneering science for the evaluation of urban adaptation and its governance across scales. To this end, I intend to develop theories and apply creative methods to reimagine the concept of successful adaptation in urban areas so that it becomes part of the larger paradigm shift that is required to enable transformative urban adaptation processes.

Resumen del Currículum Vitae:

I am an Ikerbasque Research Associate at the Basque Centre for Climate Change (BC3) where I lead the Adaptation Research Group (~10 researchers). I have over 18 years of experience in research and consultancy on urban sustainability and climate governance. I have received important competitive grants such as from AXA Research Fund (2018-2021), the Spanish Government (2013-2020 with JdlC Formación and JdlC Incorporación), the Basque Government (Ikerbasque, 2022) and a European Research Council Starting Grant in 2021. In 2022, I have been recognised by Ikerbasque and the Basque Government with the annual Women in Research award.

I have an extensive publication record in highly recognised international peer-reviewed journals. My H index is 22 with a total of 2920 citations in Google Scholar (23/01/2023). I have published 31 peer-reviewed articles in a total of 69 authored and co-authored publications of diverse natures. I have also 62 contributions to international and national scientific conferences. I usually mentor MSc and PhD students in universities in Spain and Europe and annually teach in various national master's and expert courses.

I actively contribute to and advise national and international bodies. These include the United Nations Environmental Program (UNEP), United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Intergovernmental Panel on Climate Change (IPCC). For example, since 2022, I am a member of the Methodological Advisory Group of the Race to Resilience initiative (UNFCCC) and I have been Contributing Author to the AR6 of the IPCC (2022). In Spain, in 2020, I advised the Foresight Unit of the Spanish Presidency to deliver España 2050, a set of policy recommendations to build a sustainable country. Also, I am a panel reviewer for the Swedish Government and the European Science Foundation. As Head of the Adaptation research group, I am also a member of BC3's Management Committee.

I produce science through intensive networking. In 2011, I co-funded URNet (Urban Resilience Research Network) and served on the Board for 8 years. Since 2010, I am part of the EURO-LCP initiative, a European-wide network of researchers that tracks progress of European local climate policies, where I am currently part of the coordination team. In 2020, I co-funded IPAM (International Platform on Adaptation Metrics) where I am a member of the Steering Committee and Chair of the Cities Committee. I have also ample experience leading and participating in collaborative projects framed in international and national research programs and I have regularly developed scientific stays at international research institutions (Canada, Portugal, Germany, Netherlands, UK) to work with leading teams in my field.

Outreach is an important part of my work. I have written articles for broad international outlets such as The Conversation. My work has been featured in international and national outlets, such as the Indian newspaper The Print and the Spanish climate-specialised outlet Climática. I have been

interviewed multiple times on national and regional TV and radio (Spanish RTVE, Telenorte, Basque EITB) and produced public dissemination videos (e.g. The Times UK video). Also, I have recently participated in Naukas Pro, a recognised science dissemination festival.

Área Temática:	Ciencias sociales
Nombre:	SEIZ PUYUELO, MARTA
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Título:	Intersection between family-related demographic phenomena, gender, and socioeconomic inequalities

Resumen de la Memoria:

I have followed a research trajectory that connects the analysis of family-related demographic phenomena with social stratification concerns, while consistently undertaking a gender perspective. At my early career stages mt work was focused on gender inequalities in the division of paid and unpaid work in connection with family formation. I wrote my doctoral thesis on the topic and I have participated in several related R&D&i projects. During my predoctoral stage, I also started working on the analysis of female fertility and its socioeconomic determinants. This interest intensified during my first postdoctoral contract, when I examined further dimensions of family building in contemporary Spain and other European countries, covering fertility, union formation, and union formation dynamics while systematically paying attention to differences between women and men and the impact of gender policies. I have continued to pursue research on these areas within several national R&D&i projects, a European FP7 project, and a wide network of national and international colaborators. Since 2020, I have broadened my field of research to encompass two additional dimensions of fertility affected by social and inequalities: perinatal health outcomes and use of medically assisted reproductive technologies, placing maternal characteristics in focus. Beyond publishing my research in academic journals and volumes, I seek to give my work a social dimension. Accordingly, I have participated in a transfer of knowledge article 83 contract with UNICEF serving as basis for the implementation of the European Child Garantee in Spain. I have likewise participated in two expert contracts with the European commission. In addition, I have carried out scientific-technical reports for entities with social and policy impact (FOESSA, FEDEA, Fundación Encuentro, Fundación Alternativas). I frequently engage in dissemination activities through media and FES' Research Committee "Sociology of the Population and Demography". I havec carried out research at five institutions (Göteborgs universitet, Juan March Institute, Spanish National Research Council, Demosoc UPF, UNED) and have consistently work within international projects and networks. I have also participated in teaching and supervised end-of-degree students. I lead one research line within the project PERIFACT on social inequalities in perinatal health, and have consistently demonstrated research independence/leadership capacity through 4 publications as sole authors, another 4 as first-author, and the design and execution of a quantitative survey as sole responsible. Over the coming years, I intend to develop my own line of research on Social inequalities and life-chances of children with disabilities and their families in Spain, paying particular attention to socioeconomic vulnerability to disadvantage throughout their health and educational trajectories, and the relation of the difficulties encountered with the gender division of work and care among mothers and fathers.

Resumen del Currículum Vitae:

My scientific contributions with competitive funding focus on 3 areas: 1) THE GENDER DIVISION OF LABOR: Besides writing a thesis on the interrelation between men's unpaid work and women's employment, I have participated in 4 projects generating knowledge on the gender division of labor along the transition to parenthood. This entailed fieldwork producing innovative qualitative data; contributing to a pioneering book on co-responsibility in Spanish families, and co-authoring 2 papers on first-time parents' ideals and plans and satisfaction with work-life balance. This research resulted in intensive international collaboration within the TransParent research network, devoted to cross-national research on the gender division of labour among European parents. I led two chapters in volumes on gender inequalities before and after childbirth in Europe and co-authored a chapter in an international book on fatherhood. My subsequent work on this area has generated new quantitative data. In 2020 I led a survey on thegender division of labor in Spain during the Covid-19. Results were published in Feminist Economics (JCR Q1) and IgualdadES. Along with researcherr from UPF, UPNA, SciencesPo and UNED, I also designed a representative survey on a later stage of the pandemic. I anm currently developing an own line of research on work and care in families with dependent members having so far yielded a JCR article (RIS). 2) WOMEN'S AND MEN'S FERTILITY AND FAMILY TRAJECTORIES: Within this line of work, based on quantitative skills, I have carried out research (published in Population Review) on women's voluntary childlessness in Spain; a topic on which scant evidence was available. I have participated in a FP-7 European project examining the relation between education and union formation (European Sociological Review, JCR Q1) and conducting the analysis for Spain for a multinational study on fertility after separation (Demographic Research). I have also participated in the LOWER project on Spain's lowest-low fertility, coauthoring 10 related publication, one as leading author, and coordinating a special issue on generations and life-courses that consistently address gender differentials. 3) INEQUALITIES IN PERINATAL AND REPRODUCTIVE HEALTH: Since 2020 I am part of the PERIFACT project, where I lead a research line on macro-level determinants of perinatal health and a paper on the protective role of maternal educational selection against adverse birth outcomes. We are preparing 3 manuscripts already presented in international and national conferences. I also co-supervise fieldwork for an innovative prospective panel of pregnant women and their babies designed to analyse the impact of external stressors on perinatal health. Regarding reproductive health, I am first author of a scientific report on socioeconomic differences in recourse to Medically Assisted reproduction and have collaborated with experts from 5 international centres in a comparative study on educational gradients in MAR births. The latter two contributions have been the product of expert contracts with the European Commission. I have also participated in a knowledge transfer project for UNICEF, frequent dissemination activities, supervision of end of degree students, teaching, and regular evaluation of manuscripts, projects and research groups.

Área Temática:	Ciencias sociales
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Título:	Effective and inclusive transformations in environmental justice conflicts

Resumen de la Memoria:

Effectiveand inclusive transformations in environmental justice (EJ) conflicts

Over the years, my concern for environmental conflicts shifted to the relatively less explored question of to what extent (and how) socio-environmental transformations become successful while including unrepresented views involved in the conflicts (especially those of vulnerable groups). My contributions to this topic cover: a) conceptual insights on goals, and strategies and tactics deployed by organisations to restore EJ, while also recognising valuable biocultural diversity, and b) research approaches to make such insights policy relevant [6], meaningful for grassroots movements, and cutting-edge.

The eight key scientific contributions presented in the grant application are:

1. Definition of environmental justice success, and factors behind success
2. Pinpointing the role of creative activism towards socio-environmental transformation.
3. Analysis of alliances, networks and new leaderships towards environmental Justice.

Clarifying links between biocultural diversity and EJ via:

4. Unrecognised value plurality
5. Unequal distribution of ecosystem services.
6. Advocating the policy relevance of bottom-up transformations, from the regional to the global level.
7. Leading transdisciplinary collaborative research on EJ conflicts at the global level
8 . Conducting cutting-edge multi-dimensional, multi-scale assessments, and non-monetary evaluations.

Based on empirical work conducted in twelve countries, plus global data compiled through the collaborative projects I led, my work entrenches the interdisciplinary fields of ecological economics and political ecology. An ecological economics lens makes conflicting priorities in transformations clearer regarding material distributional implications, how socio-environmental values are framed and expressed, and how success is conceived and evaluated. A political ecology lens guides me through asymmetrical power relations in the dynamics of EJ conflicts, and how existing and emerging leaderships reconfigure such asymmetries seeking inclusion of gender, new generational views, and the non-human world. In the last years, approaches from the digital humanities (e.g., network analysis, geoprocessing) have enriched my methodological toolkit.

The high quality of these contributions is evidenced by the publication of 50 peer-reviewed scientific papers (38 of which in Q1 journals listed in the WoS), with first authorship in some of the most respected journals in environmental sciences such as Global Environmental Change, Current Opinion in Environmental Sustainability, Ecological Economics, or Geoforum. The relevance of my scientific work has granted me invitations to give keynote addresses in high-level international events (e.g., in China, Hungary and Ecuador), and invited lectures around the world (Colombia, Mexico, Spain, Sweden, UK, US). I was a contributor to the IPCC Fifth Assessment Report, and a Fellow of the GEO-6 Assessment by UN-Environment, while I obtained €5.5 m of research funding (€603,087 as a PI or MSCA coordinator).

Resumen del Currículum Vitae:

Environmental social scientist (PhD Environmental Science, 2014) trained in ecological economics (MSc UAB), 2006; Graduate certificate UNAM, 2001) and geographic information systems (MSc UPC, 2019): My postdoctoral work at the University of California, Berkeley, funded by a Marie Sklodowska Curie Fellowship, enriched a line of socio-environmental research initiated at the ICTA-UAB, a leading centre for environmental research in Europe. Today, my research work continues at the prestigious Johns Hopkins University- Universitat Pompeu Fabra (JHU-UPF) Public Policy Center with a Beatriu de Pinós fellowship, while I maintain a formal collaboration with UC Berkeley's Energy and Resources Group as a research affiliate.

The high quality of my scientific contribution is evidenced by the 50 scientific articles published in peer-reviewed publications, 38 of which in Q1 journals listed in the Web of Science (WOS). Two of my papers are as a sole author, 10 as a first, and 9 as a second author in two-author papers. I led an edited book (Pensoft), and 19 book chapters (9 as first author) (Cambridge University Press, Earthscan, Springer). For the last 10 years I produced an average of 3 articles in Q1 journals per year. I have delivered 30 international scientific conference presentations, and invited lectures around the world (China, Colombia, Mexico, Sweden, UK, US).

My considerable international mobility experience includes over 7 years working in academia in Mexico, where I started postgraduate training, a 7-month pre-doctoral stay at Leeds University, UK, and several stays in public R&D centres (United States, Sweden, Turkey, Colombia), besides 2 years and 8 months at UC Berkeley. I mostly work in international and highly interdisciplinary environments. Being the PI at UAB of a 5-year project in to South-East Asia, funded by the German Ministry of Economy (LEGATO) and becoming a GEO-6 Fellow for the United Nations Environment Program (2016-2018) entailed regular intercontinental trips.

My proven record of winning highly competitive research grants include €5.5 m of research funding (€603,087 as a PI or MSCA coordinator). My ample research coordination activity includes being the Scientific Coordinator of one large-scale, EU-funded research project (FP7 EJOLT, €3,6 m, 23 partners in Europe, Africa, America and Asia), work-package leader of another large-scale BiodivERsA EU-funded project (STACCATO, 11 partners in Europe), and supervisor in the H2020 European Training Network COUPLED.

Seeking knowledge co-creation, I have supervised 1 postdoctoral researcher, 7 doctoral theses (currently supervising 1 PhD student) and 18 master theses, been external advisor of a H2020 project, and reviewed articles in Q1 journals (e.g., Ecological Economics, Journal of Cleaner Production). The quality of my research has been acknowledged by a Cum Laude distinction granted to my doctoral thesis. The relevance of my scientific work has been recognized through invitations to give keynote addresses in high-level international events (e.g., in China, Hungary and Ecuador). I was a contributing author in the IPCC Fifth Assessment Report in 2013. I was also nominated and selected as one of the GEO-6 fellows for the preparation of the Sixth Global Environmental Outlook by the United Nations Environment Program.

Área Temática:	Ciencias sociales
Nombre:	SCANDURRA , ROSARIO
Referencia:	RYC2022-038527-I
Correo Electrónico:	rosario.scandurra@gmail.com
Título:	Skills formation and the neglected role of educational and social ecosystems

Resumen de la Memoria:

This section explains my main lines of research developed during my academic career. Long-term processes of change in social and economic institutions are central to debates in sociology. My specific interest in these discussions concerns the way in which different social systems shape skills formation, youth transitions and spatial segregation and inequality in educational opportunities. Below, I introduce briefly the three main lines of research I have pursued to date.

1.	Skills formation. Several scholars argue for the increasing centrality of skills and identify a reshaping of the relationship between the citizen and the state. A new social pact based on a "skill nexus" has emerged: on the one hand, the state is responsible for providing opportunities for development and making skills and education accessible as a means to promote social justice and cohesion, while, on the other, individuals need to find employment and sell their talents, skills and knowledge on the global labour market. High income countries emphasize the importance of skills for their economic competitiveness. However, while the links between skills and the macro economy have been widely studied, an understanding of how skills are formed is only now beginning to emerge. My research involved developing a comprehensive analytical model of skills formation and testing how it applies in different educational, labour market and socio-economic environments.

2.	Youth transitions. In contemporary societies, young people face great uncertainties when transitioning into the labour market. A deeper understanding of the complex dynamics underlying youth integration, life chances and territories is paramount when future perspectives are threatened and subject to change because of its socio-economic consequences. My contribution is on education/employer co-production of skills for building inclusive and more equal communities. Within this sub-area, I am interested in understanding: a) the dynamics of youth life chances from a mixed methodology and territorial perspective; and b) the complementarities between European, national and local level policies and their effects on youth transitions.

3.	Spatial segregation and inequality of educational opportunities. In recent decades, unequal economic growth and social development have resulted in urban fragmentation and increasing levels of segregation across neighbourhoods. Moreover, the shift in social inequality since the mid-1970s and the incapacity of governments to use public and social policies to reduce it have contributed to a worsening of socioeconomic segregation in major cities. While such spatial segregation has increased as a direct result of all these underlying trends, its intensity and specific characteristics vary, depending on such factors as pre-existing urban segregation, the processes of economic restructuring, the development and transformation of welfare states, and the nature of housing policies. I have examined the case of Barcelona as an example of the increasing fragmentation of spatial educational inequalities driven primarily by local educational policies, individual choice and neighbourhood deprivation.

Resumen del Currículum Vitae:

My research work is undertaken in the field of education with the ultimate goal of informing policy makers and to contribute to more efficient and equitable social and educational policies. My work contributes to education and public policy debates on educational opportunities, youth transitions and education segregation. I completed a Master's in Public and Social Policy at the University Pompeu Fabra/Johns Hopkins University (2009) and a Master's (2011) and PhD in Sociology at the University of Barcelona in November 2016. I then worked as a postdoctoral researcher and leader of a working package in the project "Policies supporting young adults in their life course", funded by Horizon 2020. From May 2018 to October 2020, I was a postdoctoral researcher Juan de la Cierva-Formación and since December 2020 I have been a Juan de la Cierva-Incorporación researcher at the Faculty of Sociology, Autonomous University of Barcelona (UAB). I am a member of the Globalisation, Education and Social Policies (GEPS) research centre, a researcher in the inter-university network Grupo de Investigación en Políticas Educativas (GIPE) and since 2021 a member of the research group in Global Studies of the Universidade Aberta (Lisbon). I have contributed to theses research networks by providing advanced quantitative spatial analysis as by linking theories of economic geography and the sociology of education. I have been involved as a researcher in nine European projects and six international projects funded by EACEA-Erasmus+, EU-Horizon, CSIC Foundation, Jaume Bofill Foundation, OXFAM, and UNICEF. I am currently acting as PI and leader of a working package in the Horizon Europe project "Constructing learning outcomes in Europe: a multi-level analysis of (under)achievement in the life course" (CLEAR). Based on my research, I have written the proposal and I act as PI in the Erasmus+ KA2 project "Employability in Programme Development (EPD): Establishing a labour market to higher education feedback loop drawing on local labour market intelligence". In this project, I leaded a working package, which included a systematic literature review, data collection and analysis of stakeholders needs on graduates' employability. I am also senior researcher in two competitive tenders of the Council of Europe and CEDEFOP. Overall, my research has received funding for over 834,000 euros.

My scientific publications comprise 23 articles, two monographs, six book chapters and 13 technical reports. My work has been published in a range of high-ranking journals, 20 of them indexed in JCR, 16 are indexed in Q1 in SCOPUS. Altogether, my publications have received 370 citations and my H-index is 11 (Google Scholar). My research endeavours are ultimately dedicated to fostering knowledge transfer by engaging with relevant actors to translate research results into concrete actions. It has attracted the interest of the Council of Europe which invited me to serve as an expert in the field of youth and deliver a presentation in the Moroccan Parliament. Some of my work has been published by the Jaume Bofill Foundation and the Barcelona of Education Consortium and I have been involved in different projects studying local education policymaking.

Área Temática: Ciencias sociales
Nombre: CETRÀ BERNARDO, DANIEL
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Título: Estudios en Política Territorial

Resumen de la Memoria:

My research trajectory and lines of research concern the conceptual and comparative understanding of territorial politics, language politics, and nationalism.

1. TERRITORIAL POLITICS

I have actively engaged in the comparative study of territorial mobilisation, examining their drivers, claims, strategies, and public support across Western Europe. I have also engaged in the conceptual and comparative study of state legitimation and state responses to territorial demands. Currently, having been awarded the prestigious Beatriu de Pinós Individual Fellowship unded by the MSCA-COFUND EU Programme Grant, I am deepening and expanding my research on state perspectives in territorial disputes by focusing on the role of Constitutional Courts.

Outputs include 4 articles in Q1 journals such as the Journal of Common Market Studies, West European Politics, Nations and Nationalism, and Territory Politics, Governance, as well as an edited book (Routledge, 2023). I was also awarded the EURAC Federal Scholar Prize by the Institute for Comparative Federalism for the best article on federalism published in 2021.

2. LANGUAGE POLITICS

I have examined contested linguistic policies combining political sociology and political theory. I have compared political elites' and activists' competing ideas of nation and language, placing them in political theory debates around linguistic justice, and I have examined the regulation and assessment of linguistic diversity in specific contexts. Outputs include one book (Palgrave Macmillan, 2019) and one article in the leading journal in the field of Ethnic Studies (Ethnicities, 2022).

3. NATIONALISM

I have developed a specialism in nationalism studies that, while substantively different, cuts across the other themes. I have compared the drivers, arguments, and popular support for independence across Western Europe. I have also theorised four 'ideal types' of state nationalism and the relationship between nationalism and language. I have also compared conceptions of the state and majority-minority tensions in the UK and Spain. Outputs include one edited book (Routledge, 2023), one article in the leading journal in the field of nationalism studies (Nations and Nationalism, Q1), and the organisation of an international workshop resulting in one special issue and one book.

Resumen del Currículum Vitae:

I am a scholar interested in the conceptual and comparative understanding of territorial politics and nationalism. This has led me to examine themes including majority-minority relations, the territorial distribution of power, and language politics. My scientific contribution is both interdisciplinary and multidisciplinary, including, and often combining, political theory, qualitative political sociology, and quantitative political science. My scientific production includes 2 books, 4 Q1 journal articles, and 4 Q2 journal articles.

Firstly, I developed my PhD dissertation at the University of Edinburgh on contested linguistic policies combining political sociology and political theory, and Catalonia and Flanders as case studies. My manuscript, published as a monograph (Palgrave Macmillan, 2019), showed that territorial demands are national rather than linguistic, and called for a rethinking of political theory debates to place greater emphasis on belonging.

Secondly, I built the initial phase of my post-doctoral career on two fellowships in interdisciplinary projects funded by the prestigious Economic Social and Research Council (ESRC) at the Centre on Constitutional Change (CCC), a leading research institution on territorial politics at the University of Edinburgh directed by Professors Michael Keating and Nicola McEwen. At the CCC, I gained a solid foundation and practice in empirical methods and research, In the first project (The Constitutional Future of Scotland and the UK, 2.771.312€), I led the comparative study of territorial mobilisation across Western Europe.

In the second project (Between Two Unions: The Constitutional Future of the Islands After Brexit, 2.284.586€), I shifted the analytical focus to the state perspective, leading the conceptual and comparative study of state responses to territorial demands, having worked with the PI in the development of the research project application.

Throughout both projects, I actively pursued strong international collaborations. As a co-PI, I secured funding (ESRC International Networking Competition, 17.198€) to lead the coordination of the international workshop 'Majority Nationalism in Plurinational States', which resulted in one special issue and one edited book. I am also increasingly recognised within European networks as an expert in nationalism and comparative territorial politics as evidenced by the reception of the prestigious EURAC Federal Scholar in Residence 2021 Prize (Bolzano, Italy), awarded by the Institute for Comparative Federalism.

Thirdly, having been awarded the prestigious Beatriu de Pinós Individual Fellowship (143.000€) funded by the MSCA-COFUND EU Programme Grant, I am currently building the second phase of my post-doctoral career at the Institutions and Political Economy Research Group (IPERG) of the University of Barcelona. Here, I am deepening and expanding my research on state perspectives in territorial disputes by focusing on the role of Constitutional Courts. As a co-PI, I have been awarded a Research Project Grant by the Institute for Self-Government Studies (43.262€) to expand this research further alongside a strong international team of experts in judicial and federal politics and with the support of a Research Assistant.

Área Temática:	Ciencias sociales
Nombre:	MONTERRUBIO IBÁÑEZ, LOURDES
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Título:	Escrituras audiovisuales del yo: cine epistolar, film-ensayo, diario fílmico, autoficción audiovisual

Resumen de la Memoria:

Tras mi tesis doctoral, centrada en el análisis de la materia epistolar en la literatura y el cine francés, los ejes de investigación desarrollados han sido, en primer lugar, el cine epistolar. El monográfico De un cine epistolar. La presencia de la misiva en el cine francés moderno y contemporáneo (Shangrila, 2018), uno de los primeros estudios dedicados a la enunciación epistolar en el cine. He continuado este eje de investigación con la edición de un número monográfico internacional Epistolary Enunciation in Contemporary Cinema (Área Abierta, 2019) y números artículos en revistas científicas cada vez de mayor índice de impacto e internacionalización: L' Atalante, 2016; Secuencias, 2017: Área Abierta, 2019; Visual Studies, 2021; Feminist Film Media, 2021, Quarterly Review of Film and Video, 2021. En segundo lugar, continué mi investigación acerca de las relaciones literatura-cine, especialmente en la obra de Marguerite Duras –Entre escritura e imagen. Lecturas de narrativa contemporánea (Peter Lang, 2013); Communication & Society, 2017– y la autoficción contemporánea –Entre escritura e imagen II. Imágenes fijas e imágenes cinéticas (Peter Lang, 2018), New Review of Film and Television Studies, 2021. También he publicado artículos sobre las relaciones entre modernidad cinematográfica y cine contemporáneo –Comunicación, 2017; L'Atalante, 2018– y la práctica del diario fílmico –Arte, Individuo y Sociedad, 2019. Continuando con mi investigación en el ámbito de las escrituras fílmicas del yo, abordé el estudio de los dispositivos de enunciación del film-ensayo –Studies in Spanish & Latin American Cinemas, 2019, Itinerarios y formas del ensayo audiovisual (Gedisa, 2019)– en colaboración con el proyecto competitivo nacional "El ensayo en el audiovisual español contemporáneo" (2016-2019), y obtuve una beca Marie Sklodowka-Curie Individual Fellowship (MSCA-IF-2019) con el proyecto EDEF – Enunciative Devices of the European Francophone Essay Film, que he desarrollado el Institut ACTE de la Université Paris 1 Panthéon-Sorbonne (2020-2022). Este proyecto individual, recientemente concluido, y que he gestionado en su totalidad, ha supuesto mi consolidación como investigadora en el ámbito internacional. Los resultados del proyecto son los siguientes: la edición de un número monográfico internacional –The Audiovisual Thinking Process in Contemporary Essay Films (Comparative Cinema, 2022)–, la publicación de cuatro artículos en revistas internacionales de alto impacto –Quarterly Review of Film and Video, 2021; Studies in European Cinema, 2022; Comparative Cinema, 2022, y un artículo sobre la autoría femenina en el film-ensayo que se encuentra actualmente en revisión por pares en la revista Studies in Documentary Film–, y finalmente un monográfico (open Access) en preparación con la editorial internacional Amsterdam University Press

Resumen del Currículum Vitae:

Mis estudios de Dirección de Cine (ECAM, 2003) y mi licenciatura en Filología Francesa (Universidad Complutense, 2005) me han proporcionado una trayectoria académica multidisciplinar que he desarrollado en mi trabajo de investigación interdisciplinar en los campos de la literatura y el cine. Así, tras obtener el D.E.A en estudios comparados (Universidad Complutense de Madrid, 2008), obtuve el título de doctora en 2015 con la tesis doctoral La presencia de la materia epistolar en la literatura y el cine franceses: tipología, evolución y estudio comparado. Los cinco primeros años de experiencia postdoctoral los realicé en el grupo de investigación internacional e interdisciplinar "La Europa de la escritura" de la Universidad Complutense de Madrid (2015-2020). La obtención de una beca Marie Sklodowka-Curie Individual Fellowship (MSCA-IF-2019) me ha permitido trabajar los dos últimos años en la unidad de investigación Institut ACTE de la Université Paris I Panthéon-Sorbonne (2020-2022), para desarrollar el proyecto individual EDEF – Enunciative Devices of the European Francophone Essay Film. Tras mi colaboración en el proyecto nacional MOVEP (2018-2021) durante este mismo periodo, en la actualidad soy miembro del equipo de trabajo del proyecto competitivo MUMOVEP (2022-2025).

Mi producción científica, en su totalidad como autora única, se compone de 28 artículos en revistas científicas indexadas (19 en Web of Science y 18 en Scopus); 5 capítulos de libros; la edición de 2 números monográficos internacionales; un volumen monográfico y otro en preparación. Mis participaciones en congresos internacionales ascienden a 18. Además de mi proyecto europeo como IP, he colaborado en 9 proyectos competitivos: 6 nacionales y 3 de universidades. He obtenido las acreditaciones de Ayudante Doctora (ANECA, 2018), Contratada Doctora (ANECA, 2020) Profesora Lectora (AQU, 2020) y la acreditación francesa de Maître de Conférences (2022). He sido evaluadora externa de números revistas científicas, nacionales e internaciones, así como del programa de investigación francés ECOS SUD 2022 del Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation. He desarrollado igualmente docencia de posgrado en la Universidad Complutense de Madrid, Université Paris 1 Panthéon-Sorrbonne y Universitat Pompeu Fabra de Barcelona. Mi experiencia como crítica cinematográfica en las revistas Cahiers du cinéma España (2009-2011) y Caimán Cuadernos de Cine (2012-2013) incluye la publicación de más de 90 artículos y diversas actividades de transferencia de conocimiento. Toda esta experiencia ha contribuido a construir un importante bagaje de investigación internacional en el ámbito de los estudios audiovisuales y su perspectiva interdisciplinar.

Área Temática:	Ciencias sociales
Nombre:	FERNANDEZ REINO, MARIÑA
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Título:	Migration and discrimination

Resumen de la Memoria:

I am Senior Researcher at the Centre on Migration, Policy and Society, University of Oxford, where I lead the work on migrants' integration and discrimination. Before moving to Oxford in 2018, I was a postdoctoral researcher at the Horizon 2020 project Growth, Equal Opportunities, Migration and Markets (GEMM), where I was one of the members of the team responsible for the fieldwork of the GEMM correspondence study in Spain. The GEMM field experiment represents the first harmonised cross-national study on ethnic discrimination in hiring.

During my career, I have worked on a variety of research topics related to migration and ethnic inequalities, including the discrimination of Latinos and Muslim minorities, public opinion towards migration, educational inequalities in Spain and the UK, relationships in migrant families, selectivity of migration inflows, and the labour market integration of migrant workers.

I am currently PI of the project 'Lived experiences of the immigration system', which is being developed in close collaboration with public institutions (e.g. EU Delegation in the UK) and civil society organisations specialising in migrants' rights (e.g. the3million, East European Resource Centre). The project involves collecting data on EU migrants living in the UK through an online survey, with participants recruited via social networking sites. Starting in April 2023, I will lead a work package on the Horizon Europe project 'EqualStrength' to study the lived experiences of minorities regarding discrimination and racism, for which I will rely on both secondary and primary survey data sources.

Resumen del Currículum Vitae:

I am a migration scholar based at the University of Oxford with expertise in statistical methods of data analysis and experimental methods, including survey and field experiments. I have published academic articles in peer reviewed journals as well as reports and briefings on migrants' integration outcomes in the UK, which have had a notable political and media impact. I have been PI or Co-I in multiple national and international research projects. Starting in April 2023, I will be the leader of two work packages on the EqualStrength project, funded by the Horizon Europe Framework Programme. I regularly act as a reviewer for academic journals and research agencies. I have experience teaching at the undergraduate level and supervising students in the MSc in Migration Studies at the University of Oxford.

Área Temática:	Ciencias sociales
Nombre:	ARRANZ LÓPEZ, ALDO
Referencia:	RYC2022-037650-I
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Título:	Efectos sociales y territoriales de la accesibilidad y la movilidad

Resumen de la Memoria:

Dr. Arranz-López's research career is characterized by a high level of mobility and international experiences. He has worked in five research institutions in three different countries. During his pre-doctoral period, Dr. Arranz-López started his international career as a visiting researcher at two European institutions: (i) the Department of Geography at Gent University; and (ii) The Luxembourg Institute of Socio-Economic Research (LISER), under the supervision of Prof. Dr. Martin Dijst. In addition to his PhD at the University of Zaragoza, Dr. Arranz-López has worked at three research institutions (one national and two international). Dr. Arranz-López joined the Transport Research Centre TRANSyT, at the "Universidad Politécnica de Madrid", under the supervision of Dr. Julio A. Soria-Lara. The applicant was specifically hired as a Postdoc Fellow within the project "iCITIES: Efectos urbanos y sociales del uso de internet para el trabajo y compras". In November 2020, Dr. Arranz-López moved to Frankfurt (Germany) after being awarded an Alexander von Humboldt postdoctoral fellowship, a highly prestigious worldwide postdoctoral programme. He joined the Institute of Human Geography, one of Germany's leading groups in transport research, under the supervision of Prof. Dr. Martin Lanzendorf. This period marks an important milestone in Dr. Arranz-López's postdoctoral career, as he became the principal investigator in a competitive project, iACCESS. During the period in Frankfurt, Dr. Arranz-López was awarded a Marie Sklodowska-Curie Action – one of the most competitive postdoctoral programmes worldwide – and moved to Luxembourg, joining LISER in January 2022. This accomplishment helped consolidate the applicant's leadership and independence in an international research environment. He continued to build valuable experience under the position of co-principal investigator for the iCRHONOS project, while heading a 4-person research team.

From the early stages of Dr. Arranz-López's research career, he has focused on studying and advancing knowledge on the social and spatial effects of accessibility and mobility. Particularly, he has dealt with identifying those groups of population that might experience transport-related disadvantages, which might result in social exclusion processes. In this context, he also pays attention to the potential effects of the Information and Communications Technology (ICT) (e.g., e-shopping). To date, Dr. Arranz-López has developed his research mostly based on quantitative data related to individuals' objective events. To complement this approach, the research to be developed during the five following years would orient towards the study of the subjective issues linked to travel behavior and its impact on the transport and land use system, i.e., accessibility. Three specific objectives will be addressed: (i) to establish a conceptual framework to measure perceived accessibility; (ii) to develop a methodological approach to map perceived accessibility; (iii) to estimate the effects of the Information and Communications Technology -ICT- on perceived accessibility, and how ICT might produce spatial variations in the perceived levels of individuals' accessibility.

Resumen del Currículum Vitae:

Dr. Aldo Arranz-López is a human geographer doing research in two main topics related to transportation planning: (i) accessibility planning; (ii) the link between the Information and Communications Technology and travel behavior. In these fields, Dr. Arranz-López has more than 25 peer-reviewed publications (12 indexed in the Journal Citation Reports by the ISI-WoS), including scientific articles and book chapters. With an H Index of 8 (according to Google Scholar), Dr. Arranz-López is the leading author of 66% of the ISI-WoS publications, which are all ranked in the first decile and first or second quartile in the categories of geography, transport, and urban studies. Dr. Arranz-López masters a variety of methods (both quantitative and qualitative), as well as experience on testing and validating research outcomes with intended planning users. His ongoing research activity and main results are regularly presented in national and international conferences, making more than 20 contributions in the last eight years. In addition, Dr. Arranz-López has chaired different thematic sessions in international scientific conferences (e.g., NECTAR).

Since Dr. Arranz-López finished his PhD, he has developed an accomplished, independent research career, being involved in national and regional R&D projects, as well as being PI of two international R&D projects (>€250,000 as PI). One H2020 Marie Sklodowska-Curie Action and a project funded by the Alexander von Humboldt Foundation, within the Scientific German System. These has provided him with a high level of internationalization, establishing and leading collaborations with international top-tier scientists in his research field. Additionally, he has participated in 8 competitive projects at regional and national level. It is noted that Dr. Arranz-López has recently led the coordination of his contacts from Germany, Spain, and Luxembourg that has resulted into the application for the last call of the Marie Curie Doctoral Network projects. Dr. Arranz-López has also gained experience in training young professionals and researchers. To date, he has co-supervised 8 Master Thesis, and he is currently co-supervising one Doctoral Thesis at the Transport Research Centre -TRANSyT- (Universidad Politécnica de Madrid). From September 2022 he is also adjunct professor at the University of Luxembourg.

Finally, Dr. Arranz-López is actively involved in several international research and policy networks: "Transport Planning and Policy" thematic group of AESOP and NECTAR "Cluster 6: Accessibility". He also serves as regular referee for leading SSCI journals (e.g., Journal of Transport Geography, International Journal of Sustainable Transportation, Transport Policy, Journal of Geographical Systems). Due to his academic reputation, he has been nominated as panel evaluator of the R&D project program PROCIENCIA (Peru) in 2021, and he usually acts in PhD's evaluation committees (e.g., Universidad Autónoma de Barcelona, Universidad Politécnica de Madrid).

Resumen de la Memoria:

My research lies at the intersection of urban and housing political economy and public policy and most of my academic publications to date centre on affordable cooperative housing alternatives, the topic of my PhD obtained in November 2018 from the Autonomous University of Barcelona (UAB). This research line has evolved to encompass emerging digital and policy initiatives in the context of expanding private rental housing sectors and a protracted housing affordability crisis. Since August 2021, I am PI of the Horizon 2020 Project O2A, funded by the European Commission under the Marie Curie actions (2021-2023). This project investigates new inequalities produced by the changing property and digital landscape in housing, as well as policy and civil society responses to address them in Spain. Various related academic papers are currently under review. Between these two research-intensive phases I worked at the think tank CIDOB-Barcelona Centre for International Affairs and the Institute for Government of Public Policy (IGOP-UAB) on an EU Urban Innovative Action. I was also an associate lecturer in the Department of Political Science and Public Law of the UAB and the City and Urbanism Masters at the Open University of Catalonia, where I have engaged in master's thesis supervision.

My publications include five papers in leading journals: Environment and Planning A, Housing, Theory and Society, International Journal of Housing Policy, European Urban and Regional Studies and the International Journal of Urban and Regional Research, where I was later appointed Corresponding Editor. My research has developed between Spain, Denmark, Uruguay and Sweden and has been presented and discussed at top international academic conferences. I have also organised international academic and policy forums and panels, edited corresponding monographs and special issue proposals and published numerous think tank and policy papers and reports.

The policy relevance and societal impact of my work has been significant and influential. As Advisory Board member of La Dinamo Fundació, a foundation dedicated to the promotion of cooperative housing in Catalonia, I have leveraged my international research to formulate local proposals and participate in policy-making processes. My work at the CIDOB also developed in close dialogue with practitioners and policymakers. Finally, my research has been disseminated in various national media outlets.

Resumen del Currículum Vitae:

I am a postdoctoral researcher in urban political economy, public policy innovations and alternative-socio economic practices, with a specific focus on housing. Since August 2021, I am a Marie Curie Individual Fellow at the Institute for Housing and Urban Research (IBF) at Uppsala University, Sweden. My research project is on emerging public and civil-society initiatives aimed at addressing new forms of inequality in the housing sector in the context of digitalisation processes and changes in property ownership structures. This research agenda builds on my previous work in the think tank CIDOB and at the Autonomous University of Barcelona (UAB).

My PhD research conducted on housing cooperativism in Uruguay and Denmark produced relevant and influential academic and policy-oriented outputs. This research was fully funded by the "la Caixa" foundation fellowships, a highly competitive and prestigious scholarship programme, and later received the UABs 2018/19 "Extraordinary Doctorate Award". The thesis was based on a total of 8 months fieldwork as a visiting researcher in the Copenhagen Business School, Denmark, and the University of the Republic, Uruguay. In terms of academic outputs, I have published related articles in high-ranking journals and discussed results at international academic conferences. In my articles I identify the different institutional and socio-economic conditions through which housing cooperatives become an affordable alternative in the current context of retrenchment of public housing and the financialisation of homeownership and private rentals. These insights have been formulated into policy lessons, particularly for the Catalan and Spanish context. As member of the Advisory Board of La Dinamo Fundació, a foundation dedicated to the promotion of cooperative housing, I have produced policy papers and participated in local and national policy forums. As a post-doctoral researcher at the Institute for Government and Public Policy (UAB), I have also evaluated an EU Urban Innovative Action to create a renter's cooperative in the city of Mataró.

At CIDOB, which ranks amongst the top think tanks worldwide, this policy-oriented research broadened in scope and acquired an international dimension. I hosted international seminars in Barcelona between international researchers, practitioners and policy-makers centred on urban and housing policies. As a result of these seminars and related research I have edited two monographs and published numerous academic and policy papers, as well as developed an extensive network of contacts in both academic and policy-making circles. At CIDOB I also further developed my communication skills organising public events and publishing in important Catalan and Spanish media outlets, such as Diari Ara and El País. I have frequently published in the media since.

In terms of teaching and supervision, I have taught undergraduate political science courses at the UAB and urban studies at master's level at the Open University of Catalonia (UOC) and at Uppsala University. I have also supervised 5 masters¿ thesis and participated in master's thesis defence tribunals at the UOC.

Finally, I am involved in international collaborations by participating in other research projects and as Corresponding Editor of the International Journal of Urban and Regional Research.

Área Temática:	Ciencias sociales
Nombre:	OTEROS ROZAS, ELISA
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Título:	Aproximaciones socio-ecológicas en sistemas agro-alimentarios

Resumen de la Memoria:

Estudio los sistemas socio-ecológicos y sus retos a través de las Ciencias de la Sostenibilidad, aplicando o desarrollando herramientas teóricas de la Geografía, la Sociología Rural, la Ecología, la Economía Ecológica, la Ecología Política, o la Antropología Ambiental en equipos y proyectos inter- y transdisciplinares. Mis principales líneas de investigación son: 1) el estudio de los sistemas agroalimentarios como sistemas socio-ecológicos, incluyendo la evaluación socio-cultural de la biodiversidad y los servicios ecosistémicos de los agroecosistemas, desde la perspectiva de la agroecología; 2) el pastoralismo y los sistemas de ganadería extensiva; 3) las innovaciones socio-ecológicas y el emprendimiento rural, especialmente del nuevo campesinado emergente; 3) los estudios de género en contextos rurales, 4) la interacción del conocimiento ecológico científico y el local/tradicional a través de las redes socio-ecológicas, particularmente en torno a las prácticas agro-ganaderas; 5) la ecología política de la conservación de la vida silvestre y las áreas protegidas, incluyendo los conflictos de usos y valores del territorio; y 7) la resiliencia socio-ecológica y la adaptación frente al cambio global. Formada inicialmente como Licenciada en Biología, soy Máster en Ecología y Doctora en Ecología por la Universidad Autónoma de Madrid, y cuento con formación y amplia experiencia en métodos de investigación social, análisis de datos cuantitativos y cualitativos como meta-análisis, análisis de redes sociales, entrevistas y facilitación de grupos. Como investigadora, he disfrutado de contratos Andalucía Talent Hub - Marie Curie IF, Juan de la Cierva - Incorporación y he trabajado en centros de investigación internacionales como la Academia de las Ciencias y las Humanidades de Berlin-Brandemburgo, la Universidad de Wageningen y la Universidad de Copenhague, y nacionales como la Universidad Autónoma de Madrid, la Universidad Pablo de Olavide, la Universidad de Vic y la Universidad Oberta de Catalunya. Soy editora asociada de la revista Rangeland Ecology and Management (Q2). Estoy acreditada como Profesora Contratada Doctora y he impartido docencia en la Universidad Autónoma de Madrid, la Universidad Internacional de Andalucía, la Universidad Complutense de Madrid, la Universidad de Copenhague, la Universidad de Hohenheim y la Universidad de Kassel-Göttingen. En la actualidad soy docente del Máster Internacional Erasmus Mundus en Desarrollo Rural (Universidades de Gante y Córdoba) y en los Grado de Biología y Ciencias Ambientales de la Universidad de Córdoba. He supervisado 7 proyectos fin de carrera / tesis fin de grado, 7 tesis fin de máster y actualmente codirijo 2 tesis doctorales. He participado en iniciativas internacionales como "La Plataforma Intergubernamental Científico- normativa sobre Diversidad Biológica" (IPBES) y "La Economía de los Ecosistemas y la Biodiversidad" (TEEB), auspiciadas por la ONU. Me implico habitualmente en la transferencia y la divulgación científica, especialmente en agroecología y pastoralismo, colaborando con ONGs ambientales, formando parte del Observatorio Campo Grande para la coexistencia entre el lobo y la ganadería extensiva, y como cofundadora y miembro de las juntas directivas de la Plataforma por la Ganadería Extensiva y el Pastoralismo y el Colectivo FRACTAL de mujeres investigadoras, entre otras.

Resumen del Currículum Vitae:

PRODUCCIÓN CIENTÍFICA: 41 artículos publicados en revistas indexadas, 29 en Q1, 13 como primera autora, uno como primera autora en PNAS (IF=9.412, 7/69, Q1), un artículo en el Journal of Peasant Studies (IF=4.754, 1/90, Q1), 2 artículos en Nature Sustainability (IF=27.157, 2/127, Q1), 1 libro coeditado, 12 capítulos de libros, 48 contribuciones orales en conferencias (31 internacionales, 7 como ponente invitada).
PROYECTOS DE INVESTIGACIÓN: 20 proyectos de investigación competitivos, de los cuales 10 internacionales, 3 coordinando (250.000€, 150.000€ y 50.000€).
TAREAS EDITORIALES: editora asociada de la revista Rangeland Ecology and Management (Q2) y coeditora de un número especial en Sustainability (Q2); revisora de 20 revistas internacionales, 17 de ellas indexadas en JCR.
EXPERIENCIA DOCENTE: en Licenciatura, Grado y Máster en la Universidad Autónoma de Madrid, en la Universidad Internacional de Andalucía, en la Universidad Complutense de Madrid, en la Universidad de Copenhague, en la Universidad de Hohenheim, en las Universidades de Göttingen y Kassel, en el Master Internacional de Desarrollo Rural (Universidad de Gante) y actualmente en la Universidad de Córdoba.
ÍNDICES Y CITAS: 5574 citas en Google Scholar (más de 500 citas/año en etapa posdoctoral), 3470 citas en Scopus; índice h 30 en Google Scholar 26 en Scopus.

Área Temática:	Ciencias sociales
Nombre:	MILGROOM , JESSICA
Referencia:	RYC2022-036640-I
Correo Electrónico:	Jessica.milgroom@gmail.com
Título:	Understanding Racism and Sexism Through the Colonial History of Indigenous Foods

Resumen de la Memoria:

There are few global problems more complex than sustainable food and use of natural resources. The line of research that I have developed is at the intersection of social justice, environmental sustainability and food systems in different continents and contexts including Spain, Mozambique and the United States of America. Development-forced displacement and resettlement (DFDR), access to natural resources, policy enactment, and most recently, agroecology, food sovereignty, gender and feminism, as well as indigenous knowledge are the topics of my research. My work is interdisciplinary and, with respect to this call, currently straddles sociology (anthropology) and geography.

I have 23 publications of which I am first author on 8 peer review articles in international journals. I have published in the top journals of various disciplines (Agricultural Systems and Journal of Peasant Studies) I have 564 citations and an h-factor of 11 in Google Scholar, 300 citations and an H factor of 7 in Scopus. I have written together with 26 co-authors from a range of international organizations. I have worked in eleven research centers in eight countries.

My career as a scholar has been forwarded by 6 fellowships based on personal merit, 3 of which are highly competitive: Fulbright scholarship (USA), National Science Foundation Graduate Research Fellowship (USA) and Marie Skłodowska-Curie Career Restart Individual Fellowship (EU). I have been the PI on 3 projects and wrote the proposal for and co-managed 3 other grants. In research projects, I have been responsible for the collaboration between researchers and non-academic collaborators from multiple sectors, working across cultures, languages, and partners with conflicting interests, in Mozambique and Spain. I co-founded two organizations, and currently coordinate a team of 15 researchers within the University of Coventry. I am currently supervising 3 PhD candidates, and I have written proposals for the funding of two more. I am currently supervising 3 masters students and have supervised 3 in the past. I have taught five undergraduate and masters level courses.

The question of how science can most effectively contribute to positive social change in these fields has shaped my research trajectory and driven me to experiment with different approaches to knowledge generation and dissemination. I have shown leadership through the development of new ideas and proposals, both in content, methodology and format. I have designed tools for end-users (field manual and a user guide), produced dissemination materials and events (articles for general audiences, workshops, panels in conferences), policy-focused approaches to scholarly work as well as policy briefs, and the development of easily accessible multi-media materials including a film, a photo book, and a podcast series for powerful awareness raising.

This grant would allow me to consolidate my line of research on the ways in which oppression and exploitation has shaped, and continues to shape, food systems and people's relationships with nature. Situated local, indigenous, and feminist perspectives, such as the one I am developing, are crucial for coming to terms with this collective history and for constructing generative narratives to forge new paths forward.

Resumen del Currículum Vitae:

I have developed a line of research at the intersection of social justice, environmental sustainability, and food systems. My strengths entail the publication of high-quality scientific articles based on in-depth empirical research, the use of innovative transdisciplinary methods, and science – policy – society communication and knowledge transfer. Through peer-review publications I have made scientific contributions to understanding policy implementation, access to natural resources, development- forced displacement and resettlement, and soil erosion assessment including farmer tools. I am currently working on research projects on Indigenous food systems through a feminist political ecology lens in the USA, and territorial food systems in Spain.

A Fulbright fellowship kicked off my research career at the CSIC Institute for Sustainable Agriculture, where I engaged in interdisciplinary, independent research and developed a field manual for soil erosion in 2004, published by the Andalucian government and reprinted in subsequent years. A fellowship from the National Science Foundation (USA) and the Interdisciplinary Research and Education Fund (INREF) fund from Wageningen University supported my PhD research on development-forced displacement and resettlement that culminated in 6 peer review articles in Q1 journals, and 3 book chapters, as well as a film and a book that documents photos taken by research participants. I organized dissemination events in 11 countries.

While raising my daughter as a single parent, I spent 8 years working as an independent scholar-activist and teacher with various universities, international networks, civil society organizations and local food producers to work towards sustainable and just food systems. I refined skills of translation between languages appropriate for policy, science and public audience, and building valuable networks. I independently acquired funding from a number of different sources for the generation of creative outputs of knowledge dissemination, such as a photobook, and a film. I worked as an editor for the Farming Matters magazine, a magazine well-known around the world for sharing success stories of low-input farming. I co-founded two organizations: Cultivate! and AgroecologyNow, both dedicated to research and knowledge brokering of agroecology and food sovereignty.

I was awarded a Marie Sklodowska-Curie Career Restart Fellowship to work at the Research Centre for Agroecology, Water and Resilience, the most prestigious centre for agroecology research in Europe. I am supervising 2 PhD students and 3 masters students. The COVID pandemic has been an impediment to the planned timeline for fieldwork on indigenous food systems in the USA. In the summer of 2022 I was finally able to resume fieldwork and I am currently working on three articles that will bring a closure to my Marie Sklodowska-Curie grant. In this period, I also conceived of, and wrote a grant to do research on Territorialized food systems in Spain with a consortium of actors in the Sierra de Aracena, Huelva. We are now implementing the second phase of the project. Together with AgroecologyNow colleagues, I have also been instrumental in obtaining funds to mobilise research results, including multi-media outputs. I co-produced one on feminism in agroecology, and a podcast on the same topic.

Área Temática:	Ciencias sociales
Nombre:	SENABRE HIDALGO, ENRIC
Referencia:	RYC2022-036634-I
Correo Electrónico:	esenabre@gmail.com
Título:	Citizen Ethnographies

Resumen de la Memoria:

My career as a scholar follows my previous professional experience in civic technologies and co-creation facilitation, balancing scientific publications in peer-reviewed journals (from diverse disciplines and areas such as citizen science, participatory design, human computer interaction, open science, team science, e-learning or e-health) with digital materials and resources for allowing replication of methods and practical adoption by other researchers, educators and practitioners. The majority of these research contributions relate to different areas of methodological experimentation and open knowledge in the social sciences and digital humanities, aiming to both academic and social impact. Whenever possible, I have integrally published results, data and other outcomes under copyleft licenses (toolkits, open datasets, preprints, educational resources and code contributions to open source tools). Outcomes of my scientific and technical work in recent years have contributed to implement Commons-based peer production, co-creation and open knowledge in several scientific and social contexts, based on my international and interdisciplinary cooperation with different scholars and experts as co-authors. My collaborative leadership progression as "researcher-as-facilitator", over the years, has allowed me to work on relevant contributions to participatory design and civic technologies, as well as related to citizen science and open science. Currently, my main focus and interest is connecting ethnographic methods with open data and open source tools. Following that path, the line of research I want to keep on developing (and for which the Ramon y Cajal grant could constitute a great opportunity), relates to how citizen science, civic technologies and sociocultural innovation can benefit from new methodological approaches combining ethnography and co-creation, an novel perspective which I consider under the concept of "Citizen Ethnographies". More concretely, this methodology-oriented project aims to develop theoretical, empirical and practical knowledge based on three different case studies, analyzing the use of ethnographic methods and tools for effective co-creation, peer-production and digital action research in different local, community and cultural contexts: (a) Civic technologies for participatory democratic assemblages; (b) Adoption of digital platforms by Social and Solidarity Economy projects; and (c) New cultural dynamics at the intersection of climate emergency and degrowth. My current involvement with the related communities of practice and other colleagues working in these fields represents an overarching opportunity for the action research interventions I'm interested in, as well as for potential comparative approaches, adapting my work to these initiatives of Commons-based peer production which have similar knowledge needs. My line of methodological-centered research, in this sense, will be applied in these distinct but complementary areas I'm not only familiar with, but already involved, and which represent similar cultural challenges for the advancement of action research in social, economic and environmental issues.

Resumen del Currículum Vitae:

My work, study and research has been largely focused on co-creation, the development of civic technologies and open knowledge. First from my involvement in pioneering initiatives to generate citizen-based innovation, as project coordinator in one of the first European Living Labs (CitiLab Cornellà) and later on as co-founder and promoter of the leading civic crowdfunding platform Goteo.org, which not only I contributed to design but, especially, to make it grow as a community and tool for social impact, which today has more than 300.000 registered users. After this intense and fruitful professional period, I decided to apply what I had learned and focus my efforts in academic research. First with my thesis and applied study of transdisciplinary co-creation in social sciences and action research at Dimmons.net (at IN3, Universitat Oberta de Catalunya), together with my thesis director and mentor Dr. Fuster Morell. Afterwards, delving into the interconnection between citizen science and digital humanities, I had a very fruitful postdoctoral position at the Austrian Academy of Sciences, collaborating with leading institutions in science and the arts (like CERN IdeaSquare, metaLAB (at) Harvard or Ars Electronica). Encouraged by previous methodological results and experiences and my progressive relevance and leadership as a scholar, thanks to an incipient network of colleagues and collaborators from various disciplines, I later on joined the Peer-Produced Research Lab led by Dr. Bastian Greshake Tzovaras at the Center for Research and Interdisciplinarity at U1284 INSERM (Université Paris Cité). There, in connection with several socio-technical trends and communities, I contributed to advances in understanding not only participatory and inclusive modes of citizen science, but also in connection with open source tools and open science, while deepening ethnographic approaches to community-based research and methodological experimentation. All these contributions have in common my commitment to open science (publishing manuscript preprints, sharing methodological toolkits under copyleft licenses, and providing open datasets for transparency and replicability), while in parallel publishing open access in prestigious academic journals such as Nature, CoDesign, Journal of Medical Internet Research, Comunicar or Accountability in Research. Reinforcing an eclectic background in research dissemination, impact and management, my industry-oriented contributions regarding Goteo.org have also been instrumental to promote both open source solutions (in a main area of civic technology such as crowdfunding) and derived materials, data and practical knowledge (regarding its use by public institutions in new formulas for social innovation). In parallel to these project-based and industry/policy-oriented contributions, another constant of my work has been documenting, curating and sharing online relevant outcomes, as base from my own empirical research but also available for other scholars and practitioners.

Área Temática:	Ciencias sociales
Nombre:	BIANCHI , IOLANDA
Referencia:	RYC2022-037350-I
Correo Electrónico:	iolanda.bianchi@uantwerpen.be
Título:	Bridging new municipalism and commons theory: political, governance and policy change in and through cities

Resumen de la Memoria:

I am an urban political scholar (PhD in Political Science and PhD in Urban Planning). I work in the field of urban politics, urban governance, urban policy and collective action. With my research activity, I have contributed to expanding and deepening knowledge about the potential and limitations of the interplay between collective and public action at the urban scale, examining how this interplay can produce political, governance and policy change in order to achieve more just, equal and democratic cities.

To push knowledge forward in this debate, I have developed two main lines of research focusing on topics that are of current interest: commons and new municipalism. The first line of research uses the concept of the commons as an entry point to analyse political, governance and policy changes sparked by the recent emergence of commons initiatives in EU urban contexts. The second line of research focuses on city-based social movement parties and their potential for introducing political, governance and policy changes in EU cities and beyond. Recently, I have merged these two lines of research, moving to theorise "public-common institutions" as new institutional configurations that are the quintessential governance structure of new municipalist practices.

During my Ramon y Cajal fellowship, I aim to take a major step forward and scale up my line of research. Taking my work on public-common institutions and the capacity of cities to foster alterative progressive politics as a starting point, I will extend this line of research in two directions. On the one hand, I will situate the spread of public-common institutions within the broader global phenomenon of de-privatisation of local public services, including re-municipalisation and sustainable public procurement. On the other hand, I will use the analysis of these de-privatisation modalities to understand the capacity of cities to challenge variegated neoliberal urban governance regimes. To do this, I will apply for an ERC Starting Grant.

"ALTERMODS: Alternative management modalities: de-privatising public services across cities worldwide" is the project title of the ERC application I am currently working on. The project will provide a worldwide comprehensive understanding of the management modalities that local governments are developing that counter privatisation: re-municipalisation, public-common partnership and sustainable public procurement. The ALTERMODS project will open a brand-new line of enquiry on alternative management modalities at the city level with the objectives of: I) understanding the role of cities in countering privatisation processes; ii) analysing the socio-political determinants of the adoption of these modalities; iii) assessing to what extent they represent an alternative to privatisation; iv) unveiling the political, administrative and legal challenges faced by local government in their adoption.

Resumen del Currículum Vitae:

I am an urban political scholar (PhD in Political Science and PhD in Urban Planning). I currently hold a Marie Sklodowska-Curie SoE postdoctoral fellowship at the Urban Studies Institute, University of Antwerp. Previously, I was a Juan de la Cierva Formacion postdoctoral researcher at the Institute of Government and Public Policies, UAB.

My scientific publications demonstrate that I have acquired a leading and independent position in my field. I have published 10 peer-reviewed articles: 8 articles in Q1 Scopus/SJR journals, 1 article in Q2 Scopus/SJR journal, and 7 single-/first-authored articles. I have also published 7 book chapters with academic publishers (Routledge, Edward Elgar Publishing, Tirant lo Blanch, etc.), 6 research outputs including competitive-funded research reports and working papers. I have signed a contract with Routledge for the publication of a book, called Barcelona: urban commons and local state assemblage. I have participated in 10 international and national research projects, two of them as PI and three of them as Research Associate.

I have disseminated my research results extensively. I have presented them at more than 25 national and international conferences (ECPR, RC21, EURA, AESOP, AECPA; SISP), also acting as chair/co-chair (ASOP 2018 and AECPA 2022). My knowledge in the field has been recognised by a series of public, private and community bodies (Technische Universitat Berlin, University of Kassel, University of Bologna, De Montford University, National Research Council of Italy, and Media-Lab Prado) that have invited me to give lectures and talks on my research topics. I have also been invited to be a reviewer by more than 10 indexed journals (Antipode, JUA, EURS) and by Routledge. I have also served as an external evaluator for the "Projet generique" call, Agence Nationale de la Recherche, France.

My work has always been highly connected to practice. I adopt citizen science methods for data collection (co-production events and workshops), and share the findings with society through policy briefs and videos, and also by giving popular science seminars and writing popular science articles and blog entries. The citizen science approach to research is also a core methodological aspect of my Sklodowska-Curie-Curie SoE project, which is co-producing most of the research data and fostering knowledge transfer between public, community and university actors. Moreover, I also regularly run training seminars for policy makers regarding collaborative public policy, such as co-production arrangements and policy co-evaluation.

I am highly committed to supporting young researchers in the development of their academic careers. I have co-organised 1 Masterclass and 1 Summer School (ongoing), both aimed at PhD students. I am currently co-supervising a PhD doctoral student and I have supervised 10 Masters students (3 of these supervisions are ongoing). I have acted as an external evaluator of a PhD dissertation. I am also very active in fostering collaborative theory building and research groups. Through the "Municipalist strategy in crisis?" research project in which I acted as Principal Investigator, I have contributed to the creation of a community of scholars who are working on the theory and practice of new municipalism.

Área Temática:	Ciencias sociales
Nombre:	ACEDO , ALBERT
Referencia:	RYC2022-037359-I
Correo Electrónico:	albert.acedo@gmail.com
Título:	Place-based knowledge in administrative units and urban policies

Resumen de la Memoria:

My research lies at the intersection of Geographic Information Science, Human Geography and Data Science, focusing on the formalisation and operationalisation of place-based knowledge in urban contexts. In particular, I explore theoretical conceptualizations and fusion data strategies for geographically analysing human perceptions, human-urban interactions, and the city's social organisation to incorporate this place-based knowledge in urban policies and recognise its importance in defining administrative units. This is a highly interdisciplinary line of research that requires the integration of urban stakeholders' social dimensions, institutional and socio-economic data, and geographical city features and knowledge. It is also of high political and societal relevance; the European Commission strongly recommends using place-based approaches as a guiding principle to monitor urban development actions and cohesion policies in their last reports and publications.

My research career has been funded by competitive grants such as an Erasmus Mundus scholarship, a Marie-Curie Actions (European Joint Doctorates), Juan de la Cierva Formación grant, Individual Call to Scientific Employment Stimulus – 4th edition (Junior Researcher), and Maria Zambrano grant (NextGeneration). Since 2015, I have worked at top-ranked research groups in four different countries in Europe and America. I have published 17 academic contributions (9 as the first author), including flagship conferences and journals such as Transactions in GIS, Heliyon, and Cities. I have also presented my work at 13 international and national conferences, participated in 2 H2020 projects and 2 national ones. Notably, since the quantitative study of the urban space from a place-based perspective is a pretty unexplored field, this publication record and participation in European Projects has established me as one of the emerging leading scholars in the growing place-based "Platial" science in Europe. Prove my leadership and the timing of the topic are the two recent competitive grants obtained (Maria Zambrano and Junior Researcher Individual Grant (Portugal)). Both grants are based on scientific excellence (curriculum vitae) and research excellence (the two research proposals about place-based science) and the feasibility of achieving the proposed research plan in time.

Resumen del Currículum Vitae:

In 2015, I obtained a competitive Marie-Curie grant (H2020 project - GEO-C: enabling open cities) to pursue a European Joint Doctorate (2015-2018) held between Portugal, Germany, and Spain. I was based in Lisbon and did one external semester of six months at the Universitat Jaume I (UJI). During my PhD (graded cum laude), I conceptualised and proved an innovative spatial framework to study the spatial connection of social concepts in city processes. During my external semester at UJI, I developed an innovative technological open-source tool to evaluate the framework (part of the European GEO-C Open City Toolkit), which I used in the Lisbon participatory budgeting and Lisbon decentralised in-person meetings during my internship at Lisbon city council.

In 2019, I did a one-year postdoc at the University of Waterloo (UW), Canada. I developed studies about open government, crowdsourcing data, well-being and conducted advanced courses on programming. I also transferred the obtained results in recurrent open meetings with urban stakeholders in collaboration with the Canadian Index of Wellbeing (still collaborating). In 2020, I conducted a postdoc year at Instituto Superior Técnico (Universidade de Lisboa), being a researcher in the H2020 MEMEX project and supervising four research assistants. I added to my expertise knowledge on promoting social cohesion through open-source storytelling platforms by running three pilot experiments (Paris, Barcelona, and Lisbon) mainly with immigrants.

In 2021, I was a postdoctoral researcher at UJI granted by the Juan de la Cierva Formación scholarship. This was my first scientific contract to develop my project in Spain. I spent one year developing my project "Smart cities – Platial urban dynamics" and also bringing my expertise to the Symptoms project funded by the Spanish Ministry of Science and Innovation as a collaborator. Since 2022, I have been a postdoctoral researcher at NOVA IMS after winning a competitive contract (4th Portuguese FCT Individual Call – 1st position). It is a contract of 6 years in which I am on unpaid leave to conduct a postdoctoral contract (Maria Zambrano) of 2 years at Universitat Autònoma de Barcelona.

Throughout this highly international career, I have co-authored 1 book chapter and 16 articles (8 as the first and corresponding author). All of them were in collaboration with international co-authors and published in international high-impact factor peer-reviewed journals and conferences (including 5 Q1 (SJR) and a total of 195 citations - Google Scholar (06/02/2023). I have also presented my work at 13 international conferences, highlighting two invited talks at TU Dortmund (Germany) and ESRI International User Conference (San Diego, USA). I have been part of 2 H2020 projects, 2 Spanish projects, and I won 5 competitive grants, including the Portuguese FCT Individual Call and the Maria Zambrano competitive grants (together approx. 250.000 €), for which I wrote my own research projects as Principal Investigator. I have supervised two master students, currently supervising three more and one PhD student. I have also completed more than 60 hours of teaching at the undergraduate and graduate levels at the University of Waterloo (Canada) and Universitat Jaume I.

Área Temática:	Ciencias sociales
Nombre:	CANTONI , ROBERTO
Referencia:	RYC2022-036802-I
Correo Electrónico:	realecomplesso@gmail.com
Título:	Energy justice and renewables: a critical approach to energy transition

Resumen de la Memoria:

- I started my student career with a Master's dissertation in Biophysics. Following that, I switched to science communication and history of science, and I did two masters with dissertations on epidemiology communication, and on oil technology as a diplomatic tool during Cold War, respectively. I then continued my career with a PhD in history of science and technology, extending my master's work on oil. After my PhD, consideration of the political clout given to companies and countries alike by fossil fuel shifted my interest from energy history to contemporary energy topics: shale gas and renewable energy, in particular. I therefore conducted research on selected societal aspects related to the exploration for shale gas in Poland and France. During this phase, I felt the urge to deepen my knowledge of energy management dynamics, and seized the opportunity to take a Master in Global Energy Transition. For my final dissertation, I decided to work on a pioneering solar plant that the Kingdom of Morocco was building at the time, which I studied using an STS (science and technology studies) approach. Through this work, I grew an interest in African energy policies, and specifically on issues of electrification and renewable energy systems. The last phase of my research lasted from 2018 to currently, and was marked by an expansion of my interests to more general energy issues, both theoretical and empirical, and especially on energy justice in Europe and Africa. Thanks to an ERA-NET funding opportunity in Germany, I was involved in a project (CIREG) on the development of renewable energy in West Africa (which is also the focus of my current research at ICTA – UAB), which allowed me to conduct research in Togo and Burkina Faso. A following funding opportunity in the UK helped me connecting with the work of Benjamin Sovacool, one of the world' s leading energy justice experts.

- As my research has mostly been part of European Commission-funded projects through the Horizon 2020 framework, the results of my research have mostly been open and accessible by the public. In my previous research on Africa, I have kept contacts with my interviewees and communicated my results to them.

- Dissemination activities for my research results have taken place through: 1) presentations in international and national conferences; 2) science popularization; 3) climate activism.

- During my career I have received several prizes from scholarly societies, universities, and think tanks.

- My academic career to date has been marked by its internationalism. Starting from my PhD, I have conducted research in Spain, France, Germany, and the UK, and have been a visiting scholar in Italy and Poland.

- As shown in my CV, I have participated in seven projects and research lines until now: three were individual post-doctoral projects (1, 3, 6, and 7), which I led and conducted on my own, managing every aspect of them, from financial to academic (though with frequent exchanges with my referents).

- My future research plans are to continue and expand my latest research lines, notably those related to energy justice 1) in renewable energy projects in selected African countries, and 2) in the ongoing decarbonisation of Europe' s carbon-intensive regions.

Resumen del Currículum Vitae:

a) Much before the present crisis on energy sources and climate change, I specialised in the Energy, Economy and Society field. I have published a series of recent articles (mostly as first author) in the journals Global Environmental Change, Energy Research and Social Sciences, Energy Policy on fossil fuels and new 'green' energies (oil, shale gas, coal, solar) in Africa and Europe. This is why I joined the Energy Transition group at Sussex University for some years, and now the EJAtlas group at ICTA UAB.

b) My experience in designing courses and teaching, at bachelor, master, and PhD level. I have taught courses in: Introduction to Science and Technology Studies; Science controversies; Energy transition in Africa; The status of the nuclear industry; Energy Justice. I have also collaborated as a tutor in courses on Policy Analysis and, again, Energy Justice. 2 I have taught them mostly at universities in Germany (Augsburg, Bonn), the UK (Sussex University), and at European Institute (CIFE/IE-EI), an international institution of graduate studies and research based in Berlin, Germany, and Nice, France. I could teach a course on Energy Transition around the world.

c) I have directed two Master dissertations related to the Master in Energy Policy at the Sussex University.

d) I have obtained several prestigious scholarships during my career (amongst which, a Marie- Skłodowska Curie individual post-doctoral scholarship from the European Commission, a Beatriu de Pinós from the Catalan Research Agency, and a visiting professorship from the German Jakob-Fugger-Zentrum).

e) I have authored over 20 between peer-reviewed articles (mostly as first author and in Q1 Scimago-indexed journals), book chapters with well-knows publishers, and a monograph with Routledge. I have participated in over 30 international conferences of established associations/ groups, and organized or co-organised 2 international summer schools and 1 international workshops.

f) I have led a small group of researchers within the ERA4CS-sponsored, CIREG project, to collect and analyse socio-economical data in 3 African countries.

g) I have received international awards and prizes, such as the Levinson Prize for articles (from the Society for the history of Science), the outstanding thesis award from the University of Manchester, the 'Laura Conti' prize for dissertations on environmental subjects; and the Seal of Excellence from the European Commission.

h) I have conducted archive missions in 8 archives (in the USA, UK, France, Italy, Belgium), and fieldwork in France, Poland, Togo, and Burkina Faso.

i) I have conducted science popularisation activities for 3 years, at an Italian-based web magazine, and at CERN, the world's most prestigious nuclear research centre.

Total number of citations (to 16/01/2023) (Google Scholar): 305 Average yearly citation rate (last 5 years, 2018-22): 49 Publication on Q1 journals: 10 H-index (Google Scholar): 10

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias sociales
Nombre:	LUNDSTEEN , MARTIN
Referencia:	RYC2022-036970-I
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Título:	Urban B/ordering in the EU

Resumen de la Memoria:

Although my research interests have been varied, the sum of the main lines of my research are: Social Conflicts and Intercultural Convivencia; Islamophobia and anti-Muslim Racism in Catalonia; Recognition and Justice in Times of Crisis; Urban Bordering. All of which span different disciplines, such as Geography, Migration Studies, Urban Studies, Anthropology, and Critical Criminology. Although since the beginning of my career in 2009, I have mainly been carrying out fieldwork in different parts of Catalonia, in the context of small-to-medium towns, recently I have begun to compare this with fieldwork and interviews in Denmark.

In 2015 I graduated with a PhD in Social Anthropology with honours (cum laude) and a special prize from the University of Barcelona. A research work supervised by Professor Susana Narotzky, National Award in Research in Humanities "Ramón Menéndez Pidal", and Professor Mikel Aramburu Otazu, and partially completed at the Centre for Migration, Policy and Society (COMPAS) and the Institute of Social and Cultural Anthropology, University of Oxford. In its framework and methodology, it was deeply influenced by the Manchester School in Anthropology, dealing with migration and urban studies in a critical and novel way, and the results have been published throughout several peer-reviewed articles in prestigious journals and the book Convivencia: Migration and Urban Transformation in a Small Catalan Town, published in the series Challenging Migration Studies with Rowman & Littlefield.

Alongside this, since 2010, I have participated in 14 research projects, of which the majority were highly competitive, either financed by the Spanish Ministry of Education, the European Research Council or Research Executive Agency, or by the Generalitat de Catalunya and the Barcelona City Council. Although I have mainly been a collaborative researcher, either carrying out my individual research project or aiding in particular tasks, during the last 5 years I have increasingly acquired a leading and coordinating role. In fact, in 5 out of the last 6 projects I have held a leading role either being the Principal Investigator of the whole research or European project coordinator of a Work Package.

In this sense, through individual postdoctoral funding – two years at the Centre for Criminology, University of Oxford, and the current Marie Curie Postdoctoral Fellowship at the University of Copenhagen– I have laid the foundation for a new pathbreaking research agenda. Built upon prior work on popular conceptions of justice and the role of religion as a vehicle for social protest (2016-2020), this research has analysed the interplay between the different scales, agents, narratives, and interests, to advance knowledge on the functioning, efficacy, and effects of urban b/ordering in Denmark. Through a theoretically informed, in-depth ethnographic account of the implementation and the socio-political consequences of the Ghetto Package in Denmark the research project aimed to study how bordering works in and through urban space, a crucial element in place- and home-making. The results have been published through an article in European Urban and Regional Studies, and another article on the role of housing association professionals and civil servants in the implementation is underway and expected to be published in Political Geography.

Resumen del Currículum Vitae:

I am a social anthropologist with vast expertise acquired through varied research experiences at universities in Denmark, the United Kingdom, and Spain. Overall, my research activity comprises anthropology, migration, urban studies, Islamophobia, and border studies. Currently, I investigate how bordering works through urban space, by scrutinizing the implementation of housing regulations and laws, and the jurisprudence of disputes in the housing sector. I have been a postdoc at the University of Oxford, and I am currently a Marie Skłodowska-Curie Fellow at the University of Copenhagen.

Throughout my career, I have developed several ideas and hypotheses which have resulted in 25 publications in relevant journals and through widely accessible books with well-renowned publishers, of which 19 are single-authored. Specifically, I have published 5 books, 10 peer-reviewed articles, and 9 book chapters.

As President of OACU, PI in several research projects, and through a training course on Research Project Management and Leadership at the University of Copenhagen, I have gained considerable experience and skills in how to lead and coordinate. Likewise, through participation in many projects and my contribution to research proposals for funding at both local, regional, national, and European levels, I have gained insight into how to create a timely and high-quality proposal, and through this attract funding. This can be verified in my many awards, pre-doctoral and post-doctoral fellowships. Furthermore, via stays at the University of Oxford, Loughborough University, and the University of Copenhagen, participation in research projects at different scales, coordination of 4 table sessions in international conferences, the organisation of 4 international conferences, and participation in many relevant international conferences, I have developed a strong network of my own.

During my academic career, I have been committed to transferring and disseminating the results of my research beyond academia and indicators of academic impact. This has led me to be an active member in organizations such as Stop Islamophobia (SAFI) and OACU, where I have carried out projects in collaboration with civil society and public institutions, leading to reports for the wider public and the institutions, an artistic project, and an educational project, later published in an educational guide for secondary education (Descontrol 2020) and available online, but also, to several scholar-activist conferences and seminars. My commitment to socializing the products of my research has resulted in: several talks with non-academic audiences, public institutions, training with civil servants, and participation in the municipal strategy against Islamophobia in Barcelona, as well as making my research publicly available with 10 open-access publications.

I have supervised 7 MA students, 2 PhD students, and 2 BA students, as well as chaired several theses and master dissertation defences. Moreover, as President of OACU, I have promoted the creation of research groups, coordinated the budgeting, and helped different groups and individuals, many of which are young researchers, apply for funding and subsequent reporting. Likewise, since 2019 I am a member of the Editorial Board of a renowned journal in anthropology in Catalonia where I have edited several special issues, and I am also a reviewer of scientific journals for publishers such as Taylor Francis, Wiley, and Edward Elgar

Área Temática:	Ciencias sociales
Nombre:	WALTER , MARIANA
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Título:	Socio-environmental movements, conflicts and transformations

Resumen de la Memoria:

I am an international social sciences researcher and educator working in the fields of sociology and political ecology. My line of research – which I have pursued at the Institute of Environmental Science and Technology (ICTA-UAB)- studies social movements and conflicts in the context of socio-environmental controversies. I study the role of socio-environmental movements and conflicts in processes of transformations to social and environmental justice and sustainability. My research line is called: "socio-environmental movements, conflicts and transformations". I have a PhD in Environmental Sciences and Technologies (ICTA-UAB, 2014), a Masters on Environmental Studies (ICTA-UAB, 2007), a degree on Urban Ecology (UNGS, Argentina, 2007) and a Baccalauréat Scientifique (Buenos Aires, 1998). I have ample international experience as I have conducted research in the context of 6 International projects (EU FP6 ALARM, EU FP7 CEECEC, EU FP7 ENGOV, ACKnowl-EJ ISC project, Envjustice ERC, Balzan project). Moreover, I have independently created international research collaborations in Canada and UK and I have conducted post-doctoral research stays at international research centers (Netherlands-ISS, UK-UEA, Argentina-Gino Germani Institute) and in 2023 in the UPF (Spain). I have been the Scientific Coordinator of two large-scale international research projects (ACKnowl-EJ ISC, Environmental Justice project ERC Advanced grant) and I was the deputy supervisor (scientific coordinator) of a Balzan Prize project (ICTA-UAB). My research addresses global socio-environmental challenges, mobilizing concepts and methods from (environmental) sociology, social movements and political ecology studies. I have used diverse and mixed methodological approaches such as grounded theory case study and comparative research, in-depth case studies, discourse analysis, social multicriteria methods and quantitative methods. My research aims to inform theory on how socio-environments are shaped, politicized and contested. I investigate the interactions between social and environmental processes putting emphasis upon the actors, power relations, institutions, cultures, narratives, political structures, and intersectionality of race, gender and class, as well as the role of spatial dimensions and biophysical (socio-metabolic) dynamics. The primary questions motivating my research in the coming years are these: 1) How are natural resources and socio-environmental impacts and hazards unequally distributed? 2) Who and how is mobilizing against this unequal distribution?, 3) How are socio-environmental conflicts and movements contributing - if they are- to more socially just and ecologically sustainable worlds? I aim to pursue further research on the conflicts, movements and alternatives that emerge from the increasing demand of metal and mineral (e.g. lithium) for hegemonic energy transition policies (electric batteries, etc). In terms of geographical areas, I mainly focus on the Global South, but I also want to make connections with emerging mobilization processes in other contexts. This builds on my research career studying socio-environmental conflicts related to large-scale mineral extraction in Latin America, its key actors, networks, strategies, discourses, and the outcomes and transformations that result.

Resumen del Currículum Vitae:

I am an international social sciences researcher and educator. I have developed ample international activity, as I have participated in 10 national and international research projects and networks. I have conducted post-doctoral research stays at international research centers (Netherlands-ISS, UK-UEA, Argentina-Gino Germani Institute) and in 2023 in UPF, Spain. I have been the Scientific Coordinator of two large-scale international research projects (Academic and Activist Co-production of Knowledge for Environmental Justice, ACKnowl-EJ project, ISC funded; Environmental Justice project, ERC Advanced grant). Recently, I was the deputy supervisor (scientific coordinator) of a Balzan Prize project (ICTA-UAB). My leadership is also reflected in my role creating international research networks (Canada, UK) and coordinating research groups (as scientific coordinator and leading an independent research line), organizing events (special sessions, special issues, webinars), and, as member of the Coordination and Direction group of the Environmental Justice Atlas, that leads the development and research of the largest world-wide database on environmental conflicts, producing high-impact pioneering research in social sciences. I have been consultant for the Austrian Science Fund and I am in an international scientific advisory board (University of Copenhagen project). I have been invited to join Phd Committees (UK, Spain and Mexico) and I have been part of a PhD selection Commission (Italy). My ability to obtain competitive grants is reflected in the EU funded competitive positions, my postdoctoral Juan de la Cierva scholarship (I declined). I have also participated in the writing of successful EU projects (ENGOV).

The high quality of my scientific contributions is evidenced by the 18 papers I have published in international peer-reviewed journals (H-index 15, 1146 citations in Scopus). I have published my research in (Q1) Social Sciences journals such as Global Environmental Change, Geoforum, Sustaintability Science, Extractive Industries and Society, Ecological Economics, Land Use Policy. I am first author in 7 and second author in 3 published articles (with equal work to the first author). I have co-edited 3 books (Pluto, Routledge; Abya Yala), 2 special issues (in Q1 journals), published 18 book chapters (Routledge, Palgrave/Mcmillan, CLACSO, Pensoft), including three invited chapters in handbook editions. I have written over 16 dissemination documents, as well as press articles. I have presented my research in 25 scientific conferences, and I have delivered 6 keynote presentations in international scientific events (ISC event, Paris, 2022, Conference in Erfurt, 2022, IDS Lecture, 2021; Conference in Chile, 2019; Seminar in Finland, 2018, Seminar in Arnold-Bergstraesser-Institute, Freiburg, 2016). I have supervised 2 Phds and 3 Master students, 3 visiting researchers and 1 student in practices. I have taught for undergraduate ("Society and Environment", UAB Sociology Department, 2 years, 70hs), 2 Master (ICTA-UAB, 10hs/8hs, 2020-2023 and 2021-2023) and a PhD (Universidad Andina, Quito, 120hs) program. Among other teaching invitations.

Área Temática: Ciencias sociales
Nombre: NUNEZ CASAL, ANDREA
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Título: Ecobiosocialities: microbes, embodiment and inequalities

Resumen de la Memoria:

I am an inter/transdisciplinary researcher of the entanglements between microbes, embodiment, and inequalities. To date, my research has focused on (1) socio-cultural aspects of human microbiome science and immunology and (2) advancing feminist decolonial approaches and embodied methods to rethink, address and remedy health inequalities associated with antimicrobial resistance (AMR) and chronic/recurrent infections as well as trace the plural origins and actual shapes of decolonial theories of Buen Vivir. This includes an examination of how bioinequalities are being reproduced within science as it moves from and between the laboratory, the governmental, the popular, and the embodied. I use a wide variety of theoretical perspectives including science and technology studies (STS), body and gender studies, cultural and medical anthropology, medical humanities and critical public health, and qualitative research methods including multi-sited and digital ethnographies, historical and policy analysis. My PhD (Goldsmiths, 2019) was the first cultural study of immunity, the microbiome and inequalities. I developed the analytical framework of ' microbiomisation' to critically analyse the implications and repercussions of human microbiome science in society. Together with the research design of a method of registration, documentation, and interpretation of embodied experiences of health and disease as part of medical diagnostic and therapeutic data in recurrent infections and antimicrobial resistance, have pioneered the critical studies of science attracting wide attention and feedback from humanities and social sciences scholars, the arts and civil society as well.

My research trajectory, experience and current focus on the biosocial configurations of postgenomics at the crossroads of ongoing histories of racial and gendered biocapitalism would constitute a valuable research theme, strengthening, and innovating, both nationally and transnationally, research excellence aligned with DORA. Through my intellectual lens that is both broadened and sharpened by a wide variety of theoretical perspectives, and my empirical expertise in molecular biology, biotechnology and postgenomics in Brazil, Taiwan, Spain, the UK and the US, I possess solid, deep specialist knowledge. I have a growing funding record in developing and consolidating interdisciplinary teaching and research programmes in the social sciences and humanities in line with my long-standing intellectual preoccupation with issues of biological identity and individuality and embodiment in relation to alterity, health disparities and non-biomedical approaches to human-microbe relationalities.

Building on and expanding my existing research lines and scientific contributions, my proposed line of research, entitled, ' More-than-biomedical healing: gendered health cultures, totemism, and microbial science, offers a novel examination of the gendered cultures and environments of healing by juxtaposing popular local health and (bio)medical cultures across a traditional-contemporary and East-West continuums. Its key objective is to coproduce scientific knowledge and new research methods sensitive to its social implication by developing a cultural theory of multispecies healing that acts as nexus between biomedical and non-biomedical knowledge and, ultimately, between experts and non-experts.

Resumen del Currículum Vitae:

I am an inter/transdisciplinary researcher of the entanglements between microbes, embodiment, and inequalities. I hold a Bachelor's in Molecular Biology and Biotechnology (USC, 2008). I decided to pursue my interest in the socio-cultural studies of biology, completing with distinction a Master's in Cultural Studies (Goldsmiths, 2011). My interdisciplinary training has allowed me to explore a variety of social topics and empirical sites in contemporary biomedicine (microbial ecology and immunology) in the Republic of Korea, Taiwan, Brazil, the UK, and the US. Funded by Obra Social 'la Caixa', my Ph.D. at the Department of Media, Communications and Cultural Studies, Goldsmiths (2019), examined how human microbiome science reinstates an immunology of inclusion and exclusion through the 'biologisation' of social categories of difference (race, gender, and class in particular). My Ph.D. (no corrections) was the first sociocultural study of immunity, the microbiome, and inequalities. Using embodied experiences as a sustainable approach to address recurrent infections and AMR has pioneered my field attracting wide attention, including several invitations to present research at the MIT (2015) and The British Academy (2018), among other institutions, and to publish in Nature and EASST. I have been an Associate Lecturer at Goldsmiths (2014-2020) in the areas of cultural studies, gender and body studies, and Wellcome Trust Research Fellow in the project 'Following the life of the Francis Crick Institute', The University of Edinburgh (2016-2017). In 2019, I was awarded the Wellcome Trust Fellowship ' Shared Futures: Codeveloping Medical Humanities in China and the UK' by the University of Strathclyde. As a Research Associate in Genetics, Law and Society, The University of Oxford (2020-2021), I have conducted research on the cultural implications of non-invasive pregnancy tests (NIPTs) in Taiwan, South Africa and Denmark. I have participated in the European Commission COST Action Bio-objects (2012-2015), and I am member of international research groups including Antimicrobials in Society (London School of Hygiene and Tropical Medicine) among others. I was awarded an 'EcoSocieties Fund' (2020) (The University of Nottingham) for ' The cultural histories of microbial healing. The project examined the genealogies and status of feminised knowledges-practices of microbial healing (local, traditional, profane) as key to resurfacing and updating effective approaches and new articulations of care for "recalcitrant infections" (i.e. those recurrent or persistent with no clear biomedical explanation or treatment). The project was also part of my visiting fellowship at the Gender Studies Institute, Charles III University Madrid (December 2020-June 2021). I am a Collaborating Professor at the Open University of Catalonia (UOC), in the Interuniversity Master's Degree in Planetary Health (UOC-Pompeu i Fabra-ISGlobal), in the areas of social sciences and humanities. Since January 2022, I am a Margarita Salas Research Fellow at the Spanish National Research Council (IFS-CSIC) and at the Department of Philosophy and Anthropology of the University of Santiago de Compostela (USC). Since December 2022, I am an elected member of the European Association for the Study of Science and Technology (EASST).

Área Temática:	Ciencias sociales
Nombre:	GUMÁ LAO, JORDI
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Título:	Consequences of social inequalities from a gender perspective

Resumen de la Memoria:

My research and university teaching is rooted in the fields of sociology of health and population studies both from a gender perspective, applying the latest quantitative methods to explore innovative research questions. My main research interests are: 1) Analysing how the interaction between social factors defines health inequalities; 2) Health and well-being consequences of gender attitudes in adult and elder couples; 3) Intergenerational crossover effect of unemployment of adult children on their parents; 4) Gender consequences of population ageing; and 5) Applying Machine Learning techniques in social and population studies.

I carried out my predoctoral stage from 2010 to 2014 at the Center for Demographic Studies under the supervision of Dr. Rocío Treviño and Dr. Antonio D. Cámara. My doctoral thesis entitled "The family as a social determinant of subjective health in Spain" constituted a compendium of articles published in academic journals of reference among which the European Journal of Ageing and the Revista Internacional de Sociología stand out, the latter awarding my article with the prize for the best article of 2015.

Most of my postdoctoral stage has been carried out at Pompeu Fabra University. First, I joined the research team of Dr. Bruno Arpino at the Department of Political and Social Sciences at this University as a postdoctoral researcher. Subsequently, I obtained a Juan de la Cierva-Formación grant, becoming an independent researcher with my own research agenda. After the Juan de la Cierva grant, I obtained a R+D+I-Young researchers project funded by the Ministry of Science and Innovation, becoming PI of this project. This project represented a novel contribution to the study of health inequalities by considering the interaction between the main social determinants of health operating at the micro, mezzo, and macro levels from a gender perspective. This project represented the result of the interplay between my own specific research interests and my participation in a number of different research projects, as well as the consolidation of my independent research career, initiated in 2017 when I obtained a Juan de la Cierva grant.

In addition, I have spent different research stays at prestigious international institutions such as the Max Planck Institute for Demographic Studies (Germany) and the Dipartimento di Statistica, Informatica, Applicazioni "Giuseppe Parenti" (Italy), the latter thanks to a José Castillejo Mobility Grant. Currently, I am employed as a senior researcher in the ERC Starting Grant HEALFAM project led by Dr. Anna Baranowska-Rataj at the Department of Sociology, Umeå University (Sweden). In the framework of HEALFAM, I am undertaking a new line of research on the influence of social determinants of health between generations of the same family from a gender perspective.

Resumen del Currículum Vitae:

I am currently a senior researcher at the Department of Sociology of the University of Umeå (Sweden). I have a PhD in Demography from the Autonomous University of Barcelona (Excellent Cum Laude and International Mention). This thesis was presented as a compendium of academic articles, one of which was awarded as the best article of the year 2015 of the Revista Internacional de Sociología. As a PhD student, I was enrolled in the prestigious European Doctoral School of Demography (EDSD) at Max Planck Institute for Demographic Research (Germany) and University of Lund (Sweden).

To date, I have published in 24 articles in peer review journals, 10 of which appeared in Q1 journals (SJR journal ranking), one edited book, 5 book chapters and 9 dissemination pieces. Moreover, of the total number of articles in which I have participated, in the vast majority of cases I have been first author (13 publications) or second one (9 publications). In fact, these articles have always had a maximum of three authors, with the only exception of two cases. In completing these publications, I have worked with 20 researchers from different national (Centre d' Estudis Demogràfics –CED-, Universidad Nacional de Educación a Distancia –UNED-, Universidad Pompeu Fabra –UPF-, Universidad de Jaén, Agència de Salut Pública de Barcelona, etc.) and international institutions (University of Florence –Italy-, Max Planck Institute for Demographic Research –MPIDR- Germany-, University of Rostock –Germany-, University of Umeå –Sweden-, and John Hopkins University –U.S.-). My publication record has achieved a high impact, as evidenced by the 673 citations of my papers to date according to Google Scholar and its impact in mass and social media. Moreover, I have presented my work at 27 congresses (32 presentations/posters), most of them international, and I have chaired seven sessions at international conferences.

Throughout my academic career I have obtained funding in competitive calls such as the Juan de la Cierva-Formación or the Spanish R+D+I program for Young Researchers. In addition, I have contributed to the conceptualization and writing process of different project proposals funded by the RecerCaixa and European JPI programs of which I have been part of the research team. The internationalization of my career is articulated by the publication of my work in high-impact international journals, hiring and stays in international institutions, participation in international projects, membership in international networks, and teaching in international master programs.

I have taught more than 500 hours of teaching, both at graduate and undergraduate level –mostly in English- with excellent evaluations, at the Department of Political and Social Sciences at Pompeu Fabra University (UPF). I have supervised 8 the Master's theses. For all these achievements, in 2018 I was accredited as a PhD Lecturer, PhD Assistant Lecturer and Private University Lecturer by the National Agency for Quality Assessment and Accreditation (ANECA). In 2021 I was further accredited as Associate Professor by the Catalan University Quality Assurance Agency (AQU). Finally, I have applied my experience as a researcher in promoting innovative outreach activities for general public. It stands out the documentary "DesigualdadES. Clase, género y salud", for which I wrote the entire script

Área Temática:	Ciencias sociales
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Título:	Understanding the political and ethical implications of the climate crisis

Resumen de la Memoria:

My primary area of research and publication centers on the challenges climate change poses to sustaining free, fair, and stable political societies. In pursuing this work, I engage diverse literatures within political theory and across disciplines. This has resulted in a series of articles in leading journals, as well as a book manuscript, under contract with Oxford University Press.

My work going forward will focus on two main issues areas. The first concerns the potential justifications and moral limits of more extreme forms of climate action (e.g., international economic sanctions, "uncivil" disobedience, infrastructure attacks, and eco-terrorism). The second centers on the nature and extent of individual climate duties. In pursuing these projects, my goal will be to publish at least one new book manuscript and several peer-reviewed articles.

Beyond climate, I have wide-spanning interests in contemporary political theory, which have yielded several publications. For instance, one article, published in The Review of Politics, defends a solution to the centuries-old puzzle about which constitution Aristotle regards as best. Another, published in Contemporary Political Theory, argues that Du Bois and Heidegger had surprisingly similar views about the formation of political norms and identities, but by attending to the subtle differences between them can we see how they were able to endorse such dramatically opposed political programs. In a third article, published in Res Publica, I argue that Rawls's core stability argument fails, insofar as it does not account for the moral motivation of most citizens in liberal democracies. Although these smaller projects are outside my research on climate, they are similarly centered on questions of political stability, value formation, and the tensions between moral imperative and realist necessity.

Resumen del Currículum Vitae:

I received my Ph.D. in Government from the University of Virginia in 2018, and have since served as an assistant professor (tenure-track) at the Pontificia Universidad Católica de Chile's Instituto de Ciencia Política. I am also a co-editor of the Revista de Ciencia Política, a leading political-science journal in Latin America. Over the last five years, I have won three significant grants and have published in a number of journals, including the American Political Science Review, Philosophical Studies, and the Review of Politics. In October, I also completed final revisions on a book manuscript, which will be published by Oxford University Press in 2023.

Área Temática: Ciencias sociales
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Título: Family, development and social policy in low- and middle-income countries

Resumen de la Memoria:

My contributions to the field of demography, sociology, and social policy include forecasting demographic processes in settings with limited data, evaluating the effectiveness of laws and policies aiming at reducing harmful practices such as child marriage and female/genital mutilation, developing a novel research line and approaches to studying links between economics inequalities and inequalities in family formation.

Even though I have completed my PhD studies only 4 years ago, I have already published 12 articles in high-quality peer-reviewed demography and sociology journals, including 9 articles as the first author. I have presented the results of my work at national and international conferences, such as the British Society for Population Studies Conference and European Population Conference, as well as invited talks at leading demographic centers worldwide, for example, the London School of Economics or CEDEPLAR in Brazil. Having developed an international network of collaborators, for example with researchers from New York University – Abu Dhabi or Stockholm University, I have led several projects that not only resulted in publications in top journals but also equipped me with leadership, project management, and communication skills. I use these skills as a PI on my current project for which I have won one of the most prestigious postdoctoral fellowships, namely the Marie Sklodowska Curie Individual Fellowship. These experiences, which helped me develop organisational, leadership, and independence skills, have also led me to serve as an organizer of academic seminars at the institutions that I have been part of as well as expert meetings.

As a Ramon y Cajal Researcher, I plan to build on my past and current research and focus on three lines of study. First, I will study the effects of social policies using causal inference techniques, expanding my current research to a broad array of policies (e.g., laws granting women rights to asset and land ownership or inheritance) that haven't yet attracted research attention in the context of low- and middle-income countries (LMICs). This research agenda will improve our understanding of the interrelationship between public policies, individual behaviours, and outcomes, and cast light on the extent to which these relationships vary by context. Second, using quasi-experimental methods, I plan to research links between social inequalities and family dynamics in LMICs, focusing on how recent transformations of educational systems have shaped union formation and childbearing behaviors (un)equally between population strata. This research line will be instrumental in understanding the effects, benefits, and limitations of the educational reforms implemented in many LMICs in recent decades, with implications for future educational policy developments. Third, I aim to study links between disparities in when women and men form their first union and have their first child and their children's development. Building on my ongoing research on growing differences in when young people start forming families, I will examine the extent to which these disparities shape inequalities in their children's health and learning outcomes in LMICs. This research will bring policy-relevant knowledge of determinants and contextual factors behind the variation and inequalities in children's development.

Resumen del Currículum Vitae:

I am a demographer with a background in statistics, working as a Marie Sklodowska-Curie Fellow and a PI on a project: "Measuring and Understanding Disparities in Family Formation in Low- and Middle-Income Countries". My career is distinguished by its internationalisation and interdisciplinarity, as evidenced by my research stays, collaborative projects with leading experts in the field, and publications. After obtaining my PhD from the London School of Economics, I held postdoctoral positions at the Population Studies Center at the University of Pennsylvania and the Max Planck Institute for Demographic Research. As a result, I have an extensive, international research network that allows me to lead several scientific collaborations and ensures the exchange of knowledge and the international impact of my work.

The overarching goal of my research is to produce better knowledge about the variation and gender differences in family formation, the consequences of social and public policies on individuals' health and well-being, and the relationship between social and economic inequalities and population dynamics. To conduct my research, I received competitive funding from the European Commission (165,312€), the Spanish Ministry of Science and Innovation (50,000€), MPIDR (~17,000€) or the Economic and Social Research Council (~100,000£). My studies have contributed to the disciplines of demography, social policy, and international development, as evidenced by my articles in top demography and sociology journals: Population and Development Review (x2), Population Studies (x2), Studies in Family Planning (x2), Social Science and Medicine – Population Health, BMJ Global Health. My research is relevant for policymaking in that it examines the effectiveness of policies and laws in reducing the prevalence of harmful practices (child marriage, female genital mutilation/cutting), gender differences in the transition to adulthood, or consequences of unintended fertility, results of which have clear policy implications. The findings of my research appeared in news outlets (N-IUSSP, Toronto Star, El Telegrafo), allowing the transfer of knowledge to the public.

I have experience teaching demography, international development, and quantitative methods. I delivered weekly lectures and seminars as an invited lecturer on the MSc course: Population, Health, and Development in the Department of International Development at LSE. At the Center for Demographic Studies (CED), I am a supervisor of a PhD student and a European Doctoral School of Demography (EDSD) student mentor. I supervised a visiting student at CED as well as served as an evaluator of two EDSD students' master's thesis. These experiences provided me with the skills necessary to supervise and mentor young researchers. I always value opportunities to contribute to the intellectual lives of the institutions that I am part of. Apart from participation in national and international conferences as a presenter, I organized sessions and seminars (e.g., Brown Bag Seminar at LSE or sessions at 2022 Population Association of America Meeting) and expert meetings connecting researchers and policymakers working on

families (e.g., Global Family Change and Perry World House Conference at Penn). I serve as a reviewer for journals (e.g., Population Studies or Demographic Research).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: Ciencias sociales
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Título: The political ecology of natural resource extraction and energy transitions

Resumen de la Memoria:

I am an interdisciplinary social scientist trained primarily in critical human geography and specialising political ecology. I am currently the Principal Investigator of a "Maria Zambrano" Postdoctoral Fellowship at the University of Barcelona, working on the political ecology of natural resource extraction in the context of energy transitions. My PhD (2012-2016) explored environmental justice struggles around mining in Latin America, focusing primarily on state-social movement relations in Bolivia. In my first "Juan de la Cierva–Formación" Postdoctoral Fellowship (Pompeu Fabra University, Barcelona, 2018-2019), I broadened the geographical and thematic scope of my research, focusing on the interrelationships between resource extraction and climate change, and engaging with postcolonial political ecology approaches. I continued to explore these issues in my second, "Prince Claus Chair" Postdoctoral Fellowship (Erasmus University Rotterdam, 2020-2022), while also shifting focus on climate justice. I acquired expertise on "just transition" and "Green New Deal" frameworks, and also centred my attention on environmental and climate justice movement strategies, about which I am editing a book. In the last two years, I have started collaborative work exploring mobilisations of sovereignty in the context of contentions around resource extractivism in Bolivia and Ecuador. In studying the nexus between renewable energy and resource extraction, I have also begun to reflect on the framework of energy sovereignty and its multiple connections with other ecological sovereignty movements, as well as with broader conversations on climate justice and decolonisation.

The proposed Ramón y Cajal Fellowship would allow me to bring together these different concerns and strands of research, and push my scholarship forward towards building a paradigm-shifting, "political ecology of sovereignty" framework. This would give decisive impulse to my ongoing efforts mainstream critical, political ecology perspectives on the climate crisis and ecosocial transitions, make my host institution an international centre of reference for the study of ecological sovereignty struggles, and consolidate my career trajectory towards obtaining a tenured Lecturer or Professor position.

Resumen del Currículum Vitae:

I have made significant contributions to my research line, by publishing empirically grounded and theoretically innovative work in highly regarded outlets. I have built a strong publication record relative to my career stage and the scholarly standards of my field, including 11 articles published in international refereed journals, 10 of which are in Q1 journals (6 are JCR Q1, 4 are SJR Q1). Most of these I have published as sole or first author (9 out of 11). I have presented my work and organised sessions in 15 international conferences and seminars across four continents, including four invited presentations. I have obtained prizes and distinctions for my work, including an "Outstanding Doctorate Award" for my PhD dissertation (UAB, 2021) and a "Best Student Paper Prize" by the Q1 journal Geoforum (2016). I have furthered the dissemination of scientific results and ideas beyond specialised academic audiences, by organising outreach events and publishing extensively for/with civil society organisations.

My career profile is highly international. I have held academic positions and conducted research stays in prestigious international institutions in Ireland, the UK, US, and the Netherlands. My research work in Spain has also been carried out at international research centres. I have been involved in and contributed to national and international research projects, including the Marie S.-Curie ITN "ENTITLE–European Network of Political Ecology". I have conducted fieldwork and research secondments in European and Latin American countries, and I am inserted in international scholarly networks, including research collectives and professional organisations. I have published and organised events through international collaborations with colleagues from some of the most important political ecology research institutes globally.

I have demonstrated research independence and leadership by executing major national and international research projects as Principal Investigator, including the prestigious "Prince Claus Chair in Equity and Development" of the Dutch Research Council. My leadership position in collaborative endeavours is additionally demonstrated by my role as the first editor of three special issues and one academic book, and main organiser of several events. I have obtained highly competitive research grants from national and international funding bodies, including the European Commission, the governments of Ireland and of the Netherlands, and the Spanish Ministry of Science and Innovation ("Juan de la Cierva-Formación" and "Maria Zambrano" postdoctoral fellowships). I have experience as a journal editor and have reviewed manuscripts for the most important outlets in my field (including 6 Q1 journals). I am also a core editor and contributor to the widely read on-line political ecology platform Undisciplined Environments. Finally, I have been a supervisor of one doctoral dissertation (defence scheduled for April 2023) and 8 master's theses in international programmes hosted by Spanish and European universities. I also have ample, international teaching experience, including planning and delivering my own courses at undergraduate and master's level.

Área Temática:	Ciencias y tecnologías de materiales
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Título:	Nanoparticle in Situ Surface Growth for Direct Fabrication of Functional Patterned Nanomaterials

Resumen de la Memoria:

My scientific career began at CICbiomaGUNE (ES), where I completed my PhD under the supervision of Prof. L. Liz Marzán. Here, I designed and developed colloidal seed-mediated protocols for various nanoparticle morphologies (Scarabelli et al. JPCL, 2015, ACS Nano 2014), their self-assembly (Hamon et al. ACS Nano 2014), and characterization (Losquin et al. Nano Lett. 2015, Mayer et al. Nano Lett. 2015). My contributions led to the realization of label-free detection systems for the monitoring of quorum sensing metabolites in living biofilms (Bodelon et al, Nature Mater., 2016). Overall, my PhD included over 20 publications (4 papers as a corresponding author). My synthetic protocols received widespread attention, with >1200 citations and an invitation from ACS Nano to contribute a special issue on gold nanotriangle synthesis (Scarabelli et al. ACS Nano 2021). I also obtained funding for 2 research visits at the University of Hamburg (Prof. H. Weller, plasmonic-based drug-delivery systems) and at Rice University (Prof. S. Link, dark-field chiroptical plasmonic activity), yielding 4 publications. My thesis was awarded honorary mention as the best chemistry thesis of the year by the Universidade de Vigo, the 2017 IUPAC-Solvay International Award for Young Chemists, and the 2017 Spanish Royal Society of Chemistry NanoMatMol Award.

My graduate studies were followed by postdoctoral training at UCLA in the group of Prof. P. Weiss (2016-2019). Here, I established several interdisciplinary collaborations, developing new soft-lithographic methodologies for organizing plasmonic colloids (Chiang & Scarabelli et al., ACS Mater. Lett. 2021). As of July 2017, I worked in parallel as an American Italian Cancer Foundation Postdoctoral Research Fellow in collaboration with Prof. S. Jonas (MD/PhD, Pediatrics Department, UCLA), developing microfluidic devices for cancer detection (Vinnacombe-Willson et al. ACS Central Science 2020) and therapeutics (Belling et al. PNAS 2020).

In 2020 I joined the ICMAB family as a junior leader under the sponsorship of "La Caixa" Foundation. Here, I applied several soft-lithographic techniques for the preparation of plasmonic arrays sustaining high-quality collective lattice plasmons, reaching the highest quality factors reported to date (Molet et al. Adv. Opt. Mater., Scarabelli et al. Acc. Mater. Res., 2021). The "La Caixa" Junior Leader Fellowship (€297,900) enabled the establishment of my own research group with the recruitment of a Ph.D. student under my sole supervision. Within 2 years of the fellowship, I have co-authored 9 publications, 5 as a co-corresponding and 2 as the sole corresponding author (Vinnacombe-Willson et al., Adv. Mater. 2022). As an independent group leader, I have rapidly acquired additional funding to support my research lines (> €120,000), including a JAE-Intro fellowship, and an I-LINK2020, a FUNFUTURE-FIP-2021, and a BBVA Foundation "Red Leonardo" grants.

Multidisciplinary Nature of Research Activities
My professional trajectory reflects my broad and multi-faceted scientific curiosity, and take advantage of the plasmonic highly multidisciplinary nature to target far-reaching impacts in physics, materials science, biology, and medicine. Throaughout my career, I have cultivated an international collaboration network with chemists, physicists, engineers, and biologists from all over the world.

Resumen del Currículum Vitae:

Short Biography
My scientific education begun at the University of Pavia (Italy), where I obtained my B.Sc. (2010) and M.Sc. (2012). Following my interest for colloidal science, I started my PhD in the group of Prof. L. Liz-Marzán, developing a strong background in the wet-chemical synthesis of nanoparticles with diverse morphologies and compositions and their self-assembly into complex plasmonic architectures, with over 20 publications (4 as corresponding author), counting a review, a protocol, and two perspective articles. My thesis was awarded "Best Chemistry Project", and the NanoMatMol and the IUPAC-Solvay International Young Chemists Award.
As a postdoc at the University of California Los Angeles (Prof. P. Weiss) and a "La Caixa" Junior Leader at the Institute of Materials Science of Barcelona, my scientific activity has been recognized with several fellowships and grants, including an American-Italian Cancer Foundation, a Juan de la Cierva Incorporación and a Marie Curie Individual Fellowships, and an I-LINK 2020, a BBVA-Leonardo, and a Frontier Interdisciplinary Projects 2022 grants.
In the last 6 years since my PhD defense, I had the opportunity to work alongside chemists, physicists, biologists, engineers and material scientists. This multidisciplinary environment laid the groundwork for my academic career, and allowed me to cultivate a strong international collaboration network in the US and Europe, including experts in optical and electron microscopy characterization (Prof. N. Chiang & Prof. M. Kociak), polymer science (Prof. A. Fery), theory and simulation (Prof. J. Garcia de Abajo), 2D materials (Prof. Zdenek Sofer), and catalysis (Prof. E. Cortes). Moreover, I am a member of several scientific societies and associations, including the American Chemical Society, the Real Sociedad Española de Química, the Societá Chimica Italiana, the Younger International Chemistry Network, the European Young Chemists' Network, and the International Union of Pure and Applied Chemistry.

General quality indicators of scientific production:
Overview: I published a total of 45 research articles (11 as corresponding author) in the first quartile (Q1), 3 book chapters and 1 patent application. In the last 5 years, I have averaged 491 citations per year (~3500 total, 25 h-index, Google Scholar). I participated to numerous international conferences and workshops, including Faraday Discussions, Gordon Conferences, ACS National Meetings, and IUPAC World Chemistry Congresses, and I gave 9 invited talks across Europe and the US.

Supervising and Mentoring Experience

I have cultivated my leadership skills in several laboratories. At UCLA, I supervised 3 PhD students on different research projects over the course of 3 years. In 2019, I took part in two workshops focused on mentoring skills and mentor-mentee relationship (Entering Mentoring Training, and UCLA Ethics and Accountability in Biomedical Research). At ICMAB, I already supervised 3 B.Sc. (Serni Toda, Oriol Colomer, and Pau Vilches) and 1 M.Sc. (Nabil Abomailek) student. In 2020, I recruited a Ph.D. student (Ylli Conti, sole supervisor) under the "La Caixa" fellowship (expected defense in 2024). Moreover, I followed the "La Caixa" Junior leader coaching program focused on career development, grant organization, proposal writing, and collaboration management.

Área Temática:	**Ciencias y tecnologías de materiales**
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Título:	Materiales híbridos biofuncionales

Resumen de la Memoria:

Durante mi carrera investigadora he adquirido un amplio conocimiento sobre la Ciencia de Materiales híbrido y materiales nanoestructurados. Los he funcionalizado para diversas aplicaciones y los he estudiado en detalle mediante una combinación de técnicas experimentales utilizadas para su caracterización y manipulación. Mis principales objetivos de investigación están relacionados con la aplicación de dichos materiales híbridos nanostructurados en biología y biomedicina. En 2009 recibí una beca de doctorado del Gobierno Vasco (2009-2012) para trabajar entre el grupo de investigación dirigido por el Prof. Teófilo Rojo en el Departamento de Química Inorgánica, UPV / EHU y realizar un doctorado conjunto con la Universidad Philipps de Marburg (Alemania). Durante 2009 y 2010 trabajé en la UPV y a partir del 2011 me trasladé a Marburg. En 2013, obtuve un puesto de investigadora por 3 años en Marburg para continuar trabajando en el grupo del Prof. Dr. Wolfgang Parak. Además de continuar con mi investigación, también participé en la enseñanza y en la supervisión de algunos estudiantes visitantes. En octubre de 2013, obtuve mi título de doctorado con una tesis titulada "Diseño de partículas coloidales multifuncionales con ligandos selectivos de iones: aplicaciones en recuperación de iones, detección e imágenes", en cotutelada, obteniendo el Premio extraordinario de doctorado. Después de trabajar varios meses como investigadora postdoctoral en Marburg, en enero de 2014, me incorporé al Grupo de Bionanoplasmónica liderado por el Prof. Luis Liz-Marzán en CIC biomaGUNE (San Sebastián, España) como investigadora postdoctoral. Mi investigación involucraba la síntesis, ensamblaje y funcionalización de nanopartículas plasmónicas para fabricar biosensores y agentes de contraste de imagen. Gracias a mi experiencia anterior donde aprendí diversas técnicas de biofuncionalización de NPs y cultivos celulares, encaje muy bien en el grupo implementando nuevas técnicas. Poco a poco me fui centrando en modelos celulares más complejos, y en métodos no solo de la fabricación sino en diversas técnicas de imagen para su caracterización. Por ello, ahondé en la técnica de imagen por SERS fabricando numerosos agentes de contraste, además de fabricar otros para imagen multimodal. De esta forma utilizamos diferentes técnicas complementarias de imagen. Durante el 2016, recibí una beca Marie Curie para trabajar en la Universidad de Michigan, (USA). En 2017 me otorgaron la beca Juan de la Cierva Incorporación. En 2018 realicé una estancia corta en el ETH Zürich y el 2019 comencé la beca Ikerbasque Research fellow que fomenta la carrera independiente de jóvenes investigador@s. En ésta ultima fase me he centrado en el diseño de materiales híbridos biofuncionales para la fabricación de modelos de tejido complejos en 3D. Gracias a obtener varios proyectos como investigadora principal en ésta dirección he podido establecer mi propio grupo en CICbiomaGUNE. El objetivo es diseñar estos materiales para poder ser aplicados en técnicas de bioimpresión 3D para generar modelos realistas in vitro que pueden ser utilizados para investigaciones preclínicas. Estas plataformas son muy útiles para entender diversas enfermedades y buscar nuevos tratamientos más eficaces y personalizados. También nos centramos en la caracterización de éstos mediante diferentes técnicas de imagen biomédica.

Resumen del Currículum Vitae:

Me gradué de la Universidad del País Vasco (UPV / EHU) en 2006 en Ciencias Ambientales. Ya durante mi último año me concedieron una beca de colaboración del Gobierno Vasco para trabajar en el Departamento de Química Inorgánica de la UPV /EHU. Gracias al proyecto realizado "Recuperación de metales Pt, Pd y Rh de convertidores catalíticos de automóviles", fui una de las ganadoras del "II Concurso del Campus de Álava de proyectos de fin de carrera con oportunidades de explotación comercial." En octubre de 2013, obtuve mi título de doctorado con una tesis titulada "Diseño de partículas coloidales multifuncionales con ligandos selectivos de iones: aplicaciones en recuperación de iones, detección e imágenes", en cotutela entre la UPV/EHU y la Universidad Philipps de Marburg bajo la supervisión conjunta del Prof. Dr. Teófilo Rojo, la Dra. Idoia Ruiz de Larramendi y el Prof. Dr. Wolfgang Parak, obteniendo el Premio extraordinario de doctorado. Siempre he trabajado en un entorno internacional y gracias a diversas estancias he podido aprender de diferentes científicos/as en el área de los materiales y establecer diversas colaboraciones. Durante mi carrera investigadora he publicado 50 artículos de investigación en revistas de alto impacto como Nat. Nanotech., ACS Nano, Small, J. Mater. Chem., Langmuir, Adv. Funct. Mat. etc. 9 como autor correspondiente. También he contribuido en 4 capítulos de libros. He asistido a 40 conferencias nacionales e internacionales que resultaron en 20 comunicaciones orales, 8 como charlas invitadas y una contribución de póster al cual me otorgaron el premio al mejor póster. Tengo una licencia de patente solicitada. He participado en más de 20 proyectos de investigación financiados a nivel nacional e internacional por organizaciones como la Unión Europea (UE), Deutsche Forschungsgemeinschaft (DFG) y los gobiernos de España y Euskadi y soy PI de varios de estos proyectos, como el de la Agencia Estatal de Investigación (RETOS #PID2019-108854RA-100). También he colaborado como investigadora en dos ERC Advanced Grant (PLASMAQUO, # 267867 y 4DbioSERS # ERC-AdG-2017), he pasado a la entrevista en la ERC Starting grant 2021. He recibido varias becas, entre ellas una beca de movilidad Marie Curie (HYMADE # 645686) para trabajar por 3,5 meses en la Universidad de Michigan (EE. UU.) en 2016 y 10 días en 2017. También fui galardonada con la beca Juan de la Cierva Incorporación en 2017 (IJCI-2015-24264) y en 2019 obtuve la beca Ikerbasque Research fellow. En 2018 realicé una estancia en ETH Zürich en el grupo de André Studart. Además, he trabajado como profesora en el departamento de química inorgánica (UPV/EHU) en 2016 y desde 2020 imparto clases como profesora asociada en la UPNA. He ejercido de mentora de varios estudiantes de máster y doctorado en la universidad Philipps University of Marburg, en CIC biomaGUNE y en la Universidad del País Vasco. Actualmente soy codirectora de las tesis doctorales de tres estudiantes de doctorado y recientemente otras dos, Elisa Lenzi y Cristina de la Encarnación han defendido sus tesis doctorales obteniendo la distinción de Sobresaliente cum laude bajo mi dirección. También, colaboró activamente en actividades de divulgación científica como en la organización del festival Pint of Science (desde 2016) y soy miembro del comité de Igualdad de CICbiomaGUNE.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	GÓMEZ GRAÑA, SERGIO
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Título:	Síntesis, caracterización, autoensamblaje y aplicaciones de nanopartículas plasmónicas

Resumen de la Memoria:

Sergio Gómez Graña obtuvo el Doctorado Internacional por la Universidad de Vigo (junio de 2013) con una tesis centrada en la síntesis, caracterización estructural y autoensamblaje de nanorods metálicos plasmónicos bajo la dirección del Prof. Luis Liz-Marzán y el Prof. Andrés Guerrero-Martínez. El doctorado obtuvo la máxima calificación, obteniendo además el premio de doctorado de la misma Universidad. Durante el doctorado, SGG realizó dos estancias en un centro de investigación extranjero (Paris, Francia) bajo la supervisión del Dr. Olivier Spalla. Durante la tesis, SGG publicó 7 artículos en revistas de alto impacto (Nature Materials, NanoLetters, Angewandte, etc), asistió a más de 15 congresos internacionales.

Luego, SGG obtuvo una plaza postdoctoral entre la Universidad de Burdeos y Solvay (octubre 2013-diciembre 2016). Su trabajo se centró en la síntesis de metamoléculas a partir de nanopartículas plasmónicas. Además, desarrolló un nuevo dispositivo de microfluídica para autoensamblar las metamoléculas sintetizadas logrando el primer metamaterial óptico en 3D. Asimismo, durante la estancia postdoctoral, SGG colaboró con diferentes grupos internacionales (Francia, España, Reino Unido) publicando 7 artículos de este periodo. En 2016 SGG se incorpora a la Universidad Complutense de Madrid bajo la supervisión de la Pof. María Vallet-Regí, con motivo de la consecución de una beca competitiva nacional Juan de la Cierva-formación. SGG participó en la ayuda al proyecto VERDI (ERC advanced grant), desarrolló un material plasmónico-mesoporoso para el sistema de administración de fármacos con estímulo-respuesta mediante láser infrarojo. De este segundo postdoc, SGG publicó 5 artículos de revisión por pares.

Posteriormente obtuvo otra beca competitiva nacional Juan de la Cierva-Incorporación, incorporándose al CINBIO (Centro de Investigaciones Biomédicas) bajo la supervisión de la Dr. Isabel Pastoriza-Santos. En esta etapa, su proyecto se basó en la realización de un sensor basado en nanopartículas autoensambladas mediante sistemas de microfluídica. En este segundo postdoc, SGG, publicó 5 artículos revisados por pares.

Actualmente es Investigador Distinguido de la Universidad de Vigo y está centrado en la síntesis de nanocristales quirales (plasmónicos y semiconductores) intentando iniciar su propia línea de investigación. Además, sus objetivos científicos (a medio-largo plazo) están relacionados con el desarrollo de aplicaciones reales que exploten la experiencia adquirida realizando estructuras 3D basadas en nanopartículas sintetizadas (oro, plata o recientemente perovskitas).

Resumen del Currículum Vitae:

A lo largo de su carrera investigadora, Sergio Gómez-Graña es coautor de 27 artículos en revistas indexadas ISI (24 en revistas Q1 y 13 en revistas D1), teniendo 1 Nature Materials que se encuentra en la primera posición de ciencia de materiales. Tiene 11 artículos (45%) como coautor y 3 como autor correspondiente. El índice h es 16. SGG ha sido citado más de 1900 veces excluyendo las autocitas. El promedio de citas por año en los últimos 5 años (2017-2021) fue de 150 citas/año. El factor de impacto medio de todos los artículos publicados es superior a 10,00 (google académico). SGG tiene dos portadas, una en Advanced Optical Materials y otra en Advanced Materials. SGG posee un "Hot paper" en Angewandte Chemie International Edition. Este mismo artículo (Angewandte 2011) está dentro del 1% de los artículos más citados en el campo. Ha asistido a 45 congresos nacionales e internacionales con más de 30 presentaciones orales. SGG ha impartido 3 presentaciones orales como ponente invitado en congresos internacionales. SGG impartió 5 seminarios invitados en centros de investigación internacionales de Reino Unido, Francia, Portugal y España. SGG es actualmente IP de 2 proyectos Nacionales de las convocatorias "Retos 2020" y "Transición energética" además de haber participado como equipo de trabajo en 16 proyectos de investigación, 4 proyectos europeos, 2 proyectos nacionales en Francia, 5 proyectos nacionales en España, 7 proyectos regionales. SGG ha colaborado con varios grupos internacionales, adquiriendo más de 3 años de experiencia internacional durante su doctorado y postdoctorado, teniendo la oportunidad de utilizar una Línea de Dispersión de Neutrones en Grenoble (en el Instituto Laue-Langevine, en Grenoble) y el sincrotrón Soleil en Saclay. Es revisor de artículos científicos (más de 50) en varias revistas internacionales, y fue editor de un número especial en "Nanomateriales". Ha sido parte del comité organizador y científico de 2 congresos nacionales. Ha obtenido 2 contratos nacionales en convocatorias altamente competitivas (Juan de la Cierva formación e incorporación). Ha impartido más de 550 horas de docencia en diferentes universidades (Complutense y Vigo) y facultades (químicas, farmacia, ciencias del mar…). Actualmente es el supervisor de 2 estudiantes de doctorado. También ha participado en algunas actividades de divulgación científica, en una aceleradora de startups y es miembro de la Real Sociedad Española de Química (RSEQ).

Área Temática:	**Ciencias y tecnologías de materiales**
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Título:	Team leader & Marie Curie Fellow

Resumen de la Memoria:

I completed my bachelor and master in electronic engineering and PhD in Advanced Materials. My PhD dissertation focused on device physics of dye-sensitized solar cells and their large area modules. During my PhD, I was also to Centre of Hybrid and Organic Solar Energy (CHOSE) of the University of Rome Tor Vergatta, Italy to work on perovskite solar cells (PSCs) and their large are modules. During my stay at CHOSE, I developed world's first nanorod based perovskite solar module with good ambient stability.

I then secured Alexander von Humboldt fellowship at the University of Konstanz to work on PSCs where I studied bulk and interfacial defects in these solar cells. I led a project to probe charge transfer process in PSCs and revealed the primary recombination mechanism at perovskite/electron transport layer interface. We showed that recombination dynamics at slow and fast time scales are largely influenced by the choice of selective contact and surface traps. In other project led by me, we demonstrated healing of surface and bulk defects in perovskite films when exposed in a controlled methylamine gas environment. These past projects are helpful in designing new materials, overcoming processing issues in perovskites, for example, lead (Pb)-free perovskites and their optoelectronic characterizations.

I then moved to a world-leading R&D center imec, Belgium, to work on perovskite light emitting diodes (LEDs). At imec, I thoroughly investigated effect of compositional engineering of perovskite emitter layers on structural, optical and morphological properties in a range of perovskite materials including quasi-two-dimensional (2D). We reported that these perovskite with a cascaded energy landscape enhance radiative efficiency of perovskite LEDs.

Understanding the photophysical processes in semiconductor materials are vital to improving their functionality for devices. Using ultrafast spectroscopy studies, I also studied charge confinement in quasi-2D perovskites and how the compositional engineering influences electronic processes e.g. traps distribution, trap depth, charge transfer and so on in halide perovskites. We also investigated and quantified ion migration in halide perovskites using transient capacitance measurements. These measurements can be directly applied to develop novel materials and investigate their electronic properties in the future.

Currently I am leading a research cluster on perovskite light emission and lead (Pb)-free perovskites. Our main focus in on understanding the origin of defect in Sn perovskites and on improving device stability. In addition, I am also working on a collaborative project on free-standing substrates that are set to reduce electronic waste. These substrates can be made from cellulose nanocrystals matrix, where conductivity is obtained via chemically coordinating with polyoxometalates.

Resumen del Currículum Vitae:

With a bachelors and masters in Electronic Engineering and a PhD in Advanced Materials, I am consistently growing my expertise in electronic materials and thin film optoelectronic devices. My emergence as a dynamic and independent scientist is evident from my international exposure and networking, collaborative initiatives that led to successful completion of projects and a list of publications in top-notch research journals in the field of material science and applied physics, that have received an average citation >55/article in a short time since publication. My transformation to an early stage researcher is also evident from the various invited conference presentations/lectures, mentoring junior group members, co-teaching, managing international collaborations, organizing scientific workshops, and funded research projects through competitive process. I have been actively involved in funding process and have secured three grants as primary researcher via competitive process. Likewise, I have also contributed to securing of some large grants such as ERC Advanced Grant and other national funding.

My vast international mobility (Pakistan, Malaysia, Italy, Germany, Spain, Belgium and Lithuania) has enabled me to form an active collaboration network that has led to several successful projects and also resulted in bilateral visits. These connections are extremely important for my emergence as leader in the field and also for my future projects. My research experience includes academic as well as industrial. While the former enables me to specialize in scientific research, mentoring, teaching, science communication and publishing, the latter extends my understanding of the challenges and prerequisites of a real-life product. These skills are highly useful for my proposed project and will also help me to establish my own research group in the future,

I have also participated in teaching and actively involved in supervision of junior group members. In addition, I have participated in various training programmes such as on project management, coaching skills, effective time management and technology transfer, skills that are extremely important to launch my own independent research group in future. Regarding my scientific skills and research approach, I used a coherent multidimensional approach combining material chemistry, photophysics and device engineering aspects to investigate optoelectronic devices. My experience spans thin films, metal oxides, solution processed semiconductor materials (organic, hybrid perovskites and quantum dots) and device engineering to address a scientifically promising and socially important topic.

In summary, I believe my diverse interdisciplinary research experience in thin film optoelectronics, my growth as an independent as well as an effective team player, ongoing transformation to an emerging team leader, strong inter-personal and proven scientific communication skills, and consistent rapid learning make me an ideal candidate for the RyC fellowship award. Such an award will not only keep my Spanish host at a competitive edge in the field of optoelectronic devices but will also enhance my chances to become an emerging leader in academic research.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	URGEL TENDERO, JOSE IGNACIO
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Título:	On-surface synthesis of novel carbon-based nanomaterials

Resumen de la Memoria:

After obtaining my chemistry degree from the UAH, I decided to study a degree in material engineering at UCM, carrying out my Master Thesis in Johannes V. Barths group at TUM. Subsequently, I pursued my PhD in this group based on the study of two-dimensional lanthanide-directed molecular architectures at surfaces by means of STM. My investigations were rewarded with a "Summa Cum Laude" thesis and publications in major journals. During this period, I also joined Nian Lins group at the Hong Kong University of Science and Technology (HKUST) as visiting internship student. There, I continued developing my research aptitudes, conducting a four-month collaboration project. Since 2016, I was a postdoctoral researcher at the nanotech@surfaces laboratory led by Prof. Roman Fasel at EMPA. At this group, I acquired top-level expertise in surface science techniques such as nc-AFM and photoelectron spectroscopy, where I was responsible for the Qplus laboratory growing up as an independent researcher. In addition, I led fruitful collaborations with several chemistry groups (Itami group, Japan; Akimitsu Narita, Germany; Yamada laboratory, Japan), including publications in high-impact journals such as JACS, ACS Nano, Nature Communications, Advance Materials and ACIE. In October 2019, I joined the Nanoarchitectonics on Surfaces group at IMDEA Nanociencia (Spain) as a researcher after obtaining several scholarships.

My research career is heavily related to the emerging field of on-surface synthesis (OSS) of synthetic carbon-based nanomaterials (SCNs).[1,2] This relatively young field is an evolution of traditional surface science. Among the plethora of existing SCNs, nanographenes (NGs) and covalently-linked organic polymers (CPs) have been the primary focus of polymer science, playing a crucial role in providing solutions to critical problems of food, clean and abundant water, air, optoelectronics, energy, and health. However, the synthesis of well-defined SCNs with unique structural, electronic and magnetic properties that enables completely new functionalities under conventional solution chemistry methods is often hampered by their low solubility and high reactivity. The recent emergence of innovative synthetic protocols together with the advent of OSS and scanning probe microscopies (SPM)[3] allows to fabricate and characterize NGs and CPs from a novel atomistic perspective, with prospects in a wide field such as flexible organic electronics. To address this outstanding scientific opportunity, I research the foundations and prospects of both types of SCNs toward the design and fabrication of functional nanomaterials, studying their inherent physico-chemical properties in different chemical environments with the final goal of bringing them to the process of device development. I strive to combine the fundamental study of model NGs and CPs at the atomic level via surface science characterization techniques such as STM, STS and nc-AFM with the development of a technologically reliable process to fabricate them with atomic precision.

Resumen del Currículum Vitae:

I hold a MSc in chemistry from Universidad de Alcalá de Henares (UAH) and a MSc in material engineering from Universidad Complutense de Madrid (UCM). In 2016, I completed my PhD at the Technical University of Munich (TUM, Germany). Afterwards, I joined to the Swiss Federal Laboratories for Material Science and Technology (EMPA, Switzerland) as a postdoctoral researcher for 3.5 years, where I became an expert in on-surface chemistry. My technical skills are related to several ultra-high vacuum (UHV) surface science techniques such as low-temperature scanning probe microscopy/spectroscopy (STM/STS, nc-AFM) and photoelectron spectroscopy (including experience in synchrotron facilities).

I have 60 publications in peer-reviewed international journals, including 1 Nature Chemistry, 1 Nature Synthesis, 17 Journal of the American Chemical Society, 8 Angewandte Chemie, 1 Accounts of Chemical Research, 2 Nature Communications, 1 Advanced Materials, 1 Nano Letters, 3 ACS Nano, 1 Proceedings of the National Academy of Sciences, among others; being first author in 18 of them, corresponding author in 16 and last author in 2. I have obtained 1812 citations with a significant increase in the last years and I have an H index of 25 (i10 index = 31). In addition, I have one patent and I have participated in 8 national and international research projects (3 as PI). I have more than 30 contributions in national and international conferences, including 3 invited talks. I have supervised three MSc projects (1 at Empa and 2 at Imdea Nanociencia) and I am the Thesis director of 3 PhD students at Imdea Nanociencia, forming part of the thesis committee of Dr. Borja Cirera. I am a frequent reviewer for some of the most important chemical journals such as the Journal of the American Chemical Society, Nature Communications, ACS Nano, Angewandte Chemie and Chemical Communications, together with a reviewer for the French National Research Agency (ANR). In 2019 I obtained several prestigious scholarships such as the Marie Curie Individual Fellowship (MSCA-IF), Comunidad de Madrid (CAM) Fellowship for young talents (declined after the first year in favor of the MSCA-IF) and the Juan de la Cierva incorporación Fellowship (JdCI, declined in favor of the CAM). In 2022, I have been an ERC Starting grant "finalist" (A in 1st step, B in 2nd step): PE4, and I have also prepared and submitted a new ERC StG proposal (2.100.000€), which will be resolved during this year. In addition, I have submitted a "Proyecto de Generación de Conocimiento 2022" (A type) as PI. Since then, I have supervised two Master Thesis (both realizing nowdays their PhD thesis in our group) and at the moment, I am supervising three PhD students who will defend their Thesis in the near future.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	MARTÍNEZ GALERA, ANTONIO JAVIER
Referencia:	RYC2022-038197-I
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Título:	Growth, molecular adsorption and heterogeneous catalysis on functionalized 2D materials

Resumen de la Memoria:

Antonio Javier Martínez Galera has proven a strong motivation, often going beyond the research lines stablished in the hosting groups.

During his PhD at the UAM (supervisor Prof. José María Gómez Rodríguez; Dept. de Física de la Materia Condensada), he was in charge of starting in the group the research on 2D materials. He envisioned and developed a route to grow graphene on low reactivity surfaces (first publication in Nano Letters of the group, being the applicant first and corresponding author). He also studied molecular adsorption on graphene, and the formation and manipulation of nanoparticle superlattices supported on that 2D material. To carry out this research, he developed his own tool, a VT-STM. He performed 2 stays, 1 in Germany and 1 in France. His PhD research was funded by a grant obtained in a competitive procedure (CPI grant, year 2007). He was considered one of the three best rated researchers, holding a CPI grant, by experts of the "Dirección General de Universidades e Investigación" (2010). He received the extraordinary doctorate award (UAM), and the prize for the best experimental thesis in Solid State Physics (2012), by GEFES (RSEF). Afterwards, he received the prestigious Marie Sklodowska-Curie fellowship to perform a postdoctoral stay in the group of Prof. Thomas Michely (Universität zu Köln, Germany), pioneer and worldwide leader in the growth of graphene.

In his postdoctoral stay in the group of Prof. Michely, the applicant introduced in the group the research on organic adsorbates, fostering the development of a systematics to tune their van der Waals interaction with graphene. This work was published on the cover of Physical Review Letters, being editor's suggestion. In that stage, he also worked on the functionalization of graphene, and developed a technique to improve the thermal stability of nanoparticles. He designed various components for an ultrahigh-vacuum (UHV) compatible Raman spectrometer, studied other 2D-materials as h-BN, and got expertise, via short stays in prestigious research groups and in synchrotron beamtimes (being proposer of a funded beamtime), in other surface characterization techniques as XPS, TDS, LEEM/PEEM and XSW.

In 2016, he obtained a "Juan de la Cierva Incorporación" grant and came back to the group of Prof. Gómez-Rodríguez (UAM). In that stage, the applicant introduced in the group his experience of research in synchrotron facilities, being the only proposer of 2 funded beamtimes. Also, he started a research line devoted to heterogeneous catalysis on metal nanoparticles, and was organizer of a minicolloquium in the CMD2020GEFES.

Recently, he moved, to pursue an independent career, to other department of the UAM, the Dept. de Física de Materiales, where he is setting up his own research group. He inherited an UHV system, and with the funding that he has obtained in 3 funded projects (>260k€ in total), he is developing other UHV system optimized for nanocatalysis experiments.

As a result, he is a co-author of 39 (15 in the last 5 years) publications, being the first author in 15 (3 on the journal cover) and corresponding author in 17. Out of these 39 articles, 20 are published in journals with impact factor higher than 7. He has 5 articles with only 2 authors and other 4 articles with only 3 authors. Also, he is coauthor of 3 manuscripts submitted to the respective journals.

Resumen del Currículum Vitae:

Antonio Javier Martínez Galera is assistant professor in the Universidad Autónoma de Madrid (UAM). He holds the I3 accreditation since 2019. Next, the main achievements of his CV are summarized.

Main research lines: 1) Growth, functionalization, and characterization of 2D Materials, 2) Study and tuning of the interaction between molecular adsorbates and 2D materials, 3) Growth and nanomanipulation of ordered arrays of nanoparticles, 4) Study of heterogeneous catalysis on metal nanoparticles.

Funding acquisition: To pursue his research, he has got funding (more than 0.5 M€ in total) in all the stages of his career, through funded projects and excellence programs (Marie Sklodowska-Curie and Juan de la Cierva Incorporación). Also, he has been proposer of 3 funded synchrotron beamtimes. Moreover, he is currently the only principal investigator of 3 funded projects (>260k€ in total), being the only senior researcher in 2 of them.

Mentoring: He has supervised 1 bachelor student (TFG), 3 master students (TFM) and, currently, supervises 2 TFGs and 1 PhD thesis (Expected defence in may of 2023).

Leadership: It is reflected on: 1) As mentioned, he obtained funding to pursue his research in all the stages of his scientific career; 2) He has 15 articles as first author; 3) He has 17 articles as corresponding author; 4) He has 5 articles with only 2 authors and other 4 articles with only 3 authors; 5) He is proposer of 3 synchrotron beamtimes.

Set up an own research group: He performed his last postdoctoral stage in the group of Prof. José María Gómez Rodríguez in the Departamento de Física de la Materia Condensada of the (UAM). After the death of Prof. Gómez-Rodríguez in 2020, the applicant inherited an Ultrahigh Vacuum (UHV) system hosting a Variable Temperature STM, which he developed during his PhD, and he moved, to pursue an independent career, to a different department -Departamento de Física de Materiales-, where he got room and has founded his own laboratory. With the funding, that he has obtained as a PI for the next years, he is developing a new UHV system.

Internationalization: He performed 13 research stays in forefront institutions and research facilities of different countries (more than 37 months in total). He has been PI of an European project (FP7-PEOPLE-332214) and co-authored publications with outstanding researchers of 11 different countries. He was the main organizer of a minicolloquium in the CMD2020GEFES, joint international online conference of the biennial meeting of the Condensed Matter Divisions of the Spanish Royal Physics Society (RSEF-GEFES) and of the European Physical Society (EPS-CMD) celebrated in 2020.

Evaluator of research: He participates as an expert in the Sistema de Gestión de Evaluaciones de la Subdivisión de Coordinación y Evaluación (EVALUA) of the Spanish State Research Agency (AEI). He is referee of international peer-review journals.

Social dissemination: He has collaborated in the scientific dissemination for non-specialists in open days and in different general press media as El Mundo, Madrid 20 minutos, or el Economista.

Awards and distinctions: 1) Considered, by a panel of experts of the Dirección General de Universidades e Investigación (DGUI), one of the best three researchers with a CPI grant (call of 2007); 2) Extraordinary doctorate award by UAM (2012); 3) Prize for the best experimental thesis in Solid State Physics (2012), by the GEFES division of the RSEF.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	RAMÍREZ MAGLIONE, MARÍA CRISTINA
Referencia:	RYC2022-037989-I
Correo Electrónico:	crisramm@gmail.com
Título:	Materiales compuestos cerámicos reforzados con nanoestructuras basadas en grafeno para aplicaciones estructurales y en energía

Resumen de la Memoria:

My professional career has been mainly focused on studying innovative ceramic composites containing graphene based fillers with the aim of developing tougher, multifunctional and more efficient materials that could be applied in energy, environment and automotive sectors. This has allowed me gaining experience in the processing of advanced ceramics, the synthesis of carbon nanostructures (CNs), such as graphene, graphene oxide and carbon nanotubes, and the deep analysis of their properties gaining competence in the use of specific materials characterization techniques as micro- and macro-scale mechanical tests, Raman spectroscopy, electron microscopies (SEM, HRTEM, FIB) or scanning probe microscopy.

Through the activities carried out during my Ph.D. thesis (2009-2014), the research line of TCG based on the development of multifunctional ceramic composites containing carbon nanostructures was consolidated and the group gained visibility in the field of graphene composites. The main contributions related to my work, addressed in 15 publications of this period can be gathered in three parts, concerning the processing of the composites, the study of mechanical properties and electrical and thermal conductivity enhancement, being one of the first groups in Europe working in the field. I have extended this research during my postdoctoral period (2015-present day) carrying out activities that consolidated the thesis experience and allow me to deepen in the study of mechanical properties of graphene/ceramic composites, and activities related with materials for applications in energy storage. Both fields complemented each other and let me gaining knowledge on new processing and characterization methods strengthening my technical skills and defining my current research interests.

Part of my research activity has been carried out at the ICV-CSIC, actively participating as member of the research or work team in four competitive projects led by the TCG during my doctorate, and being a member of other two when I joined the group in 2018 as Juan de la Cierva-Incorporación postdoctoral fellow. I also have a work experience of more than 2 years in prestigious foreign research institutions, including a 2-years postdoctoral position at Brown University, USA. The results of my research during 14 years can be tracked on a total of 34 papers, being the first author in 15 of them, participating also in more than 15 conferences and workshops. I am also co-inventor of two published patents, one Spanish and one patented in USA and Europe.

I keep collaborating with international and national groups from Brown University, Tallinn University, PSU, CICECO, ICMAB, ITEFI and ICV-CSIC. Presently, I am responsible of a new line of research within the group involving the development of advanced ceramic/nanofiber composites by electrospinning focused on studying solutions to issues of 3D printed ceramic structures by using nanoscale reinforcements, for multifunctional applications in energy, which is the topic of my JIN project (2021-2024).

Resumen del Currículum Vitae:

I currently work in the Technical Ceramics Group (TCG) of the Institute of Ceramics and Glass (ICV-CSIC) leading the JIN project PID2020-12056RJ-I00 Electrospun reinforced composite structures for 3D-printed energy applications (2021-2024), collaborating with the main line in the TCG focused on cellular ceramics and composites for transport, energy and environmental applications, in the project RTI2018-095052B.

My professional career has been mainly focused on studying innovative ceramic composites containing graphene-based fillers with the aim of developing tougher, multifunctional and more efficient materials that could be applied in energy, environment and automotive sectors. This has allowed me gaining experience in the processing of advanced ceramics, the synthesis of carbon nanostructures, such as graphene, graphene oxide and carbon nanotubes, and more recently in additive manufacturing. I have also carried out the deep analysis of their properties gaining competence in the use of specific materials characterization techniques as micro- and macro-scale mechanical tests, Raman spectroscopy, electron microscopies or scanning probe microscopy.

One important part of my research activity has been carried out at the ICV-CSIC, actively participating as member of the research or work team in four competitive projects lead by the TCG during my doctorate, and being member of other two when I joined the group in 2018 as Juan de la Cierva-Incorporación (JdIC) postdoctoral fellow. I also have a work experience of more than 2 years in prestigious foreign research institutions, achieved through 2 short stages (as a PhD student at CICECO in Portugal and PSU in USA) and a 2-years postdoctoral position at Brown University, USA. The results of my research can be tracked on 32 papers (in a period of ten years), being the first author in 15 of them, with an h-index of 20 and more than 1300 citations (according to Scopus, at February 1st, 2023), participating also in more than 15 conferences and workshops. I have collaborated within these projects with several international and national groups from Brown University, Rice University, PSU, Tallinn University, Institute of thermomechanics of Prague, CICECO, ICMAB, ITEFI and ICV-CSIC.

Presently, I am responsible of a new line of research within the group involving the development of advanced ceramic/nanofiber composites by electrospinning focused on studying solutions to issues of 3D printed ceramic structures by using nanoscale reinforcements, for multifunctional applications in energy, which is the topic of my JIN project, on development of reinforced 3D printed electrodes and ceramic electrolytes. I am co-inventor of two published patents, and one patented in USA and Europe.

During my second year at Brown University I collaborated advising the work of Ph.D. Student Q. Wang, on processing and characterization of graphene oxide reinforced alumina composites. In addition, during JdIC contract I advised the final degree projects of two students from Universidad Politécnica de Madrid. I have also participated in divulgative activities and organizing two workshops on Materials Sciences at ICV. Besides, I have been Guest Editor of 2021 MDPI Materials Special Issue "Graphene-based materials, their composites and potential applications".

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	MÉNDEZ MORALES, TRINIDAD
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Título:	Computational characterization of nanostructured materials for energy storage.

Resumen de la Memoria:

Since 2010 I have been carrying out important and innovative research focusing on Materials Science. My work has been dedicated to the computational characterization of the ionic and electronic processes that take place at the electrode/electrolyte interface for improving energy storage devices.

My career started with a PhD that was funded by the FPU fellowship and was completed in 2015 at the University of Santiago de Compostela (USC), for which I was awarded with the Extraordinary PhD Prize in the Area of Sciences. This period was then continued with 6 years of postdoctoral experience, including 2.5 years at the CEA (Saclay), 2 at the Sorbonne University and 1.5 at the UVigo.

For my first postdoctoral stage at the CEA, I was awarded with an Enhanced Eurotalents Fellowship, funded through the Marie Curie Actions of the EU FP7 Program. There I developed a 3D model of electrodes based on perforated graphene, trying to fill the gap existing between the experimental and computational findings of a significant capacitance increase achieved by carbon electrodes with micropores. My work was essential to understand the need of having electrodes not only with pores sizes comparable to that of the electrolyte molecules, but also with a highly disordered structure to design efficient supercapacitors (Energy Storage Materials, IF: 17.79).

Then I moved to the Sorbonne University to work on the computational screening of novel and attractive materials (water-in-salt solutions) to identify which properties were shared by those that performed the best as electrolytes, thus detecting promising candidates for further study. During these years in France, I also co-supervised a PhD student working on nanoporous carbon-based electrochemical capacitors.

I returned to Spain in May 2020, when I was awarded with a Juan de la Cierva–Incorporación fellowship. My incorporation to the UVigo allowed me to extend my research to the field of hydrogen storage for energy applications. There, I provided the group with my expertise in simulation techniques they had not used before to estimate the storage capacity of nanostructured materials under different conditions.

This fellowship was interrupted in October 2021 to return to the USC as a Distinguished Researcher, leading since then a research line focused on the development of advanced beyond-lithium electrolytes and the understanding of electrode/electrolyte interface formation and transport mechanisms, both being essential for improving storage devices performance. For that purpose, I am the sole PI of a national project funded with more than 108k€ (Generación del Conocimiento 2021) that aims at the development of interatomic potentials using neural networks, which describe more accurately the electrode/electrolyte interaction at a lower computational cost. Under the framework of this project, I am currently supervising 2 PhD students (plus another one that will be hired in March 2023) and a postdoctoral researcher.

The long-term goal of my research is the development of smart materials for energy storage and harvesting, evaluating their potential by means of a computational analysis. This also includes the improvement of hydrogen storage in nanoporous materials. The RyC is an excellent opportunity to develop my research career, expand my network of collaborations and stay at the vanguard of scientific progress.

Resumen del Currículum Vitae:

I graduated in Physics in 2009 and obtained a MSc in Materials Science and Technology in 2010 at the University of Santiago de Compostela (USC). I have been dedicated to full-time research since October 2010, when I was granted with a FPU PhD fellowship. During my PhD I made several stays in the Universities of Oxford and Cambridge with reputed experts in the field of simulations. I completed my PhD in 2015 at the USC and the research carried out during those years was recognized with the Extraordinary PhD Award in the Area of Sciences.

Then I was awarded with the Enhanced Eurotalents fellowship, funded through the Marie Curie Actions of the EU FP7 Program, which allowed me to work as a postdoctoral researcher at the CEA (France) for 2.5 years. After that I worked for 2 years at the Sorbonne University as a postdoctoral researcher for an ERC project. In 2020 I was reintegrated into the Spanish research system in the UVigo thanks to a Juan de la Cierva-Incorporación fellowship. This grant was interrupted in 2021 to join the USC as a Distinguished Researcher (current position).

I have participated in more than 10 highly multidisciplinary collaborative projects funded by a variety of sources, including COST Actions. This has led to 37 publications, including one Energy Storage Materials (IF 17.79) and 2 book chapters. My research is supported by more than 1200 citations (150 cites/year over the last 5 years and h-index 23, WoS).

Currently, I am the sole PI of a National Research Project for Knowledge Generation 2021 entitled "Simulations of densely ionic electrolytes under confinement with machine learning potentials", which was granted with more than 108k€ This project as PI and the several competitive fellowships I have received during my research career exemplify my ability to self-finance and to reach a position of leadership and professional maturity.

At the Sorbonne University I have co-supervised one PhD thesis defended in 2018, and at the USC I have supervised a Collaboration grant student, 4 Bachelor thesis and 2 Master thesis. At this moment, I am supervising 3 Bachelor thesis and 2 PhD thesis. A predoctoral student will be incorporated in March 2023 funded by the National Research Project, and I am also supervising the tasks of a high-profile postdoctoral researcher under the framework of this project. My mentoring skills have been developed by combining research with teaching at bachelor and master levels (more than 330h) and I hold the accreditation of Assistant Doctoral Lecturer from ANECA.

I regularly participate in conferences and workshops: more than 25 conferences in total (more than 15 were international ones), with 2 plenary talks by invitation, more than 15 oral contributions and more than 10 posters. I have experience as organizer of an international conference, an international summer school and a national workshop. I have organized and participated in divulgation talks to approach energy transition to society. I am also the secretary of an European scientific society.

I am an assiduous referee for numerous front-rank international JRC journals since 2013, and I am Associate Editor in Molecular Liquids (specialty section of Frontiers in Chemistry). I was member of the committee of 2 PhD thesis defended at the USC and I have been invited by the AEI to collaborate in the evaluation process of the national projects.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	TRÓCOLI JIMÉNEZ, RAFAEL
Referencia:	RYC2022-037564-I
Correo Electrónico:	iq2trjir@uco.es
Título:	Materiales avanzados en aplicaciones electroquímicas: almacenamiento de energía, reciclado de baterías, producción de litio y remediación ambiental.

Resumen de la Memoria:

Dr. Trócoli obtained his Ph. D. at the University of Córdoba in 2012 (Prof. Morales's group). It was focused on Li-ion batteries. Many structural and electrochemical techniques were employed: XRD; XPS; FTIR; impedance... Dr. Trócoli's thesis was awarded a "Cum Laude" doctorate.

April 2013: Dr. Trócoli joined the Bochum Universität (Germany) as a postdoctoral researcher (Prof. La Mantia). Firstly, working in aqueous batteries, developing the first Zn-ion battery based on CuHCF, and studying its stability upon cycling and solvent nature. In 2014, the applicant was promoted to project leader of an industrial project with BayerMaterialsScience and project leader of a BMBF project working intensively in other fields like Li recovery from brine employing selective lithium recovery electrodes and developing the first alternative to current counter electrodes employed (Ag, Pt) by using Prussian Blue Analogues. Dr. Trocoli collaborated with Prof. Alfred Ludwig to develop thin-film cathode materials by RF-Magnetron sputtering based on $LiMn_2O_4$ spinel. Additionally, Dr. Trócoli supervised two research stays of a Ph. D. student from Prof. Barriga's group (UCO) on pollutant removal. Dr. Trócoli was honored with the "Finalist YESS Award 2015" for his "Simultaneous energy storage and desalination battery based on Prussian Blue derivate" project.

In January 2016, he joined the Nanoionics and fuel cell group (Prof. Tarancón, IREC, Spain) as project coordinator of the Battery section of the H2020 "Sinergy" project. The candidate was trained in thin film deposition methods (PLD) and characterization techniques (e.g., ellipsometry...). Dr. Trócoli fabricated the first double-ion microbattery based on a Li intercalation spinel cathode and a Zn metal anode. The fellow extended his collaboration with the group as part of a "Retos-2016" research team and two H2020 projects, working in silicon fibers as anode materials for Li-ion batteries and thermoelectric. Dr. Trócoli was awarded a Marie Curie Seal of Excellent 2016 for his "All-solid-state lithium ion micro-batteries based on spinel materials" project.

Dr. Trócoli started a new position as a Marie Curie fellow in September 2017 (Prof. Palacín, ICMAB-CSIC) and joined the H2020 project EMagic. Dr. Trócoli developed a project based on the advantage of employing "soft" anions to achieve practical divalent cation mobility in cathode materials for Mg batteries and magnetism applications. He synthesized the $MnTa_2N_4$: A Ternary Nitride Spinel with a Strong Magnetic Frustration. He also employed high-pressure β-V_2O_5 as a Magnesium intercalation Cathode. A deep structural characterization, including in-situ XRD, XAS, or STEM-EDX, was necessary to understand the material's behavior. Since 2021, Dr. Trócoli has worked as a Senior Research at the University of Cordoba. He obtained an EMERGIA project (Junta de Andalucía) and a JIN project (Retos-2020) for the development of new materials for Li extraction starting and has recently got two more projects as PI, a national project (TED) and a regional one (Excelencia). All these projects have allowed Dr. Trócoli to establish a new research line in the FQM-175 group focused on recovering valuable metals from battery spent. Currently, Dr. Trócoli is applying to "Generación de Conocimiento 2022" to consolidate a new research line based on multivalent batteries using Prussian

Resumen del Currículum Vitae:

Dr. Trócoli has published 35 peer-reviewed articles in ISI Indexed Journals with an Impact Factor of 1774 citations and 5 years average = 285. 29 of them as first or second author. 16 over 22 as corresponding (postdoc period). h-index of 19, h10 index of 25 and normalized impact factor i = 1.78, (centros de excelencia-2020 methodology). The percentage of publications in Q1 and D1 is 82.7 % (10 years articles). This percentage increases to 93.75 % when Dr. Trócoli is the corresponding author. The % of publications in collaboration with international centers is 85.3%, and all of them have been cited (52.17 citations/article). 100% of his articles since 2019 have been published in open access. In April 2013, Dr. Trócoli started his postdoctoral career by joining the Bochum Universität (Germany) as a postdoctoral researcher (Prof. La Mantia). Firstly, working in aqueous batteries, developing the first Zn-ion battery based on CuHCF (ChemSusChem, 542 citations, Electrochimica Acta 167, and J. Power Sources 74). In 2014, he was promoted to project leader of an industrial project with Bayer MaterialScience (178,500€) and project leader of a BMBF project (1,427,488.80€) working intensively in other fields: Li selective electrodes for lithium recovery: (6 articles, 541 citations, 3 talks + 1 invited, "Finalist YESS Award 2015". Dr. Trócoli started a collaboration with Prof. Alfred Ludwig to develop thin-film cathodes by RF-Magnetron sputtering (3 articles, 49 citations). Dr. Trócoli supervised two research stays of a Ph. D. student from the University of Cordoba based on pollutant removal (2 articles, 100 citations). In 2016, he joined the Nanoionics and fuel cell group (Prof. Tarancón, IREC, Spain) as the main battery researcher of the H2020 "Sinergy" project. The candidate worked in thin film deposition methods. 6 articles in total, 2 ACS Appl. Mater. Interface, 1 J. Mater. Chem. A…74 citations, 3 talks, Marie Curie Seal of Excellent. In September 2017, Dr. Trócoli started as a Marie Curie fellow (218,130€ in the group of Prof. Palacín (ICMAB-CSIC) (ranked #1), then he also joined the FET-H2020 project E-Magic working on new cathodes for Mg-Batteries. So far, two publications have been published: Chemistry of Materials and ACS applied energy materials, 10 citations). Since 2021, Dr. Trócoli has obtained four research projects as PI based on the development of new materials for Li extraction and battery recycling: an EMERGIA project (Junta de Andalucía, EMERGIA20_00153 - 256,000€), a JIN project (PID2021-124228OA-I00– 181,500€), a national project (TED2021-129314A-I00, 205,743.05€) and a regional one (ProyExcel_00330, 165,867.55€). Dr. Trócoli has been invited to contribute to Current Opinions in Electrochemistry and published a Review in Advanced Materials 2020 (167 citations). He was the (co-)proposer of four singular facilities projects and has received ≥30 invitations to contribute to international conferences (2020-2021). He has been invited as Guest/Topic Editor for 12 journals. Dr. Trócoli had led an industrial project with Bayer MaterialScience (178,500€. He has given numerous talks to students (European Research Night-2020), co-organized a workshop (MATENER 2018), is director of QUIEMA-2023, and currently supervises two doctoral theses. He is an active evaluator, hired three times by the REA (European projects), as well as by the FONDECYT and Israel Science Foundation. He has reviewed 79 articles.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	RÓDENAS TORRALBA, TANIA
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Título:	Tomography-guided design of porous and 2D materials, composites and heterostructures thereof, for chemical technologies.

Resumen de la Memoria:

My PhD thesis (Polytechnic University of Valencia) revolved around the controlled synthesis and characterization of size-selected metal nanocrystals, stabilized within ionic liquids or loaded onto biopolymer and oxide carriers. These materials served as platform to address structure sensitivity phenomena in catalytic conversions on metal surfaces. Following PhD graduation, I have accumulated ca. 8 years research experience at renowned academic institutions abroad. First, I obtained a PD research associate position at TUDelf (Netherlands). There, I expanded my research profile into porous nanomaterials, with focus on the design and crystal engineering of metal-organic-frameworks (MOF). I contributed innovative synthesis routes to highly perfect 2D MOF crystals, which the research community has widely adopted ever since to replace conventional exfoliation routes. Thereof, I developed MOF/polymer composites, which integrate molecular sieving properties of MOFs with thin-film processability of polymers. I was responsible for the introduction of tomographic imaging (FIB-SEM tomography), in combination to 3D stochastic image analysis routines, as an advanced tool for the quantitative assessment of the internal architecture of these composites, which proved key for their rational optimization for gas molecular sieving applications. Building on the skills developed at my postdoc appointment, and to explore the potential of the new 2D MOF-based heterostructures in other technological areas, I was awarded a prestigious Alexander von Humboldt research grant and moved to the Max Planck Institute for Energy Conversion (Mulheim, Germany). There, I initiated and coordinated a new research line on 2D heterostructures for electrochemical conversion. In this period, I also became active in the MANGAN research consortium, which encompassed 25 academic institutions and companies. This consortium developed tools of Open Data Science, and I contributed to the creation of a database geared at standardizing protocols and figures of merit in the evaluation of electrocatalytic devices, which is currently available to the global scientific community. Along this career path, my specialization at the interface between (i) material science, (ii) 3D image analysis and (iii) chemical technologies, set the basis for my current position as Doctor FC2 researcher at CSIC (ITQ, Valencia). I act as Work Package (WP) leader in an ERC-CoG project and coordinate research cooperations with industry. If appointed RyC Researcher, I will implement a research program on the design of multi-component materials. As it is my intention to continue working close to the technological applications of the materials I design and develop, the focal point of my research will be on multicomponent composites and heterostructures for applications in energy-related chemical transformations (catalysis and electrocatalysis), with emphasis on CO_2 valorization. In this research line, I will apply a battery of tomographic imaging techniques (ET, FIB-SEM, X-ray tomography, X-ray ptychography), and develop mathematical stochastic 3D image analysis routines (including machine learning concepts) to quantitatively assess, and on this basis optimize, the architecture of functional materials for multifunctional thermo- and electro- catalysis.

Resumen del Currículum Vitae:

My research interests are in the area of the design and synthesis of 2D and porous nanomaterials, and composites and heterostructures thereof, for applications on chemical technologies, i.e. catalysis, molecular sieving and electrochemical energy conversion. Since PhD graduation, I deliberately pursued a scientific career with a clear orientation for international mobility and interdisciplinarity. I have accumulated 8 years of research experience at renowned academic institutions abroad (TUDelft (The Netherlands), Max Planck Institute Energy Conversion (Germany)). Mobility, across borders and across research sub-fields, which entails induction periods, may have limited my production in terms of number of publications (20 at present), but has contributed decisively to the development of an original research profile as well as to the significance of my research outcomes. I am the first and/or corresponding author of 60% of my publications after PhD (without PhD advisor). My publications have appeared in prestigious journals (Nature Materials, Adv. Materials, Adv. Energy Materials, Adv. Funct. Materials, Angew. Chem.). The average impact factor for all publications (per paper) is >14 (>19 for those after PhD) and they accumulate >3000 citations. I have also authored 2 book chapters, one of them as corresponding author upon invitation. Next to scientific significance, my research has also shown technological impact. I am inventor in 3 patents, 1 of them transferred to industry (BASF) for exploitation.

To date, I have participated in 9 research projects, 7 supported by public funding, including the nationwide MANGAN research consortium in Germany, and 2 funded by industry.

As principal investigator, I have secured and managed/currently manage two research projects. The first one ("De novo design and synthesis of doped carbon nanomaterials for electrochemical energy conversion", with a total funding of 83,000 EUR (2015-2018)) through the highly competitive Alexander von Humboldt funding program in Germany. The second one, at my current affiliation (CSIC) in collaboration with BASF ("3D-imaging based design of porous materials", 360,000 EUR (2021-2024)). The implementation of the latter two projects as PI has already resulted in scientific publications in top-tier journals such as Adv. Ener. Mater. or Angew. Chem., intellectual property transfer to industry and a PhD thesis is currently being implementation under my supervision.

My research contributions have received recognition by my peers, as exemplified by 4 invited lectures at international conferences (and several other at various workshops and colloquia), 4 Best Contribution Awards at national and international conferences, or my regular contribution as reviewer for journals such as Chem. Mater., J. Mater. Chem. A, Micropor. Mesopor. Mater., Scientific Reports, Ener. & Environ. Sci., ChemSusChem, J. Mem. Sci., among other and international funding agencies. In 2015 I received, together with Dr. I. Luz (MOF scientist, MOSAIC Materials Inc, Berkeley, USA), the 2nd Prize at the Scientific and Technical Award Young Researchers Ciutat d'Algemesí. This is a renowned award at the Valencian Community (Spain) which is bestowed on young researchers (< 36 year old) to recognize both scientifically cutting-edge and technologically relevant innovations in all natural sciences and technology areas.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	DURÁN RETAMAL, JOSÉ RAMÓN
Referencia:	RYC2022-038351-I
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Título:	Atomically Precise Quantum Nano Devices

Resumen de la Memoria:

During the last three years at ICN2 I have been investigating the electronic and optical properties of atomically-precise graphene nanostructures synthesized by on surface science (OSS) in a UHV chamber equipped with scanning tunneling microscope and spectroscopy. This OSS novel technique can render atomically precise graphene nanoribbons (GNRs) and 2D networks of nanoporous graphene (NPG) with widths and pore sizes of 1-2 nm, which cannot be achieved by conventional growth methods of 2D materials or by patterning graphene due to the lack of edge selectivity. Moreover, GNRs and NPG exhibit unique semiconducting properties, that can be modulated by molecular precursors in contrast to semimetallic graphene. However, owing to fine structure of these materials, it is strongly challenging to work with them out of the comfort zone in the UHV chamber, thus it is a daunting challenge to fabricate field effect transistor (FETs) and to test their intrinsic properties, which lead to low performance and degraded characteristics. In this regard, I have already developed a technique to transport the samples into an inert globe-box via a UHV suitcase, where to apply dry-transfer techniques adopted from 2D materials to protect them or transfer into another mini-chamber where we can perform electrical measurement and optical spectroscopy, thus enabling a key technology to render high quality FETs and to characterize them in a safe environment. With this advent, I firmly believe that these unique nanostructures can boost the great potential that have been promised, but has not been yet shown. In addition, the AMS group at ICN2 where I am planning to progress with the Ramón y Cajal is already equipped with and avantgarde equipment that allows electrical measurement while performing STM imaging and spectroscopy at cryogenic temperatures. Recently, we have also installed a spectrometer to asses the light emission from the nanostructures. With all these , the research line that I would like to develop involves

• Raman, UV-visible, FTIR spectroscopy while performing electrical measurement of devices in a controlled environment to assess their chemical fingerprint and optical spectra that evidences their phonon, exciton and plasmon activity in order to assess light-matter interactions and to perform optical and gas sensors.

• The implementation of tunneling transistors which are capable to outperform the subthreshold swing (SS) which is the key limiting factor in conventional MOS transistors for fast switching.

• By using the an avantgarde STM-L technology, I am looking forward to first observe the optical spectra induced by the tunneling tip of the STM, and then add single photon counters to resolve the single photon emission of these nanostructrures.

• Furthermore, I would like to integrate the materials onto optical waveguides along with 2D superconductors to built optical quantum platforms that are capable of quantum communicatin by emitting and detecting single photons.

Resumen del Currículum Vitae:

My research interest lies on exploiting the unique properties of low-dimensional materials to boost the performance of electronic and optoelectronic devices. I pursue my research goal from an international and interdisciplinary perspective, using nanofabrication tools and high-resolution characterization techniques to answer theoretical questions arising from the nanoscale and quantum confinement of the nanomaterials. I have worked on distinct materials and ever-shrinking nanostructures, as well as on developing novel strategies to optimize the device architecture and preserve the material pristine quality. Accordingly, I have enhanced the performance of electronic and optoelectronic devices and open new pathways for novel materials. My ongoing career focus on tailoring the electrical and optical properties of atomically precise graphene nanostructures via edge modification and molecular precursors to enable novel quantum devices and integrating them onto photonic circuitry to enable compact quantum network platforms and sensing platforms. My research output of 36 publications (10 as a first author) with a total of 2 citations has led to clear impact of h-index 24 y i10_index 31 according to Google-Scholar. Most of them are published in top ranked journals. Four review articles,

one of them invited, and two book chapters reveal my strong knowledge of the state of art of the fast-growing field of nanotechnology, whereas, my intellectual property is recorded in 2 international patents. My work has been also presented at multiple international peer-reviewed conferences and invited talks. Furthermore, my membership in scientific communities has contributed to organize events, connect researchers, and serve as reviewer. Indeed, during my intense international activity, 7 years in Taiwan and 4 years in Saudi Arabia, and 10 years national activity, I have participated in multiple international and national projects, as reflected in my collaborative work. I supported my learning career by being academically awarded for 7 years and scientifically recognized with the first prize in the highest Tech competition in Taiwan. Furthermore, I have proven my ability to obtain competitive funding, including three prestigious post-doctoral contracts in the Beatriu de Pinós, and Marie Curie and BIST programs. More recently, I have joined the University of Barcelona to embrace myself in teaching activities in the Condense Matter Physics department as an Associate Professor. Throughout my career, I have shown independence in my research as well as strong leadership, team work, coordinating skills (PI of Marie Curie grant), international and interdisciplinary collaboration, academic mentoring, organizing events, project and lab management. Overall, I demonstrate maturity to conduct research and set objectives on my own.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	CRIADO GONZÁLEZ, MIRYAM
Referencia:	RYC2022-036380-I
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Título:	Innovative polymer and peptide based materials for bioapplications. Self-assembly through controlled nano- and micro-structures

Resumen de la Memoria:

The ability to control the self-assembly of soft matter, polymers, and peptides, into tailored building blocks engineers the development of materials with specific structure-properties-function relationships from a bottom-up perspective. In this regard, my research line is focused on the design and fabrication of innovative polymer- and peptide-based materials able to self-assemble through controlled nano- and micro-structures for their employment in biomedical applications. To address this multidisciplinary objective, my scientific career has been divided into different stages:
• Stage 1: Design and fabrication of multilayer assembled polymer materials - CSIC (2013-2017) for biomedical applications, i.e., magnetic hyperthermia and drug delivery.
• Stage 2: Development of supramolecular peptide-based materials for biomedicine - CNRS, INSERM (2017-2020).
Transition stage: for exploring additional biomedical applications of hybrid peptide/polymer hydrogels in the framework of a collaborative project CSIC-CNRS (2020-2021).
• Stage 3: Fabrication of functional opto-electronic polymer materials for bioelectronics - UPV/EHU (2021- Present).
My scientific career has been developed in different national and international research centers of excellence: a predoctoral stage at the Institute of Polymer Science and Technology-CSIC (2013-2017), an international post-doctoral stage at the Institute Charles Sadron-CNRS and the National Institute of Health and Medical Research (2017-2020), a complementary post-doctoral stage at ICTP-CSIC (2020-2021), and a post-doctoral research position at POLYMAT-UPV/EHU since 2021 to september 2022 when I became a junior group leader at this Institution. The scientific results obtained within these periods have given rise to 32 articles (15 as first author and 9 as corresponding author) published in peer-reviewed journals of high impact factor (Angew. Chem. Inter. Ed., Chem. Mater., ACS. Appl. Mater. Interfaces, Carbohydr. Polym., etc.), and 1 national patent. My current h-index is 15 with overall 500 citations (Scholar). Throughout my research career so far, I have acquired multidisciplinary scientific skills in the synthesis and characterization of polymer and peptide materials, and nanoparticles, as well as in the fabrication and testing of the developed materials for specific biomedical applications. I am currently the principal investigator (PI) of 3 projects and I have also participated in 5 International projects, including a FETOPEN EU project (LION-HEARTED), and 4 National projects funded by the Spanish Ministry of Science and Innovation. I currently supervise 2 PhD Theses. Throughout my career, I have also supervised 2 Master Theses and I have been involved in the mentoring of other PhD, Bachelor, and Master students and teaching tasks at the University level. I was a member of the Organizing Committee and community manager of the International Conference GEP-SLAP2022. I am the editor of Special Issues in the journal Polymers (Q1) and reviewer of internationally referred journals (Coord. Chem. Rev., Chem. Eng. J., Acta Biomater., etc.). Besides, I was awarded with the Young Scientist Award from the European Materials Research Society (E-MRS).

Resumen del Currículum Vitae:

I got a BSc degree in Chemical Engineering and a MSc degree in Chemical Engineering (2013) at USAL, with Extraordinary Master Award, and a MSc degree (2014) in High Specialization in Plastics and Rubber (UIMP-CSIC) with the best mark of the promotion. I got a FPU fellowship to carry out my PhD at ICTP-CSIC (Madrid, Spain). During my PhD, I carried out 2 secondments in internationally recognized centers, at ICS-CNRS (3 months, 2014) and Institute of Nanoscience of Aragón (3 months, 2015), and short stays at Synchrotron (ESRF Grenoble-2016, DESY-HASYLAB Hamburg-2013). All of that allowed me to obtain the PhD title with 'Doctor Europeus' mention and ' Cum Laude' (2017). Then, I held a postdoctoral researcher position for 30.5 months at ICS-CNRS and INSERM (Strasbourg, France). My leadership was expressed in the generation of ideas, autonomous work, students mentoring, writing of articles, and management of the Group meetings. The new systems developed during this postdoctoral period combining peptide and polymer materials led to the awarding of a collaborative project CNRS-CSIC (PICS HYDROPRINT) to develop hydrogels for tissue engineering. Thus, in June 2020, I returned to ICTP-CSIC for 8.5 months to widen the applications of those hydrogels. In March 2021, I joined POLYMAT-UPV/EHU (San Sebastián, Spain) to extend my formation covering the bioelectronics field. I participate in 2 European projects, a FET-OPEN EU Project with 6 European partners (LION-HEARTED), and a HORIZON-CL4-2021-DIGITAL-EMERGING-01 project (SUINK) as co-PI. I also bring my leadership in mentoring students, I am responsible of the 3D printing research line of the Group, and PI of 3 projects, which allowed me to become a junior group leader in September 2022.
Throughout my career, I have co-authored 32 publications and 1 patent, and acquired multidisciplinary scientific skills in synthesis and characterization of polymer materials, peptides and nanoparticles, materials fabrication and biomedical applications. I have also strengthened collaborations with other internationally recognized researchers (Prof. E. Harth - U. Houston (USA), Prof. J. Schlenoff - Florida State University (USA), Dr. M. Antognazza - Italian Institute of Technology (Italy), Dr. L. Florea - U. Dublin (Ireland), Prof. T. Ezquerra - IEM-CSIC (Spain), Prof. G. Goya - UNIZAR (Spain), among others).
I am committed to the dissemination of scientific knowledge to a general audience and I participate in outreach activities (European Researchers' Night, Week of Science, IUPAC Global Women' s Breakfast at ICS-CNRS, and talks at schools).
I have co-supervised 2 MSc Theses (Alejandro Hernández at ICTP-CSIC (2021), Jean-Yves Runser at ICS-CNRS (2019)), and 1 BSc (Leyla Özbel, ICS-CNRS 2018). I have also been involved in the mentoring of 3 PhD, 5 MSc, and 1 BSc students. I have taken part of teaching tasks at University UCM (2016-2017) and invited seminars at UPV/EHU (2021, 2022) and USAL (2018). I was a reviewer of the MedTrain Marie Sklodowska-Curie in 2018, project PITC (Argentine, 2022) and a PhD thesis (Osiris Redondo - U. Rey Juan Carlos, 2019). I am editor of Special Issues, reviewer of journals, and member of the Organizing Committee GEP-SLAP2022.
I am a member of Spanish Royal Society of Chemistry and Society of Spanish Researchers in France. I possess the Assistant Professor Accreditation (ANECA).

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	GUTIÉRREZ VELA, YAEL
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Título:	Phase-change materials for photonic applications

Resumen de la Memoria:

The research career of the candidate developed around the field of nanophotonics, with special emphasis in developing novel (nano)materials and plasmonic systems and modelling their interaction with light. Three relevant milestones related to her international mobility underpin her achievements:

• The candidate obtained her PhD in Science and Technology (Cum Laude, Best thesis award) by the University of Cantabria-Oct. 2019. Her original PhD research was funded by a project awarded by the US Army Research Laboratory, aimed at the multidisciplinary study of innovative plasmonic materials, alternative to conventional noble metals, and nanostructures for UV and photocatalytic applications. During this period, the candidate gained theoretical expertise in electromagnetic modelling and density functional theories, complemented through a research mobility program at CNR-NANOTEC (Italy) with experimental expertise in deposition of plasmonic systems and characterization of optical properties through spectroscopic ellipsometry and related techniques. As the main achievement of this research, she pioneered novel Ga-based broad-band plasmonic systems for reconfigurable photonics, ambient photocatalysis, and hydrogen-technologies. She is internationally recognized for this work and winner of the Best Student Paper award at the SPIE Photonics+Optics conference (USA)-2019.

• Upon joining the Optical Biosensors group at the Institute of Photonics and Electronics (Prague, Czech Republic) as postdoctoral associate, her research focus moved to the applicative side of plasmonics, by electromagnetic modelling of plasmonic biosensors within two projects awarded by the Czech Science Foundation. The expertise gained during this period is exploited in an ongoing industrial collaboration with STRATEC Consumables-GmbH, designing plasmonic SERS substrates for biomedical applications.

• From 2020 to 2022, as Research Fellow at CNR NANOTEC (Italy), she is Work-Package Leader of the European project H2020 FET-OPEN PHEMTRONICS, focusing on the development of a new family of trans-dimensional low-loss phase-change chalcogenides materials, for their integration into a new generation of phase-change reconfigurable photonic devices with lower power consumption and ultrafast response time with the novelty of being plasmonically actuated. Her research at this stage is highly multidisciplinary, merging her theoretical background in density functional theory and electromagnetic modelling with newly acquired experimental skills in the deposition of bidimensional materials and in a broad range of spectroscopies and microscopies. Relevant achievements are optical switches/dynamic-photodetectors based on novel bidimensional Ga(S,Se,Te)/Sb(S,Se,Te) alloys, and switchable MoOx-based displays.

• Currently, the candidate is Assistant Professor at the Department of Physics of University of Oviedo while being associated researcher to the Institute of Condensed Matter Chemistry and Technologies for Energy of the Italian National Research Council.

Resumen del Currículum Vitae:

The candidate obtained her PhD in Science and Technology (Cum Laude, International Mention) by the University of Cantabria in 2019. She was awarded with a competitive Concepción Arenal PhD Fellowship. Her thesis was framed in the project New Hybrid Metallic Materials for UV Plasmonics and Photocatalysis Applications funded by the US Army Research Laboratory. In 2019 she received the Young Scientists Best Paper Award at the SPIE OPTICS+PHOTONICS (San Diego, USA) and in 2021 she won the Best Thesis award in Experimental Sciences and Mathematics given by the University of Cantabria Board of Trustees. As of January 2020, she became postdoctoral fellow at the Optical Biosensors group-Institute of Photonics and Electronics (Czech Republic), participating in 2 projects of the Czech Science Foundation. In July 2020, she was awarded a Researcher Grant at the CNR NANOTEC (Italy) in the frame of the H2020 FET-OPEN PHEMTRONICS European project, where she is acting as Work-Package Leader. From November 2022 she is Profesora Ayudante Doctor at the Physics Department of the University of Oviedo.

As for scientific publications, she has published 37 articles in peer reviewed journals with a total of 694 (Google Scholar, GS), 560 (Scopus) citations, h-index = 13 (GS), 10 (Scopus). 48% of the articles rank first quartile Q1, 43% Q2 and 8% Q3. She is first author of 59% of the articles, corresponding author of 48% and last author of 10%. 70% of the publications are open access. She contributed to 23 conferences with 3 invited talks, 20 presenting talks and 3 posters. Within the PHEMTRONICS project, as WP Leader, she co-authored 5 technical documents approved by the European Commission. As technology transfer, she keeps active collaboration with industry working with Stratec Consumables and NANOM MEMS. The candidate has 3 European patent applications. Additionally, as knowledge transfer the candidate has developed an open access code for the calculation of the thickness of 2D materials from color coordinates and made available open access data sets of dielectric function of different materials in the Zenodo repository. The candidate was invited to mobility stages at Brown University-USA (2014), Donostia International Physics Center-Spain (2019), CNR NANOTEC-Italy (2018), Johannes Keppler University-Austria (2019 and 2022) and the European Facility ELI Beam lines-Prague CZ (2021 and 2022).

As for teaching activity, the candidate was granted in 2021 the habilitation as Associate Professor (acreditación a Profesor Contratado Doctor). She taught over 150 hours at Degree and Master level at both national (University of Cantabria) and international universities (Johannes Keppler University and University of Bari) with a positive teaching quality evaluation from the students (mean score of 4.2/5). As supervising activities, she co-tutored 3 BSc thesis at UC and currently, she is co-tutor of a PhD thesis at the University of Cantabria framed in the PHEMTRONICS project and co-tutor of a PhD thesis at CNR-NANOTEC. As for Institutional responsibilities, she was PhD student's representative at the University of Cantabria cloister, board of the Doctoral School and the commission of Academic Ordination.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	GODOY GALLARDO, MARIA
Referencia:	RYC2022-038428-I
Correo Electrónico:	mgodoygallardo@gmail.com
Título:	Advanced smart biomaterials for tissue engineering

Resumen de la Memoria:

My PhD research focused on the formulation of antibacterial coatings for titanium surfaces by using silver via anodization, the antimicrobial human lactoferrin peptide hLf1-11 via silanization and atom transfer radical polymerization, and triethoxysilylpropyl succinic anhydride (TESPA) by covalent attachment. I demonstrated successful antibacterial agent deposition and confirmed antibacterial activity against two microbial strains. I next set out to develop an in vitro multispecies biofilm model to further assess the antimicrobial properties of my implants, and established the system at the Technical University of Catalonia following my external stay at the University of British Columbia. This allowed me to identify significant response differences between mono- and multispecies biofilms, emphasizing the necessity of such systems when performing antibacterial experiments in vitro. Finally, we used dental titanium implants after silver deposition and TESPA immobilization for in vivo studies as they exhibited the strongest antibacterial effect in vitro, and I was able to demonstrate that both coatings inferred titanium implants with strong antibacterial capabilities in vivo as well.

With my postdoc in the lab of Prof. Hosta-Rigau (2015–2019), I shifted my research focus to the development of sub-compartmented micro-reactors to enable multi-step biological processes inside living cells. I used capsosomes to accomplish the very first parallel and cascade enzymatic reactions, and I was able to demonstrate their functionality in simulated bloodstream conditions. I then created an enzyme-loaded multi-compartment microreactor for melanoma depletion, which allowed for the targeted conversion of the amino acid tyrosine to melanin, resulting in the metabolic deprivation of melanoma cells. Additionally, by harnessing a supercritical CO_2 foaming approach, I was able to obtain polycaprolactone/hydroxyapatite scaffolds with a bimodal pore size distribution that closely resembles the extracellular matrix of bone. I then coated them with polydopamine layers augmented with growth factors and evaluated their functionality. With this project, I was able to establish and validate the capabilities of such multilayered scaffolds to stimulate both angiogenesis and osteogenesis.

In 2019, I returned to Spain, where I am currently working on the development of 3D printable binary hydrogels made of guanosine and guanosine 5'-monophosphate, and I could demonstrate their capability to sustain entrapped MSCs for at least 21 days with good cell viability. Based on these results, I started an additional research line aimed at enhancing such 3D printed hydrogels with antibacterial properties to minimize the risk of infections and implant failure. Importantly, I have devised a reliable and robust semi-quantitative approach for comparing the printability of different hydrogels using multiple metrics such as diffusion rate, collapse area factor, and angle deviation rate. This allowed me to streamline not only the selection of the best-suited compositions for my research, but also to significantly contribute to all of the group's 3D printing projects.

Under the RyC program, I aim to develop next-generation biomaterials for soft-tissue repair and bone regeneration that can respond to physiological changes such as pathogen-induced inflammation.

Resumen del Currículum Vitae:

My research interest combines materials science and biomedical engineering with molecular and cell biology. I graduated in Chemistry (2008) and Materials Engineering (2009) from the University of Barcelona and the Technical University of Catalonia (UPC), respectively, and continued my training with a Master's degree in Biomedical Engineering (2009) and a PhD in the laboratory of Prof. Xavier Gil. In 2015, I defended my PhD thesis excellent cum laude, and I received a UPC Best Doctorate Award (2015–2016).

During my PhD, I focused on the development of antibacterial coatings for titanium surfaces, and I initiated and organized external stays at the University of Extremadura and the University of British Columbia. I subsequently transferred my acquired knowledge and skill-set to several undergraduates and PhD students to ensure successful project continuation. In total, my PhD research resulted in 2 patents, 5 oral and poster presentations at international conferences, and 9 peer-reviewed articles, 6 of which as first-author. Moreover, in 2015, I worked as an external collaborator with the company Soadco S.L. from Andorra, providing technical support and training to aid the company in commercializing one of the coatings I had developed during my PhD.

For my first postdoc, I joined the laboratory of Prof. Leticia Hosta-Rigau at the Technical University of Denmark (DTU), where I shifted my focus to the development of sub-compartmented micro-reactors for multi-step biological reactions and to enable controlled delivery of growth factors for tissue engineering. My scientific output at DTU is witnessed by 11 publications, 7 as first-author, and a MSCA-cofunded DFF-Mobilex grant.

In 2019, I was awarded two prestigious Spanish grants, a Juan de la Cierva from the Spanish government (2019-2022; declined), and a Beatriu de Pinós from the Generalitat de Catalunya and the European Union's COFUND program (2019-2022, 144k EUR; extended by 5 and 4 months due to the impact of COVID and a maternity leave, respectively). This allowed me to transfer to the International University of Catalonia (UIC). My project focuses on the development of advanced 3D printable bioinks by incorporating living cells and antimicrobials into guanosine-based hydrogels, to optimize them for soft-tissue engineering and achieve improved cartilage regeneration and wound healing. I have 3 papers published on this topic and 3 more in revision as corresponding author all of them.

I always combined my research initiatives with academic teaching and student training. I taught the Technology of Materials at UPC, was a lab instructor at the DTU Drug Delivery PhD Summer School, taught several lab courses in materials science and drug delivery techniques and I acted as a course instructor for the Characterization of Biomaterials course at UIC The Catalan University Quality Assurance Agency (AQU) gave me a favorable tenure-track lecturer report in 2019 (Acreditación de Profesorado Lector), and for research in 2022 (Acreditación de Investigación). Over the last 13 years, I have supervised and co-supervised numerous scientists, including 9 undergraduate, 4 Erasmus+, 3 master, and 2 PhD students, and 1 postdoctoral researcher, and I am currently co-director of a PhD student (Maria Merino-Gómez) on my Beatriu de Pinós research project who is expected to defend in March 2023.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	PÉREZ CARVAJAL, JAVIER
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Título:	Sustainable MOF and COF heterostructures for environmental remediation and energy conversion

Resumen de la Memoria:

The candidate has developed research in material science related to the synthesis and characterization of inorganic nanoparticle, clays, 2D solids, its heterostructures and composites, including also Metal-Organic framework (MOFs) and Covalent Organic Framework (COFs) synthesised under typical conditions and under eco-friendly and sustainable conditions. The candidate has focused also in the application of those porous materials material in process for environmental remediation and energy exchange, such us hydrogen storage and Heat exchange by adsorption, ion batteries, light harvesting process, sensing and biocide materials, as well as the first scale up process towards industrialization. The research track record of the candidate depicts advanced knowledge in adsorption phenomena and he has developed from fundamental understanding in the phenomena to physical-chemical correlation with promising application.

The research line to develop at ICMM-CSIC is entitled "Sustainable MOF and COF heterostructures for environmental remediation and energy conversion" which is aligned with its research line Materials for a Sustainable World. MOF and COF are reticular materials, a new class of advanced porous solids that has emerged with great potential for a wide variety of applications. Characterized by a significantly high surface area, these materials, which also exhibit atomistic control, have provided world records in terms of property and performance. The discontinues nature of this crystalline particles, as well as zeolites, present disadvantages from classic soluble materials like polymers. One of the most explored strategies is the combination of both, the porous solid and the polymers, giving raise to mixed matrix membranes. The research line under development at the ICMM-CSIC is focus on the preparation of different heterostructured materials in which different metal-organic structures, MOF, are grown on natural clays to give rise to materials that we will identify as MOF@clay That kind of nanoarquitectures as expected to present the high performance of the MOF while the clay provides processability The organic molecules are selected as well prioritizing in terms of lower toxicity (eg. fumaric acid and muconic acid front terephthalic acid). Composition and the crystallinity and textural properties of the resulting heterostructures are being evaluated among others. The solids prepared are subsequently processed applying typical protocols of conformation, including evaporation induced self-assembly (EISA), dip coating, layer by layer deposition, supercritical CO2, spin coating or drop casting. The prepared materials are designed and will be evaluated in function of their pristine component in different application mainly related to environmental remediation and energy harvesting and conversion. This research line to develop at ICMM is being extended to Covalent Organic Frameworks (COF), for energy harvesting and transformation. This ongoing section of the research line is an approach to these prompting new type of advanced materials from sustainability merging the use of natural products as construction units of the framework and their future use as in solar technology. Then the fabrication of devices based on biopolymers, their evaluation of performance, the disassembly and finally the reusability of the material, compost.

Resumen del Currículum Vitae:

During his scientific career the candidate have published 26 articles in scientific journals, last 2 of them as corresponding author. All of them categorized in the first quarter (Q1) of their fields, that includes chemistry, physical chemistry and material science. His number of citations is over 1000 with H-index 18. The candidate had been able to successfully develop and publish research at each of the several centres where he has been enrolled. These centres and institutions include his PhD internships at the prestigious College de France and the University of Alicante, his main research developed at the campus of excellence of UAM-CSIC, his postdoctoral stage at the ICN2-Severo Ochoa centre and Gran Ecole de Paris (PSL). In addition, the researcher has been able to report scientific production without direct supervision of his PIs and as corresponding author. The researcher is back to the institution of his PhD formation, ICMM-CSIC, thanks to the program 'Atraccion de Talento 2020' developing a research line in reticular materials with impact in environmental remediation and energy process. The researcher currently master inorganic nanoparticle, clays, 2D solids, its heterostructures and composites, including also Metal-Organic framework (MOFs) and Covalent Organic Framework (COFs) synthesis under typical conditions and under eco-friendly and sustainable conditions, and the application of those porous materials material in process for environmental remediation and energy exchange as well as the first scale up process towards industrialization.

The research track record of the candidate depicts advanced knowledge in adsorption phenomena and he has developed from fundamental understanding in the phenomena to physical-chemical correlation with promising application. He obtained a deep experience on the synthesis, characterization and study of potential applications of porous and hybrids materials in the energy field, targeting green synthetic procedures and environmental and sustainable processes, 26 international publications including the most prestigious journals of Chemistry, like Nature Chemistry and Angewandte, but also materials science referent journals such as Advanced Functionals Materials and Advanced Energy Materials. and 2 patents (1 licensed). His research topics includes green hydrogen production, storage, purification, ion batteries, Adsorption heat transformations (cooling system) and light harvesting process (energy field), environmental remediation, sensing and the exploration of biocide materials. Those results have been disseminated in oral presentation at international congress and also vulgarized for divulgation for example at 4ª ESOI+EMPRESA or foundation San Patricio initiatives. He has led his first project as PI at ENS granted by Carnot foundation and publish his two first publication as corresponding author and is currently co-leading AIE-TED project among others. The candidate has co-direct 3 TFM at Universidad de Alcala-CSIC agreement (2022) and University of Maranhao (BR), 1 JAE-Intro (2022). His research work has also been disseminated in more than 20 International Congresses and meetings, highlighting oral presentations, invited and webinars. The candidate presents an extended international network regarding academia an industry.

Resumen de la Memoria:

During my research career, I have been mostly dedicated to the development of alternative and more efficient systems able to face the current energy and environmental challenges through the use of renewable sources, with a particular focus on materials science and their integration into the devices. With a former (chemical) engineering background, during my master degree in Colombia, I started working in the fundamentals of heterogeneous photocatalysis and the design of photo-reactors for wastewater treatment. This formation process continued in the ICMS (Sevilla), where I developed a second master work and my PhD. This period significantly contributed on my education in the Materials Science field, more focused in the modification of the photocatalytic properties of visible-light active materials. During this period, I also developed other approaches, such as "in operando" FTIR measurements in a photocatalytic selective reaction (cyclohexane oxidation), and gas-phase tests with a photocatalytic fluidized bed reactor, for selective oxidation of ethanol, propylene epoxidation and CO_2 photo-reduction to CH_4.

After finishing my PhD in 2013, I joined IREC, where I was initially involved in a FP7 project dedicated to a new photocatalytic approach to partially oxidize methane to methanol. Moreover, I also explored the effect of homogenous additives and in the last part of this project I got involved in scaling-up activities for designing, constructing and assessing a larger scale prototype.

In parallel, I got involved into other activities related to photo- and electrochemical energy storage applications, such as water splitting for hydrogen generation and CO_2 electro-reduction. These activities brought me to establish a particular research line inside my research group, related to the synthesis and application of metal oxides into different approaches to energy storage. Also, I have worked in the development of a solar refinery by alternative electrochemical processes (different to water splitting), such as nitrogen and nitrates electro-reduction, and simultaneous pollutant electro-oxidation and CO_2 reduction. Currently I am co-PI of a MICINN CERES, targeting these reactions.

Since 2017 I have been also working in redox flow batteries (RFB) applications aiming to integrate thin film photovoltaic systems to develop the new "solar batteries" research line, by carrying out experimental activities regarding the device optimization and the integration of photovoltaics. Moreover, I have worked in alternative chemistries to vanadium, such as Zinc-Polyiodide and hybrid organic RFB.

Currently, I have dedicated effort to the generation of synthetic fuels from CO_2 through electrochemical routes. In this aspect, recently a postdoctoral researcher earning a TECNIOspring Industry has started under my supervision, for the development of Power-to-Liquid technologies through combination of a first electrochemical step and a second thermocatalytic reaction. Moreover, I am currently PI of a Horizon Europe RIA project (SolDAC) in which, I will develop a photoelectrochemical stack to transform CO_2 from a direct-air capture unit into C2-products (i.e. ethylene and ethanol). Previously, I have also had experience in the upscaling of electrochemical devices, within industrial projects.

Resumen del Currículum Vitae:

Dr. S. Murcia-Lopez obtained his master degrees in 2010 and 2012 in Science and Technology of New Materials and Chemical Engineering, respectively, and finished his PhD in 2013 by the University of Seville in the Heterogeneous Photocatalysis group. He also carried out other studies during two short research stays in University of Twente (Netherlands) and in University of Salerno (Italy). In the former, he studied some mechanistic insights of a photocatalytic process by means of in operando FTIR. In the latter, he developed some additional research activities on alternative green chemistry photocatalytic reactions such as CO_2 photo-reduction.

In 2013, he joined IREC as postdoctoral researcher, in the Energy Storage group. Initially, he participated in two European projects (FP7 CEOPS and FP7 Solarogenix), specifically in activities related to the partial oxidation of methane to methanol through a photocatalytic route, facing engineering challenges such as reactor designing and scaling-up, and finishing with a medium scale prototype. In parallel, he carried out activities in (photo)electrochemistry for H2 generation and CO_2 (photo)electro-reduction, under his participation in the research team of two national projects (TNT-FUELS and RESOL), and industrial projects (REPSOL), for alternative solar refinery. Additionally, as part of the development of WINCOST project aiming to integrate thin film photovoltaics into electrochemical systems, since 2017, he has been also working in redox flow batteries with vanadium and alternative chemistries and in the design and operation of solar batteries.

Between 2016-2018, he earned a Juan de la Cierva – Formación grant, and between 2018-2020, he held a TECNIOspring PLUS fellowship (Generalitat de Catalunya-H2020 MSCA), under which he carried out a one-year postdoctoral research stay at Politecnico di Torino (Italy) for developing a joint project (AnoDHygen) in water splitting. He has also been involved in the development of electrochemical processes for the simultaneous abatement of organic molecules and generation of value-added products from CO_2, N2 and nitrates. In this line, he has worked in several industrial projects, including up-scaling activities in the topic of electrochemical CO_2 conversion. Currently, he participates in several projects, such as FET-H2020 LESGO project, national TED CO2SAF and industrial BrainEN. Additionally, he is PI of three projects: coordinated national project CERES, Horizon Europe SolDAC and industrial Etilè II, all in line with the electrochemical valorization of CO_2 or other compounds. Likewise, he has co-authored >35 publications, most of them in Q1 journals (h-index 19), and around 40 contributions to national/international conferences, including several invited talks. Additionally, he has been involved in the supervision of several bachelor, master and doctoral theses (one PhD finished and currently, three co-directed PhD students), and he is also supervisor of a two postdoctoral researchers, one of them financed by TECNIOspring Industry (MSCA-COFUND). Finally, he has established collaboration with different international institutions, and has actively participated in divulgation, evaluation and peer review activities.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	DI BERNARDO , IOLANDA
Referencia:	RYC2022-035562-I
Correo Electrónico:	iolanda.dibernardo@imdea.org
Título:	2D materials for low-energy electronics

Resumen de la Memoria:

At my relatively young age, I already have almost a decade of experience in the study of surfaces and nanomaterials, with a strong focus on their electronic properties. My ultimate goal is leveraging on this knowledge to design the next generation of low-energy electronic components. Motivating this investigation is the fact that computing currently consumes about 8% of the world's electricity, and 25% of this is claimed by data centers. At the current rate of smart objects objects adoption —with no changes in computing technology —data centers alone could claim up to 13% of the world's electricity by 2030.

In my Ph.D. I learned the foundations of photoemission spectroscopy and ultra-high vacuum-based surface science. My thesis project focused on the study of nanoporous graphene sponges, but I took part in several side projects and started to develop a strong interest for the correlation between the morphological and electronic properties of materials in general. My stays abroad led me to establish international collaborations which ultimately resulted in my appointment at the Australian National University. There, I focused on bottom-up synthesis methods for porous nanomaterials and on their characterization, applying my unique insight to shed light on how the physical and electronic structure of these architectures translate into their catalytic/sensing performances. I then moved to Monash University, to direct my efforts towards the investigation of 2D topological materials. In this position I also supervised students and started being recognized as an international expert in my field, and kept building my international network to support my investigation, gaining skills as a scientist as well as a leader.

In the past 2 years also developed my own research line, focused on the functionalization of single layer transition metal dichalcogenides (TMDs) as active layers in a new prototype of magnetic random-access memories (MRAMs). Compared to Flash and Dynamic-RAMs, MRAMs are non-volatile (they keep storing information even when not powered), potentially unlocking significant power savings. High speed, theoretically unlimited endurance, and high energy efficiency make them even more attractive to embedded memory applications. MRAMs based on spin-orbit torque effects and using low-symmetry 2D materials as active layers have the potential to operate at even lower power, and I aim at finding the combination of materials in MRAM architectures (active layer, perpendicular magnetic anisotropic layer, etc.) that yields the highest efficiency.

The preliminary phases of this investigation have already been funded: in my Maria Zambrano fellowship I synthesized the TMD and candidate active layer TaTe2 (for the first time) as a monolayer. In my MSCA fellowship I will characterize its magnetic properties and find the best chemical functionalization to enhance its spin-orbit torque.

My future research, in collaboration industrial partners, will continue along this path, exploring chemically-functionalized TMDs as candidate active layers as well as synthesizing new materials with perpendicular magnetic anisotropy, to ultimately assemble an ultra-low power MRAM prototype.

Resumen del Currículum Vitae:

My research drive is the understanding and exploitation of physical phenomena arising from the spatial confinement of materials. To date, my approach resulted in publications with collaborators across 3 continents, funding for over 370.000 euros (excluding synchrotron grants value), over 570 citations, several international conference presentations (3 of which invited) and and an h-index of 14.

Throughout my career I have shown a great level of independence and capability to attract my own funding (Endeavour, Juan de la Cierva, Maria Zambrano, Marie-Curie Postdoctoral fellowships). I collaborated in the training of undergraduate students, mentored undergraduate and PhD students in Australia and I am currently supervising two PhD thesis. I collaborated with national and international groups, and as a key part of my professional life, I am committed to communicate the key ideas behind my research with the general public via a variety of outreach activities.

In my Ph.D. I investigated the impact of morphology and doping on the electronic properties of graphene sponges, and how to leverage this for alkali uptake. This study resulted in 2 first-author publications and research visits at the Queensland University of Technology (QUT) and the Australian National University (ANU), supported by competitive funding I applied for as principal investigator.

In 2018 I was appointed as research assistant at the ANU. My physics-based insight on the electronic properties of materials and expertise in photoemission spectroscopy resulted to contributions to 11 journal publications, 3 of which with collaborators outside my group. There I led two independent projects. The first, supported by a competitive synchrotron radiation measurement round, involved the chemical optimization of nanocatalysts for water splitting. For the second, I established an independent collaboration with QUT to test graphene-coated Cu nanoclusters as gas sensors. Both projects resulted in first author journal publications.

In 2019-2021 I was employed at the ARC Centre of Excellence in Future Low-Energy Electronics Technologies (FLEET) at the Monash University node (Melbourne), supported by a fellowship with a success rate <3%. There I managed an ultra-high vacuum lab, trained new users and co-supervised the Ph.D. and MSc students. My research focus was the synthesis of 2D topological insulators and their study via scanning tunnelling microscopy and spectroscopy. At the end of my contract I was offered an Adjunct Researcher position from Monash and an Associate Investigator position from FLEET, which I still hold. In this position, I was in the organizing committee for the AIP Summer Meeting conference.

In 2021 I was awarded a Juan de la Cierva fellowship, declined in favor of a Maria Zambrano fellowship. I carried out the latter during 2022 at Universitad Autonoma de Madrid, leading a project on transition metal dichalcogenides (TMDs). We successfully synthesized a new polymorphic phase of TaTe2 for the first time, and the results have been already presented in an international conference and are in an article currently under review.

In November 2022 I started a Marie Sklodowska-Curie Postdoctoral Fellowship at IMDEA Nanociencia (Madrid). My current focus is the functionalization of single layer TMDs for their application in magnetic random-access memories.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	GRANADOS DEL AGUILA, ANDRES
Referencia:	RYC2022-037107-I
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Título:	Collective Exciton Phenomena in Two-dimensional Semiconductors

Resumen de la Memoria:

My PhD focused on the optical properties of (II-VI) semiconductor colloidal nanocrystals (NCs) at low temperatures and under high magnetic fields (up to 30 T). Performing experiments in high fields, is technically very challenging. During my PhD, I have developed a unique set of experimental skills to successfully accomplish my experiments/projects. The international facility character of the HFML allowed me to work with top scientist across Europe. Through close collaboration, I significantly widen my knowledge in the photophysics of excitons in many semiconductors systems.

During my Principal Investigator period, I developed from scratch a new optoelectronic technique, which allows for the time- and energy-resolved spatial imaging of excitonic, electrical, spin and valley currents in monolayer materials. By employing the developed technique, I have firmly established the formation of collective states of short-lived excitons in TMDs monolayers, which has not theoretically predicted, neither experimentally observed earlier in any other material system. My results reveal the propagation of the collective phase over long-distances of at least 60 micrometres, fuelled by many-body exciton interactions, with an ultrafast velocity of $\approx 1.8 \times 10^7$ m/s (~6% speed of light). This work has established the direction for my future research as a Ramon y Cajal fellow.

Abstract The main goal of my research proposal (COLEXC2D) is to realize collective quantum phenomena of coupled electron-hole pairs (excitons) in two-dimensional semiconductors. These exotic phases of matter exhibit spectacular nonlinear properties such as superradiance, superfluidity, correlations and nonclassical transport effects. The collective exciton states propagation mimics the behaviour of either classical or quantum fluids, such as a Bose-Einstein condensates, depending on the interaction strength among excitons. COLEXC2D aims to unravel the physics behind ultra-fast exciton fluid formation in two-dimensional semiconductors and their nonclassical optical and transport properties. One of the challenges is the realization of a macroscopically ordered quantum fluid of short-lived excitons.

The second challenge of COLEXC2D is, by strategically designing novel devices, unravelling the physics underlying the directional control of an electrical current flowing in a two-dimensional semiconductor, simply by using light. From the physics point of view, this optical control is mediated by tailor making the interactions among charges, spins and valleys quantum degrees-of freedom with an exciton fluid. The final goal is the realization of a quantum exciton-valley Hall effect.

To summarize, the backbone of COLEXC2D lies on the realization, control and manipulation of collective exciton phases in two-dimensional semiconductors, with a focus on their dynamical, topological and non-linear optical and transport properties, and their interactions with other quantum degree-of-freedom, such as spins and valleys. From the application point of view, COLEXC2D will develop proof-of-concept light-mediated excitonic and valleytronic devices with unconventional functionalities. My research goals are significant problems of modern physics that are currently not well understood and if solved, they will make a big step towards the development of actualizable quantum optoelectronic technologies.

Resumen del Currículum Vitae:

Most important achievements have been obtained during my scientific career with my Ph.D. degree acquired at the High Magnetic Field Laboratory (HFML - Radboud University Nijmegen, The Netherlands) and my time as Principal Investigator during the Presidential Postdoctoral Fellowship (PPF) at the Nanyang Technological University (Singapore). My achievements have been obtained on emergent quantum materials that have provided me with a strong set of experimental skills and an outstanding knowledge on the physics of excitons. I have an international network with collaborations with outstanding groups in several countries like Italy, China, The Netherlands, Singapore, etc. At present, I am a Senior research fellow at the Institute for Functional Intelligent Materials at the National University of Singapore directed by the 2010 Nobel Prize in Physics Distinguished Prof. Kostya Novoselov.

I have co-authored 34 articles: 30 have been peer-reviewed, two are under revision and two under preparation. I have been cited >1128 times and have a h-index of 18, as per Google Scholar (https://scholar.google.com/citations?user=m7ZcjPkAAAAJ&hl=en). I am corresponding author in 4 publications (1 currently under review) and first or co-first author in 14 publications. Among them, 18 publications were without a main role of my PhD supervisor and 2 without any contribution from my post-doc or PhD supervisor. More than the 50% of my publications, with the ~30% of them in the first decile, are in high impact peer-review journals such as ACS-Nano (5x IF: 18.03), Nano Letters (5x IF: 12.26), Nature-Communications (1x IF: 17.69), Physical Review Letters (2x IF: 9.18), Science Advances (1x IF: 14.14), 2D-Materials (1x IF: 7.69), Nano Research (1x IF: 8.90), Science China Materials (1x IF: 8.27), Opto-electronic advances (1x IF: 8.92), Advanced Materials (1x IF: 32.09), Advanced Functional Materials (1x IF: 19.92) and Nature Nanotechnology (under review 1x IF: 39.21).

In between 2018 to 2021 I have been working as Principal Investigator. During that time, I wrote different projects that were awarded with ~400,000 Euros in funding (from European and Asian institutions). A budget that I independently managed. Recently, I wrote a project short listed as finalist for the Helmholtz Young Investigator Groups call of 2022 in Germany, awarded with 1.5 million of Euros. I have delivered 10 oral communications, 1 as an invited speaker and 2 of my posters were awarded in international conferences. I was part of the technical organization of one international conference (International Student Congress of Colloid and Interphase (European student conference July 2009)). Finally, I have experience daily supervising and mentoring students (4 PhDs) and 1 junior post-doc, teaching activities and independently managing projects and the budget. The thesis of one of the PhDs students I daily supervised was selected as the best PhD thesis in 2020 sponsored by the Material Research Society Singapore. I am a reviewer in

different journals such as Nature Communications, Nanoscale, Nano Letters, 2D Materials, ACS Applied Materials & Interface, Journal of Physics D: Condensed Matter, Advance Optical Materials and Small.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	BERGANZA EGUIARTE, EIDER
Referencia:	RYC2022-036514-I
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Título:	Fabricación y estudio de nano y microestructuras funcionales

Resumen de la Memoria:

After more than 8 years gathering experience in different fields of nanoscience, from the study of magnetization configurations of nanostructures, to the study of bioactive surfaces, the use of different Atomic Force Microscopy modes and learning different nanolithography techniques, I plan to follow two distinct research lines during my tenure-track: (1) related to the fundamental study of and 3-dimensional and curvature induced effects in nanomagnetic structures, this one being a high-risk high-gain research line, as well as the most different to the lines I have developed in my previous career stages. (2) Fabrication of 3D microstructures for magnetic actuation, as a follow up of my postdoctoral period research line on the functionalization of 3D structures, but with special emphasis on finding strategies to make them magnetic-field responsive.

1. 3D and curvature induced effects in magnetism

While shaping 2D magnetic nanostructures in different shapes (squared, circular, triangular etc.) has been long exploited, the study curvilinear effects is now gaining attention, as it allows to tune magnetic properties not only through magnetostatic but also through exchange and magneto-elastic interactions. Multiple curvilinear effects have been theoretically predicted curvature-induced domain wall (DW) pinning, DW oscillations, curvature-induced Dzaloshinskii-Moriya, etc., however, experimental work is still scarce, due to the constrains in nanofabrication that still constitute a bottleneck. This applies also to nanostructures with 3-dimensional shape, which are of high technological interest, as they would enormously increase the data storage capacity of current devices, enable 3D sensing and they present new potential for the design and manipulation of magnetic configurations for the study of new physical phenomena.

The most promising routes towards this aim are the use of Focus Ion Beam Induced Deposition (FEBID) or alternatively, the combination of 3D printing techniques to build membranes/molds with the chemical growth methods, such as electrodeposition, which ensure better control of the desired stoichiometry. This second method remains largely unexplored, despite its potential.

A second big challenge regarding experimental studies is related to the current state of the characterization techniques, which have been generally conceived for the study of planar nanostructures. Domain wall imaging techniques (e.g. MFM, X ray circular dichroism, Kerr effect Microscopy (MOKE)) need to be adjusted for the study of 3D nanostructures and in combination with micromagnetic simulations, new methods need to be explored to unravel information resulting from magnetic domain contrast in 3D nanostructures.

Harnessing all the experience acquired so far, I will work on the fabrication of 3D curved magnetic nano and microstructures and advance in methods for their characterzation. I plan to additionally follow my ongoing research-line related to the development of methods to grow 3D microstructures controllable with external magnetic fields for actuation.

Resumen del Currículum Vitae:

I am currently working as a Juan de la Cierva- Incorporación Postdoctoral Fellow at the Instituto de Ciencia de Materiales de Madrid (ICMM). My research interests have a marked multidisciplinary character: During my PhD, I studied magnetic domain configurations in nanostructures using Magnetic Force Microscopy complemented by micromagnetic simulations, under the supervision of Agustina Asenjo and Miriam Jaafar and mentoring of Oksana Chubykalo. I finished my PhD in 2018, obtaining the highest mark (Cum Laude).

Afterwards, I moved to Stuttgart (Germany) and worked in the automotive sector for a few months. During this time, I designed some scientific projects which I submitted in the form of proposals to highly competitive funding bodies. As a result, I was awarded an Alexander von Humboldt (AvH) scholarship (Sept 2019- Sept 2021) to join the group of Michael Hirtz at the Karlsruhe Institute of Technology (KIT). There, I had the chance to address a new challenge in my scientific career, namely, the nanofabrication and study of biologically active surfaces using Scanning Probe Lithography (SPL) techniques, namely Dip-Pen Nanolithography and Fluid Force Microscopy.

This experience provided me with both the scientific and leadership tools to secure an independent/senior postdoc position within the frame of the Young Investigator Group Preparation Program from KIT. The obtained funding (256 k€) has allowed me to hire a PhD student and start a new research line of my own, focused on the development of multifunctional 3D nano/microstructures. I combined SPL and Direct Laser Writing techniques, working in a highly reputed cleanroom facility (Center of Functional Nanostructures) gaining expertise in a cutting-edge 3D nanofabrication technique.

My experience abroad has expanded my perspective of the field, also enriched by my collaboration with n.able, a spin-off working in the automatization and multifunctional nanolithography. Currently, as part of my Juan de la Cierva fellowship, I am following a new direction that merges my two topics of interest: nanomagnetism and 3D lithography to develop magnetic field responsive 3D devices.

In around 4 years of postdoctoral experience, I have acquired ~650k€ to fund my research, which has enabled me to fund 100% of my postdoctoral phase through research fellowships, projects as well as seed funding calls. I have so far published 21 scientific papers (Q1 20/21) and 2 book chapters, 10 as first author, including high impact factor journals such as Small, ACS Nano, ACS Applied Materials and Interphases, collaborating with

internationally recognized experts in various fields (ALBA Synchrotron, CEMES-CNRS, University of Münster, IBA Heiligenstadt, etc.). My work has been presented in 57 communications to national and international conferences and I have myself presented 8 posters, 9 contributed talks and 3 invited talks.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	SPIRITO , DAVIDE
Referencia:	RYC2022-037186-I
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Título:	Integration of low-dimensional and hybrid materials in optoelectronic and thermoelectric devices

Resumen de la Memoria:

My research career shows my multidisciplinary profile, with a deep knowledge and expertise on electronic transport, optics, spectroscopy and nanofabrication, in the fields of Condensed Matter Physics and Materials Science. I have contributed to the study of devices based on low-dimensional materials, including two-dimensional electron gases hosted in heterostructures, colloidal semiconductors quantum dots (metal chalcogenides & perovskites), two-dimensional materials (graphene, WS2, perovskites) and semiconductor alloys. I have developed multifunctional hybrid devices based on the combination of nanomaterials of different nature, for applications in sensing, optoelectronics & thermoelectrics. I have hands-on experience in designing and assembling on-purpose, specialized setups for optical and electrical characterization, including synchronization via computer interfaces and software for automatic analysis of large datasets.

My strong scientific background with international experience, leading, technical, teaching and communication skills, is supported by 49 articles (36-Q1, 20-D1, 9 corresponding author), and being PI of a funded project (600k€) at my current institution coordinating 3 PhD students.

I started my research career carrying out my PhD (Università Roma Tre), working on electronic properties of 2D electron gases at cryogenic temperature under magnetic field. Then, as post-doc at CNR-Istituto Nanoscienze & Italian Institute of Technology, my research interests extended to optoelectronics with low-dimensional materials, building an expertise in nanofabrication and characterization (electrical transport, optical spectroscopy). I worked within the Graphene flagship to develop hybrid photodetectors with nanocrystals and graphene. I have always kept a strong interest in the study of materials properties, looking for innovative materials and working actively on spectroscopy and development of new device concepts.

Since 2019 I am an independent researcher at Leibniz-Institut für innovative Mikroelektronik (IHP), leading and developing my own research line on the SiGeSn material system (alloys, heterostructures and nanostructures for optoelectronics) for thermoelectrics, combining spectroscopy, electrical and scanning probe methods, and on CMOS-compatible materials for Photonics and Plasmonics. Here I propose an evolution of my current research line on thermoelectrics beyond group-IV materials, exploring alternative and promising materials (2D materials, hybrid metal halide perovskites and metal organic frameworks) to be integrated in multifunctional devices, with potential scientific and technological impact in various directions. These developments will regard energy harvesting, active heat control in microdevices, autonomous sensors and systems, within the EU Energy Research and Innovation Strategy. The proposed research will establish a database of well-characterized materials, combined with the fabrication of proof-of-concept functional devices. The following steps would be the integration into applications such as flexible thermo-optoelectronic devices.

The target of a thermoelectric power generator will add value to the project, and also the secondary outcomes in understanding charge and heat transport mechanisms, and other material properties, will position this research among the most relevant in material's innovation.

Resumen del Currículum Vitae:

I am a Scientist at the Leibniz-Institut für innovative Mikroelektronik (IHP) in Frankfurt/Oder (Germany), in the Materials Research department, leading a research on SiGeSn and low-dimensional materials for thermoelectrics. The goal is to obtain efficient thermoelectric devices at room temperature using materials compatible with CMOS technology. This activity explores materials properties combining spectroscopy, electrical and scanning probe methods, within an internal IHP funded project which I am leading and coordinating 3 PhD students. Moreover, I have a key role on the study of CMOS-compatible materials for Photonics (collaboration with U. Linz, FZ Jülich, U. Paris-Saclay and EU project FLASH) and Plasmonics for sensing (two German projects). These projects comprise my mid-to-long term scientific interests focused on the design and integration of innovative materials for devices, from optoelectronics to thermoelectrics, supported by my recent papers: ACS Appl. Energy Mater. 2021, 4, 7385; Adv. Opt. Mater. 2022, 10, 2201024 & Nano Lett. 2022, 22, 4153. Within these projects, I have co-supervised one Master thesis, one PhD student, two internship students. I give lectures on Spectroscopic Methods in Solid State Physics at Brandenburgische TU. I am responsible for the Raman and photoluminescence labs. I have productive and established international collaborators: Prof. R. Krahne (IIT), Prof. M. Virgilio (U. Pisa), Profs. L. Baldassarre & A. Polimeni (U. La Sapienza), Dr. A. L. Abdelhady (ŁUKASIEWICZ Research Network), Dr. B. Martín-García (CIC nanoGUNE), Prof. M. El Kurdi (U. Paris-Saclay), Prof. P.-H. Tan (Chinese Academy of Sciences), Dr. D. Buca (FZ Jülich).

Before this position, I started my career at Università Roma Tre, with a PhD thesis on the electronic properties of 2D electron gases at low temperature and high magnetic field. I continued with as post-doc at CNR-Istituto Nanoscienze (Pisa), to work on graphene for optoelectronics; there I gained expertise on nanofabrication. Then, I moved to the Italian Institute of Technology (Genoa), where I studied and fabricated devices based on low-dimensional systems (semiconductor nanocrystals, 2D materials). I demonstrated my leading and teamwork skills coordinating the research on hybrid photodetectors combining nanocrystals and graphene, in which I am 1st and corresponding author. As manager of the Optoelectronics lab and expert user of e-beam lithography, I trained 1 MSc, 7 PhD & 5 Post-docs for transport measurements, nanodevice fabrication & optoelectronic characterization. I collaborated with research groups in UK, USA, Spain & China, demonstrating remarkable organizational and coordination skills. I actively participated in outreach activities for dissemination among the schools and general public. I continue these activities and take care of gender dimension and equality in hiring and supporting the participation of female collaborators and junior scientists to activities. To sum up, I have authored 49 peer-reviewed papers (36-Q1 & 20-D1 source WoS): 13 as first and 9 as corresponding author, reaching a h-index 16 and >870 cites - source WoS. Results have been presented in internationally recognized conferences and supported 2 patents. I am reviewer of 15 international journals (14 reviews in 2022-WoS), as well as project evaluator for National Research Agencies inside ERA.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	GUILLEM MARTI, JORDI
Referencia:	RYC2022-038006-I
Correo Electrónico:	jordi.guillem.marti@upc.edu
Título:	Design of novel proteins inspired from the extracellular matrix as biomimetic coatings on biomaterials for regenerative medicine

Resumen de la Memoria:

My main research has been focused on the functionalization of biomaterials with molecules derived from the extracellular matrix (ECM) for their application in regenerative medicine. Specifically, these molecules are aimed at guiding cellular activation on biomaterials for bone regeneration in dental and orthopedic applications. To this end, I have designed recombinant fragments from fibronectin to stimulate both cell adhesion and differentiation into osteogenic lineage, and I am currently computationally designing de novo protein alternatives to the use of growth factors with the potential to be used in other regenerative applications.

I did my PhD in the in the Bioengineering and Cellular Interactions group of Vall Hebron Research Institute (VHIR), focused on the identification of cellular and molecular alterations during abdominal incisional hernia progression and their implications in hernia formation. For the first time, I described a link between a dysregulated inflammatory signaling and a dysregulated metabolism of the extracellular matrix (ECM) in patients with abdominal hernia, opening a new line of research. I had the opportunity to work in a multidisciplinary group that included biologists, biochemists, surgeons and engineers, expanding my knowledge on the different disciplines. I was extensively trained in cell culture and different molecular biology methods. This was my first interaction with the field of Biomaterials, learning physicochemical characterization methods.

I then joined the Biomaterials, Biomechanics and Tissue Engineering (BBT) group at the Universitat Politecnica de Catalunya (UPC), where I am a postdoctoral researcher. I have established my own research line here dedicated to the design of proteins inspired from the ECM and obtained by DNA recombinant methodologies for stimulating cellular adhesion and differentiation on biomaterials. I have recently obtained a Marie-Sklodowska Curie global fellowship (2019) for computationally design de novo proteins (Seattle, USA) with affinity to growth factor receptors, with the aim of substituting the clinical use of exogenous growth factors, and subsequently functionalize them on biomaterials for regenerative medicine (UPC, Spain). I have also been awarded with a Personal Investigador Doctor Junior (PDJ2014) and a Maria Zambrano (2022) fellowships.

I am the co-inventor of 1 patent (UPC) and 1 Record of Innovation (UW) and I have contributed to the BBT Technology Transfer group in project executions and several scientific-technical reports, interacting with companies such as Zanini, Klokner, Soadco, Avinent, AMES, Proclinic and Mimetis.

I have been Assistant Professor at the UPC (2015-2019, 2022-present) in Biology, Physiology and Biomaterials of the Degree in Biomedical Engineering. I have participated as evaluating committee in MSc and BSc project defenses at the UPC. I have divulgated my work presenting at courses of the Degree of Bioengineering at the Universitat Internacional de Catalunya giving also a course for attracting new students to the Biomaterials field (SummerUIC, 2018).

I have supervised and mentored PhD thesis (2+1 ongoing), exchange PhD (2), and MSc (2) and BSc students (7), some of which have received outstanding awards such as the Thesis in 4 minutes award (UPC) and the Gemma Rossell i Romero award.

Resumen del Currículum Vitae:

I studied Biochemistry (2005) and Biology (2011) at the Universitat de Barcelona (UB) and started my career at the Bioengineering and Cellular Interactions group of Vall Hebron Research Institute of the Universitat Autonoma of Barcelona (UAB), first as an undergraduate and then as PhD student. I obtained a Master in Biochemistry, Molecular Biology and Biomedicine (2009) at the UAB. I received the extraordinary thesis award for the best thesis at the UAB.

I am currently appointed as postdoctoral researcher at the Biomaterials, Biomechanics and Tissue Engineering (BBT) group at the Universitat Politecnica de Catalunya (UPC) under a Maria Zambrano fellowship. I joined the BBT group in 2010, and I was appointed as Visiting Assistant Professor at the University of Washington (UW, USA, Baker's lab, 2020-2021). My main scientific interests have been the design of protein fragments inspired from the ECM aimed at stimulating bone regeneration, leading my own research line at BBT. More recently, I am interested in computationally designing protein alternatives to the use of growth factors for regenerative medicine. I have acquired a profound knowledge on the synthesis and characterization of biomaterials at BBT, as well as recombinant protein design and characterization at Baker's lab that put me in an excellent position to tackle this challenge.

I have also collaborated with other members of the BBT group, co-authoring publications related to the interaction of cells with different types of biomaterials for tissue regeneration. I am author of 37 research publications in peer-reviewed journals, with an h-index of 17 (Web of Science) (19 in Google Scholar) and an i-10 of 25 (WOS) (30 in GS). 30% of my publications are as first or last author. Last and/or corresponding author in 4 articles. 78% of publications in Q1, 100% in Q1+Q2. >990 citations (WOS) (>1325 in GS). 35 papers without the PhD supervisor (94% of total).

I have participated in several international conferences, co-authoring posters and giving oral presentations (45 in total), and acted as co-chair (TERMIS-EU 2013, Turkey) and as organizing committee member (International Society for Ceramics in Medicine, 2014, Spain; Sociedad Ibérica de Biomecánica y Biomateriales, 2015, Spain). I have participated as team member in 17 research projects funded by public agencies in Spain. I have participated as team member in European projects (2) and obtained a Marie-Sklodowska Curie Individual Global Fellowship (2019, USA).

I maintain active international collaborations with several groups worldwide, as shown by the co-authorship of several papers (8). I am currently collaborating with Prof. Baker (UW, USA), Prof. Hinck and Prof. Roman (Pitt, USA), Prof. Jung (UW, USA) and Prof. Springer (Harvard Univ., USA) among others.

I have been awarded with a Personal Investigador Doctor Junior (PDJ2014), a Marie-Sklodowska Curie Global Fellowship (2019) and a Maria Zambrano (2022) fellowships. I have also received the award for the Best Scientific Publication of the year from the Henry Schein Foundation (2013), one of the most prestigious healthcare distributors. I am holder of the AQU accreditations for Lecturer (2017) and Research (2022) and the I3 Certificate (2022). This is the last call in which I can apply for the RyC fellowship. Reserve list in the previous RyC call.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	MORENO GUERRA, ADRIAN
Referencia:	RYC2022-035322-I
Correo Electrónico:	adrianmog90@gmail.com
Título:	Synthesis of advanced functional materials from renewable resources: A step forward to minimize their environmental impact.

Resumen de la Memoria:

I have developed my research activity first at Universitat Rovira i Virgili (Spain), as PhD candidate (2015-2019), University of Pennsylvania (USA), as visiting PhD student (2017-2018) and later at Stockholm University (Sweden) (2020-2022) as postdoctoral researcher in the field of polymer and material science. Currently, I am associate professor and postdoctoral researcher at Universitat Rovira i Virgili leading a new research line on the development of lignin-based smart materials for advanced applications.

I conceptually classify my research in three main topics, which I consider the most representative from my research career: (i) Development of stimuli-responsive amphiphilic polymers: beyond block copolymers, where I contributed to the development of smart polymeric nanoparticles for advanced biomedical applications such as chemotherapy. (ii) Development of environmentally-friendly aqueous biphasic reaction media for Cu(0)-catalyzed single-electron transfer living radical polymerization, where I contributed to the development of binary solvent mixtures (water/organic solvents) as green reaction media for control radical polymerization and the preparation of sophisticated macromolecular architectures for specific applications such as surfactants. (iii) Development of lignin-based materials, where I contributed to led and open new research lines that contributed to the development of smart and functional lignin-based materials and also lignin-based circular materials.

This research lines have not only translated into different publications in renowned multidisciplinary journals in the field of materials science and polymer chemistry, but also and more important served as the scientific base to obtain different funded projects in which I contributed in the writing and editing stages of the proposals. I am also co-applicant (co-IP) of another two funded Swedish proposals derived from my scientific output in the design of lignin-based circular materials and functionalization of lignin nanoparticles that raised more than 200.000 €

Remarkably, my research experience in lignin chemistry has served to build-up a scientific consortium that has derived in the application of a European project (HORIZON-JU-CBE-2022-R-01, proposal number: 101112221, total budget of 4.5 M € Work Package budget of 400.000 € in which I am co-leader) which is currently under evaluation. In addition, I am also part of another scientific consortium that is preparing the submission of a European project (HORIZON-EIC-2023-PATHFINDEROPEN-01, total budget 3.5 M €, Work Package of 500.000 € in which I will be the co-leader) for the upcoming month (7th March of 2023).

To date, I am co-author of 33 scientific publications (100% in Q1 and 60% in D1) in international peer-reviewed multidisciplinary journals in the field of polymer and material science with >600 citations (72% as first author and 19% as first and corresponding author) and 12 contributions to international conferences (54% oral presentations). In summary, the applicant has a unique expertise that combines a complete battery of experimental, theoretical and transversal scientific skillset portfolio, as proven by the long list of projects in which he has got involved and developed independently.

Resumen del Currículum Vitae:

After graduating in Chemistry from Universitat Rovira i Virgili (URV, Tarragona, Spain) in 2014, I completed the Master degree program Master in Synthesis, Catalysis and Molecular Design (URV-ICIQ) in 2015 and received the PhD degree from the URV in 2019 through a competitive FPI grant the field of polymer chemistry. My performance during my PhD studies was translated into 19 scientific indexed publications (16 as first author and 1 as first & corresponding author, 53% D1 and 47% Q1) in prestigious journals in the field of polymer science. During my PhD, I also enjoyed a stay as visiting PhD student (6 months) in the laboratory of Prof. Virgil Percec at University of Pennsylvania (UPenn, Philadelphia, USA). Remarkably, after obtaining the PhD degree with the distinction of "Europeus Doctor" and with the highest mark (excellent "cum laude"), I was also awarded with the first price for the best PhD thesis in polymer science granted by Grupo Especializado de Polímeros (GEP) from Real Sociedad Española de Química (RSEQ). Next, I moved to Stockholm University (SU, Stockholm, Sweden) to conduct my postdoctoral studies in material science. During my postdoctoral stage at Stockholm University, I led and opened new research lines that contributed to the development of advanced materials derived from lignin. My post-doctoral research there ultimately translated into 13 scientific indexed publications (4 as first & corresponding author and 2 as first author).

As an early-career researcher (PhD in December of 2019) I have an exceptional publication track record with: 32 research articles (100% in Q1 and 60% in D1) in international peer-reviewed multidisciplinary journals in the field of polymer and material science with >600 citations (72% as first author and 19% as first and corresponding author), 1 book chapter, 1 patent (pending of approval) and 12 contributions to international conferences (54% oral presentations). My research has been published in prestigious and high impact journals highlighting Nat. Commun., Angew. Chem. Int. Ed., Green Chem. Materials Horizons and Small.

In terms of internationalization and project leadership, I have attained 30 months of international research experience. During my posdoc in Stockholm university I was co-applicant (Co-PI) of two funded Swedish research proposals related to my research activities that have raised > 200.000 € Currently, I am also part of two scientific consortiums that have applied for two European projects (HORIZON-JU-CBE-2022-R-01, co-leader of work package with an associated budget of 400.000 € (HORIZON-EIC-2023-PATHFINDEROPEN-01, co-leader of work package with an associated budget of 500.000 €). In addition, I am also the PI of two science and technology transfer contracts with AIITIP that have raised 25.000 €

I have participated in outreach activities (Researcher's Night (H2O20) in Forskarfredag in 2021 and other dissemination activities addressed to undergraduate students. Additionally, I served as reviewer for different peer-review journal in the field of material (7 times). I have also been invited as Guest Editor in the open access journal Polymers (IF = 4.967, Q1). I combine my research activities with the supervision of undergraduate (3), visiting PhD students (1), and PhD students (2) as postdoctoral researcher. Currently, I am co-supervisor of one PhD student.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	ROJAS HERNÁNDEZ, ROCÍO
Referencia:	RYC2022-035688-I
Correo Electrónico:	rocio.rojas@taltech.ee
Título:	Boosting LUMinescence Efficiency in rare-earth and rare-earths free Nanostructured glass-ceramics and CERAMics (LUMENCERAM)

Resumen de la Memoria:

Dr. Rojas leads the Advance Functional Ceramic Materials Research line in the Innovative materials for industrial applications Research Group in Tallinn Univeristy of Technology. Her research career is unique with a highly multidisciplinary profile always at the frontier between Physics and Chemistry, understanding fundamental physical phenomena to be applied in material science. She has over 11 years of experience working in the glass-ceramic and ceramic research field, developing functional nanostructured powders, bulks, films, photonic crystal with a strong expertise in luminescent materials. This unique multidisciplinary approach is devoted to a career developed in 5 different countries (For more than 6 years) and at 5 different institutions which has supported my nomination as Senior Researcher and Principal Investigator at Tallinn University of Technology.

Her academic career started with a degree in Materials Engineering and Master's degree in Physics and Laser technologies from the University of Salamanca. Afterwards Rocio Rojas pursued her PhD in the development of long-lasting luminescence nanostructures at the Institute of Ceramic and Glass (ICV-CSIC) under the supervision od Prof. Jose F Fernandez Lozano.

During her first postdoctoral position, she led the research line of development of nanostructured phosphorescent security markers in collaboration with the company "Fábrica Nacional de Moneda y Timbre-Real Casa de la Moneda" at the ICV-CSIC; to expand the applicability of the Patent EP15382329.9 a fruitful achievement of her PhD; covering license cost for 21 countries.

Her second post-doc was conducted in the Glasses and Thin Films for Nanophotonics and Integrated Optics Group of Prof Rui M Almeida at the Instituto Superior Técnico, Portugal. As Post-Doctoral Researcher, her main contribution was the development of low-dimensionality ie. thin films to maximize the absorption by the synthesis of up and down converters for photovoltaic applications and solid state lighting.

Dr Rojas started to be an independent researcher from her early years as a post doc in the Estonia, firstly as a pioneer in luminescent ceramics in the frame of the Mobilitas Pluss Project (75.8k€).

Since, September 2020, Dr Rojas is the PI of the Starting Grant Project (PSG466 -443k€) supported by the Estonian Research Council (ETAG). This project serves her to launch her career in the electronic properties of optical materials, including the study of excitation, energy relaxation and luminescence processes in glass- ceramic and ceramic materials of various morphologies.Therefore, she has been able to get economic funding and she lead a team comprised of one PhD student, two Research Assistants and two international visiting PhD students.

Apart from her Research position in TalTech, she is the Director of the Engineering Sciences Doctoral Programme,she is in charge of 50 PhD students and the coordination of the Doctoral Programme.

She is a Team member and Technology development Material Advisor of 2 Projects with the European Space Agency in the Star-Up FACT Industries. Dr Rojas is in charge of the Additive manufacturing of improved ceramic packages research line.

In addition, she has achieved a large experience in synchrotron radiation facilities with 8 accepted projects as Principal Investigator in publish call projects at the ESRF and ALBA

Resumen del Currículum Vitae:

Dr. Rocio Rojas is a Senior Researcher and Director of the Engineering Sciences Doctoral Programme in Tallinn University of Technology (TalTech), Tallinn, Estonia. She establishes herself as independent researchers in Estonia in the frame of a Starting Grant funded by the Estonian Research Council. She has contributed with more than 34 publications (18 as 1st/corresponding author), h-index of 12 and 770+ citations. The impact of publications has been illustrated in journals such as ACS AM&I (x2), JMC C (2x), Renew. Sustain. Energy Rev, Carbon, Nanoscale, Inorg. Chem, JECS, M&D among others. She is also author of two Book Chapter and editor of a Elsevier Book. 8 successful proposals for Syncrotron beamtime in Large Research Facilities (7 as main proposer). She have supervised 3 PhD within Dora and Eramus + Programmes, 1 PhD Thesis in progress. She has been involved in more than 19 research projects (2 as principal investigator), being 5 of them Technology Transfer Projects with private companies such as ROCA SANITARIOS SA and FNMT-RCM. Dr. Rojas has been awarded with 6 Short stays Grants from Erasmus-Inter, JECS Trust, Ibero-America Santander Grant (Young Lecturers and Researcher) to execute collaborative research in cooperation with colleagues from CEMHTI, CNRS Orleans (M. Allix, Catherine Bessada), LIEC-DQ, UFScar, Brazil (Prof. Edson Leite) and University of Tartu (Vitaly Nagirnõi, M. Kim, M Brick and E. Feldbach).

The Estonian Research Council awarded her with two projects to launch her career and acquire a level of independence; a Starting Grant Project (443k €) and Mobilitas Pluss Grant (75.8k€) being the Principal Investigator.

She is Technology development Material Advisor of 2 Projects with the European Space Agency in the Star-Up FACT Industries OÜ.

Dr Rojas is founder of the Association of Spanish Scientists (ACEE) in Estonia. She has participated in events such as Researchers' Night Festival in 2021 and 2022 to popularize science in Estonia and Baltic states. She has participated in the organizing and scientific committee of several events such as Jornadas de Jóvenes Investigadores at the ICV (CSIC) and Modern Materials and Manufacturing Conference, Estonia, She has also participated as an Instructor on Luminescence in the frame of Erasmus+ Staff Training Mobility. She has received 2 Awards and/or distinctions by scientific dissemination (1 Press note in specialized media, 1 Selected Abstract- ChemInform).

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	BACHHUKA , AKASH
Referencia:	RYC2022-035783-I
Correo Electrónico:	akash.bachhuka@urv.cat
Título:	Organ-on-a-chip from tailor engineered bionanomaterials

Resumen de la Memoria:

My research has been focused on changing the surface properties of nanobiomaterials through highly innovative technology, such as Plasma enhanced Chemical Vapour Deposition (PECVDs) systems. I have successfully established my surface and interface lab at URV to fabricate surface coatings on both 2D and 3D surfaces. In the last ten years of my research career, I have studied cell surface contact using these tailor-engineered materials to improve cellular responses.

The proposed research builds on my significant experience and knowledge in this subject and is a continuation of my research trajectory. The research aims to develop a lab-on-a-chip artificial organ that uses nanobiomaterials to provide a considerable advantage over conventional technologies.

To achieve these research goals, I will combine my knowledge of surface-engineered nanobiomaterials with skills in PECVDs technology, lab-on-a-chip technology, tissue regeneration, and wound healing. The research will utilize precisely planned trials to maximize organ-on-a-chip performance and demonstrating its effectiveness in stimulating tissue regeneration and wound healing. The findings of this study can have a substantial impact, perhaps improving the quality of life for those who have impairment of tissue or wounds while also furthering research into nanobiomaterials, tissue regeneration, and wound healing.

It is critical to stress that the planned research represents both an extension of my research trajectory and a significant addition to the area. The development of an organ-on-a-chip has the potential to transform how these scientific difficulties can be tackled, making it an intriguing and important topic worth exploring.

Resumen del Currículum Vitae:

I did my Ph.D. in Material science and Engineering from UniSA, Australia (2016). During my Ph.D., I independently established materials and plasma coating labs. 2 PhDs and 1 postdoc (Prof. Vasilev's lab, UniSA, Australia) are now continuing my Ph.D. research work with industry partners (Corin Australia Pty Ltd ~$6M) for the translation of my scientific discoveries. After my Ph.D., I started working as a research assistant at the UoA, Australia, on an industrial project from Deep Exploration Technology (DET-CRC), Australia. I fabricated a prototype of a handheld device for sensing gold in Australian mines. This prototype could detect gold down to 80ppb in a laboratory environment.

My postdoctoral work at the CNBP at the UoA (Australia) was focused on fabricating MoF's-based chemical sensors and biosensors. I developed vacuum-assisted and atmospheric CVD systems during my postdoctoral studies. In 2020, I started working as a Research Fellow at UniSA. My interdisciplinary research projects investigated nanoengineered surfaces for several applications, ranging from medical implants to biosensors and chemical sensors.

In 2020, I moved to Spain by winning the "Juan de la Cierva incorporation (JDC)" fellowship. In my current role as Beatriu De Pinos (BP21), I am establishing my research group in surfaces and interfaces for applications ranging from medical implants to biosensors and chemical sensors.

Funding and Awards (>€500k)

BP21 (Ranked 9th in engineering, technology, and architecture) (2022)

JDC Incorporation (Ranked 6th in Material Science and Eng.) (2019)

UniSA Internal Grant (Lead PI)- 2021;

CNBP Internal Equipment Grant (Lead CI) – 2018;

2nd prize for the best pitch presentation at the ANN ECR Entrepreneurship Workshop- 2015.

Prestigious UP Scholarship for acquiring Ph.D. (2012-2015).

1st prize –3MT competition from UniSA, Australia, in 2014.

1 year as visiting international student for a Master's dissertation at the UniSA (2010- 2011).

Building Collaboration

I have been proactive in establishing and maintaining research collaborations with high-profile researchers across Germany, China, Liverpool, and Australia. These collaborations have resulted in more than 15 journal publications.

Professional Leadership

My professional leadership is exemplified by regular invitations to deliver keynote and invited lectures at international conferences and prestigious universities and institutes. I have given more than 10 such talks since 2015.

h Index

Total number of citations: >1200.

h- Index of 18 and i-10 Index of 25 as per google scholar citations.

Teaching and Supervision:

I am a passionate supervisor of undergraduate, HDR students, and postdocs. Current: 1 Ph.D. student (co-supervision), 2 postdocs (mentor). Past: 1 research assistant, 2 Ph.D. students, 8 Master's degree students, 2 Summer School students (at UniSA).

Editorial Activities and research evaluation

I have reviewed more than 50 manuscripts since 2016 for leading international publishing groups (average of 8 p.a.): including ACS, Wiley, Elsevier, MDPI, Heliyon, and RSC. I have also been a Guest Editor for Nanomaterials (IF 4.1), Frontiers in Chemistry (IF 4.2), and Coatings (IF 2.9).

Thesis and Grants Reviewed: 3 Ph.D. thesis and 2 Master's proposal reviews for Australian universities. 2 grants were reviewed for the Australian Dental Society.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	BLANCO FERNANDEZ, BARBARA
Referencia:	RYC2022-037421-I
Correo Electrónico:	barbara.blanco.fernandez@gmail.com
Título:	Biomaterials for developing drug delivery systems, imaging agents and cancer 3D in vitro models

Resumen de la Memoria:

I hold a PhD in Drug Research and Development (2014) and I did my postdoctoral studies at Michigan State University and the Institute for Bioengineering of Catalonia. Currently, I am part-time lecturer at USC. During my career, I have strengthened my international profile by carrying my research through secondments in the University of Nottingham and University of Aveiro and collaborating with scientists in different institutions. I have also demonstrated my leadership skills, managing R&D projects in the pharmaceutical industry for developing nanocarriers for therapeutics delivery, teaching at different universities (University of Barcelona, Universitat Politècnica de Catalunya, University of Santiago de Compostela), and supervising PhD, Master and Bachelor students. I have proven capacity of obtaining and managing funding, as I was the principal investigator of my Marie Sklodowska-Curie COFUND grant and I have obtained several fellowships (FPU). I was also involved in several research projects as researcher or project coordinator. My scientific achievements are backed up with the 23 scientific articles in peer-reviewed journals (Acta Biomaterialia, Advanced Science, ACS Applied Materials and Interfaces), 2 book chapter and 36 conference papers, being my h-index 14 (1053 citations). My excellence in research has been recognized with an Outstanding PhD Thesis Award and the 1st prize in Abstract Presentation at the 25th ISMRM Annual Meeting & Exhibition (2017).

My main research line is the development of materials to be used in biomedical applications such as drug delivery, imaging and cancer models to test therapeutics. In my PhD, first postdoc and in the Pharmaceutical Company, I focused on creating drug delivery systems and theragnostic agents using biomaterials based mainly in polysaccharides, lipids and synthetic polymers. In my second postdoc and now as part-time lecturer, I have focused on developing biomaterials that recreate the cancer extracellular matrix to fabricate bioinks, hydrogels and scaffolds to be used for cell therapy and 3D cancer models to test therapeutics and the development of nanocarriers for cardiac regeneration and wound healing. Therefore, my research vision is to bioengineer breast cancer models recreating the immune system to test nanoformulations.

Resumen del Currículum Vitae:

I hold my PhD in Drug Research and Development (2014) from the University of Santiago de Compostela (USC). In 2015, I started a Postdoctoral Research Associate position at the Molecular and Cellular Imaging Laboratory at Michigan State University (USA, 2015-2017). And in 2018, I started my second postdoc in the Biomaterials for Regenerative Therapies group at the Institute for Bioengineering of Catalonia through a Marie Sklodowska-Curie-COFUND grant, where I continued working as CIBER-BBN postdoc until October 2022. Currently, I am part-time lecturer at the Department of Pharmacology, Pharmacy and Pharmaceutical Technology at USC. I also have industrial experience, working in the Pharmaceutical Company Reig Jofre as scientist (2017-2018). I have also carried out a postdoc secondment at the University of Aveiro (Portugal, 2020), and a PhD secondment at the University of Nottingham (United Kingdom, 2013).

During my career, I have published 23 research articles and reviews in high impact peer-reviewed journals in the fields of Biomaterials and Drug Delivery (Acta Biomaterialia, Materials Science and Engineering C, ACS Applied Materials and Interfaces, Advanced Science, Carbohydrate Polymers), 1 book chapter and 36 abstracts in national and international conferences (TERMIS, ESB), where I have developed biomaterials for fabricating drug delivery systems, imaging carriers, and scaffolds for tissue engineering and cancer modelling. My h-index is 14 with 1053 citations. I am reviewer for international journals in Biomaterials and Drug Delivery (Acta Biomaterialia, Advance Science, International Journal of Biological Macromolecules, Materials Today Bio, Materials Today Communications) and am on the Review Board at Pharmaceutics, Review Editor on Biomaterials Science for Regenerative Therapies Frontiers and guess editor at Frontiers in Bioengineering and Biotechnolgy. I have also experience as reviewer in national and international projects. I have also proved that I am capable of obtaining and managing funding to support my research, as I was awarded a FPU fellowship (2010-2014) and I was the principial investigator of my Marie Sklodowska-Curie COFUND Fellowship (2018-2020). I have also been researcher in nine national research grants (" Proyectos de I+D+I Programacion Conjunta Internacional", " ACCIÓ - Generalitat de Catalunya: RIS3CAT LLAVOR3D"), and I am the coordinator at IBEC of a CIBERONC grant called "Strategic Actions: CIBERONC 2021, Towards Cancer Mission in Horizon Europe" (2021-2022).

During my career, I have been actively involved in the training of PhD, Masters and Undergraduate students at the University of Barcelona, Universitat Politècnica de Catalunya and the USC. In addition, I have taught theoretical and practical classes at these universities, as invited lecturer, teaching placement, lecturer and associated lecturer.

My excellence in research has been recognized by being awarded with an Outstanding PhD Thesis Award (USC, 2014-2015), 1st prize in the Abstract Presentation at the Molecular & Cellular Imaging Study Group at the 25th ISMRM Annual Meeting & Exhibition (Honolulu, 22-27/04/2017).

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	TURREN CRUZ, SILVER HAMILL
Referencia:	RYC2022-035578-I
Correo Electrónico:	silver.turren@gmail.com
Título:	Perovskite materials engineering for high efficiency optoelectronic devices

Resumen de la Memoria:

Silver-Hamill Turren-Cruz (1986, M. Sc. Renewable Energy 2014, Ph. D. Semiconductor devices 2018) on renewable energy and semiconductor devices with research projects on the development of new materials for non-toxic, high efficiencies, stable and low-cost PSCs devices from the Universidad Autónoma de Puebla (Mexico). He worked as research in short internship at Adolphe Merkle Institute in Switzerland, after he obtained a PhD degree in Semiconductors. He published more than 35 papers in international research journals, one in "Science" and "Energy and Environmental Science" as first author. He has 12 contributions (one as invited speaker) to international conferences. He has performed research stays at laboratories in Switzerland, Germany, Mexico and Spain. Recent research activity focused on non-toxic materials for perovskite solar cells, which is probably the hottest topic in developing new solar cells. He has the opportunity to conduct research at the Renewable Energy Institute of UNAM-Mexico, one of the most important institutions in Mexico on sustainable energy, and second at the Laboratory of Photomolecular Science- EPFL in Lausanne, Switzerland, a worldwide recognized institution. During both stays, he was able to learn different scientific techniques, but he also learned about different work cultures. In 2018, he moved to HZB, Germany, at the Young Investigator Group Active Materials and Interfaces for PSCs, where he worked as postdoctoral researcher on inorganic and Pb-free perovskites under real working conditions. At present, he is doing a post-doctorate at the GAS group since March 2021 under Juan de la Cierva-Formacion fellowship. His research at UJI has focused on nanostructured devices, transport and recombination properties, and the electrical characterization of photovoltaic, photovoltaics experimental and theoretical work. His research at UJI has focused on nanostructured devices, transport and recombination properties, and electrical characterization of photovoltaics, with both experimental and theoretical work. Recent research activity focuses on new concepts for photovoltaic conversion based on nanoscaled devices and semiconductor materials following two main lines: quantum dot solar cells with special attention to sensitized devices and lead, tin-lead and lead-free halide perovskite solar cells, the latter being particularly relevant among the community. He is also currently involved in the development of light-emitting devices (LEDs and light amplifiers) with these materials.

Resumen del Currículum Vitae:

Silver-Hamill Turren-Cruz is a researcher at Universitat Jaume I de Castelló (Spain). His research during his Ph.D. at the Universidad Autónoma de Puebla (Mexico) focused on the development of new materials for non-toxic, high efficiency, stable and low-cost perovskite solar cells. He developed perovskite-based devices in the internationally well-recognized laboratory of Prof. Michael Graetzel and Prof. Anders Hagfeldt in Switzerland, dedicated to the research fundamental understanding of the materials, interfaces and devices to improve their performance in terms of efficiency, stability and processability. After his Ph.D., he has worked at Adolphe Merkle Institute in Switzerland with Prof. Ullrich Steiner and Helmholtz-Zentrum Berlin in Germany with Prof. Antonio Abate. He has published more than 35 papers in prestigious peer-reviewed journals, including 1 in "Science" and 1 in "Energy and Environmental Science" as the first author, 1 book chapter and 3 papers as a corresponding author. He has 12 contributions (1 as an invited speaker) to international conferences and three participations in seminars for undergraduate students. He is PI in one H2020 project and an innovation program under the Marie Skłodowska-Curie Actions. He has been granted: a scholarship from the Mexican Government for an M. Sc., Ph.D. and a Postdoctoral fellowship abroad, a 'Juan de la Cierva Formacion' fellowship (Spain), Swiss Government Excellence Scholarships (Switzerland), Seal of excellent project proposal by Horizon Europe Marie Skłodowska-Curie Fellowships 2021, Environment, Sustainability and Energy Division Horizon Prize: John Jeyes Award, Royal Society of Chemistry and Mobility scholarship for the Valencian Community (BEST / 2022). He had the opportunity to carry out several research stays; first at the Renewable Energy Institute of UNAM-Mexico, one of the most important institutions in Mexico on sustainable energy; second at the Laboratory of Photomolecular Science-EPFL in Lausanne, Switzerland, a worldwide recognized institution and the last one on Institute for Chemical Research; and lastly at Kyoto University where they currently hold the world record on Sn-Pb perovskite devices. During their stay, he learned different scientific techniques and working cultures and established international collaborations with state-of-the-art laboratories around the world (Switzerland, Germany, Mexico, Spain and Japan). He serves as a reviewer for numerous scientific journals (Solar Energy Materials and Solar Cells; Science China Chemistry; Nanomaterials; Energies; Journal of Physical Chemistry Letters; ACS Applied Energy Materials, Nano Today) and is an evaluator for the assignment of the International Postdoctoral Exchange Program, National Council for Science and Technology of Mexico. He has participated in the training of young researchers: he has directed 1 bachelor's thesis, 3 master and 3 doctoral theses. Currently, he has 4 doctoral theses under his supervision, and he has taught Physics 1 and Physics classes at Universitat Jaume I, Spain. In 2018, he moved to HZB, Germany, at the Young Investigator Group Active Materials and Interfaces for PSCs, Since March 2021, he is doing a post-doctorate at the GAS group at Universidad Jaume I (Spain) under the Juan de la Cierva-Formacion fellowship.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	LONGO , GIULIA
Referencia:	RYC2022-036766-I
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Título:	Memoria G. Longo RyC2022

Resumen de la Memoria:

My research focuses on the preparation and characterization of semiconductor materials for optoelectronic applications. Specifically, I have a large experience with perovskite semiconductors, their photophysical behaviour, and their integration in light-emitting and photovoltaic devices. This expertise and the results collected throughout my career, allowed me to attract several collaborators, both academic and industrial, becoming an active member and a recognized expert of the perovskite scientific community. During my PhD I worked on lead-based perovskites, characterizing their luminescent properties and implementing them in light-emitting and photovoltaic devices. In parallel, I have developed innovative techniques for perovskites integration in devices. After finishing my PhD, I joined Prof. H. Snaith's group at the University of Oxford (UK). The group is a leading team in the research of perovskite photovoltaic materials, with Prof. Snaith being one of the most recognized experts of the field. During that postdoc, I started a new investigation line on lead-free perovskite for photovoltaic applications, which is still ongoing. This postdoc position gave me the possibility to start my independent research career and to improve my leadership and project-management skills through the coordination of students, the participation to international projects, directing collaborative projects with other UK universities and creating a network of collaborators with whom I am still working currently. My independence and leadership skills have consolidated and further expanded since I joined NU. I have carried on my research on perovskite materials for photovoltaics establishing the first investigation line on perovskite in the department besides participating to teaching activities.

As I progressed through my career, I have given more and more importance to knowledge-transfer activities, both as innovation development and as dissemination and outreach activity. As such, I have constantly increased the amount of interaction with industrial partners (with currently ongoing collaborations). On the other hand, I always considered important the scientific dissemination to the public, in particular to children, participating in outreach activities both giving scientific lectures to young people, and by organizing practical workshop on solar cells for primary school kids.

Throughout my career I have built a solid knowledge on semiconductor material synthesis and fundamental characterization techniques: thermal evaporation and solution deposition of thin films; structural and morphological analysis; several spectroscopic and microscopy techniques. Similarly, I created a strong expertise in device preparation and testing: OLED, LEEC and solar cells preparation; current-voltage scans; external quantum efficiency measurement of solar cells and light-emitting devices; stabilized power output analysis for solar cell stability assessment; electroluminescence spectroscopy; luminescence-voltage scans. Additionally, I am a skilled lecturer, with proven experience in the preparation, delivery and assessment of teaching content in University's programs. I am in fact a Fellow of the Advance HE, a member-led, sector-owned charity widely recognized in UK, that works with institutions and higher education across the world to improve higher education standards.

Resumen del Currículum Vitae:

After studying Industrial Chemistry at the University of Padua (Italy), I obtained my PhD at the University of Valencia in 2017 under the supervision of Prof. H. Bolink. In the main part of my thesis, I investigated perovskite materials, a new class of semiconductors with promising features for several cutting-edge technologies. Specifically, I worked on organic-inorganic lead halide perovskites (e.g. MAPbI3) and their implementation in light-emitting diodes (LEDs) and solar cells (SCs). The main points of focus of my studies were the understanding and control of the photo-physical properties of these materials and the development of innovative deposition routes for their device integration and optimization. Through my research I have contributed to the progress of the perovskite technology, not only unravelling fundamental aspects of these semiconductors, but also devising new technological paths for their use in concrete applications such as SCs and LEDs. After completion, I joined Prof. H. Snaith's group at the Physics Department of the University of Oxford (UK) as a postdoctoral research assistant. In this time I developed and led a new line of investigation on lead-free perovskites (such as the double perovskites Cs2AgBiBr6), assessing their opto-electronic properties and their suitability for SC applications. This postdoc position gave me the possibility to start my independent research career and to improve my leadership and project-management skills through the coordination of students, the participation to international projects, directing collaborative projects with other UK universities and creating a network of collaborators with whom I am still working currently.

In March 2020 I joined the Physics Department of Northumbria University (UK) as Assistant Professor. As such, I have several administrative and teaching duties, besides continuing my investigation line on lead-free perovskites (expanding my interest to chalcogenide perovskite, as BaZrS3) and other chalcogen-based solar cell materials (such as Sb2Se3). During my career, I published 23 scientific articles in peer-reviewed high-ranking journals (h-index of 17), I authored two patents (one granted and one currently under revision), I participated in more than 20 national and international conferences (with both posters and oral presentations and as invited speaker), and I organized a major virtual international conference (>100 attendees).

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	MONLLOR SATOCA, DAMIÁN
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Correo Electrónico:	damian.monllor@ua.es
Título:	Photoelectrochemistry with Nanomaterials: from Pollutant Degradation to Artificial Photosynthesis (PECNanomAP)

Resumen de la Memoria:

His research line spans through a 17-year career with 2 leave periods (i.e. paternity leaves in 2014 an 2017), and is related with the use of light with semiconductor materials (as electrodes or suspensions) to either induce the photosynthesis of useful reactants (fuels, such as hydrogen or methanol) or the photocatalytic degradation of noxious chemicals (pollutants, such as phenol of arsenic). In particular, the next issues have been tackled:

2004-2010 (PhD Student). He prepared nanostructured electrodes (made of random nanoparticles and oriented nanowires) of titanium dioxide and tungsten trioxide, and performed photoelectrochemical measurements with them; he studied prototypical photo(electro)catalytic reactions (e.g. photooxidation of water, methanol, formic acid, catechol, and phenol). Furthermore, he employed in situ vibrational spectroscopic techniques to acquire a microscopic perspective of the (reactive) interface, both under open-circuit or biased conditions. Finally, he studied different procedures to improve the photoelectrocatalytic performance of the electrodes, through bulk (i.e. reversible electrochemical doping) and surface modification (i.e. fluoride or aluminium (III) adsorption) of the nanostructured material.

2010-2012 (Junior Postdoc). He had a position as a researcher of a 10-year korean project dealing with artificial photosynthesis; in particular, he was involved in the study of the water photooxidation process with photoelectrodes. Simultaneously, he was involved in photo(electro)catalytic studies concerning the decontamination of wastewater (i.e. aqueous arsenic abatement), as well as the photoproduction of hydrogen with dual surface modified titanium dioxide.

2013-2015 (Tenure-track Senior Researcher). He was hired through an FP7 European project that dealt with the optimization of hydrogen production with visible-light active semiconductors (SOLAROGENIX), which eventually sought to produce hydrogen from sunlight and sea water. Besides, he also collaborated on an industrial project with "REPSOL, Inc.", a Spanish petrol an energy enterprise. During that time, he optimized synthetic procedures to obtain highly photoactive photoanodes, based on metal oxides.

2015-2019 (Tenured Lecturer). He had to develop from scratch a new research line on Photoelectrochemistry and Artificial Photosynthesis in the IQS-University Ramon Llull he was at the time. In 2017, he was able to secure a project from "La Caixa" as PI, which allowed him to purchase the first instruments for the lab and performing the first measurements with his directed BSc student, the results yielding a BSc thesis and a poster.

2019-2021 (Project Senior Researcher). He moved back to the University of Alicante, where he has been hired through an industrial private contract (with REPSOL and Enagas), and 2 public European H2020 projects (LIBERATE and FOTOH2). These projects dealt with the validation and scaling up of photoreactors, and the electrochemical valorization of lignin. In particular, he deals with the transformation of cyclohexanols (derived from reductive treatments of lignin) to adipic acid derivatives (key precursor in industrial polymerization processes).

2023 (Visiting Researcher, University of Edinburgh). He deals with mechanistic aspects of sono- and piezocatalysis of metal oxides, both $BaTiO_3$ and ZnO.

Resumen del Currículum Vitae:

Damián Monllor-Satoca holds a double BSc and MSc in Chemistry (University of Alicante) and a BSc Honours in Chemistry (University of Strathclyde, UK), the latter as an Erasmus Fellow (2003). He obtained a PhD in Materials Science (University of Alicante, 2010) as an FPI Fellow, with a 6-month stay in South Korea (POSTECH, 2007); he was awarded the "San Alberto Magno" Prize for the Best PhD Thesis in Chemical Research (RSEQ, 2010). Then, he moved back to South Korea as a junior postdoc (POSTECH, 2010-2012). In 2013, he was hired as a tenure-track researcher in Barcelona (IREC). In 2014, he obtained his Catalan accreditation as Associate Professor. In 2015, he won a "Juan de la Cierva Incorporación" contract; then, after a staged recruitment process, he gained a teaching-intensive Lecturer position at the IQS-University Ramon Llull (Barcelona). In 2019, he obtained his national accreditations as Assistant and Associate Professor, and his first "sexenio" (6-year research national recognition, CNEAI); then, he won a "Ramón y Cajal" contract (reserve candidate), and moved back to the University of Alicante as a senior researcher; later, he obtained his tenure-track I3 Certificate. In 2021, obtained his second "sexenio" (AVAP) and won a second "Ramón y Cajal" contract (reserve candidate).

He has published 40 articles, including 1 review, 1 feature article, 2 book chapters, and 3 proceedings; 30 indexed papers (94%) in Q1 and 16 (50%) in D1 journals; 25 papers as first and second author, 5 as corresponding and last author. His work has received 2,800+ citations, with 270+ citations per year (2018-2022); his h-factor is 24. Among others, he has published: 1 Nat. Commun. (JIF=17.694), 4 Energy Environ. Sci. (JIF=39.714), 2 Appl. Catal. B: Environ. (JIF=24.319), 1 J. Mater. Chem. A (JIF=14.511), 1 ACS Appl. Mater. Interf. (JIF=10.383), and 1 Chem. Commun. (JIF=6.065). He has 4 highly cited papers (top 1%) in Chemistry, Engineering, and Physics. He received the second award in the 2016 Postdoc-Mestrelab SusChem Spain Prize. He is an editorial board member of the journal Electrochem (MDPI). He has 46 conference contributions (41 international), with 18 oral and 6 invited talks and seminars (5 international).

He has participated in 24 projects: 17 Spanish (3 as PI), 4 Korean (as postdoc), 1 European FP7 (as researcher and project deputy manager), and 2 European H2020 (as researcher). He submitted an ERC Starting Grant proposal (2017), and 2 Spanish "Retos JIN" proposals (2018, 2020). He took part

on a European COST network, co-organizing its 2010 meeting, and attended to an invited European EERA workshop (2013). He has participated in 2 industrial transfer contracts, one of them resulting in 1 international patent. He serves as project referee for the Colombian Observatory of Science and Technology (OCyT), the Agency of Spanish Innovation Certification (ACIE), and the European Commission (H2020 and Horizon Europe programs). He has supervised and directed 20 researchers (1 BSc, 6 MSc and 9 PhD students; 3 postdocs, and 1 visiting researcher). He is co-directing 1 MSc and 2 PhD students. He has participated in 39 viva committees (13 BSc, 14 MSc, and 12 PhD). He has 1,700+ hours of university teaching experience.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	VERDE SESTO, MARÍA ESTER
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Título:	Development of innnovative functional polymeric materials. Design and synthesis of hydrogenated/deuterated "smart" polymers and single chain nanoparticles

Resumen de la Memoria:

My research has pursued the design, synthesis and characterization of functional polymeric materials (porous organic polymers, mechanoresponsive polymers, poly(ionic liquid)s, polyurethanes, single chain polymeric nanoparticles and deuterated polymers for a wide range of areas such as catalysis, energy or biomedical applications and to study their dynamic properties by neutron scattering techniques.

This research has required a multidisciplinary effort as well as scientific developments in a number of research areas, which have constituted the sub-lines I have addressed throughout my career. I have developed a strong multidisciplinary base of skills and experiences by working in different well-established research groups, which are world-recognized in their respective scientific areas. As I mentioned in my cv-summary, these include:

1. Development of novel porous organic polymers as supports for catalysts (ICTP/CSIC and ICMM/CSIC, 2010-2014). I was working in the development of novel porous organic polymers as supports for catalysts, getting new heterogeneous catalysts. I designed and prepared polyimines, polyamides and polyaromatic frameworks as well as some organocatalysts compounds to be supported in these materials. Moeover, I studied their catalytic activity in several reactions, getting promising results in cascade reactions (11 papers, 1 magazine paper-Revista de Plásticos Modernos).

2. Design and synthesis of mechano-responsive polymers (Adolphe Merkle Institute, Switzerland, 2015-2016). I participated in various projects focused on Mechanochemistry. Particularly, I developed new mechano-responsive polymers with different properties (e.g. Fluorescent) and I studied their special behaviour using advanced techniques, such as ultrasounds (8 papers).

3. Preparation of innovative ionic liquid polymers and polyurethanes (POLYMAT, 2017-2018). I was particularly involved in two projects: one focused on the preparation of poly(ionic liquid)s for energy and catalysis applications and the other, focused on the preparation of polyurethanes using organocatalysts for environmental applications (2 papers).

4. Development of polymeric single chain nanoparticles (SCNPs) for catalysis and drug delivery (Materials Physics Center-MPC, 2019-present). Currently, my research is focused on the design and synthesis of innovative polymeric single chain nanoparticles. In particular, I am developing new stimuli-responsive SCNPs for biomedical applications, metallic-SCNPs for catalysis applications as well as highly polar SCNPs for energy storage applications in super-capacitors (10 papers, 1 magazine paper-Revista de Plásticos Modernos).

5. Design and synthesis of totally/partially deuterated polymers for neutron scattering studies (MPC, 2019-present). In the last years, I have intended to draw on my polymer synthesis and materials-processing background to further develop novel classes of deuterated polymers for a better understanding of their structural and dynamical behaviour using neutron scattering techniques (4 papers).

6. Current and long-term research lines-IKERBASQUE research fellow at MPC: in October 2022, I was awarded with a prestigious IKERBASQUE research fellow (co-financed by MPC) to develop my own research lines: 1) Design and synthesis of "smart" SCNPs and 2) Design and synthesis of partially/fully deuterated polymers.

Resumen del Currículum Vitae:

My research interests are focused on the design and synthesis of partially/fully deuterated "smart" polymers and Single Chain Nanoparticles (SCNPs) for catalysis, biomedical and energy applications. With respect to scientific-technical contributions, during my PhD (ICTP/CSIC, 2010-2014, supervisor: Dr. Maya), my research line was focused on the development of Porous Organic Polymers (POPs) as supports for catalysts, establishing a new research line in the group within is to this day active (Consolider2009-Prof. Corma). Particularly, I closely collaborated with Dr. Iglesias at ICMM/CSIC to study the catalytic activity of my materials. This collaboration was extended for a year during which I continued working as postdoctoral researcher in her group. My PhD work was pioneer in this field, providing a new platform for designing recyclable porous organic catalysts with different functionalities to catalyze many reactions. Currently, I continue collaborating with the Dr. Maya and Dr. Iglesias, exploring new polymeric systems as catalysts to obtain biodiesel (project funded by Diputación Foral de Gipuzkoa). Motivated to explore new functional materials, I moved to Adolphe Merkle Institute (2015, Switzerland) to work as postdoctoral researcher (Prof. Weder).in the field of Mechanoresponsive Polymers (ERC Advanced, NCCR Grant-Swiss foundation). After 8 months, I promoted to senior researcher, establishing my own research lines based on mehanochromic fluorescent and metallocene mechanoresponsive polymers. During this stage, I also participated in discussions with Pirelli (industry partner) to develop a project focused on the design of "new tires". There, I also mentored 2 undergraduate and 3 PhD students. This topic is one of the subject in which I have acquired greater international recognition getting an invitation to participate in the "Mechanochromic Polymers" special issue of Macromolecular Rapid Communications. Looking to improve my knowledge about functional polymers, I moved to San Sebastián to work as postdoctoral researcher at POLYMAT (Prof. Mecerreyes) for developing innovative ionic liquid polymers (ERC Starting) and polyurethanes using organocatalysts (Dr. Sardón). During this time, I participated on the managing and writing of a RISE and an ELKARTEK projects which were granted. In 2019, I started working as postdoctoral researcher in the field of SCNPs in the Polymers&Soft Matter Group (PSMG, Prof. Pomposo) at the Materials Physics Center (MPC, San Sebastián). In October 2022, I was awarded with a prestigious IKERBASQUE research fellow (co-financed by MPC) as probe of my increasing research independence, to conduct my own and independent research line on "deuterated smart polymers". I have retrieved funds of >475K€ in national competitive calls (Diputación Foral de Gipuzkoa, MICINN/AIE–TED2021). I am also research team member of 2 projects of the PSMG. I already co-supervised 4 master and 3 graduate students. Currently, I am involved in the supervision of 3 PhD and 1 master students. I actively participating in outreach activities such as Women in Science or Amona's power (2019-present). From 2019, I am member of the Gender Equality Committee of MPC. Moreover, I have contributed with 34 scientific documents, most of which published in high-quality scientific journals-Q1, in the main journals of the polymer and soft matter community.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	GÓMEZ GENER, LLUÍS
Referencia:	RYC2022-037206-I
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Título:	Perturbations of the carbon cycle in high-mountain watersheds under a changing climate

Resumen de la Memoria:

Personal statement: I am a postdoctoral researcher at the Centre for Ecological Research and Forestry Applications (CREAF, Spain). Using a cross-disciplinary approach saddled between landscape ecology, watershed hydrology, and ecosystem biogeochemistry I investigate how climate change alters the delivery, movement, and transformations of elemental resources (including water, carbon, and nitrogen) across different temporal scales in fluvial networks.

Contributions to science: My initial studies as a Ph.D. student corroborated the hypothesis that dry rivers during droughts are "reactive centers" mineralizing and evading large quantities of carbon gases to the atmosphere. After completing my PhD, I was fascinated by the potential of environmental sensors to improve the current understanding of the mechanisms driving the transformations of carbon in watersheds. By deploying high-frequency sensors covering spatial gradients, I identified events and areas that exert a disproportionate influence on the movement of carbon across Boreal and Arctic drainage systems. The research I carried out over the past 5 years in the Alps and the Pyrenees high-mountains has enabled me to expand this regionally biased notion and contribute to a preliminary understanding of the significance of remote freshwater to the broader C cycle. The main research lines I carried out include: (i) the impact of intermittent hydrological regimes on catchment biogeochemical cycles and its implications for regional and global carbon budgets, (ii) the present and future of the carbon cycle in the world's most remote watersheds, and (iii) the design and implementation of novel techniques (e.g. environmental sensors) for measuring real-time aquatic and terrestrial ecosystem processes.

Career goal: My career goal is to lead an innovative research group dedicated to studying the vulnerability of high-mountain biogeochemical cycles and water resources in the face of climate change. In doing so, I expect to generate new insights into the biogeochemical significance of headwater ecosystems draining remote landscapes. My multidisciplinary background and knowledge-base will be crucial when applying for international projects and will position me well for my path toward independence in the near future. My PhD training with well-known biogeochemist and freshwater ecologists in Spain and my five years of postdoctoral training in outstanding international research institutions, including the University of Umea and the École Polytechnique Fédérale de Lausanne, make me an excellent candidate to lead the future generation of research leaders in Spain.

Resumen del Currículum Vitae:

Education and current position: I hold a BSc in Chemistry (2010) and a MSc in Water Science (2012) from the Rovira i Virgili University and the University of Girona, respectively. In 2017, I received a PhD in Ecology under the supervision of Dr. Obrador and Dr. von Schiller at the University of Barcelona. Since 2017, I have conducted my postdoctoral research supported by three competitive fellowships in highly recognized research groups for their contributions to the field of freshwater ecology and biogeochemistry. The first one (2017-2018) at the University of Umeå (Sweden), at Dr, Ryan Sponseller group. The second one (2019 - 2020) in the prestigious École Polytechnique Fédérale de Lausanne (Switzerland), at Dr. Battin group. The third one (April – Nov. 2021) in the Centro de Estudios Avanzados de Blanes, at the Integrative Freshwater Ecology, mentored by Dr. Lluís Camarero. Nowadays, I hold a La Caixa Postdoctoral Junior Leader fellowship to perform independent research in the Ecological and Forestry Applications Research Centre.

Research and leadership: My research activities have resulted in a total of 40 publications, including research articles and chapters in key books in my field. In addition, I have 4 manuscripts under review, and 11 manuscripts in preparation. Of my published articles, 33 are published in some of the most influential SCI journals in my field (e.g. Nature (1), Nature Geoscience (2), Nature Communications (2), Earth-Science Reviews (2), Global Change Biology (2), Global Biogeochemical Cycles (3), Limnology and Oceanography (5)). My work has been cited ~1200 times (h-index = 22). I am the first author or shared first author in 8 of my SCI-indexed publications and second or senior author in another 5. I have presented >50 works at national and international conferences and seminars, including 34 oral presentations (12 as first author and 9 as invited speaker) and 2 invited lectures. My regular participation and session organization in international meetings have also fostered my international visibility in the scientific community. Triggered by my aim of combining observational, experimental, and numerical methods, my research has become highly collaborative (>100 different co-authors), including scientists from different disciplines (e.g., biogeochemistry, ecology, hydrology, glaciology, microbiology) and international distribution (>25 countries). Moreover, this internationalization has provided me with the necessary skills to become an independent young scientist. As an example, I have been part of 7 international collaborative projects or networks (currently co-leading two), from which, to date, derived in >10 publications. I have shown myself capable of securing extramural funding from a diverse and rich portfolio of funding agencies, including funding as a PI from the Spanish Research Agency (AEI), European Commission through the prestigious "La Caixa Junior Leader Postdoctoral Fellowship – Incoming".

Teaching: I have been actively involved in teaching, training, and mentoring activities in Spain, Switzerland, and Sweden, including lecturing at the University of Barcelona (2015-2016) and the prestigious École Polytechnique Fédérale de Lausanne (2019-2020). I have also mentored junior lab members and supervised the scientific work of 2 PhD, 4 MSc and 5 BSc students.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PINO IBÁÑEZ, JUAN SEVERINO
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Título:	Integrated continent-ocean-atmosphere carbon biogeochemistry in a changing world

Resumen de la Memoria:

Over the past two decades, marine biogeochemistry has emerged as a key field of research to provide solutions to current threats to coastal ecosystems. Indeed, major questions about coastal ecosystem functioning and resilience in face of current anthropogenic and climate pressures and consequent sea level rise need holistic approaches involving the circulation of elements across the continent-sea-atmosphere continuum to be answered. Current trends observed in the open ocean are not directly applicable to coastal zones as continent-sea interactions strongly determines the circulation of elements that support coastal goods and services. In fact, our progressive understanding of the complexity of these interactions reveals that the circulation of elements in the coastal zone is largely unresolved.

Thus, my research is oriented towards a mechanistic understanding of coastal ecosystems functioning according to three central lines, namely assessment of (1) subsurface transport of terrestrial material into coastal ecosystems; (2) transport and reactivity of biogeochemically active solutes in the sandy, nearshore environment; and (3) terrestrial control over the coastal carbon circulation, coastal acidification processes and greenhouse gas emissions to the atmosphere. Together, these research lines combine into my central research question: how will evolve the resilience of coastal ecosystems to changes induced by biological activity, anthropogenic pressure, climate change and consequent sea-level rise? The answers to this central research question are fundamental for the sustained socio-economic development of coastal areas.

International, multidisciplinary, collaborative and committed with scientific excellence are the adjectives that better define my research career. Through a international collaboration network based on my intense research mobility, I conduct research that cut across traditional boundaries between geochemistry, marine ecology, microbiology, hydrology and the physics of fluids underpinning transport phenomena. Focusing on underexplored coastal hotspots of Carbon circulation, I put forward innovative solutions to environmental problems contributing to reduce uncertainties and predict the response of coastal ecosystems to current global threats.

Resumen del Currículum Vitae:

I focus my research on one of the least understood aspects of coastal ecosystem functioning: the carbon biogeochemistry of the sediment-water-atmosphere continuum and its feedback mechanisms with the cycling of other elements such as nitrogen and oxygen. I concentrate my attention on coastal biogeochemical hotspots aiming to understand marine functional resilience to anthropogenic pressure, climate change and biological activity. From an early stage, I showed the capacity of identifying research questions and designing novel approaches to study underexplored environments. After securing competitive funding for my PhD studies, I developed state-of-the-art analytical, experimental and modelling techniques that permitted me to discover the seepage of nitrate-polluted groundwater to the Ria Formosa lagoon, the main, yet unknown nutrient source to the largest lagoon of Portugal.

After further deepening my understanding of benthic biogeochemistry through a Marie Skłodowska-Curie contract in Greece, in 2014, I decided to move the motivation of my research from the sediment-water to the water-atmosphere interface. My medium-term research goal was to gain the skills to perform integrative whole-ecosystem function studies including the sediment-water-atmosphere continuum. Thus, I moved to Brazil and applied a combination of remote-sensing, big data techniques and oceanographic observations to elucidate the impact of land-sea interactions, biological activity and climate change over sea-air CO_2 fluxes in the tropical Atlantic.

As a measure of research maturity, in 2017 I obtained funding to develop the Marie Skłodowska-Curie SUBACID project (255.000€) focused on the quantification of submarine groundwater discharge (SGD) and its impact over coastal carbon processes. Here, I put together the skills previously gathered thus fulfilling my medium-term research goal. Based in Ireland, I performed the first quantification of SGD in the Spanish Atlantic arch to date. Currently, I continue developing this novel research line in the Spanish Atlantic coast through my supervision of junior researchers, my participation in research projects and my lead of the UNDERGROUND project aiming to develop new strategies for the identification of SGD and its inclusion in coastal management policies.

I have worked in 5 countries with independent research groups, participating in multinational research projects (18) and establishing collaborations with leading researchers that last until today. I have always leaded research resulting in manuscripts published as first author (14) and in highly contributive positions (12). My indexed papers (35) have been published in leading journals. I have also published 8 international datasets, 2 book chapters and participated in 21 international conferences and I am part of international research networks of excellence.

I supervised 3 Leonardo da Vinci students, 4 master students (2 international students from UFPE, Brazil) and a FPU PhD student (2021-2025). I am reviewer for 19 leading international journals and for the German Science Foundation. I am member of the editorial board of the journals Frontiers in Marine Science, Frontiers in Earth Science and Frontiers in Chemistry. I have also a strong commitment with community outreach, leading a large citizen science strategy (Hidroescola) involving 450 students during 2 years.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	MORENO CHAMARRO, EDUARDO
Referencia:	RYC2022-035861-I
Correo Electrónico:	emchamarro@gmail.com
Título:	Simulating the Gulf Stream and its global climatic impacts in pioneering climate models

Resumen de la Memoria:

My research is directed at understanding the Atlantic Ocean and its influence on the global climate, with a particular focus on the North Atlantic and Europe. Through a combination of global climate models and observations, I study the physical mechanisms driving climate variability and change on a wide range of spatial-temporal scales.

My PhD at the Max Planck Institute for Meteorology proved that a weakening of the North Atlantic subpolar gyre alone explains key characteristics of the European cooling during the Little Ice Age. Using Earth system model simulations and proxies, we provided a novel and comprehensive dynamical framework that questioned previous theories relying on the North Atlantic Oscillation or the Atlantic overturning circulation. Thanks to the postdoc at the Massachusetts Institute of Technology, I expanded my expertise by exploring the North Atlantic's influence on the tropical climate and Southern Ocean in a glacial and present-day climate. Using a multifaceted approach, we analyzed sensitivity simulations generated with realistic and idealized climate models and searched for comparable signals in observations and proxies. Our research highlighted the role of the Hadley Circulation and the tropical ocean circulation in propagating North Atlantic warming into the tropical Pacific and Southern Ocean. Since 2018, at the Barcelona Supercomputing Center, not only have I expanded my research background, studying present-day and future climate in the Atlantic Ocean and their implications for society, but my experience in High Performance Computing, funding application, project management, and mentoring. I first addressed the influence of increased model resolution on climate change and variability in two European H2020 projects, APPLICATE and PRIMAVERA. Our work provided recommendations for later model developments in CMIP6, for which I also contributed to model tuning and the production of the simulations. I later worked in the PARAMOUR project and studied the impact of ongoing and future Greenland and Antarctic melting on the global oceanic circulation. For the project, I developed a new tool to force the in-house climate model, EC-Earth, with continental meltwater; this tool can now be used by the whole community in future projects. In the past two years, my research has focused on the influence of the ocean mesoscale on the North Atlantic climate. We first studied the sensitivity to model resolution of future change in European precipitation using the first climate projections generated with an eddy-resolving global model. Motivated by our results, we gained funding in 2021 for STREAM, a 3-year project to explore the role of resolving the mesoscale in shaping present and future climate of the North Atlantic and Europe, and in which I am the co-PI. My research plan for the next years will build upon my expertise in the Atlantic Ocean, its influence on the European climate, and advanced climate modeling to further our understanding of the future changes of the Gulf Stream and the impacts on the European climate, leveraging the latest advances in climate science and modeling.

Resumen del Currículum Vitae:

I have established a solid career in climate science at world leading research centers: PhD at the Max Planck Institute for Meteorology (Germany); Postdoctoral Associate at the Massachusetts Institute of Technology (USA); and, currently, Research Scientist at the Barcelona Supercomputing Center (BSC; Spain).

I have contributed to 1 national (USA), and 5 international projects, including 3 European Horizon 2020 and Horizon Europe projects, increasing my leadership role from researcher to task and work package leader. Currently, I am the co-PI of STREAM, a 3-year project funded in 2021 by the Spain Ministry of Science and Innovation to study the impact of the ocean mesoscale on the Atlantic and European climate. I have contributed to the proposals of three European projects, helping secure funding for about 5M €for the BSC.

Some of my research successes include 26 peer-reviewed publications (9 as the leading author, and 7 in high-impact journals), and 1 book chapter. My research had a clear impact, with more than 650 citations and a h-index of 14 (Google Scholar). My intense international activity includes over 30 contributions to international scientific forums, including, for example, the general assemblies of the European Geoscience Union and the American Geoscientific Union; the international community, in turn, recognizes me as an expert in my field, trusting me, for instance, to co-organize three review papers, write a News and Views article for Nature Climate Change, and review articles for 10 international journals, including Nature journals, an American National Science Foundation proposal, and Chapter 2 in the 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) of the United Nations. I also frequently engaged in outreach activities.

In addition to my research position, I am a part-time Assistant Lecturer at the Polytechnic University of Catalonia. I supervised a master student from the Madrid Complutense University in 2019 and, currently, I supervise a postdoctoral scientist and a PhD student via a FPI fellowship as part of the STREAM project.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	YADAV , ASHEESH KUMAR
Referencia:	RYC2022-036662-I
Correo Electrónico:	asheesh.yadav@gmail.com
Título:	Doctor

Resumen de la Memoria:

My research aims at the development of a low-cost, energy-neutral, resource recovery-based process for treating water and wastewater. During my research and teaching career, I gained significant experience in the domain of my work. I have contributed significantly to the domain of biological and microbial electrochemical technology-based wastewater treatment. I am an innovator of a new field of hybrid technology in the form of microbial fuel cell integrated constructed wetlands (CW-MFC). The said hybrid technology is a faster version of constructed wetlands with the additional advantage of bioelectricity generation and other resource recovery options. The said development upset long-held thinking that constructed wetlands is a slow treatment process. Instead, I showed more firmly that there is a possibility of developing high-rate constructed wetlands (and other biological process-based technology) individually or along with other resource recovery applications.In my approach of research at a basic level, I am studying microbial extracellular electron transfer to and from the microbe and conductive materials like graphite or low-grade coal or minerals, or modified materials (or other solid electron donors/acceptors). A better understanding of extracellular electron transfer would lead to the further development of advanced anaerobic processes for advanced low-cost sanitation and wastewater treatment systems along with resource recovery and will also broaden our understanding of microbial redox reactions in many natural environmental settings. I envision establishing research setting to develop a package based on the integrated biochemical process for recovering the resources during wastewater treatment and other environmental applications at the lowest possible cost.

Resumen del Currículum Vitae:

I am interested in developing resource recovery-based, low-cost, and energy-neutral processes for the treatment of water and wastewater and other environmental application. I have significant research and teaching experience through my regular position in India, previous postdoctoral positions at Princeton University, Princeton, USA, and current as a Marie Curie Fellow at Rey Juan Carlos University, Spain, I have my independent research group, 25 master's degree theses (TFM), and one Ph.D. (sole supervisor) completed under my supervision and five Ph.D. students are still pursuing under my supervision. I have published 96 scientific articles in journals, books, and conferences. I am the innovator of a new domain of hybrid technology in the form of microbial fuel cell integrated constructed wetlands (CW-MFC). I have had multiple international collaborations and published 20 research papers with international collaboration spreading in eight countries. I am the corresponding author of 23 research articles and 18 book chapters. I also work as an associate editor of an international journal and acted as a guest editor in an international journal. I have filed four patents and edited one book with Elsevier publication. I am the principal project leader of eight research projects, worked as CO- principal project leader in other three projects, and led two interactional projects as a principal investigator which were approved through international competitions. I edited 1 book with Elsevier publication and filed four patents, and one of them is already published. My h-index is 27 with more than 2600 citations. I got numerous awards including Marie Curie Fellowship, Spain; Boyscast Fellowship at Princeton University, USA, Indo-American Research Professorship at Princeton University, USA (American Society of Microbiology); Four times winner of the Erasmus Mundus Scholar Awards for teaching and research in universities in Germany, Poland, Sweden, and Portugal; Winner of VLIR scholarships of Belgium; and Nuffic fellowship of the Netherlands. Besides this, I am also working as an adjunct senior lecturer at the University of Tasmania, Australia.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PÉREZ CARMONA, CARLOS
Referencia:	RYC2022-038092-I
Correo Electrónico:	perezcarmonacarlos@gmail.com
Título:	Macroecology of functional diversity

Resumen de la Memoria:

I am a community ecologist focused on understanding the effects of global change on the assembly and functioning of ecological communities. My research is based on the use of functional traits, combining theoretical, observational and experimental approaches.

My PhD (2012) dealt with the effects of land use changes on the diversity and functioning of Mediterranean dehesas. The results derived from these studies described the role of pulses in water availability as major determinants of the functional structure and the effects of grazing in Mediterranean grasslands. My postdoctoral career has mostly developed abroad (>8 years of postdoctoral experience in Norway, Czech Republic and Estonia), funded through highly-competitive grants with me as PI, including a Marie Curie IEF (European Commission; 152k €), and Mobilitas Pluss (76k €) and Startup grants (394k €) from the Estonian Research Council. In this stage I have developed and applied probabilistic methods to understand how global change affects functional diversity across scales. Currently, I am an Associate Professor in the University of Tartu (Estonia), where I lead a group including four PhD students (I also co-supervise another two PhD students from universities in Chile and UK) and two postdoctoral researchers. Our research, focused on exploring macroecological patterns of functional diversity for plants and vertebrates, has led to recent high profile publications as first and last author.

Since my first paper in 2012, I have published 68 papers in peer-reviewed journals listed in ISI (18 as first author, 17 as second author, 7 as last author; 50 of them as result of collaborations with colleagues from non-Spanish institutions). I have supervised a completed PhD thesis and four postdocs. I have been granted >750,000€ in research projects as a PI. I coordinate a global research network (TraitDivNet) including >150 researchers from all continents except Antarctica.

Resumen del Currículum Vitae:

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PARVIAINEN , ANNIKA
Referencia:	RYC2022-036838-I
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Título:	Geoquímica y mineralogía ambiental

Resumen de la Memoria:

My research is trans- and interdisciplinary and has focused on two main lines of investigation. First, in the line of Environmental Geochemistry and Mineralogy, I have characterized mine and industrial wastes in the view of metal mobility to the surrounding water, air and soil bodies with the objective to produce crucial information for risk management and for effective remediation measures. Second, in the line of Medical Geology, I have used biomarkers (biological samples, such as, human gallstones and lichens) of metal pollution to investigate the metal transfer and potential metal exposure risk to humans derived from mining industry and other pollution sources.

My research career as Environmental Geochemist started in 2006 at the Aalto University School of Engineering in Finland at the Geoenvironmental Technology Unit of the Department of Civil and Environmental Engineering. I defended my thesis, titled "Evolution of sulfide oxidation and attenuation mechanisms controlling acid mine drainage in decommissioned low-sulfide tailings", in 2012 obtaining the highest qualification (Sobresaliente Cum Laude), and I obtained two prizes for it by the Aalto University and Finnish Foundation for Technology, respectively. My PhD director at my home university (Aalto University) was Prof. Dr. Kirsti Loukola-Ruskeemniemi (Currently at the Geological Survey of Finland) and the co-director was Prof. Dr. José Miguel Nieto from UHU as I did my Ph.D. in co-tutelle agreement with the UHU. I have had numerous research stays abroad during predoctoral and postdoctoral studies. First, during predoctoral studies I spent a total of 30 months at the University of Huelva (UHU) and University of Granada (UGR). My first postdoctoral project as principal investigator in Spain was financed by a Finnish KAUTE foundation which promotes the internalization of Finnish researchers, and during this project, focusing on As mobility in mining impacted river sediments, I had a research stay at the UGR during 17 months. After this, I have continued my postdoctoral research abroad at the Andalusian Earth Science Institute (UGR-CSIC) first with a Juan de la Cierva-Formación fellowship (CSIC) followed by Juan de la Cierva-Incorporación (UGR), during which I investigated the human health impacts in mining areas through study of gallstones, air pollution derived from mining industry using lichens as bioindicators, and geochemical controls of acidic metal-rich leachate from phosphogypsum stacks. All together, the postdoctoral research stays abroad in a different country of my origin (namely Finland) and of my home university sum up to 80 months. I was granted a I+D+I project as PI in the Andalusian FEDER operating program at UGR, and the research focused on Bioindicators and isotope tracers in the evaluation of atmospheric metal pollution on urban soils. Currently, I am the PI of the IMAGE project (Fingerprinting environmental impact of mining on humans through environmental and human biomarkers from contrasting populations) under the EMERGIA postdoctoral grant.

Resumen del Currículum Vitae:

My research in the line of Environmental Geochemistry and Mineralogy focuses on the environmental impacts of mining and industrial wastes and Medical Geology assesses the impact of metal pollution from mining areas on humans.

The objective of my work is to produce new knowledge and guidelines to minimize environmental pollution and its health impacts. Besides research publications, one of the most important achievements is the transfer of knowledge to Industry and Environmental Stakeholders for remediation actions and the improved understanding of the implications in the selection of remediation strategies. As a result of my research, the tailings area of the Haveri mine (Finland) were remediated and the remediation plan is based on the results of my doctoral thesis. Additionally, our new weathering model based on stable isotope tracers points out that the phosphogypsum stack in Huelva is an open system, which helps in choosing and adopting new effective restoration measures to minimize the impact of the leachates. I have published two review articles in the prestigious Earth-Science Reviews presenting risk management guidelines -first in the world- concerning As for aggregate industry and evaluation of environmental impacts of black shales with an integrated research approach for their risk assessment. I have contributed growing the knowledge of human health risks under the chronic exposure to As and Pb in the mining area of Huelva showing increased risk of developing pigment gallstones and their enrichment in sulfide-associated metals and the increased cancer risk from polluted urban soils. My research has an ample media coverage on newspapers, radio and TV, demonstrating the high societal impact.

My academic training includes long stays abroad in a country different from where I did my PhD. Research collaborations include prestigious international research centers (Andalusian Earth Science Institute, UHU, UGR in Spain, University of Waterloo in Canada, University of Queensland in Australia, Geological Survey of Finland, University of Chile, IS Terre Grenoble in France), which have allowed the participation of many international and national projects. I was PI of an I+D+i project at UGR within the framework of the operating program FEDER Andalusia. I participated in "Retos" project of the Spanish State Research Agency (CAPOTE), UNESCO-IGCP project (IGCP-682), and I'm involved in the Global Tailings Research Consortium. I've also participated in EU projects; LIFE Environment, EIT RawMaterial and Eranet.

I was awarded several competitive fellowships: JdC-Formación and JdC-Incorporación; numerous pre- and post-doctoral grants from Finnish research foundations (Renlund Foundation, Finnish Cultural Foundation, KAUTE Foundation), contracts from National Graduate School in Geology (Finnish Ministry of Education) and Graduate School of the Faculty of Engineering of Aalto University, and two prizes for my PhD. I have I3 certification.

I have actively participated in teaching, outreach activities, scientific dissemination and organization of international conferences. I form part of editorial boards of the Journal of Geochemical Exploration (IF 4.166) and Geochemistry: Exploration, Environment, Analysis (IF 2.266), and I guest-edited four special issues. I directed a doctoral thesis, 4 Master theses, and a Bachelor work. Dr. E.M Papaslioti (PhD student) has a Marie Curie Slowdowska Grant at IS Terre in Grenoble,France with Laurent Cha

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	HERNANDES COUTINHO, FELIPE
Referencia:	RYC2022-037094-I
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Título:	Marine Microbes for Healthy Oceans

Resumen de la Memoria:

As an undergrad and masters student my research was focused on characterizing associations between anthropogenic impacts and the diversity of potentially pathogenic and antibiotic resistant bacteria. This research line, conceptualized and carried out by myself, revealed that pollution promotes the dissemination of antibiotic resistant bacteria at urban aquatic ecosystems, which is of special relevance in developing countries in which access to clean water can be limited. Working on this topic allowed me to bridge the gap between environmental microbiology, aquatic pollution, and public health, which to me was deeply satisfying since it brought tangible benefits to society, while generating scientific knowledge in the form of two book chapters and four journal publications.

As a PhD candidate, I conceptualized and executed projects aimed at describing biotic interactions among marine taxa of Archaea and Bacteria, and their viruses, through bioinformatics. Thus I dove into the fields of viral ecology, bioinformatics, and machine learning.I designed a study focused on characterizing the marine virosphere and its ecological interactions with the ecosystem. The work developed during this period led to several major publications.

One of which, focused on the Piggyback-the-Winner theory, a new paradigm within the field of ecology, which explains the association between viruses and their microbial hosts, which led to a publication in Nature. Another publication generated during this period of my PhD was focused on expanding the known diversity of marine viruses. This work demonstrated how energy availability is responsible for structuring the composition of marine viral communities at different geographical and depth gradients. Later, this work was granted the CAPES-Natura award (~ 4,500 €) for excellence in research, as it represented the first large-scale description of viral diversity within marine Brazilian ecosystems. Due to the relevance of the publication and the award, I was invited to give a TV interview to disseminate my work in marine virology, which was an excellent outreach opportunity, allowing me to share my research topic with a much broader audience.

As a junior researcher at Universidad Miguel Hernández (UMH), I conceived, carried out, and supervised, projects which led to an expansion of our understanding of the genomic diversity of marine viruses; in silico virus-host predictions for uncultivated viruses; and edolysin discovery (which are potential biotechnological tools derived from marine viruses that can be used to treat infections caused by antibiotic resistant bacteria).

As a junior researcher at the ICM-CSIC in Barcelona I have been applying and managing project grants; designing sampling strategies; performing lab work in molecular biology; developing software for data analysis; mentoring MSc and PhD candidates; giving courses; establishing international collaboration; and working on dissemination and outreach activities.

Over the course of my career I have published 42 articles in peer-reviewed journals. I have acted as a reviewer for prestigious journals in my field, such as Nature Communications and ISME, and I am currently a review editor for the sections of "Aquatic Microbiology" and "Biology of Archaea" of Frontiers in Microbiology.

Resumen del Currículum Vitae:

Describing biodiversity and ecological interactions within microbial communities is the central goal of my career. My main focus as an undergraduate and master's student was to characterize associations between anthropogenic impact and the diversity of potentially pathogenic and antibiotic resistant bacteria in aquatic environments. Working on this topic allowed me to bridge the gap between microbial ecology and public health, which for me was deeply satisfying. During my PhD I continued to study aquatic microbial communities, making use of bioinformatics as a tool for discoveries. I undertook projects on diverse topics of the ecology of Archaea, Bacteria and Viruses, including the following: community composition across environmental gradients, computational inference ecological associations, and evolution. Findings obtained during my PhD have led to publications in high impact journals such as Nature. As a post-doctoral fellow I currently have ongoing projects focused on the biodiversity, ecology and evolution of aquatic Archaea and Bacteria with a focus on their viruses, an important, yet often neglected fraction of Earth's biodiversity. My end goal is to generate knowledge that can be leveraged to mitigate ecosystem impacts driven by human activities, which affect all people, but are specially harmful to those who are part of impoverished communities in the developing world.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	SANTANGELI , ANDREA
Referencia:	RYC2022-036239-I
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Título:	Integrating population demography and spatial ecology for biodiversity conservation

Resumen de la Memoria:

I will continue pursuing ambitious and innovative multidisciplinary research on the threats to biodiversity under global change, and on the solutions to mitigate these threats and their drivers, using vultures, and other organisms, as model species. Specifically, I will keep advancing my research lines in the following fields: i) Global change ecology, e.g. wildlife responses to climate and land-use change; ii) Ecosystem service science, especially as it relates to vultures; iii) Use and integration of new technology for biodiversity monitoring; iv) Reconciling renewable energy expansion and biodiversity conservation; v) Ecology and conservation of (mostly African) vultures and also steppe birds, especially the Little Bustard.

However, the main objective of my future research line will be to integrate population demography (e.g. survival) and spatial ecology (e.g. animal movement) to quantify the prevalence of different threats, as well as where, when and why these threats occur. This topic is extremely innovative and with huge potential for scientific and technological breakthroughs, given recent advances in population demography methods and the explosion of animal tracking projects. These two latter fields have so far largely advanced in parallel, but the proposed integration of them will leverage their potential to new unprecedented levels. The above objective will be achieved also thanks to collaborations with key renowned experts in Spain (animal demography, e.g. Dr. G. Tavecchia, A. Sanz-Aguilar at IMEDEA) and Germany (animal movement, e.g. Max Plank Institute for Animal Behabiour, e.g. Prof. M. Wikelski and K. Safi). This topic, and especially the approach and scale of the proposed investigation, besides being very innovative, largely expands and departs from my previous research trajectory where I either investigated threats at a deep and narrow (local), or wide (continental/global) and shallow (low resolution) level. I aim to mobilise large scale high-resolution movement data from many individuals from different species and populations through collaborations with many biologging projects in Europe and beyond. I have a demonstrated ability for leading successful international collaborative projects, and my membership to the International Biologging Society will greatly facilitate collaborations.

Obtaining the RyC Fellowship will enable me to establish a research group on the study of global change and biodiversity threats, with strong focus on integrating advanced population demography with cutting-edge geo-statistics. Given the ambitious scale, novelty and potential impacts of the above research line, I aim to secure large external funding through the European Commission H2020 and the ERC advanced grants, as well as other international and national funding calls. I have a proven track record in securing competitive funds as PI (proven excellence in securing EU funding through my successful Marie Skłodowska-Curie Individual Fellowship application in 2020), which gives me confidence in the future applications. The funding will be used to expand the group and incorporate a balanced number of PhD students and postdocs, which will contribute to achieve the groups objectives while allowing knowledge transfer, within the group and beyond.

Resumen del Currículum Vitae:

I am a conservation scientist with a genuine interest in leveraging the potential of science towards achieving evidence-base conservation. While using mainly birds as model species, my research spans beyond taxa and discipline boundaries. I developed and consolidated new multidisciplinary research avenues, through the projects I led in Europe, Africa, and global. Through these multidisciplinary studies, joining social, geopolitical, and ecological science, geography, and statistics, I consolidated excellent quantitative and soft skills, and a wide expertise across fields. In doing so, I proposed novel approaches and hypotheses, advanced methods, and generated new groundbreaking scientific knowledge.

Among my most prominent scientific achievements, I developed and consolidated a novel framework to implement conservation based on a voluntary non-monetary approach. I provided the first global quantification of synergies and trade-offs between renewable energy expansion and biodiversity conservation; I proposed and empirically tested a new hypothesis whereby climate change causes mismatches between wildlife phenology and the timing of critical human activities, leading to potential ecological traps. I developed and empirically tested a new approach to locate bird nests in farmland based on integrating drone-borne thermal camera images and artificial intelligence. I demonstrated the potential of combining citizen science and camera trap resighting data, and to correct for the loss of individual marks, for estimating survival. I advanced the study of wildlife crime by proposing a new approach to not only quantify illicit behaviors, but also map their prevalence.

Collectively, the above outputs underscore my outstanding independence and leadership level, and my cutting-edge contribution to science. Overall, I authored 70 published ISI peer-reviewed articles, of which 59 in Q1 journals, 35 as first author, and 42 published as Open Access. I first authored studies published in the top ranked journals in environmental and conservation science, e.g. Global Change Biology, Conservation Biology, Conservation Letters. My work was cited > 1470 times, with a Google Scholar H-index = 23. I have an excellent track record of securing competitive research funding, for large and small projects, international and national sources (overall 1,161,851€ of which 694,752€ as PI). I consolidated a large international network of >200 collaborators, including top scientists in my field, such as Prof. W. Sutherland (U. Cambridge) and A. Moilanen (U. Helsinki). I participated to >15 international conferences, and my research was featured in policy-relevant documents (e.g. IPCC and IPBES reports) and international media (e.g. the NYT). I supervised 7 Master (3 as main supervisor) 2 doctoral theses (as co-supervisor), and currently supervise 2 doctoral theses (one as main supervisor). I was a reviewer for >20 peer-reviewed ISI scientific journals, among the highest ranked in my field, e.g. Nature Ecology and Evolution, Ecology Letters, Global Change Biology. Since 2017 I am Associate Editor of the journal Ornis Fennica. I was invited as a reviewer of funding applications by the Austrian (FWF) and Czech National Science Foundations, and as an evaluator of a Master thesis at University of Kwa-Zulu Natal (South Africa).

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	BLANDIN , GAETAN
Referencia:	RYC2022-035843-I
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Título:	Towards optimization of bioprocesses and circularity through integration of forward osmosis and membrane processes

Resumen de la Memoria:

My research is dedicated to water processes associated with membrane technologies within the context of circular economy dealing for several applications (desalination, water reuse, nutrients recovery) and topics (process validation and control, fouling and cleaning, module design /process modelling and optimisation, fundamentals of mass transfer). Especially, I am a renowned world expert in FO after 11 years of research dedicated of this technology.

After conducting my PhD on FO in the university of New South Wales (Australia) and Ghent university (Belgium), I developed this research line (FO) when arriving in LEQUIA research group in 2015 working on osmotic membrane bioreactor within the membrane bioreactor research line of LEQUIA thanks to a Tecniospring Marie Curie grant. In addition to the project itself, during my 4 years at LEQUIA, broader knowledge and facilities were build up to set the basis for FO expertise and research proposals; projects were launched with local and international research group and companies (still on-going and where I am involved). I am currently further developing my skills in that field both on fundamentals aspects described earlier, in membrane synthesis thanks to my 15 months stay in IEM (European membrane institute) and upscaling towards commercialisation of a specific configuration (submerged (SUB-)FO) with the support of Eurecat.

Thanks to my current fellowship (La Caixa junior leader) and main project (Forward Factory), I have been able to further developed my research activity on FO but also to expand my research towards other membrane processes (membrane recycling, valorisation of waste stream, advanced biological treatment and bioprocesses. I am currently leading several research projects, built-up facilities (small and large pilots, membrane synthesis expertise), lead research projects in collaborations with academic and industrial partners, started the supervision of PhD student.

Based on my former work, stays in various international institutions, participations to numerous conference and collaborations with industry partners, I could identify some current gaps into research and trends in membrane processes as well as the necessity to have a complete membrane toolbox to support research and collaborations. Especially, developing a membrane research line with the objective to be a living lab for cooperation with industry, as a powerful research tool for novel bioprocess technologies to promote cooperation with other academics, industries and for the implementation of access to safe water in developing countries. The following aspects will be developed in the coming 5 years: (1) Moving towards valorisation of co-products from wastewater streams (urban and industrial) using membrane technologies to bring more value than just water recovery and to move towards circular economy. (2) Developing FO as concentration process for concentration of proteins, food products and chemicals of high added value. (3) Developing a complete membrane based laboratory to be able to evaluate the full range of membrane processes for end-user's applications with inclusion of a monitoring and control tool based on open science as well as the development of membrane science as an educational and cooperation tool.

Resumen del Currículum Vitae:

I graduated in chemical engineering at the University of Nantes in 1999, and, after working in research in the private sector for 12 years, I obtained a joint PhD in chemical engineering from the University of New South Wales (Australia) and Gent University (Belgium) in December 2015. Thanks to those successive experiences in industry (12 years) and in academic research (PhD and postdoctoral positions, since 11 years), I developed a broad yet unique skill set through cross-disciplinary researches and expertise in technology transfer. My research is dedicated to water processes associated with membrane technologies within the context of circular economy dealing with several applications (desalination, water reuse, microalgae dewatering, water and nutrients recovery) and topics (process validation and control, fouling and cleaning, module design /process modelling and optimisation, fundamentals of mass transfer). During my 12 years of experience in R&D in a private company (Lhoist R&D, Belgium) I managed a small R&D team (2-4 people) and developed products and processes from the lab up to full scale and commercialization (current annual sales volume of developed products is estimated at around 500k€ and >10000k€ worldwide).

My experience of academic research allowed me to broaden my expertise in water processes with advanced knowledge of membrane processes and I am nowadays a renowned international expert. All my successive research positions in Belgium, Australia, France and Spain allowed me to acquire a very strong international experience and network and to stay in outstanding research institutions. I secured my research career through personal competitive grants since I obtained my PhD (Marie Curie TECSPR14-2-0024 & TECSPR18-1-0085 grants, La caixa retaining Junior Leader Fellow grant). I also participated to secure more than 1200k€ research budget through local, national or international project funding and contracts with company. I am/was involved in several national and international projects and participated to H2020 consortium and Life proposal writings. I also developed strong international collaborations as testified by shared publications.

Currently I am post-doctoral researcher within Lequia (University of Girona) since October 2021 (La caixa retaining Junior Leader Fellow). In this position, I am developing my research line through the leadership of several projects. I am currently the PI of the FORWARD FACTORY, Osmo4Lives and ConcentrA projects. I am also thesis director of 3 PhD students and co-director of 1 PhD student.

My research indicators are: H index: 17. Total number of citations: 1020 (Google Scholar), total number of publications: 30, 15 as 1st author (all in Q1 journal or high quality open access) and 5 book chapters. Supervision of 44 students: undergrade, master and PhD thesis supervision . Teaching: 194 hours (casual lecturing, lab supervision, tutoring and marking). > 50 oral presentations at international conferences or workshops, 1 keynote invitation, 3 sessions chairing, 1 participation to scientific committee and invitations to give talks in seminars. Inventor of 6 international patents (4 in

exploitation). Organization of 4 workshops and dissemination seminars. Currently part of the organising committee of Ecostp2023 IWA conference and secretary of the MEMDES2023 conference.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	LANGEMEYER , JOHANNES
Referencia:	RYC2022-036329-I
Correo Electrónico:	johannes.langemeyer@gmail.com
Título:	Integrated Assessment of Ecosystem Services for Environmental Planning

Resumen de la Memoria:

TRAJECTORY:

My academic work has been fundamental to applied environmental science by (a) conceptualising and assessing urban ecosystem services, (b) extending sustainability research through novel crowd-sourced approaches, and (c) the integrated assessment of social and environmental criteria in the context of landscape and urban planning.

(a) Conceptualising and assessing urban ecosystem services: During my PhD thesis (Stockholm University, 2015), I was part of the initial shaping of the field and a contributing author of some of the most influential publications. I have continued to shape the field conceptually and empirically, not least through my participation in the EC-FP7 project OpenNESS and my leading role in the Biodiversa ENABLE project. My work has helped to broaden the evaluative space in urban ecosystem services research, highlighting the need for incorporating diverse epistemological framings (beyond utilitarian economics) in ecosystem services research and related policy-making and planning.

(b) Development of novel crowd-sourced approaches: When I first started as an independent Principal Investigator in 2017, I recognized that there was a lack of large-scale approaches to assessing cultural ecosystem services. I therefore focused my explorations on analysis of social media data. In this emerging field, I quickly reached the research frontier, becoming renowned for work that went beyond the spatial-statistical, big-data analyses that most scholars used and instead created the conceptual and empirical foundation for a young research line. Furthermore, I created a large international research network to jointly advance the topic.

(c) Integrated assessment for environmental planning: Trained in multi-criteria decision analysis (MCDA) during my PhD, I am one of the most experienced scholars in developing MCDA tools and applying them to real-world landscape and urban planning in the field of ecosystem services, green infrastructure, and nature-based solutions. My work on MCDA for urban and landscape planning was fundamental to being awarded important international research grants, such as the EC H2020-funded INTERLACE project (311K€) and the WaterJPI/Biodiversa-funded NICHES project (201K€), which I am currently managing.

LINE OF RESEARCH: Nature-based solutions (NBS) in the face of social-ecological-technical urban vulnerabilities.

If NBS are to drive societal transformations that promote equity in people's quality of life alongside ecological sustainability, there is an urgent need to complement territorial and urban planning and evaluation instruments with novel insights. My research during the Ramon y Cajal fellowship will particularly focus on bridging the gap between urban ecosystem services research and urban hazard and vulnerability assessments. The core objective will be to provide a differentiated understanding of multiple environmental hazards and societal vulnerabilities of urban areas as an innovative entry point for the socio-temporal-spatial prioritization of ecosystem services generation by NBS. The framework of social-ecological-technological systems (SETS) will provide conceptual guidance for the empirical developments of this research line. The new research line will be developed at the Universitat Politècnica de Catalunya-Barcelona Tech (UPC), who is guaranteeing my long-term academic stabilization.

Resumen del Currículum Vitae:

Born and raised in Münster, Germany, my research career has developed across different countries, primarily Germany, Spain, and Sweden, and at outstanding university departments and research centres, including: the Department of Geography, Humboldt University of Berlin; the Institute of Environmental Science and Technology, Autonomous University of Barcelona; and the Stockholm Resilience Centre, Stockholm University. I also have worked as an environmental consultant and environmental auditor for companies in Germany and The Netherlands.

My international fluency has allowed me to interface between the Stockholm Resilience Centre and the Institute of Environmental Science and Technology during my PhD studies. My PhD thesis "Urban Ecosystem Services – The Value of Green Spaces in Cities" (Stockholm University, 2015), a compilation of five individually-published chapters, received an excellent cum laude and an Extraordinary Doctoral Award.

After one year as postdoctoral researcher (2016), I have become an Established Researcher and Principal Investigator at the Institute of Environmental Science and Technology, a Maria-de-Maetzu Excellence Centre for Environmental Science (2017). I have raised more than 900€K of mostly international funding, and had leading roles in several international research projects, including Biodiversa-funded project ENABLE (2017-2020, 134K€), the EC H2020 project INTERLACE (2020-2024, 311K€), and the Water JPI & Biodiversa–funded project NICHES (2022-2025, 201K€). Since 2020, I am also affiliated with the Humboldt University of Berlin, where I am currently leading the SOM-MES project (2022-2023, 75K€), funded by the German-Israeli Foundation.

My research has strongly attracted international talent, and I have supervised 11 PhD students (6 ongoing) and 2 post-doctoral researchers (ongoing), and I am co-leading the lab of Social Ecological Systems in a Globalised World (LASEG), a recognized research group with more than 30 members. The strong international impact and international recognition of the work is further highlighted by my nomination as an Associated Editor of Ecosystem Services, the foundation of two international working groups under the Ecosystem Services Partnership, and my 50+ peer-reviewed scientific articles in international ISI listed journals, a high citation record (5634 Google Scholar; 3373 Scopus), and the contribution to policy processes from local to global scale.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	FUENTES PÉREZ, JUAN FRANCISCO
Referencia:	RYC2022-036557-I
Correo Electrónico:	jffuentesperez@gmail.com
Título:	Adaptive management of river ecosystems through Sensor Networks and Advanced Algorithms

Resumen de la Memoria:

Since the start of my research career, I have had a clear direction. My initial experience as an engineer, designing over 85 fishways for fish to pass river obstacles, gave me a clear understanding of the research gaps in the field. I pursued my first PhD at the University of Valladolid (UVa) with the hypothesis that current fishway design equations do not consider hydrological variability, leading to structures that only work under specific conditions. I tested this through field experiments and modeling, creating a general formulation that covers varying hydrological scenarios, providing a comprehensive analysis, design, and optimization tool for fishways for researchers, engineers, and managers.

However, new discoveries opened the door to more complex questions. Therefore, I decided to pursue a second PhD in Information and Communication Technology at Tallinn University of Technology, Estonia (Marie Curie Fellowship) to gain knowledge on sensors and data processing techniques and be able to answer my second hypothesis: if hydraulic variability affects fishway performance, it also affects fishway usage by fish. Among others, I developed a new open 3D CFD workflow for fishway simulation and a novel artificial lateral line for real fish experimentation, which opened a new paradigm in fishway research and design. The results emphasized the need for continuous monitoring for proper assessment, management, and optimization of fishways.

To further apply my discoveries in real-field conditions, I needed to develop a customizable technological architecture. I collaborated with Itagra Technological Center to start a new research line in environmental sensing (Torres Quevedo Scholarship). Leading various projects, I was able to establish a full sensor network based on open technology to address different research problems, including my research area.

With the technology and my skills deemed ready, I applied for a Marie Curie Postdoctoral Project (2021-2023) at UVa to test my hypothesis: fishway usage by fish in field is affected by hydrological variability and climatic uncertainty, and that the use of sensor networks and advanced algorithms could establish optimal configurations for fishways in real-time. So far, the results have confirmed my hypothesis and the need for continuous monitoring in the management of fishways.

Fishways are a critical first step in restoring river connectivity, but ensuring their functionality in the context of climate uncertainty, water usage and energy demand (e.g. hydropower production) presents a greater challenge. This creates a complex optimization problem that may require trade-offs between energy production and the preservation of river connectivity through fishways. I hypothesize that this problem has a solution, and that my technology, combined with knowledge of fish preferences and energy production patterns, can be used to develop a generic adaptive management tool fed with real-time data.

Furthermore, this research can be expanded with a sensor network covering the full river basin and the use advanced algorithms (Artificial Inteligence/Machine Learning) to optimize ecosystem services, with a focus on balancing water usage. This research line is essential for advancing the sustainability of hydropower, preserving water ecosystems in the face of a changing climate, and fully complying with EU directives.

Resumen del Currículum Vitae:

With over 8 years of experience in research (University of Valladolid (UVa) and Tallinn University of Technology (TalTech)), and 2 years in the private sector (Itagra Technological Center), I have a substantial record of publications, including 41 indexed journal papers, 14 as first author. These papers have a high impact, with 32 published in Q1 and Q2 JCR journals. I have 777 citations, an h-index of 18, and an i10-index of 28 according to Google Scholar.

I hold 2 PhDs, one in hydraulic modeling from UVa, for which I received an Extraordinary PhD Award, and another in Information and Communication Technology (ICT) from TalTech, Estonia, awarded through a Marie Curie (MC) Fellowship in robotics. My research is interdisciplinary, focusing on ecohydraulics and ICT, with particular emphasis on fishways, environmental monitoring, hydrological variability, and adaptive management. I am currently Principal Investigator (PI) on a MC Postdoctoral scholarship, conducting research on adapting fishways to hydrological variability (Smart Fishways) at the Group of Applied Ecohydraulics (GEA, UVa).

I have a proven track record in research and development, 16 technological results in software and underwater hardware, including the world's first differential pressure sensor-based artificial lateral line. All are open or protected, and 3 commercialized. I have participated in 38 congress communications, reviewed over 60 articles and I serve as a Topic Editor for the Electronics Journal and as a Special Issue Editor for the Water Journal. I have also been involved in numerous international collaborations with over 60 researchers from diverse fields and nations (11 research secondments and expeditions), and have participated in over 50 international and national projects and contracts. I have successfully led several research and technological projects, connecting with stakeholders in the industry and public administration (e.g. Iberdrola, GAN-NIK, Duero River Authority, Junta de Castilla y León, and others), developing guidelines, sensing technologies and creating a general open sensor network architecture for environmental monitoring.

My work has been recognized with numerous awards and distinctions, including 8 scholarships, 11 prizes and honors, and all ANECA certifications in eligible categories (Profesor Contratado Doctor, Profesor Ayudante Doctor, and Profesor de Universidad Privada), showcasing the quality of my work. I have a strong mentoring record, having supervised 4 dissertations (2 Master's and 2 BSc), mentored 3 secondments (1 PhD student and 2 BSc students), and helped 6 PhDs. I am currently supervising 1 PhD student and 1 awarded Master's student. I have also demonstrated my expertise through teaching at BSc, Master, and PhD levels, covering topics such as Scientific Communication, Hydraulics, Control and Electronics, and Environmental Monitoring.

During my tenure at various institutions, I held various positions with increasing responsibility and made valuable contributions, securing contracts and projects as PI. This allowed me to pursue my research interests and make meaningful scientific and technical contributions to the institutions I worked for. For example, my work contributed to establishing the research groups Environmental Sensing and Intelligence at TalTech and GEA at UVa, which is in the process of becoming a GIR.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PAREDES ROSENDO, ESTEFANIA
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Título:	Criobiologia de organismos marinos

Resumen de la Memoria:

I hold a degree (2008) and PhD in Marine Sciences (2014) from the University of Vigo. My PhD research was developed on the field of Cryobiology Cryopreservation of marine invertebrate early-life stages: applications in marine water quality assessment and aquaculture 2014. I was recognized with "Premio extraordinario de doctorado 2014" and "Premio Real Academia de Doctores de España 2015" for my PhD research. We developed a patent after successfully cryopreserving early sea urchin embryos for the first time (patent application P201400536). I moved overseas to the University of Tennessee, USA to work in Peter Mazur¿s laboratory as a Postdoc Research Associate for over 2 years. Peter Mazur is considered one of the fathers of cryobiology and had 50 years of research experience on the field with around 200 published manuscripts. I was hired by his NIH grant, I was in charge of lab management and researchdevelopment working on cryopreservation of model organisms like mice, zebrafish, yeast or drosophila.

My main field of research is marine cryobiology: freezing, banking and thawing living marine organisms, cells or tissues in the presence of cryoprotecting agents. This is a well developed technique for achieving long-term preservation and storage of biological material. The preservation of marine cells and organisms is still an extremely novel line or research. The aims of my research in cryopreservation are: to develop methods to preserve biological material structurally and functionally as intact as possible for future use, applying all the knowledge already available from other model organisms and the latest technology advances. Looking for

application in marine research, water quality assessment, biomedical, species conservation, biodiversity conservation, stock management or aquaculture development.

I have experience with the latest technology in the field of cryobiology like vitrification and ultrafast laser warming, modelling of volumetric responses during the cryopreservation process and toxicology of the Cryoprotecting agents.

I have over 70 communications to international meetings, published over 35 papers/book chapters of which i lead over 70% either as first author or corresponding, worked in 14 national and international projects leading specific tasks or even whole work-packages coordinating a team of international researchers. I currently lead a cryobiology lab where I have 3 PhD students and several master and undergrad students under my direction. I am completely independent as I am one of the leaders on Cryopreservation of Aquatic organisms worldwide with a net of collaborators in cryobiology, bio-banking, marine biology, biomedical cryopreservation, mathematical modelling and biotechnology.

I am currently a Juan de la Cierva Incorporación researcher at Centro de Investigacion Mariña-Universidade de Vigo and I have obtained a Retencion de Talento possition at the University of Vigo until 2026 that will start in June.

Resumen del Currículum Vitae:

My field of work is applied and theoretical cryobiology of marine organisms, in line with animal reproduction, biodiversity conservation and aquaculture. Currently I direct my line of research within the ECOCOST research group at the University of Vigo with a Juan de La Cierva where I have 3 doctoral students and 4 TFG students under my direction. I have directed a doctoral thesis Cum Laude in Cryopreservation of Molluscs 2021 by the University of Vigo.

I have a good network of research collaborations in academic institutions (in Europe, USA, Brazil and China) as well as in the private sector, such as with the Aplysia Institute (Brazil) or Catalina Sea Ranch (USA). I was Leader of the CRYOMAR Joint Research Action work package in Assemble + H2020 coordinating a team of researchers from 8 European institutions, where I was also part of the Project Implementation Committee (PIC). I am an elected member of the Board of Governors of the Society for Cryobiology since 2019, Associate Professor of the UNESCO Chair in Cryobiology since 2021 and Spanish Scientific Representative at the General Assembly of EMBRC-ERIC.

Regarding scientific contributions: I wrote 2 reviews and 3 book chapters on cryopreservation applied to marine organisms. I am the author of 40 peer-reviewed publications (Over 80% either first author or corresponding or both). I have an extensive list of communications to international meetings (more than 70) with several as guest speaker and plenary speaker at different international meetings in recent years (listed in point c.2). For the past 5 years I have been a member of the organizing committee for the annual meeting of the annual Congress of the Society for Cryobiology.

I have been awarded for my research career with the "Extraordinary Doctoral Award University of Vigo 2014" and "Prize of the Royal Academy of Doctors of Spain 2015". I have developed a patent, P201400536 "Procedure for cryopreservation of sea urchin embryos and associated bioassay" in 2014.

I am a frequent reviewer for more than 10 scientific journals, a member of the editorial board of Mar.
Pollution in Frontiers in Environ. Science and Marine Science. I have been an evaluator for programs
such as the Research and Agriculture Grant of Israel, the Swiss National Science Foundation, the
Agustín Betancourt Program at the University of Laguna, and the Sea Grant at the University of
Minnesota.

I am an independent researcher, I started leading my research line very early in my postdoctoral years:
developing a project with the private sector in the USA and as the WP leader of Assemble+ in Spain.

In January 2020 I started as Juan de la Cierva de Incorporación at the University of Vigo and continued with my own line of research. I have participated in 14 projects: 6 Spanish + 6 financed by the EU + 2 international (USA). Since 2014, I have helped raise more than 1.5M euros of funding among all the projects in which I participated doing research as an expert/leader in cryobiology.

I have participated in the organization of the Society for Cryobiology annual meetings as member of the organization and program committee many years. In 2023 I am the organizer of the Society for Low Temperature Biology International Annual Meeting in Vigo.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	NOVOA PEREZ, ANA
Referencia:	RYC2022-037905-I
Correo Electrónico:	novoa.perez.ana@gmail.com
Título:	Invasion science

Resumen de la Memoria:

I developed my knowledge of invasion biology as a PhD student at the University of Vigo. After obtaining my PhD, I moved to South Africa, where I joined the world-renowned Centre of Excellence for Invasion Biology and the South African National Biodiversity Institute as a Postdoctoral Fellow for four years. After my postdoctoral research in South Africa, I took up a position at the Institute of Botany of the Czech Academy of Sciences, where I am currently based.

To date, I have led and co-authored 57 international publications in ISI listed journals and contributed to three invited book chapters. These publications have received 282% more citations than the global average across all subject areas (SciVal).

I regularly engage with numerous collaborators around the world. According to Scopus, I coauthored my research publications with more than 240 researchers based in 31 countries. With 80% of these researchers, I share more than one publication. I also have strong collaborative links with managers and policymakers.

To make my research as open as possible, I always shared the products of my scientific contributions. As such, my research has informed both national and international management and policy, I regularly collaborate with a wide range of stakeholders, I have published numerous popular science articles in the South African and Spanish media, and I participate in an important number of scientific and advisory committees. Moreover, I have presented my scientific contributions at 40 international conferences, I have been invited to present my work in nine seminars in several countries and I organised or co-organised several conferences and workshops.

I am currently the Thematic Deputy Editor-in-Chief for Management of Biological Invasions (since 2022) and an Associate Editor for Biological Invasions (since 2016) and Koedoe (since 2017). I was a Guest Editor for Frontiers in Ecology and Evolution (2021) and Journal of Environmental Management and Management (2017). I regularly act as an examiner for national and international PhD and MSc theses.

During my research career, I was always given the autonomy to direct my own investigations and shape my own research path. Moreover, since completing my PhD, I have obtained >10 grants as principal investigator or group member for travel and research, totalling >3.43 million euros, which allowed me to fund my research and establish my own research group.

To date, I have supervised one PhD student at the Centre of Excellence for Invasion Biology, Stellenbosch University (South Africa), one PhD student at the University of Vigo (Spain), one undergraduate student at the University of the Western Cape (South Africa), one undergraduate student at the University of Vigo (Spain), and two postdoctoral fellows at the Institute of Botany of the Czech Academy of Sciences (Czech Republic). I am currently co-supervising two PhD students at the University of Vigo (Spain) and one postdoctoral fellow at the Institute of Botany of the Czech Academy of Sciences (Czech Republic).

The line of research I am planning to develop is mainly focused on testing the invasion syndromes concept (see section 2.1.9 and 2.5) and I will continue exploring the role of hybridization in the invasion of invasive alien species and the impact of alien plant species on the invaded soils.

Resumen del Currículum Vitae:

I completed my PhD 10 years ago at the University of Vigo, Spain (December 2012). I have since held two postdoctoral positions in South Africa (between 2013 and 2017) and one position as a research scientist at the Academy of Sciences of the Czech Republic in Prague (since 2017). Since completing my PhD, I have obtained >10 grants as principal investigator or group member for covering the costs of my travel and research, totalling >3.43 million euros. This has also allowed me to establish my own research team in my current institution.

I am a strong an independent researcher, internationally recognized for my works in invasion science. My research entails the use of interdisciplinary techniques to understand the socioecological factors influencing biological invasions, the environmental and socioeconomic impacts of invasive species, and how they can be effectively managed. In general, my scientific contributions have been directed at understanding the invasion process and the impacts that invasive species can have on ecosystems and human wellbeing, as well as finding effective solutions to manage them. Within this broad objective, my scientific contributions can be divided in four key areas: (1) exploring the human and social dimensions of biological invasions (scientific papers 1, 2), (2) understanding the patterns and processes that determine biological invasions (scientific papers 3, 4, 5), (3) designing successful invasive species management actions (scientific papers 6, 7, 8, 9) and (4) assessing the impact and legacy effects of invasive plants on the invaded soils (scientific paper 10).

I have led and co-authored 57 international publications in ISI listed journals and contributed to three invited book chapters. These publications have received 3081 citations, yielding an h-index of 32. These citations come from researchers based at organisations from across the world. I have presented the results of these publications in 40 different international conferences and, because of my growing reputation, I have also been invited to present my work in several seminars around the world. Moreover, I have published numerous popular science articles to communicate my results to the general public, and have always tried to made my research contributions accessible to stakeholders beyond the scientific community, and to engage societal actors in the generation of knowledge.

I participate in the editorial board of three ISI register journals and in a variety of international expert groups, including my role as Secretary of the European Group on Biological Invasions (NeoBiota). Moreover, I have established a wide network of international collaborators. According to Scopus I have coauthored my 57 publications with 245 colleagues with different backgrounds and expertise, reflecting the importance of collaborative research in my work, as well as my ability to build successful national and international networks. These networks include world-renowned invasion biologists, social scientists, mathematical modelers, and practitioners.

To date, I have supervised and mentored several students and postdocs, most of which have successfully continued with their scientific careers and I have the pleasure to still collaborate closely with them.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	FERNÁNDEZ-MAZUECOS SANTA TERESA, MARIO
Referencia:	RYC2022-036418-I
Correo Electrónico:	mariomazuecos@gmail.com
Título:	Innovative phylogenetic approaches to uncover the keys to plant diversity at multiple evolutionary scales

Resumen de la Memoria:

RESEARCH CAREER

My research career has been characterized by excellence and leadership at all stages:

* Undergraduate student, Autonomous University of Madrid (UAM, 2002-2007)
Thanks to an excellent academic record, I won an Extraordinary Award (UAM) and the Second National University Award (Spanish Ministry of Education), and I conducted undergraduate research funded by Excellence Scholarships (Community of Madrid) and Introduction to Research Fellowships (CSIC).

* PhD student, Royal Botanical Garden of Madrid (RJB-CSIC, 2008-2012)
My PhD thesis, investigating the evolutionary biology of the genus Linaria, was funded by an FPU fellowship (Spanish Ministry of Education) and won an Extraordinary Award (UAM). During my PhD, I was a visiting scientist in John Innes Centre (Norwich, UK) and University of Granada.

* Postdoctoral researcher (2013-2020)
In 2013, I held a research contract funded by the CSIC General Foundation at RJB-CSIC.
In 2014-2017, I held a three-year postdoctoral position in the laboratory of Prof. Beverley Glover (University of Cambridge, UK) funded by a Marie Curie Fellowship (European Commission) and an Isaac Newton Trust Research Grant (Trinity College, Cambridge).
In 2017-2020, I returned to RJB-CSIC thanks to a two-year Juan de la Cierva Incorporación fellowship (Spanish Ministry of Science), followed by a one-year contract funded by a Special Intramural Project (CSIC).

* Profesor Ayudante Doctor (2021-present)
In 2021, I worked for 6 months at Complutense University of Madrid.
Since September 2021, I work at Universidad Autónoma de Madrid, where I am now the PI of two Plan Estatal projects (Generación de Conocimiento and Transición Ecológica y Digital).

RESEARCH LINE

My line of research can be summarised as three major, partially overlapping topics:
* The keys to plant diversity. The study of plant variation can be approached at different evolutionary scales, from macroevolution, through speciation, to microevolution. I approach these scales by applying innovative phylogenetic approaches in combination with multidisciplinary insights from biogeography, population genetics, species distribution modelling and evo-devo. I use a variety of study systems, with a particular focus on the tribe Antirrhineae, a model group for plant biology.
* Next-generation sequencing (NGS) in evolutionary studies of plants. In recent years, NGS techniques have revolutionized research in plant systematics and evolution, leading to the era of phylogenomics. I have proposed that genotyping-by-sequencing (GBS) is an optimal technique based on NGS that can be standardised for universal use. I work in optimising laboratory and data analysis protocols, and in their application at different evolutionary scales in a wide range of plant lineages (bryophytes, ferns, angiosperms).
* Evolution and conservation. The two Plan Estatal projects of which I am the PI are focused on the application of evolutionary insights to plant conservation procedures, priorities and policies from spatially-based and species-based perspectives, including the use of the novel tools of spatial phylogenetics and EDGE scores. Current projects are focused on the Iberian flora, but I am interested in expanding them to the Mediterranean and Macaronesian regions.

Resumen del Currículum Vitae:

1. Scientific contributions
- Funding for research: 2 Plan Estatal projects as PI, Marie Curie Intra-European Fellowship, Isaac Newton Trust Research Grant (UK), Juan de la Cierva Incorporación fellowship, participation in 8 Plan Estatal grants and a BBSRC grant (UK). In total, I have participated in 22 R&D projects (5 as PI) and 14 other grants and scholarships, and I have secured 563,877 €of research funding as PI.
- Institutions: I have been hired by leading scientific institutions: University of Cambridge (3 years), CSIC (8 years), two Spanish universities (UCM, UAM; c. 2 years).
- Publications: 46 articles in indexed (JCR) journals, including 20 as first or last author; 33 in Q1 and 12 in Q2; average impact factor: 5.166. First-authored articles in leading journals: Nature Ecology & Evolution, Current Biology, Systematic Biology, New Phytologist, Molecular Ecology. Other articles in Nature Communications, Trends in Ecology and Evolution. 6 book chapters and 9 other publications and preprints. H-index: 21 (Google Scholar), 19 (WoS). 50% of articles involved international collaboration.
- Congresses, meetings, seminars and courses: 81 contributions. Of these, 2 invited talks (University of the Free State, South Africa; Simposio Anual de Botánica Española); 32 international contributions; 34 contributions presented by myself; 52 oral communications, 29 posters.

- Awards: I3 certification; 2 sexenios de investigación; Outstanding Student Award, International Botanical Congress; Sentinel of Science Award, Publons; Premio Extraordinario de Doctorado, UAM, 2º Premio Nacional Fin de Carrera, Premio Extraordinario de Licenciatura.
- R&D management: member of 3 HR selection committees (UAM, UCM), HRS4R advisory committee (UAM), Erasmus coordinator (UAM).

2. Contributions to society
- Transfer: actions for conservation of endangered species.
- Scientific advice: SEBiCoP; Ministerio de Transición Ecológica; BBC.
- Citizen science: organizing committee of Biomaratón de Flora Española.
- Scientific outreach: 7 educational talks aimed at various audiences (secondary school, university students, general public), including 3 talks at Semana de la Ciencia Madrid. Participation in 6 worshops/exhibitions, including Festival of Plants and Cambridge Science Festival, Cambridge, UK. 5 popular science articles, 4 web articles, 7 press releases covered by numerous media outlets. Organizing committee of seminar series Cafés Sistemáticos. Scientific outreach in Twitter.
- Software development: R package PAICE.

3. Training, editorial and evaluation activity
- Supervision and mentorship: 2 doctoral theses supervised (1 finished, funded by FPU; 1 in progress, funded by FPI-UAM), 8 TFM (1 of them in progress), 6 TFG (1 in progress), 1 Youth Employment Initiative mentee, 6 interns.
- Teaching: 203 h in Degree and Master programs (UAM, UCM, University of Cambridge, Course " Introduction to species distribution modelling" (IBB-CSIC, 16 h).
- Editing: Associate Editor of Frontiers in Plant Science and Plant Systematics and Evolution.
- Peer-review: 120 manuscripts for 32 journals.
- Evaluation: 4 grant proposals evaluated (AEI, DGF, Czech Science Foundation, Leverhulme Trust, 4 PhD thesis committees, 3 TFM committees, scientific committee of I Congreso Español de Botánica.

4. Other contributions
- Founding member, Grupo de Trabajo Sistemática y Evolución, Sociedad Botánica Española.

Resumen de la Memoria:

I have developed my research career in three main research lines: (i) study of technologies for the sustainable generation and storage of electrical energy, (ii) development of chemical and electrochemical technologies for the treatment of wastewater and polluted soil, and (iii) analysis of the thermo-hydro-mechanical-chemical (THMC) behaviour of porous solids in different technical fields.

I started my research career in 2007 in the TEQUIMA-E3L group of the Chemical Engineering Department of the University of Castilla-La Mancha (UCLM) with the development of my final degree (Chemical Engineering) project, which focused on the study of a fuel cell prototype fed with methanol.

In 2008, I started my PhD thesis, "Electrokinetic remediation of low-permeability soils polluted with hydrophobic organic compounds", in the same group after being awarded a research staff training grant (FPI). I worked on the development of chemical and electrochemical techniques for the treatment of effluents generated in the remediation of soils contaminated with hydrophobic compounds, as well as on the in-situ evaluation of the electrokinetic remediation process of these soils.

In 2013, as a postdoctoral researcher, I joined the Energy division of the technology-based company Aries Ingeniería y Sistemas S.A., where I participated in the European project HITECO (7th Framework Programme), focused on the development of a concentration tube used in solar thermal power plants designed under a new dynamic vacuum concept. In 2015, thanks to a CYTEMA E2TP UCLM-Santander postdoctoral grant, I joined the TEQUIMA-E3L group, this time as a postdoctoral researcher, where I executed as PI a project focused on the design, analysis and optimization of a vanadium REDOX flow battery for renewable energy storage. Also, I contributed with the experience acquired in my predoctoral stage in the design and experimental planning of electrokinetic remediation tests of soils contaminated with pesticides, as well as the development of the scaling of such technology. In 2017, I joined the GEG-UCLM group, in the Department of Civil Engineering (UCLM), thanks to a JCCM postdoctoral grant. In this stage I extended my knowledge towards the field of numerical modelling, specifically in the development of codes capable of simulating reactive transport in electrokinetic remediation processes and analysing the THMC behaviour of bentonites used in engineered barriers in the deep geological disposal of radioactive waste. I completed two stays at the Universidade Federal Rio Grande do Norte in Brazil. Currently, I continue working in the GEG-UCLM group in the same research lines, thanks to a Juan de la Cierva - Incorporación grant until 2022 and a postdoc grant funded by Plan propio I+D+i-UCLM since 2023.

My next objective pretends to merge the knowledge acquired/applied in the three research lines on which I have worked. It focuses on the development of a thermo-hydro-mechanical-electro-chemical (THMEC) model for porous media that considers redox reactivity and transport processes driven by electrical gradients, as well as their coupled effect on THMC behaviour. This model will make it possible to simulate different phenomena with greater quality, facilitating the study and subsequent design and scale-up of technologies focused on soil remediation and hazardous waste disposal.

Resumen del Currículum Vitae:

I am Chemical Engineer and Doctor in Chemical and Environmental Engineering (University of Castilla-La Mancha, UCLM).

During 2008-2013, I complete my PhD thesis in the TEQUIMA-E3L group of the Chemical Engineering Department of UCLM. In 2013-2014, I joined the R&D department of the Energy division of the technology-based company Aries Ingeniería y Sistemas S.A. In 2015, I returned to the UCLM, where I am currently working in the Geoenvironmental Engineering Group at the Civil Engineering Department thanks to different competitive postdoctoral contracts (CYTEMA, Jóvenes Doctores-JCCM, Juan de la Cierva-Incorporación, Plan propio I+D+I - UCLM). I maintain an active collaboration with researchers from the Faculty of Chemistry of the Universidad Autónoma del Estado de México, the Laboratório de Eletroquímica Ambiental e Aplicada (LEAA) of the Universidade Federal Rio Grande do Norte (Brazil), and the Technical University of Darmstadt (Germany).

During all these stages, my main research line has been the development of chemical and electrochemical technologies for the treatment of wastewater and polluted soils. In parallel, during the last years, my activities have been more focused on the analysis of the thermo-hydro-mechanical-chemical behaviour (THMC) of porous media in different technical fields, especially, in electrokinetic soil remediation and in the deep geological disposal of radioactive waste. In addition, some important actions have been conducted for the study of technologies for the sustainable generation and storage of electrical energy. These research lines have been supported under 17 competitive projects (2 as PI) and 8 contracts with direct transfer to companies.

As a result of all the work done, I have published 48 scientific articles (44 of them in JCR journals, 36 positioned in Q1, 19 as first author and 12 as the corresponding author), and I presented 43 contributions to congresses (35 international, 1 invited conference). I contribute 11 original papers in specialised workshops. I have an H-index of 24, 1366 citations and an average number of citations/year for the last 5 years of 185 (Google Scholar). I have obtained a total of 248,000 € in grants for the recruitment of PhDs (salary and research support) and 47,000 € in competitive research projects as PI. I have taught in different undergraduate and postgraduate degrees in the field of Chemical and Civil Engineering. I have co-directed 6 Final Degree Projects, 7 Master's Thesis and a PhD thesis (pending dissertation). I am secretary of the Institute of Technology, Construction and Telecommunications of the UCLM. I am accredited as Associate Professor-Tenured (Titular de Universidad) since 2022 and I have a positive evaluation of the research activity, 2008-2015, all accreditations issued by ANECA. I have a I3 certificate (2023) issued by the Ministerio de Universidades (Spain).

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	FERNANDEZ BREMER, ALVARO
Referencia:	RYC2022-037423-I
Correo Electrónico:	alvarofbremer@gmail.com
Título:	Unraveling Earth's Climate History: Advancing Climate Projections with Novel Proxies

Resumen de la Memoria:

My main area of research is in the use of isotope geochemistry to reconstruct Earth's climate. Paleoclimate data are of high societal importance because they allow us to directly observe how Earth's climate responds to different radiative forcings, such as elevated concentrations of carbon dioxide. I have a track record in developing new and innovative research lines, novel analytical techniques, and custom-built scientific devices. My contributions to my area of research include: 1) advances to carbonate clumped isotope geochemistry, 2) the development pedogenic siderite as a paleoclimate archive, 3) work that advanced our understanding of greenhouse climates, and 4) work that provided better constraints on the climate of the Last Glacial Maximum.

I am an expert in clumped isotope geochemistry (a novel tool to reconstruct paleotemperatures); I have published 16 research papers in this topic. My efforts focused on methodological improvements to increase research reproducibility, and on efforts that allow the proxy to be used for paleoceanography. Additionally, I pioneered the use of a novel archive of the paleoenvironmental conditions present in wet continental regions (pedogenic siderite clumped isotope proxy). My work in greenhouse periods has provided better constraints on the latitudinal temperature gradient and hydrology of the Early Eocene, and on the magnitude of the Toarcian Ocean Anoxic Event.

More recently, I began to work with speleothems to reconstruct temperature and precipitation changes. I designed and constructed a speleothem fluid inclusion H_2O isotope line, a technique that has a great potential for reconstructions. I also have experience in fluid inclusion microthermometry, which produces unique and exceptionally precise paleotemperatures from speleothems. I have used these techniques to document the temperature and precipitation changes that occurred in the tropics during the last deglaciation. Moreover, I have begun collaborations to apply these novel proxies to speleothems from the Iberian Peninsula to reconstruct times of rapid climate changes.

My research plans include: 1) the development of a new archive of deep-time sea surface temperatures, 2) on proxy and model-based reconstructions of global mean surface temperatures and equilibrium climate sensitivity during the Late Cretaceous, 3) on high resolution reconstructions of temperature and precipitation of the Iberian Peninsula, and 4) on improvements on the measurement of dual clumped isotopes. I also plan to incorporate recent innovations in paleoclimate research such as paleoclimate data assimilation into my research.

Resumen del Currículum Vitae:

In my research I use the sedimentary record and geochemical proxies to reconstruct Earth's climate. I have a PhD (2015) in Geochemistry from Tulane University in New Orleans, USA and more than 7 years of postdoctoral experience in prestigious national and international research centers (ETH Zürich-4 years; University of Bergen-2 years; IACT-CSIC-since March 2021). My professional experience includes the planning and execution of diverse research projects, the development of new analytical methods and paleoclimate proxies, the teaching and supervision of PhD students, and more than two years' experience in industry as an environmental consultant. I have a high degree of mobility and internationalization having worked in four different countries and developed a broad network of international collaborators.

I have published 24 peer reviewed publications in the top journals of my field (e.g., EPSL, Geochim., Nature Commun., Nature Geosci.). Seven of these papers are as 1st author and five as 2nd author. Three of the 2nd author publications are from a PhD student I co-supervised, where I had a major role in project conceptualization and experimental design and substantially contributed to interpretations and article writing. An additional co-author paper was just accepted, and four more papers are currently under review (one as 1st author, preprints available in ORCID). My papers have been cited 1342 times (goggle scholar) (1014 Scopus) with an H-index of 17 (google scholar) (15 Scopus).

My experience also includes evidence of scientific leadership. For instance, I independently initiated new areas of research. I have successfully collaborated with the private sector (Thermo Scientific, LIDI method). I co-supervised the research of one completed PhD dissertation, and I have served in four PhD examination committees (2 ETH, and 2 University of Oviedo). I am a member of a 4-person team leading a formal interlaboratory comparison exercise of fluid inclusion data (12 laboratories). I have taught doctoral level classes in paleoclimate (33% in 2016 and 2017 at ETH, 16% UGR summer school in 2022), and participated in scientific outreach activities. Moreover, I have received 3 invitations to lecture at department seminars (U. Houston, U. Minnesota, Texas A&M) and 2 invitations to speak at international conferences. I have reviewed multiple manuscripts (e.g., EPSL, Geochim., Geology, RCM., Chem Geo, G-cubed). I have been awarded three competitive postdoctoral fellowships (including a JdC-I), and I have successfully raised funds for my research (total: 287.000 Euros).

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	DEPELLEGRIN , DANIEL
Referencia:	RYC2022-035260-I
Correo Electrónico:	danny_green@hotmail.com
Título:	Transition-based Maritime Spatial Planning for Sustainable Blue Economy

Resumen de la Memoria:

I am addressing the four main research areas of the past 7 years of my research carrier: RL-1) Environmental and Strategic Environmental Assessment of anthropogenic activities in the marine environment. I have been focusing on the analysis on the environmental and socio-economic impacts from oil spill accidents and of offshore wind energy development in the Baltic Sea and North Sea (e.g. Depellegrin & Pereira, 2016; Gusatu et al., 2021). RL-2) Another area of research is Maritime Spatial Planning. Key research activity is the development of decision-support-system and techniques to analysis marine environment-human interactions across European seas (e.g. Depellegrin et al., 2017; Depellegrin et al., 2021). Final aim of this research line is to support national/regional authorities in taking science-based decision for the allocation of human activities and ecosystem-based management of sea areas. RL-3) This research line focuses on incorporating socio-ecological knowledge into the analysis through an ecosystem services assessment and threat analysis framework. The main research question in this context is to understand how the incorporation of the ecosystem services knowledge in MSP can lead to a more sustainable sea space allocation and use of marine resources (e.g. Depellegrin et al., 2020). RL-4) Analysis of Ocean Multi-Use potentials as new paradigm for a more smart allocation of sea space, such aquaculture-offshore wind energy integration or multi-use platforms (e.g. Depellegrin et al., 2019; Schupp et al., 2019). My long term RESEARCH TRAJECTORY aims to address sustainable transition opportunities/challenges of the Blue Economy in Spain. I will use a technological innovation system approach to address a set of high potential marine technologies (e.g. offshore renewables, ocean clean up systems, electrification of vessels, re-wildering of the sea) and there effects on the marine socio-ecological system using an innovative socio-environmental-technological assessment framework. Final aim of the trajectory is i) to address the effects of new marine technologies on the marine socio-ecological system; ii) assess how the socio-ecological knowledge can be incorporated in sustainable transition theory and iii) how environmental and socio-economic shocks can alter/ boost/ deviate sustainable transition trajectories in the national Blue Economy using AI-based geo-statistics. The project aims at addressing the environmental (e.g. climate change) and socio-economic (economic crisis, pandemics, wars, etc..).shocks on Blue Economy sectors of Spain and with an integration of case studies from Bangladesh, Lithuania and Italy. A successful appoint to an RyC grant would be an essential milestone towards this goal. Aim of the research trajectory is to create at RyC hosting University or Research Institution a centre of excellence for Blue Economy and ocean-centred geospatial research. In case of successful appointment of the RyC grant I plan as follow-up to apply to an ERC (European Research Council) "Consolidator Grant" to potentiate the research team with a project entitled Blue-Oculus: Spatial-Economics for the Blue Economy.

Resumen del Currículum Vitae:

Dr. Daniel Depellegrin [h-index/Citations: 18/910 (Scopus); 10/244 (WoS); GoogleScholar: 23/1296] has a PhD in 2015 Environmental, Ecological and Biomedical Sciences from the Marine Science & Technology Centre of Klaipėda University (KU-MARSTEC, Lithuania) received in September 2015. I have published 37 scientific publications in high impact journal, 1 book volume in Springer Nature, 5 book chapters, 1 policy brief, 20 project reports. I have over 7 years of experience in practice-oriented marine research aimed at facilitating decision-making in Maritime Spatial Planning and marine technology innovation in the Blue Economy. I am currently Senior Researcher and Lecturer at the Environmental Research Institute (Landscape Analysis & Management Group of the Dep. of Geography, University of Girona (UdG), Spain). In June 2022 I am winner of a European Marie Curie Post-Doctoral Fellowship entitled Blue-Paths (Sustainable Transition Pathways in the Blue Economy; Grant no: 101062188) at the University of Girona (Project start: 01/03/2023). Since 2013 I have collaborated as researcher and Principal Investigator in several research institutions: KU-MARSTEC (Lithuania), National Research Council – Institute of Marine Sciences (CNR-ISMAR, Italy), Renewable Energy Group – College of Engineering, University of Exeter (UK) and UdG. I have primer experience in international/national research project funding in Lithuania, Italy, UK and Spain. I was Researcher in the PartiSEAPate Interreg Baltic Region Flagship Project (Multi-level Governance in MSP throughout the Baltic Sea Region; 2011-14), NATO Science for Peace & Security Programme, RITMARE (Italian Research for the Sea; 2016-21), Task-leader in H2020-MUSES (Multi-Use of European Seas; 2016-18), Researcher in the Interreg-Med CO-EVOLVE (Promoting the coevolution of human activities and natural systems for the development of sustainable coastal/maritime tourism; 2016-19) project and Task-leader PORTODIMARE Interreg-ADRION (geoPortal of Tools & Data for sustainable Management of coAstal and maRine Environment; 2018-2020) and Principal Investigator FANBEST Interreg Atlantic Area (Funding Atlantic Network for Blue Economy Technology Transfer; 2019-21). I am member of various international scientific research networks dedicated to ocean planning/blue economy such as Eklipse Network addressing integration of ecosystem services into mitigation hierarchy FOR French Biodiversity Agency, I am expert within the Jean Monnet Centre of Excellence for Sustainable Blue Economy (ERASMUS+ Programme) for the Euro-Mediterranean University (Piran, Slovenia) and I was member of the OceanGov COST Action (CA15217 - Ocean Governance for Sustainability; 2016-20). On a contractal basis I acted as expert for various international organizations: in 2021 for NOAA (National Oceanographic and Atmospheric Administration, USA) I was international expert for the review of the "Aquaculture Opportunity Atlas of Gulf of Mexico and the Bight of Southern California"; for the ESPON Programme I was research lead in the dissemination of ESPON results among the scientific community producing 1 peer-reveiwed publication currently under review. As academic I have supervised 4 MSc and 2 BSc theses at IUAV, Erasmus Mundus and UdG. I acted as Professor in GIS (3 ECTS), Fundamentals of GIS (3 ECTS) and Integrated Scientific Methods (8 ECTS) at UdG.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	IRISARRI AEDO, IKER
Referencia:	RYC2022-038245-I
Correo Electrónico:	irisarri.iker@gmail.com
Título:	Water-to-land and other major evolutionary transitions

Resumen de la Memoria:

I lead a research program rooted in phylogenomics and comparative genomics aimed to understand evolution through the study of major evolutionary transitions as model systems. I am particularly interested in the process of terrestrialization and the genomic changes that permitted such abrupt habitat switches. My research takes full advantage of the powerful comparative approach of genomes and other relevant data (e.g., morphology, biochemistry, behavior) in order to provide integrative answers to complex biological phenomena.

My most important scientific contributions are on phylogenomics and major evolutionary transitions, especially water-to-land transitions. I led several studies on vertebrate phylogenomics, including a landmark paper establishing good practices for phylotranscriptomics (201 citations; >40 yearly). I contributed to comparative genomics and evo-devo studies that unraveled the genomic background behind vertebrate terrestrialization, including a key study on the lungfish genome –with 43 Gb the largest sequenced so far– that unraveled important aspects of vertebrate terrestrialization (86 citations; >41 yearly). My expertise in resolving difficult phylogenetic questions allowed me to tackle another major evolutionary transition in eukaryotes: the origin and evolution of photosynthetic organelles (plastids) by endosymbiosis (two lead-author publications; 90 citations). I also investigated water-to-land transitions in plants, focusing on the evolution of stress response pathways (3 publications) and integrating comparative genomics and 'multiomics' obtained in experimental setups. We recently published (bioRxiv 2023) a comparative genomics study on the closest filamentous algal relatives of land plants, which provides new insights into terrestrialization and multicellularity.

Beyond major transitions, I contributed extensively to phylogenetic, systematics, and evolutionary studies of various organisms groups (amphibians, reptiles, fishes, mollusks, algae). Some of my most important 1st-author publications resulted from multidisciplinary international collaborations that I led. Since my PhD, I established many international collaborations, co-authoring 13 papers and 4 meeting contributions without my supervisors.

I contributed to developing a new software now widely adopted by in phylogenomics (>74 citations). I am fully committed to open science, with >47% of my publications being open access and 11 open access preprints, in addition to the deposition of every research data and code in dedicated repositories (e.g., NCBI, Dryad, GitHub). I am editor or two open access journals and reviewer in many more.

My contribution to society comes from research, teaching, and outreach. Some of my work deals with the effect of climate change on biodiversity and I contribute to 2 genomics consortia with clear conservation goals (ERGA, Squalomix). I supervised 7 students and taught BSc. and MSc. in prestigious universities worldwide (Germany, Spain, Colombia). I participated in various outreach activities (3 editions of the Darwin Day in Stockholm), gave 2 radio interviews and wrote lay-term blog posts (3) and press releases (8).

Resumen del Currículum Vitae:

I did my PhD at the Museo Nacional de Ciencias Naturales (Madrid) with a JAE-pre fellowship; graduated with honors and received a PhD award. I led 3 1st-author publications on long-standing question in frog evolution (>162 citations), in addition to 7 more publications, 5 as lead, including a landmark study on aquaporin evolution (BBA 2014). I performed international internships in Germany, USA, and Australia.

In 2013-2016 I was a postdoc at Uni. Konstanz (Germany) with Prof. Meyer, supported by EMBO and Humboldt fellowships. I specialized in phylogenomics and started my main research line on water-to-land transitions. I led 3 key studies on tetrapod origins and adaptive radiations and published 11 papers in total. I did an internship at CNRS (France) with Herve Philippe. In 2017-2018, as a postdoc in Uppsala Uni. (Sweden) with Prof. Burki, I studied the origin and evolution of plastids by symbiosis and published a widely used software (PREQUAL) (3 papers 1 book chapter). In 2018-2020 I was a JdC-I postdoc at the Museo Nacional de Ciencias Naturales, where I used comparative genomics to unravel the genomic basis of toxicity in cone snails, in addition to studies on mollusk phylogeny (4 publications in total). In 2020-2022 I worked at Uni. Goettingen (Germany) with Prof. de Vries, investigating water-to-land transitions in plants. I authored 12 high-impact papers (e.g., PRSB 2021, Curr Biol 2022; 3 as 1st/last author) and significantly broadened my views on terrestrialization and 'multiomics'.

Since July 2022, I am principal investigator at the Leibniz Institute for the Analysis of Biodiversity Change (LIB), Hamburg. I investigate the genomic basis of water-to-land transitions using an innovative system: amphibious blenny fish. I have published 3 papers and I became member of large international consortia (ERGA, Squalomix) and collaborations.

Overall, my work has been published in prestigious journals (Nature, Nat Ecol Evol, Nat Commun, Systematic Biology): 46 SCI publications; 15 as lead author, plus 3 reviews, 3 book chapters, and 2 preprints under review (h=22 and >1781 citations in Google Scholar). During PhD and postdoc, I published ~27% papers without my supervisors. I contributed to the most important international (27) and national (8) meetings in my field (Evolution, SMBE, ESEB; >85% first author) and delivered 9 invited talks.

I have attracted significant funding as PI, including my current start-up funds (27K€) and a project as only applicant (40K€). I reviewed grants for the Czech Science Foundation and Chilean institutions (INACH, FONDECYT). I am Editor at Frontiers and PCI journals, regularly review for >25 journals, and publish post-publication reviews as Faculty Opinions Associate Member. I have ample teaching experience in BSc. and MSc. courses in prestigious

international universities. I supervised 7 students: 1 PhD (defense 03/03/2023), 2 BSc. theses, 1 MSc. thesis, 2 MSc. projects, 1 PhD internship. I participated into 2 PhD examination boards and acted as international referee for 3 PhD theses.

My international research experience and production, leadership in supervision and teaching, multidisciplinary collaborator network, and ability to attract funding demonstrate my independence and projection. I am thus in the right moment to contribute innovative research on the genomic substrate of major transitions in Spain.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PÉREZ INVERNÓN, FRANCISCO JAVIER
Referencia:	RYC2022-035821-I
Correo Electrónico:	fjpi89@gmail.com
Título:	Understanding the relationships between atmospheric electricity, weather and wildfires

Resumen de la Memoria:

The study of atmospheric electricity and their effects requires a multidisciplinary approach that combines plasma physics, electromagnetism and atmospheric sciences. My scientific career has been focused on contributing to provide new insights into the main questions related with atmospheric electricity and lightning-induced wildfires. I acquired expertise in numerical modeling, analysis of laboratory, satellite and in-situ measurements, and chemistry-climate modeling.

I started my PhD under the supervision of Dr. Gordillo-Vázquez (a world expert on the chemistry of atmospheric discharges) & Dr. Luque (awarded with the ERC Consolidator grant e-lightning) of the Transient Plasma in Planetary Atmospheres (TRAPPA) group [title: Modelling of atmospheric electricity phenomena in the atmospheres of Venus, Earth, Jupiter and Saturn]. This research led to my PhD degree in Physics and Space Sciences (Summa Cum Laude) in only 3 years and with 7 scientific papers (6 as corresponding author, 1 without his supervisors).
Between March 2018 and September 2019, I kept working as a postdoc researcher at IAA-CSIC and published 10 papers. The first 12 months of this period were funded by the "Periodo de orientación postdoctoral" in the framework of my PhD grant. The other six months were funded by a postdoctoral contract covered by the ERC Consolidator Grant of Dr. A. Luque (e-lightning). During this period, I contributed to the scientific data exploitation of the ASIM, I extended my work of modeling atmospheric electricity and I analyzed laboratory measurements of electrical discharges.
I was awarded with a AvH fellowship at DLR, managed between 2019 and 2021. During this 2-years fellowship at the Institute for Atmospheric Physics (IPA) of the DLR, I acquired managing skills, established several international collaborations independently, significantly expanded my research lines, now including meteorology, remote sensing and forestry and contributed to several main research lines of DLR.
In 2021, I was awarded a competitive 3-year postdoctoral contract from the Junta de Andalucía at IAA-CSIC, which I held for a period of 9 months before resigning to take on a new postdoctoral project as PI. In 2022, I was awarded with a prestigious 3-year "La Caixa Foundation Postdoctoral Fellowship - Junior Leader" (ref. 116517, with a success rate of approximately 10%) and began in September of that year.

Some of his most relevant contributions are:
- Investigating the chemical role of atmospheric electricity phenomena in the Earth System: modeling sprites, elves and halos and developing methods to quantify the chemical products of lightning.
- Developing optical diagnostic methods for halos and sprites.
- Investigating the characteristics of atmospheric electricity in other planets of the Solar System: predicting Jovian elves before their detection and proposing indirect methods to probe the (non)existence of lightning in Venus based on electromagnetic and optical observations from spacecraft.
- Improving chemistry-climate models with novel atmospheric electricity parameterizations: new parameterizations of lightning, sprites and blue jets.
- Participating in scientific exploitation of ASIM.
- Investigating the role of aerosols in cloud electrification.
- Investigating the preferential meteorological conditions of lightning-ignited wildfires.

Resumen del Currículum Vitae:

I am the PI of a "La Caixa" Junior Leader fellowship. My research project, titled "Flashes and Fires from Space", was allocated a total of €305,100 in funding. I (29 publications, 15 as CA, 213 citations, 8 h-index) am an experienced postdoctoral researcher at IAA-CSIC with a strong background in atmospheric electricity, plasma physics and meteorology:
- Scientific and technical contributions: I have published 29 papers (2 highlighted by the editor, 15 as first and corresponding author) and 1 editorial, contributed to 25 international and 3 national conferences of geophysics and plasma physics. The results obtained during my PhD and postdocs have had a great impact on various fields of research related with atmospheric electricity. I am a developer of the atmospheric model MESSy of EMAC. I have attended to courses about managing of scientific information and preparing of proposals organized by UGR, CSIC and La Caixa. All the papers I have published as corresponding author are in open-access journals or in arxiv including links to repositories where developed codes and data are accessible.
- Mobility and internationalization: During my PhD, I made a 3-months secondment at the University of Bergen and a 3-months secondment at the National Center for Atmospheric Research. I managed an AvH research project between 2019 and 2021 in the German Aerospace Center (DLR) in Germany, allocating €19,200 research costs for the institution. I built a fruitful international network that allows him to collaborate with experts from all over the world (e.g. international scientific team of ASIM and forestry experts from WSL). I participated in several papers without his thesis directors, including one during an international secondment in my PhD.
- Leadership: In 2019, I was awarded with a prestigious 2-years Humboldt Research Fellowship for postdoctoral researchers to carry out my proposed research project at DLR. I managed this project during 2 years as PI and was awarded with computational time at DKRZ. In 2021, I was awarded with a highly-competitive "La Caixa" Postdoctoral Junior Leader Fellowship (€305,100). I am managing this research project since September 2021 as PI.
I am serving as guest editor for the journal Atmosphere and am a regular reviewer of high-impact journals (including Nature) and scientific project proposals. I am a member of the European Geophysical Union and the American Geophysical Union, and have established several international collaborations independently. I obtained the Horizon 2020 MSCA Individual Fellowships Seal of Excellence, I was awarded with a Fundación Ramón Areces fellowship for postdoctoral researchers and was nominated by IAA for the Granada, Ciudad de la Ciencia y la Innovación 2019 awards. In 2021, Junta de Andalucía granted me with a competitive postdoctoral contract at IAA-CSIC. I co-supervised a PhD student at IAA-CSIC & UGR (Sergio Soler) and am currently co-supervising another PhD student since 2022 (Pablo Camino, IAA-CSIC & UGR). The Spanish Ministry of Universities awarded me

the certificate of "doctoral assistant professor". I have participated in 4 outreach articles and in PIIISA project 2019 to introduce Science and Research in Andalusian high schools. I was invited to give a talk in the AGU2019 session "Thunderstorm Effects in the Near-Earth Space Environment" and 3 seminars.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	ROSA , GONCALO M.
Referencia:	RYC2022-035565-I
Correo Electrónico:	goncalo.m.rosa@gmail.com
Título:	Prediction of infection outcomes in host-(multi) pathogen interactions

Resumen de la Memoria:

Multidisciplinary conservation ecologist with a broad vision of biodiversity, linking both field and experimental work with modelling and cutting-edge molecular tools to better inform effective conservation. My research has focused upon mechanisms that underpin global biodiversity change and how wild populations respond to emerging threats. Earlier work integrated population ecology with conservation-based studies in Madagascar. But with increasing recognition of emerging infectious diseases as a serious conservation issue, I became interested in exploring the impacts of (co)infecting pathogens on amphibians. My PhD provided the first real-time evidence of the asynchronous emergence of two pathogens (ranavirus and chytrid fungus) and how their interaction led to community collapse. These results would later parameterize extinction risk models showing how breeding behaviour dictates the severity of a virulent pathogen, an angle never before explored with this tool. My interest took me to a postdoc in the USA/Panama to explore how host immunity predicts infection outcomes, a pivotal topic to my current research. For example, my research illustrated for the first time the role of skin secretions in limiting infection by chytrid fungus and disease progression in wild animals.

Today, I attempt to capture the complexities of natural systems by focusing on the interplay between multiple threats. Using an ecology-based framework, I seek to understand the mechanisms that drive emerging diseases in wildlife. Particularly, I'm interested in using amphibians as a model to investigate temporal disruptions in stable host-pathogen systems and how immunity traits affect ecological dynamics. Additional lines of research include multi-threat interactions but also push the boundaries of wildlife health. By investigating the role of trade in pathogen dispersal and its impacts on both biodiversity and human health, my research is also placed under a One Health context.

With over 1430 citations and an h-index of 17, my research has had a clear impact. As a result, I was awarded a project grant (FCT/EU of ~€250K) as a PI allowing me to develop my own research line. The project intended to disentangle multi-pathogen interactions and (co-)impacts in wild populations while providing opportunities for students. Building upon this, my proposed plan for the next 5 years will focus on two main lines of research. First, continue breaking down the emergent coinfection dynamics into its constituent parts — establishment, amplification and disease emergence — as they operate in a multi-host community. Experimental work and field monitoring data will be used to parameterise dynamic models that ascertain how ranavirosis emerges in amphibian host communities previously invaded by chytrid. In parallel, I will expand on my second line of research to investigate changes in immunity traits over the course of disease outbreaks, and how they shape the recovery of declining populations. I will achieve that by combining next-generation sequencing and shotgun metagenomics with long-term sampling to compare historical and contemporary immunity traits of both recovering and non-recovering populations. My vision thus shifts the paradigm by moving beyond the single-threat approach while looking into the past to understand the present and inform the future.

Resumen del Currículum Vitae:

Multidisciplinary researcher linking both field and experimental work with modelling and cutting-edge molecular tools to better inform effective conservation management. My research has focused on mechanisms that underpin global biodiversity change and how populations respond to emerging threats in the Anthropocene.

ACADEMIC EDUCATION
2015. PhD, Biodiversity Management (University of Kent & ZSL, UK)
2008. MSc, Conservation Biology (University of Lisbon, Portugal)

R&D CONTRACTS
2022-present. University of Lisbon (Portugal): Research Associate
2022. Imperial College London (UK): Research Associate
2021-2022. Institute of Zoology, ZSL (UK): Postdoctoral research assistant
2019. Institute of Zoology, ZSL (UK): Postdoctoral research assistant
2018. Azorean Biodiversity Group (cE3c), University of Azores (Portugal): Research fellow
2015-2017. University of Nevada, Reno (USA): Postdoctoral fellow

PUBLICATIONS
Citations: 1430
h-index: 17
- Peer-reviewed tracked by ISI Journal Citation Report: 52; First or lead co-author in 30
- Peer-reviewed not tracked by ISI Journal Citation Report: 29; First or lead co-author in 25
- Popular science and awareness articles in magazines: 11
- Books: 3 on amphibian diversity and conservation
- Book chapters: 2 on wildlife health; 2 on amphibian diversity and conservation.
- CDs: 1 (amphibian bioacoustics)

FUNDING

Fellowship:
2011-2015. Foundation for Science and Technology: €118.951

Grants:
2021. Foundation for Science and Technology: €249.855 (PI)
2021. Stiftung Artenschutz: €6.186 (PI)
2020. Smithsonian Institution: $18.377 (PI)
2019. Associação Portuguesa de Herpetologia: €500 (PI)
2018. People's Trust for Endangered Species: £4.164 (PI)
2016. Morris Animal Foundation: $160.923 (Collab.)
2015. Mohamed bin Zayed Species Conservation Fund: $9.000 (Collab.)
2012. Chester Zoo: Conservation and research fund: £1.500 (PI)
2011. Fundação Amadeu Dias: €1.900 (PI)
2009. Mohamed bin Zayed Species Conservation Fund: $24.500 (Collab.)

TEACHING
Teaching experience at the undergraduate and Master's levels in the UK and Portugal. Have worked as facilitator running Problem-Based Learning sessions for postgraduate courses at Royal Veterinary College and ZSL. Have been invited to design and lecture a module on amphibian conservation medicine for a postgraduate course at Vasco da Gama University School (Portugal). Have marked students and their postgraduate projects in the UK and South Africa.

MENTORING
Primary supervisor of a PhD student whose successful scholarship application I supported. Have supervised 13 Master's students in Portugal, UK, Germany; 8 as primary supervisor. The majority have joined a PhD programme or are employed in the science/veterinary sectors. Have supported and mentored several PhD students over the last 8 years.

ACADEMIC RECOGNITION
- Partying in review panels: EDGE programme (UK); UNR Graduate Student Association Spring Awards (USA)
- Editorship in 3 journals. While editor-in-chief of Alytes I brokered a partnership with IUCN allowing the journal to become open-access
- Often invited to talk at international meetings as well as chairing sessions at European and world conferences
- Often invited as a guest lecturer for graduate courses

These were among some of the achievements that justified the awarded status of Honorary Researcher Associate in 2020 by the Zoological Society of London.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	SCHITO , ANDREA
Referencia:	RYC2022-036094-I
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Título:	Thermal evolution of sedimentary basins and carbonaceous material dispersed in rocks

Resumen de la Memoria:

My research is mainly focused on Basin Analysis, combining sedimentary and structural geology, numerical modelling and geochemistry, with a focus on the diagenetic/metamorphic transformation of Carbonaceous Material (CM) dispersed in rocks.

The most innovative line of research I developed in my career is the study of the molecular changes suffered by CM dispersed in rocks in the carbon cycle, including during the phases of regional metamorphism, magmatism and hydrothermal alteration. The study of CM affects our society since controls the development of natural resources like hydrocarbons or minerals for energy transition technologies (i.e. graphite) and can offer a unique insight in some fundamental scientific problems like: the origin of life; the role of the carbon cycle in past climate shifts or the amount of energy released by catastrophic events like earthquakes, subductions volcanoes or meteorite impacts. Since my PhD I have developed new ideas in this field and suggested new methods and approaches. I was one of the first researcher to propose Raman spectroscopy as a viable approach for the study of CM in diagenesis. I then improved the method presenting an automatization of spectra interpretation and the application of a machine learning (ML) approach to face the problem of organofacies heterogeneity in CM. In the last years I' ve broadened my research interest also studying the effect of the heating rate, strain and fluids on CM evolution in different geological settings moving from faulted and metamorphic rocks to hydrothermal aureolas and charcoals. My last studies suggest the possibility to develop a universal kinetics for CM evolution based on Raman spectroscopy to be used in Earth and Planetary studies and this is one of the main topics I would like to address in the following years.

The second line of research relates to the thermal evolution of sedimentary basins. This affect rocks properties, fluid-flow and minerals and carbon mobility, having an impact on natural resources (hydrocarbons, ore deposits, geothermal energy), CO2 storage, nuclear waste disposal and water supply. Paleotemperature evolve because of the interplay among sedimentologic, structural, tectonic, and geodynamic processes that control burial depths and geothermal gradient in sedimentary basins developed at both convergent and divergent plate boundaries. My research includes the study of the tectono-thermal evolution of fold and thrust belts (FTB), foreland basins and passive margin. Working on FTB I focused my interest on the amount of the tectonic burial loaded by thrust emplacement and then eroded during the evolution of a chain. This can give useful information on the geometry of the paleo-wedge and its style of deformation (i.e. thick vs thin skinned). Study areas include different sectors of the Appennine-Maghrebides chain and the Transcaucasia region (Georgia). I' ve also extensively worked on Paleozoic foreland basins in North Europe, showing how they can evolve in response to the advancing of nearby orogenic wedges or as a response of intracratonic far field effects. In divergent margin I' ve work on the thermal evolution of the South China Sea proposing a revision of the classical McKenzie model for heat flow evolution during continental breakup. In future studies I plan to address the open problems still opened in the above research fields.

Resumen del Currículum Vitae:

During my career I worked at the University of Roma Tre (Italy) and the University of Aberdeen (UK) and I collaborate with different international teams and developed my skills working in laboratories of four different countries (Italy, UK, Portugal and France).

I did my PhD at the Department of Science of the University of Roma Tre in the Academic Laboratory of Basin Analysis. The aim of the project was to challenge the classical thermal modelling approach by developing a new one based on the integration of different analytical techniques and reaction kinetics for models' calibration. During this period, I collaborated with Academic teams in national (Universities of Sapienza, Padova, Napoli, Perugia) and international (University of Porto, Portugal; University of Warsaw, Poland) universities and industries (ENI, Italy). The main outcomes include the combination of organic and inorganic kinetics to overcome limits in thermal model calibration, the designing of a new approach to unravel the complex polyphase tectonic histories of Lower Paleozoic successions and the development of a new technique for organic matter thermal maturity assessment in diagenesis based on Raman Spectroscopy Geothermometer on Carbonaceous Material (RSCM). Working in different labs I acquired strong expertise in sedimentary and structural geology, thermal modelling, Raman spectroscopy, organic petrography and clay mineralogy.

After that I was granted by the University of Roma Tre with a three years long post-Doc to further develop the RSCM technique for Basin Analysis studies. This allowed me to design an automatic approach for Raman spectra interpretation in diagenesis and a supervised multivariate approach to face the problem of organofacies heterogeneity in carbonaceous material (CM) in diagenesis. Furthermore, have also collaborated in different national projects funded by the PRIN Program of the Italian Ministry of University and Research (2017-2020) and Italian Ministry of Education (MIUR funds for Departments of Excellence) and international programs (IODP) showing how thermal modelling, can be used to study: the tectonic evolution of successions in different sector of a Paleozoic foreland or in fold and thrust belt (FTB) with a complex polyphase history, the thermal evolution of shallow sediments during continental breakup, the role of paleofluids in faults reactivation and the role of organic matter in the formation of native sulphur in Messinian evaporites. In thi speriod I have also leaded three projects and participate in other two sponsored by industries.

Due to the novelty of my work, I collaborated in different international teams. After the end of my project in Roma Tre. I was granted by the University of Aberdeen with two and a half years long project to study the effect of the heating rate, strain and fluids on CM evolution. Main results includes: the development of unique model for CM evolution in natural environments; the study of the mechanisms that led to CM degassing near magmatic intrusions to better evaluate its role on past climate shifts and; an insight on the formation of abiotic graphite in the deep carbon cycle.

In this period I participated to international projects funded by research centres or industries and I have been PI in two of them.

Resumen de la Memoria:

During my career, I have progressively shifted my research focus from the assessment of biodiversity and chemical interactions in benthic communities towards the evaluation of responses of marine organisms to environmental changes and reconstruction of past environmental changes in coastal regions using their natural archives aiming at predicting the global change impacts on marine ecosystems.

My CV lists 34 scientific JCR articles (+2 under review) + 4 book chapters (22 as first or senior author; 22 without my PhD supervisor; 25 in Q1; h=17,i10-h=25). This research has been supported by (i) 16 multidisciplinary projects (10 as PI: ~200k), through competitive calls of public entities in different countries, and (ii) by independently-funded research contracts/grants/awards obtained through competitive calls, including 2 reintegration contracts of programs of excellence (Smithsonian Tropical Research Institute-SENACYT; Juan la Cierva-Incorporación; Beatriu de Pinós/MSCA).

Since early stages I have worked independently with outstanding scientists in a total of 12 top research institutions from Spain, New Zealand, Falkland Islands, UK, Italy, Poland, Australia, Panama and USA. There I have acquired solid skills and an extensive experience designing and executing field and lab experiments in Antarctic (5 Antarctic expeditions), tropical and temperate regions. This allowed me to gain a global perspective on the threats faced by marine ecosystems and to identify research priorities. This experience in multiple institutions (>39 months abroad) has been the base to consolidate a wide national and international, multidisciplinary and long-lasting collaboration network with 175 coauthors from 43 countries. A proof of that is my participation by invitation to multidisciplinary networks and programs (MEASO, GOA-ON, Ant-Icon SCAR) and policy decision-making meetings to translate science into policy.

I have presented ~35 contributions at conferences/seminars (19 as first author, including invited talks) and I was involved in the organization of 5 international congresses. I have experience in mentoring (1 technician and 1 PhD, 1 MSc, 1 Erasmus+ and 5 BSc students), teaching and disseminating my work through social media, press releases (10), public talks, radio interviews (3) and outreach activities at research centres and associations.

I served as scientific validator of the citizen science project Seawatchers, member of 3 Steering Committees (IBA, ICHN and APECS), Academic Editor of PeerJ, Guest Editor for 2 Special Issues, Thematic Editor in WoRMS and reviewer for 27 SCI journals, 3 grant panels (NSF) and the IPBES transformative change assessment. I was included as European evaluator and expert member of AEI. I received the i3 certification that acknowledges my outstanding research track record and the accreditation of research from AQU.

Along my career, I achieved maturity for a successful independent scientific career and my last step of my career is now developing at ICM-CSIC as Junior Group Leader. My own group is currently composed by 1 co-supervised Severo Ochoa PhD, 1 Erasmus+ and 1 BSc students and a technician and it is funded by 3 EU co-funded projects (Spanish National Plan I+D, ICM Severo Ochoa and Assemble+ projects). These achievements and my upward trajectory indicate I am ready to consolidate my scientific career with a RyC grant.

Resumen del Currículum Vitae:

MAJOR HIGHLIGHTS OF MY CV. 1) Number of publications: 38 (34 scientific SCI articles plus under review + 4 book chapters; 22 as first or senior author; 22 without my PhD supervisor; h=17, i10-h=25, Google Scholar). 2) Participation in projects: 16 (10 as PI, including an international STRI-SENACYT project and 3 EU-cofunded projects: Spanish National I+D, ICM Severo Ochoa and Assemble+ projects; total income as PI: ~200k. 3) A wide collaborative (n=175 co-authors) and international (n=43 countries) research network. 4) Research fellowships/contracts and awards: 26, including 5 competitive predoctoral/postdoctoral contracts (1 predoctoral: FPI program; 4 postdoctoral: Council of Managers of National Antarctic Programs, Smithsonian Tropical Research Institute -SENACYT; Juan la Cierva-Incorporación, Beatriu de Pinós/MSCA). 5) Supervision of students and technicians: 1 technician and 1 PhD, 1 MSc, 1 Erasmus+ and 5 BSc students. 6) Number of research centres where I have worked: 12 (10 international: Natural History Museum of London, National Institute of Water and Atmospheric Research, Falkland Is. Fisheries Dept., Institute of Biomolecular Chemistry, Institute of Oceanology Polish Academy of Science, Australian Antarctic Division, Macquarie University, Smithsonian Tropical Research Institute, Texas A&M University, Stazione Zoologica Anton Dohrn; 2 national: University of Barcelona, Institute of Marine Sciences, ICM-CSIC). 7) Number of contributions to national and international conferences/seminars: >35; 8) Number of SCI journals I reviewed: 27 journals (verified reviews in Publons). 9) Number of SCI journals I edited: 15. 10) Institutions/ foundations for which I have reviewed project proposals: 3 (NSF, FONDECYT, ICHN). 11) Editorial board member: 3 (Academic Editor: PeerJ; Guest Editor: Frontiers, Elsevier). 12) Member of Steering committes: 3 (IBA, ICHN, APECS). 13) Expert member of EVALUA agency (Agencia Estatal de Investigación, AEI); European Evaluator; Reviewer of the IPBES transformative change assessment. 14) Member of excellent and multidisciplinary networks and programs: 3 (MEASO, GOA-ON, Ant-Icon SCAR). 15) Member of the Comission on Diversity and Inclusion at the SIBECOL.16) Accreditations: i3 certification (I3/2021/0193) from the Ministry of Universities and accreditation of research (G4F8H22HC) from AQU. 17) Outreach: highlights in newspapers and news in media (>100), TV shows (n=2), Radio interviews (n=3). Outreach talks and other activities (588h).

In addition to the highlights mentioned above, the key achievements of my research career have been to establish new research lines, pioneering the study of poorly known groups and developing new proxy-based approaches, that have allowed to me to bring relevant results in my field and gain international recognition.

Resumen de la Memoria:

My research is devoted to address the on-going environmental challenges that global change poses to our society, with special interest in the interactions between disturbance regimes, land-use change and climate warming. The relationships among these driving forces are complex and need to be tackled with an integrated, proactive and adaptive management to identify sustainable solutions and ensure a successful policy implementation. It also requires a cross-scale perspective that allows us to act locally through tailored-made management actions embedded in global initiatives.

Since February 2019, I am PI of the FCT project: 'FirESmart – Nature-based solutions for preventive fire management and sustained supply of ecosystem services', aimed at reducing wildfire hazard while ensuring biodiversity conservation and ecosystem services. In the context of the project, my research group developed an innovative process-based model (REMAINS) that allows exploring the effect of alternative fire and land-use management scenarios on fire regime, climate regulation services and biodiversity conservation. The FirESmart project showed how policies promoting extensive agriculture would reduce fire hazard while simultaneously ensuring biodiversity conservation. Although 'fire-smart' forest conversion to fire-resistant forest types was beneficial for a long-term supply of carbon sequestration, their implementation should be integrated within agricultural policies to jointly reduce fire hazard and conserve local biodiversity. Our research team also found that the use of fire could enhance 'rewilding' as Nature-based Solution (NbS) if the Common Agricultural Policy (CAP) continues to fail at reversing rural abandonment trends. These findings opened the door to new questions on how to incorporate 'fire-smart' strategies into land-use policies to maximize their co-benefits for wildfire mitigation, biodiversity conservation and ecosystem services —key issues considering the high expectations placed on a greener CAP, and 'rewilding' initiatives across Europe.

FirESmart is now coming to an end, and the outcomes are being published in prestigious journals and having a great media impact. My research team has so far published 17 scientific publications in top-ranking journals such as Nature, Science or Global Change Biology. The dissemination and transfer of knowledge is a fundamental piece of my research. I would remark that the last WWF report was partially based on the FirESmart project. The project has been well accepted by local stakeholders, having a great media impact. Project results were presented in several national and international conferences (Portugal, Spain, Italia, France and Estonia, and USA).

The RyC will allow me to consolidate my research line and career. Over the next 5 years, my research will focus on developing an integrative foresight framework to guide and support the implementation of innovative and enhanced NbS to extreme wildfires. It will provide new insights for a proactive, integrated and more holistic fire management by incorporating a wide range of ecosystem services into biophysical and socioeconomic assessments. It would be a firm step towards a fire-resilient landscapes since it will guide evidence-based decision-making to reduce the wildfire hazard while supporting nature conservation and sustainable development in Europe.

Resumen del Currículum Vitae:

I am PhD in Ecology (Cum laude and International Mention; UAB, 2015) and expert in GIS and Remote Sensing (Award to the best master student; UAB, 2012). I am accredited as Profesor Contratado Doctor (ANECA, 2020). Recently, I got I3 Certificate of Scientific Excellence for 2021 (Science and Innovation Ministry). My stays abroad for 44 months (Switzerland, Canada and Portugal) allowed me to create a solid network that fostered outstanding publications and the impact of our research (see contributions in Science, Global Change Biology or Frontiers in Ecology and the Environment) (120 co-authors from 10 different countries).

My track record demonstrates a high level of achievement as an independent researcher and growing recognition as international research leader in my field. My research output is excellent, both in quantity and quality, for my field and career stage (7 years post PhD). I have published 44 articles in SCI indexed journals, being the first (20/44), last (7/44) or corresponding author (22/44) in 29 (66%) of them. I have also published 10 articles in non-SCI journals/dissemination (6 of them as first author). I am author of 63 communications in national and international conferences (6 invited talks). Therefore, so far, I have published a total of more than 125 scientific papers. SCOPUS ID: Regos A., 54960705700. 44 papers, H-index:15, number of citations: 855 (1,270 in Google Scholar) —half of them in the last two years.

Over the last 7 years, I have secured more 210,000€ through the application of highly competitive post-doc grants (post-doc grants of 'Xunta de Galicia' and Spanish program 'Juan de la Cierva - incorporation') and more 240,000€ through different grants and projects of regional and national Research and Innovation programs. Since February 2019 I am Principal Investigator (PI) of a 4-year project, 'FirESmart – Nature-based solutions for preventive fire management and sustained supply of ecosystem services' (PCIF/MOG/0083/2017), budget: 199,691.25€, Foundation for Science and Technology of Portugal). This allows me to coordinate an excellent team of 20 researchers from different institutions across Spain, Portugal and UK with a large expertise on fire and landscape modelling, ecosystem services and environmental management. I have participated in 11 competitive national and international projects (funded by EU programs such as the FP7, 'Marie-Curie' and Horizon 2020) and in 7 regional contracts being the PI of research grants/contracts for a budget of 33,400 €(Xunta de Galicia through the FEDER and IACOBUS programs).

My research contributed to the development and consolidation of a new strategic research line around fire management in the host groups. Regarding mentoring, I have supervised 17 students (TFMs/TFGs): 10 master theses and 7 bachelor's degree dissertations, 50% of the which were published in SCI. Since 2021, I am currently supervising 5 PhD theses. I have participated actively in numerous events and co-organized 2 symposiums. In addition,

I am participating in editorial work both as Guess Editor in Special Issues (see e.g., ' Nature based solutions to wildfires') and as external reviewer for more than 20 scientific journals. Furthermore, I make freely available the datasets, R code and software (e.g., REMAINS model), dissemination and knowledge transfer materials (e.g., outreach videos, policy brief) derived from my research.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	REIG I AMAT, MÒNICA
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Título:	Recovery of added-value elements through the valorization of waste streams by sustainable and innovative technologies following circular economy strategies

Resumen de la Memoria:

My research experience started conducting my final degree project (2011) focused on brackish water treatment by nanofiltration technique in flat sheet configuration. Later on, spiral wound nanofiltration configuration was studied for brackish water treatment as part of my final Master thesis. Subsequently, my PhD thesis focused on integrating electrically driven membrane separation processes for water treatment and resource recovery. For instance, purification and concentration of reverse osmosis brine to obtain NaCl concentrates or salt separation by selelectrodialysis, combined with bipolar membranes for acid and base production, were studied. Besides, during my pre-doctoral research stays, I characterized novel nanoporous charged glassed membranes (Kuban State University, Russia), and I synthesized ion exchange membranes to concentrate reverse osmosis brines by electrodialysis (KU Leuven, Belgium). Moreover, I established another international collaboration with Dr Y. Tanaka (IEM Research, Japan) related to the simulation of electrodialysis for seawater desalination brines recovery. As a summary of my period as PhD student (2013-2016), I published 10 articles in scientific journals indexed in the JCR, I assisted in 9 international conferences presenting 5 oral communications and several posters (resulting in 2 conference papers). It is worth mentioning that my PhD supervisors early on placed a significant amount of trust in me, allowing me to take complete leadership when publishing my research outcomes. Consequently, I was the corresponding author of 8 of my publications during my PhD candidature.

During my post-doc career, I have been main researcher in several national and European projects, leading several work packages. My work has been focused on resource recovery, valorisation and added-value products extraction by membrane techniques from wastewater and agro-waste residues. For instance, I studied the use of liquid-liquid membrane contactors for nutrient recovery as liquid fertilizers, the recovery of minerals and metals from seawater desalination brines by developing innovative technologies, or polyphenols extraction from agro-food residues, among other topics.

As general quality indicators of my scientific research, I can highlight that I have 58 publications: 51 peer-reviewed publications indexed in JCR (> 80% in Q1), 1 non-indexed scientific article, 5 book chapters and 1 non-indexed conference paper. I have been the first author of 24% of them and the corresponding author of 22% of the publications. Moreover, almost all of my publications have become online only in the past 8 years, and they were already cited 1085 times, 341 times in 2022 so far, H-index of 21 (www.scopus.com, 03/02/23).

On the other hand, it is worth mentioning that during my research career, I have been involved in 15 competitive projects (8 nationally and 7 European funded) and in 13 non-competitive projects and R&D collaboration contracts with several companies. In the latter case, I was the principal investigator in 5 of them. Finally, about my supervision experience, I have co-supervised 14 undergraduate dissertations for Chemical Engineering degree, 2 research works for exchange students degree, 8 master theses at the MSc Chemical Engineering, 1 PhD Thesis and I am co-supervising another PhD student in Chemical Process Engineering.

Resumen del Currículum Vitae:

I finished the Chemical Engineering degree at Universitat Politècnica de Catalunya (UPC) in 2011, with a special distinction for the final degree project. Subsequently, I continued my research career on water treatment processes by membranes under a Graduate Research Assistantship.

The next year (2012), I obtained the Chemical Processes Engineering Master from UPC. In the same year, I obtained an FPI grant funded by the Ministry of Spain (MINECO) to conduct my PhD at the Chemical Engineering department of the same university. My thesis focused on integrating electrically driven membrane separation processes for water treatment and resources recovery. In December 2016, I graduated from my PhD in the Chemical Process Engineering program with Cum Laude and International mention, and I also obtained the Special Doctoral Award. During my PhD, I was a guest researcher at Kuban State University in Krasnodar (Russia) and also at the Katholieke Universiteit Leuven (Belgium).

After my PhD, in 2017, I worked part-time at the Development department of a water technological centre (CETAQUA), carrying out technology watch tasks regarding national universities, technological centres, platforms and networks. Also, I partially continued my research at UPC with a post-doc contract under a European-LIFE project. In this project, I led a work package based on nutrient recovery as liquid fertilizers by liquid-liquid membrane contactors.

The following year, 2018, I continued working part-time at UPC under the LIFE project, and also I worked at the Knowledge Management department at Suez company to develop technology watch activities about new market opportunities. Besides, I started developing a new career as an adjunct lecturer in the Chemical Engineering Department at UPC.

After the stage at Suez company, in 2019, I started working half-time in the R&D department at Condorchem Envitech S.L., leading a research project and doing R&D management tasks. The project aimed to design, test and develop a new membrane technology based on electrodialysis to be commercialised. Moreover, I kept my UPC postdoctoral research tasks (half-time) under the LIFE project and my teaching duties as an adjunct lecturer. In 2021, I stopped temporally (16 weeks) my research and teaching careers in both companies to enjoy maternity leave. Moreover, at the end of 2021, I finished my research stage at Condorchem Envitech.

Nowadays, I kept my positions at UPC: as an adjunct lecturer and as a postdoctoral researcher in the Chemical Engineering department. My work mainly focuses on resource recovery, valorisation and added-value products extraction by membrane techniques from wastewater and agro-waste residues. Indeed, I am focused on a European H2020 Project.

Moreover, I have been carrying out other academic activities, such as acting as a referee for several international journals, taking part as a jury member for the evaluation of doctorate candidates and attending some teaching training courses, and a couple of seminars about PhD thesis supervision. Besides, I co-supervised a PhD Thesis, which obtained the Cum Laude mention, and I co-supervised several final year projects for Chemical Engineering Bachelor and Master's degrees. Nowadays, I am also the co-supervisor of another PhD student in the Chemical Process Engineering program.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	SERRA DIAZ, JOSE MARIA
Referencia:	RYC2022-035668-I
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Título:	Global change and forest dynamics across scales

Resumen de la Memoria:

I am an ecologist and a modeler working on forest and biodiversity dynamics under global change. I graduated in Environmental Sciences in 2012 and I performed three postdocs working at different scales on woodland dynamics, from micro-environments to macroecology. I successfully attained a professorship level in France and in the United States, where I currently work.

Forests and woodlands are at the intersection of social and ecological systems, providing fundamental services to societies worldwide such as food provision and water regulation, ~1.3Pg C year-1 sequestration, and harboring of an extraordinary amount of biodiversity that is currently threatened by global change. Likewise, forest and woodland management is adopting measures such as climate suitable planting and assisted migration to prepare for a warming future, and scientists are urged to provide forecasts of changes in woodlands over the coming decades. My research tackles these challenges by studying how fundamental processes interact and lead to forest distribution, composition and structure shift with climate change, and how we can restore the multiple functions that forest and different services tree species provide.

Three main axis structure this overall theme: understanding species regeneration niche from seed experiments, understanding the interactions between humans and forest disturbances under climate change, and deriving biodiversity dynamics under global change at global scale through big data.

Resumen del Currículum Vitae:

PhD in Environmental Science and technology (2012). I completed three postdoctoral contracts at Arizona State University (USA), Harvard University (USA) and Aarhus University (DK). In 2018, I became Associate Professor at AgroParisTech (FR), where I led research on the impacts of climate change, disturbance regimes and management on tree demography, distributions and forest functioning. I currently serve as a Research Assistant Professor at the University of Connecticut as part of a NASA project on Ecological Modeling. I have published 2 book chapters and 38 peer-reviewed articles in top-ranked journals in multidisciplinary sciences such as Nature (1), PNAS (2), in forestry such as Forest Ecology and Management (1) and Forest Ecosystems (1), agronomy such as Agriculture and Forest Meteorology (1), ecology and conservation sciences such as Global Change biology (2). My works have been cited 2454, with an H-index of 22 and an i-10 index of 33, collaborating with >150 authors. I have been invited to International workshops (2), university seminars (3) and conferences (4), including a recent invitation as keynote speaker. I organized workshops (2) and oral sessions at conferences (1). I participate in four major scientific networks (GFBI, SoilTemp, BIEN, DarkDivNet). I reviewed >20 articles, assessed scientific proposals for national research agencies in the US and Switzerland, and served as Deputy Editor in Chief for the top-ranked journal Diversity and Distributions. I participated in 19 research projects in Spain, France, USA, Denmark, and lead 7 projects as PI or co-PI for a total of 795 325 EUR. I have teaching experience of >800 hours including graduate and undergraduate courses in Spain, USA, Denmark and France, where I now lead four courses in the Forest Engineering program and the Master's degree of European Forestry. In my lab I mentor 2 PhD students, and have co-supervised (as postdoc) 4 published PhD chapters from two students. I also supervised 6 Masters students (3 in progress), and participate in networks of science and management exchange.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	BASALLOTE SÁNCHEZ, MARÍA DOLORES
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Título:	Effect and monitoring of anthropogenic pollution under Global Change projection

Resumen de la Memoria:

Marine Sciences and Technologies Ph.D. (2014, Doctoral Award), focused on ecotoxicological studies to evaluate the effects of Global Change on the marine environment and organisms. My research career has been mainly developed at the UCA and ICMAN-CSIC, and at UHU during the postdoctoral stage. I enjoyed a CAPES-Foundation granted postdoctoral researcher at the Instituto de Ciencias do Mar (UNIFESP, Brazil), under the supervision of Dr Augusto Cesar, where I worked on toxicological effects of CO_2 leakages in local aquatic species communities. In addition, during this postdoctoral phase, I have made a large net of international collaborators (Imperial College, University of Montpellier, University of Bayreuth, CSIRO, University of Lisbon, École des Mines de Saint-Étienne, Freiberg University of Mining and Technology, Institute of Nuclear Chemistry and Technology). In the framework of the national and regional projects CAPOTE, TRAMPA (WP leader) and DETOXMIN (Principal Investigator), I am currently performing a novel study on the impact of sea level rise on the mobility of metals in estuarine sediments under Global Change conditions. This study is being developed in close collaboration with the Environmental Geochemistry group at the University of Bayreuth (Germany), led by Dr Planer-Friedrich where I enjoyed a 3 months research stay (April-July 2023). Also in the frame of the previously mentioned projects, since 2017 I have a close collaboration with the Dr Rèmi Frydier from the HydroSciences Montpellier (University of Montpellier, France) and his research group, which is proven fruitful considering the recent publications as well as with Drs Susan Little and Mark Rehkamper from the Dptm. of Earth Science and Engineering (Imperial College London).

The experience gained during my research career has allowed me to obtain further funding upon competitive calls. Thus, since 2022 I am leading the DETOXMIN project (FEDER Operational Program; 38 801 €). I also obtained funding to study the use of biomass ashes and mining wastes to treat As-rich effluents within the ARCHENICAL and ARCHENICAL 2.0 projects (Atlantic Copper, 7 850 €).

I have participated actively in transfer activities of knowledge to decision makers and private companies through different 68/83 contract with consulting (Golder Associates), mining (MATSA, Atalaya Mining), and industrial (ATLANTIC COPPER) and regional governments (Regional Government of Andalusia, Diputación de Huelva). Some of the results obtained in these works have been used to adopt environmental measures in mines, and remediation measures during the regional plans of hydrological restoration of catchment (by the Andalusian Water Agency).

The proposed research line entitle Effect and monitoring of anthropogenic pollution under Global Change projection aims to; 1) evaluate the metal(loid) distribution in the different sedimentary environments of the estuary, quantifying the origin of each element, 2) determine the mobility of contaminants in the sediments during oxidation-reduction processes (i.e. sulfate-reduction and methanogenesis) under Global Change scenarios, 3) evaluate the bioavailability and zonation of the toxicity of metallic contamination in the waters and sediments of the estuary under Global Change scenarios, and 4) develop novel tools for evaluating environmental pollution.

Resumen del Currículum Vitae:

PhD in Marine Science and Technologies (University of Cádiz 2014, Doctoral Award), CAPES-Foundation granted postdoctoral researcher at the Instituto do Mar at the Universidade Federal de São Paulo (UNIFESP, Brazil), and postdoctoral researcher at the Environmental Mineralogy and Geochemistry group at the University of Huelva (UHU) upon the competitive calls Juan de la Cierva Formación (2016-2018) and Incorporación (2020-2023) programs, where I am currently leading two different research lines on the mobility of metal/loids in estuarine environments affected by anthropic pressures and valorization of industrial and mine wastes. Both research periods JdC-F and JdC-I have been evaluated as EXCELLENT by the AEI.

I have co-authored 40 articles in international peer-reviewed high-impact journals, 2 book chapters, and I am the co-inventor of a National patent. The results of my research have also been widespread in more than 50 international conferences. Frequent reviewer of main journals of my research field (e.g. Chemosphere, Mar Poll Bull, PeerJ, Sci Total Environ) and external evaluator for ANEP since 2020. Member of the Scientific Committee of IMWA Conferences since 2017. Presently, I am the PI of a project funded by the FEDER Operational Program (UHU-202021), Team coordinator of 1 European ERAMIN-2 project (PG2CRM), and PI of 2 projects funded by Cátedra Atlantic Copper (308 350 €). Besides, I have participated as work package leader in 10 competitive international (H2020 EIT Raw Materials, LIFE-ETAD, INTERREG Spain-Portugal POCTEP, ERANET-ERAMIN, World Bank) (> 4 000 000 €), and national projects (RETOS Projects, POPE OPERATIONAL PROGRAM 2014-2020 - LIFEWATCH ERIC) (353 404 €), and in 9 68/83 contracts with companies and regional governments (i.e. Atalaya Mining, Golder Associates UK, Minas Aguas Teñidas (MATSA), Atlantic Copper, Andalusian Agency for the Environment and Water, Junta de Andalucía) (181 202 €). I have active collaborations with international renowned research centres; the Environmental Geochemistry group at the University of Bayreuth (Germany), led by Dr Planer-Friedrich, where I recently completed 3-months research stay (April-June 2022); close collaboration with the Dr Rèmi Frydier from the HydroSciences Montpellier (University of Montpellier, France) and Drs Susan Little and Mark Rehkamper from Imperial College of London. UHU scientist in-charge in the vicarious calibration campaign for the CHIME Project of the European Space Agency (ESA), led by Dr Cindy Ong (CSIRO Energy, Australia) with aerial imaging spectroscopy data acquisition using the Airborn Visible IR Imaging Spectrometer - Next Generation (AVIRIS-NG) sensor (NASA-JPL 2021). Research stay at the Universidad Andina del Cusco (Peru) as WP leader in the project funded by the World Bank (2020-2022) on Valorization of mining slag for civil construction applications. I have supervised 1 PhD (ongoing), 8 MSc Thesis (and 3 ongoing), developed in international programs and 3 BSc Thesis. External evaluator in the Master in Environmental Chemistry (University of Bayreuth). Responsible of ESRs secondments in the MSCA-ITN PANORAMA project. Accredited as Profesor Contratado Doctor (ANECA, 2017). Active teaching with more than 300 h lectures in the Degree in Geology and in Environmental Sciences and at the ERASMUS MUNDUS (WACOMA and MUrCS) MSc programs.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	RODRÍGUEZ RECIO, MARIANO
Referencia:	RYC2022-035911-I
Correo Electrónico:	mariano.recio@gmail.com
Título:	Ecología espacial y métodos geoespaciales aplicados a estudios de fauna silvestre, medio ambiente, y cambio climático

Resumen de la Memoria:

En mis proyectos combino investigación multi- e interdisciplinar de los campos de la ecología espacial, comportamiento animal, análisis del movimiento, invasiones biológicas, conservación, reintroducciones, cc. geoespaciales, estadística, análisis de datos y computación. He llevado a cabo y dirigido lineas de investigación en fauna silvestre que incluían aspectos aplicados relacionados con especies emergentes que toman protagonismo en los ecosistemas como consecuencia de impactos positivos de ciertas acciones humanas. Este es el caso de los programas de la translocación de especies o la aplicación de estrategias exitosas de conservación de especies animales. Sin embargo, otras acciones humanas son perniciosas y causan la introducción y presencia emergente pero indeseada de especies invasoras. Con respecto a las invasiones biológicas, he realizado estudios aplicados relacionados con su potencial expansión, uso del espacio, control y erradicación tanto en Nueva Zelanda como en Europa. Con respecto a la reintroducción de especies, he investigado acerca de distintas especies de aves (kaka, weka, takahe), mamíferos (lince euroasiático) y reptiles (tuatara). En el ámbito de las especies que se expanden de forma natural a partir de la exitosa aplicación de estrategias de gestión, he trabajado en la expansión de especies de grandes carnívoros en Europa como el lobo y el oso pardo. Dada la naturaleza de mis investigaciones que incluyen un importante componente técnico y metodológico, he abordado investigaciones desde este ángulo para mejorar las aplicaciones de teledetección y tecnología GPS a mi linea de investigación. Además, siempre que una pregunta relevante surge, he trabajado en investigaciones de otras áreas o taxones como invertebrados (onicóforos) o humanos (biofilia en niños de grandes ciudades de Nueva Zelanda).

En general, he enfocado mis estudios desde una perspectiva espacial, incluyendo modelado espacial y simulación de movimientos de animales, distribución y uso del espacio incorporando actividades humanas y cambio global. Los resultados de mi investigación se utilizan hoy en Nueva Zelanda para optimizar el control de depredadores introducidos, en Escandinavia para la gestión de la población de lobo, y para la de osos pardos en centro Europa.

Resumen del Currículum Vitae:

Licenciado en CC. Biológicas, especialidad zoología (1996). Doctor por la Universidad de Otago, Nueva Zelanda (2012). Trabajé como postdoc en el Deptamento de Zoología de la Universidad de Otago (2012-2013). Me trasladé a la Universidad de Chile en 2014 financiado con un proyecto competitivo de la Comisión Nacional de Investigación, Ciencia y Tecnología de Chile. En 2016-2017 fui financiado por la Fundación Carly Triggers de Suecia para trabajar en la Estación de Investigación de Fauna Silvestre de Grimsö (Universidad Sueca de Ciencias Agrarias). Después, viajé a Eslovenia a finales de 2017 para trabajar como postdoc en el departamento de Ciencias Forestales de la Universidad de Ljubljana. En 2018, retorné a España después de ganar un contrato Juan de la Cierva Incorporación para trabajar en la Universidad Rey Juan Carlos (2018-2020). Continué trabajando en esta universidad en 2021 al traer los restantes fondos de un proyecto de tres años que obtuve como IP de FORMAS Suecia. En 2022, conseguí un contrato Marie Sklodowska Curie de la Comisión Europea para trabajar en la Universidad de Ljubljana, Eslovenia.

He publicado 50 artículos científicos, 3 libros y 2 informes técnicos. Soy el primer autor de 27 artículos y 3 como coordinador. Tengo publicaciones en revistas de alto impacto como Frontiers in Ecology and the Environment, Proceedings of the National Academy of Science, Methods in Ecology and Evolution, Journal of Applied Ecology, y Environmental Research Letters. 30 artículos son Q1, 8 Q2 y 6 Q3, el resto no están clasificados aun. En 2023, recibí la certificación I3 de trayectoria investigadora destacada. Tengo formación transdisciplinar en ecología, conservación, estudios técnicos medioambientales, desarrollo y gestión de bases de datos, análisis, teledetección, sistemas de información geográfica, programación (R, Python, Java), y gestión de proyectos (Master en alta dirección por la URJC). Tengo un nivel de inglés alto (C2) y nivel básico de francés y sueco.

He colaborado y recibido financiación de universidades e instituciones gubernamentales de los países en que he trabajado. He obtenido fondos por aprox. 900.000€ de instituciones como la Universidad de Otago (Nueva Zelanda), Departamento de Conservación de Nueva Zelanda, Conicyt Chile, Carly Triggers Fundation y FORMAS (Suecia), Ministerio de Ciencia y Tecnología España (Juan de la Cierva Incorporación), Agencia Eslovena de Investigación (ASSR), o Comisión Europea (Marie Curie Sklodowska Action). He codirigido 6 estudiantes de doctorado y 4 de master en Nueva Zelanda, 1 doctorado y 2 masters en España, 1 doctorado en Eslovenia y 1 postdoc en Suecia. Actualmente tengo colaboraciones de investigación abiertas con equipos en Nueva Zelanda, Eslovenia y otros países de Europa en el contexto de proyectos internacionales como el EU LIFE Lynx y la red Eurolynx.

Sobre la divulgación y transmisión del conocimiento, he participado en numerosas conferencias, seminarios por invitación y encuentros. He publicado 22 de los 29 artículos que he liderado en la modalidad abierta. He tratado con las partes interesadas de los temas de investigación en las que he trabajado y les he hecho participe de mis objetivos y resultados. He dado charlas en institutos y al público general en distintos países. He divulgado mis investigaciones en internet, radio, TV y periódicos.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	NAVARRO , LAETITIA
Referencia:	RYC2022-036870-I
Correo Electrónico:	laetitia.navarro@gmail.com
Título:	Biodiversity change and conservation policies: the good, the bad, and the unknown

Resumen de la Memoria:

My goal is to understand the patterns and processes of biodiversity change while proposing novel approaches to address such change. I am particularly interested in how biodiversity responds to human activities and how this knowledge can support effective conservation policies. I developed three interconnected lines of investigation.

(1) Ambitious approaches to ecological restoration and conservation ("the good"): While taking a measure of the daunting task of tackling the biodiversity crisis, I was also investigating the phenomena of land abandonment and was struck by a double standard in conservation. Those lands showed restoration potential but land abandonment was often described as negative for biodiversity. This led me to dedicate part of my research to opportunities and approaches for restoration.

(2) Understanding the patterns and processes of biodiversity change ("the bad"): I have a great interest in understanding the drivers and pressures affecting biodiversity and the patterns and processes of the resulting change. My work at the science-policy interface also allowed me to appreciate how knowledge on biodiversity change and the way that it is communicated can have tremendous impacts on decision- and policy-making and the effectiveness of conservation targets and actions.

(3) Biodiversity monitoring that can effectively support conservation policies ("the unknown"): I am fascinated by the multifaceted nature of biodiversity change which led me to analyze and discuss the (often) contrasting behaviors of biodiversity metrics. The importance of both detecting biodiversity change and choosing appropriate metrics also became all the more relevant when I coordinated GEO BON and focused my research on biodiversity monitoring, and on mechanisms to connect biodiversity knowledge to policy making.

While the foundation of my research is conservation biology, my diverse and international experiences led me to build an innovative, interdisciplinary and question-driven research profile. My work combines theoretical, spatial, and quantitative ecology, with geography and social sciences. I apply a wide range of methods, from modeling and scenario building to statistical analysis and systematic reviews. My research and publications have had an important impact as demonstrated by my high number of citations (>2900), including that of my two most important first author papers (>800 and >140 respectively).

My scientific career is highly international. I have built an international network of collaborators (e.g. >500 co-authors in 42 countries) and have disseminated my work in 24 countries on five continents. Furthermore, the majority of the projects in which I am involved are international in terms of scope, participants and funding mechanisms. I also coordinated the GEO Biodiversity Observation Network which is global and international by design and organized several international workshops and conferences (in Germany, China, the USA). In recent years, I have gained visibility and leadership skills in the field of biodiversity monitoring. Importantly, I led or participated in several successful research proposals centered around biodiversity monitoring and the mobilization of biodiversity data. I now want to develop a research line around biodiversity knowledge and how it is interpreted and used for policy- and decision-making in conservation.

Resumen del Currículum Vitae:

I completed my PhD (suma cum laude) at the University of Lisbon, in 2014 and have held 2 researcher positions at iDiv (Leipzig, DE), from 2014 to 2016, and from 2020 to 2021 (with 9 months of maternity leave). From 2016 to 2020, I coordinated GEO BON, one of the largest global biodiversity monitoring networks. Since Nov. 2021, I am a researcher at the Estación Biológica de Doñana (EBD-CSIC).

I contributed to the development of the body of knowledge on rewilding as a restoration approach and applied it to the context of farmland abandonment in Europe. I then branched my research towards biodiversity change, while continuing my work on rewilding as one approach to tackle such change. Managing GEO BON broadened my expertise on the detection and attribution of biodiversity change across realms and levels of organization. While coordinating the development of the Essential Biodiversity Variables, I co-designed and contributed to several projects including at the science-policy interface. Since Nov. 2021, I am focusing my research on the mobilization and integration of biodiversity data within the SUMHAL and NaturaConnect projects.

I have authored 34 publications with 28 in Q1 journals such as Science, Nature Ecology and Evolution, and Conservation Letters and I have published 7 chapters in books or assessments. This body of work, on which I collaborated with 521 researchers, has been cited >2900 times (SCOPUS: 2913 cit., h-index = 24; Google Scholar: 4562 cit., h-index = 26). I have presented my research at 20 international conferences and 4 seminars, 12 times as an invited (keynote) speaker and/or panelist. I have participated in 11 international projects, being involved in obtaining funding for 4 of them.

I strive to contribute directly to society with my work at the science-policy interface. I participated in the assessment of Aichi Target 15 for the UN CBD, and the IPBES Assessment on Land Degradation and Restoration. I am experienced with high-level policy meetings and communicating with decision makers, particularly on the importance of biodiversity monitoring to guide effective conservation policies.

I have also experience in and enthusiasm for teaching, supervising, and mentoring. I developed a practical undergraduate course in general ecology (University of Lisbon, PT), was a teaching assistant for the Nature Conservation and Spatial Ecology courses (Martin Luther University, DE), and taught in the graduate school of iDiv (DE). I have (co-)supervised 3 MSc students from Bangor University (UK), MLU (DE) and University of Lyon 2 (FR), 2 MSc interns from Wageningen University (NL) and MLU (DE) and am now supervising a MSc student from Pablo de Olavide University (ES). I was part of 2 PhD Advisory Committees and 5 MSc Evaluation Committees.

I have served as a reviewer for 17 scientific journals and have reviewed project proposals for science funding agencies in Poland, France and Canada. I co-lead the policy task force of GEO BON since 2017 and am involved in the task force on human health and ecosystem management of the IUCN-CEM. I was a member of the steering committee of the Alliance for Biodiversity Knowledge led by GBIF and was head of the GEO BON delegations at plenaries of the UN CBD and IPBES. Finally, I was the head of the organizing committees of 3 international meetings, including a virtual conference with 580 participants.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	BATISTA GARCÍA, RAMÓN ALBERTO
Referencia:	RYC2022-037554-I
Correo Electrónico:	rbatista25@yahoo.com
Título:	Biorremediación y hongos extremófilos

Resumen de la Memoria:

My research career has been focused on microorganisms and biodegradation with emphasis on the potential of extremophilic fungi for bioremediation under extreme conditions. During my bachelor thesis I focused on phytoremediation of heavy metals. I worked as Full Researcher at the Oil Research Centre (2008-2010, Cuba) where I was PI of a technology project focused on bioremediation and geomicrobiology. My PhD (2011-2015, Mexico) was focused on genomic and metagenomic to discovery enzymes for lignocellulose deconstruction and bioremediation and was partially supported by several grants (Government of Canada, EMBO, IUMBB, ICGEB). I was enrolled in the Université de Sherbrooke for a postdoc (2017-2018, Canada) focused on bioremediation of industrial wastewaters using extremophilic fungi. As Full Professor, I established the Laboratory of Extremophilic Microorganisms in the Universidad del Estado de Morelos, Mexico. During the last 6 years, my research focus has been on bioremediation using extremophilic fungi and molecular basis of xenobiotic degradation mechanisms. My main objective is now to consolidate this project portfolio by exploring the use of extremophilic fungi for pollutant degradation, which would allow the implementation of eco-friendly technologies for bioremediation. My research group pioneered in the use of extremophilic fungi for bioremediation, as well as in the generation of metabolic and transcriptomic responses of extremophilic fungi to degrade organic xenobiotics under extreme conditions (including in particular polyaromatic compounds). In the near future, I will explore the occurrence of salt- and cold temperature-adaptation mechanisms involved in xenobiotic biotransformation and the role of fungal extracellular vesicles as enzymatic complexes for bioremediation. In the long-term, my goal is to scale-up applications for pollutant bioremediation using extremophilic fungi and investigate the impact of anthropogenic activities and global change in fungal communities in extreme ecosystems, particularly those impacted by pollutants. This expertise will allow to explore the biodegradative potential of fungi for the treatment of a variety of pollutants.

Resumen del Currículum Vitae:

Prof. Batista is Full Professor (Titular) at the Center for Research on Cell Dynamics, Universidad Autonoma del Estado de Morelos, Mexico. Currently, he performs a Sabbatical in the University of Granada, Spain. He teaches in the Bachelor in Science Program, and in the Master and PhD Programs at different institutions. He created and is the Head of the Group of Extremophilic Microorganisms and currently supervises 6 bachelor, 10 master, 8 PhD students, and two postdoctoral fellow. He received his PhD in Science (Nov-2015). During PhD studies he performed predoctoral exchanges for total of 2.5 years at Cork University (Ireland), Patras University (Greece), Sherbrooke University (Canada), and National Institute of Agricultural Technologies (Argentina). He worked as postdoc in Canada (2017-2018), at Sherbrooke University, focusing on industrial wastewater treatments using extremophilic fungi. Extremophilic fungi and their application in bioremediation became his main research area, upgraded by molecular studies of mechanisms enabling extremophilic fungi degradation of various xenobiotics and micropollutants, coupled with integrative omics approaches (metagenomics, transcriptomics) to study fungal biodiversity, physiological adaptations to extreme conditions and the isolation of microbes with biotechnological potential. In the future, he intends to consolidate this portfolio by investigating the use of extremophilic fungi and extremoenzyme-based platforms for pollutant degradation, which would allow the implementation of eco-friendly technologies for in-situ bioremediation. His research team (2 associated researchers included) pioneered the use of extremophilic fungi as bioremediating agents and the study of their molecular mechanisms. During the last 5 years he has established an international collaboration network with leaders in the field from Spain, Canada, Slovenia, Chile, Uruguay, Ireland, UK, Portugal, and India, as evident from joint publications, where he was the corresponding author. He has published 47 JCR papers (38 Q1), 6 book chapters, supervised 22 theses (3 PhD, 11 Master, 8 Bachelor), and he is currently supervising 24 theses (8 PhD, 10 Master, 6 Bachelor). He is the PI of 16 national and international projects and Co-PI in other 6, with total obtained funds up to 742,042 US$. In addition, he has participated in 22 projects and 4 technologically oriented projects for the Cuban oil industry and Mexican-Bolivian agricultural companies, in three cases as PI. He received international funds (CYTED, Darwin Initiative -UK-, Fondo Uruguay-Mexico) and participated in 13 international projects (Bolivia, Chile, Dominican Republic, Peru, Canada, Ireland, Uruguay, Spain, UK, USA, and India). He participated in more than 50 scientific meetings, presented 10 times as oral presenter at international conferences, including 4 plenary sessions (invited speaker), and as chair organized 9 international symposiums (Mexico, Dominican Republic, Chile and Uruguay).

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	PERIS CERDÁN, DAVID
Referencia:	RYC2022-037026-I
Correo Electrónico:	daperce@gmail.com
Título:	Evolution and paleoecology of fossil Coleoptera from amber deposits

Resumen de la Memoria:

As a paleoentomologist, I am focused on the study of the past and present insect world, and its relationship with the environment, to better understand the origin and evolution of modern terrestrial ecosystems. My target group is Coleoptera (beetles), the World's most diverse group of organisms, mainly preserved in Cretaceous amber worldwide. While I started to study systematics of fossil beetles in amber during my PhD, I am now more interested in elucidating their paleoecology. I have stablished a research line to elucidate the role that beetles had in the transformation of the Cretaceous forests through antagonistic and mutualistic relationships with different groups of plants (both gymnosperms and angiosperms). Better understanding of insect contributions to ecosystem services will improve our ability to sustain them.

Since I finished my PhD, in 2015, I accumulated three different postdoctoral positions: hired by a European project at the University Jaume I (Castellón de la Plana, Spain, 2016-2018) for 17 months, a Humboldt postdoctoral fellowship as IP at the University of Bonn (Bonn, Germany, 2018-2021) for 27 months, and a postdoctoral Beatriu de Pinós position (postdoctoral program of excellence) as IP subdivided in two periods: first period at the University of Barcelona for 14 months (2021-2023) and a second period at the Botanical Institute of Barcelona for 22 months (2023-2025).

Overall, my line of research will provide a privileged insight into the dynamics of concrete associations between two of the most successful groups of organisms (beetles and plants) during a crucial time of their evolution. This ecological and evolutionary study under an interdisciplinary framework using cutting-edge experimental methodologies will shed light on the origin and development of modern terrestrial ecosystems.

My scientific maturity is evidenced by the significant number of publications (49 peer-reviewed articles, 40 in JCR journals − 35 in Q1; 12 in D1; 28 as first and corresponding author; 4 as second or senior author; 2 as unique author). Four articles published in top-ranked journals (IF>9; 2 as first and corresponding author). One book as first author, two book chapters and 9 articles in no-JCR journals. I have been PI of 6 research projects, competitive grants and travel awards (around 400k€) which highlights my ability to secure funding. I have also participated in 10 additional national and international research projects. My longstanding engagement with dissemination activities is demonstrated by occupying the position number 20/250 in the ranking of the InfluScience platform for the Geosciences category.

Resumen del Currículum Vitae:

I conducted my PhD (2015, Cum Laude, finalist in the XXI award for the best doctoral thesis at the University of Barcelona) on the paleoecological implications of the fossil beetles from the Cretaceous ambers of the Western Europe. I have been working later as postdoc in four institutions and I received the I3 Certificate in 2022 (I3/2021/194). I have been Permanent Board Member of the Institut de Recerca de la Biodiversitat (IRBio, Universitat de Barcelona, Spain) (2022-2023).

I am PI of the project that is supporting my position at the Botanical Institute of Barcelona (CSIC) (Beatriu de Pinós project) and a BAG proposal from the DESY Photon Science (2023–2024), coordinating the task of 13 researchers from 6 different European institutions in the application of cutting-edge technologies in the study of amber fossils. I have been PI of 6 research projects, competitive grants and travel awards (around 400k€) but have also participated in 10 additional national and international research projects. I am currently holding international collaborations with the University of Bonn and the Senckenberg Research Institute, Germany; the University of Oxford, UK; the Sapienza University of Rome, Italy; the Palacký University Olomouc and the Moravian Museum, Czech Republic; the China Agricultural University, China; and national collaborations with the Instituto Geológico y Minero de España and the Universitat de València. I won the XIX International Research Prize Paleonturology 2021, convened by the Dinópolis Paleontological Foundation.

Since my first paper in 2013, I have published 49 peer-reviewed articles (35 in Q1; 12 in D1, the 80% as first, senior and/or corresponding author). In addition, one book as first author, two book chapters. My H-index is 14 (WOS) and I have 20 presentations in international or national meetings. I have served as reviewer for 45 scientific articles in SCI-journals (most of them Q1), some of them in top-ranked journals such as Nature Plants and Current Biology, and two foreigner scientific agencies.

I have participated in the scientific board of different Q1 journals such as Insects (Topic Editor), Frontiers in Insect Science, Frontiers in Earth Science and Frontiers in Ecology and Evolution (Reviewer Editor). I have mentored students from different levels (1BSc, 1 MSc, 1PhD and supervising the stay of a foreigner PhD student) and I am strongly involved in outreach. I served as committee in the XX International Award for Research in Paleontology Paleonturology 2022.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	HERRANZ MATESANZ, MARIA
Referencia:	RYC2022-037128-I
Correo Electrónico:	mariaherranzm@gmail.com
Título:	Diversity, morphology and evolution of microscopic marine invertebrates

Resumen de la Memoria:

I am a researcher in the field of marine biology focused on the systematics, morphology, and evolution of the microscopic invertebrates that inhabit benthic environments, known as meiofauna. I conduct innovative and integrative research combining traditional and cutting-edge morphological techniques with state-of-the-art molecular methods. My scientific career counts with 13 years of continuous, active research, 10 of which were in international institutions, funded by 11 competitive grants. My PhD is European (Cum laude) and was awarded with the UCM extraordinary PhD prize. My broad skillset includes extensive taxonomical knowledge of marine invertebrates, acquired during my PhD studies at Complutense University of Madrid (UCM). I am well-versed in morphological techniques including scanning electron microscopy (SEM), immunochemistry, confocal laser scanning microscopy (CLSM), transmission electron microscopy (TEM) and 3D reconstructions. All these acquired during my pre-doctoral international stays in prestigious institutions, such as the Biozentrum, Basel, and the Smithsonian Institution, Florida. I am also experienced with DNA- and RNA-based molecular techniques, NGS, phylogenomic inference, and developmental studies. These skills were developed during my postdoctoral studies at the University of Copenhagen, Denmark (UCPH) and the University of British Columbia (UBC). I currently lead my own research at UCPH funded by the Velux Foundation.

My research has produced a significant advance in the knowledge of meiofauna, particularly in scalidophorans which gather some of the most understudied but cosmopolitan animal phyla (kinorhynchs, priapulids and loriciferans), through studies in integrative taxonomy, biogeography, morphology, microbiology, and phylogenomics. Additionally, I have conducted long-term research surveys of meiofaunal communities along the Coast of British Columbia, Canada, with the Hakai institute, as well as participated in studies profiling microbiomes in meiofauna, describing symbiotic relationships in flatworms, and detailed morphology studies in protists. I have published 1 book chapter and 41 peer-reviewed articles in international scientific journals (2 issue covers), of which I am first or second author in 25 and senior author of 5.

Resumen del Currículum Vitae:

I obtained my PhD at the Complutense University of Madrid (UCM) in 2014 (European PhD, Cum laude), awarded with the UCM extraordinary PhD prize. Since then, I have worked continuously at prominent international institutions for 8,5 years: 4,5 years as a postdoc at the University of British Columbia (UBC), Canada, and 2 years as a Marie-Curie postdoc at the University of Copenhagen (UCPH), Denmark. There, I have been leading my own research as a PI funded by the prestigious Velux Foundation, within the Velux Experiment grant program for 2 years. I am Co-PI in a 4-year grant (2023-2026) funded by the Polish government in collaboration with the Institute of Oceanology, Polish Academy of Sciences, and I got funds as a Co-PI in an infrastructure grant (Carlsberg foundation) to build a confocal microscope facility at the Natural History Museum of Denmark, that I currently manage.

My scientific production reaches 41 SCI papers, 25 of as first or second author, and 5 as senior author. My h-index is 19 and my i-index is 25 (803 citations). I have presented 30 contributions in 23 international and 2 national conferences, 15 oral presentations, 2 of them keynote invited talks. I have been in the scientific committee of 1 international conference and session chair in another 2.

As an internationally recognized expert in my field, I participate in several journal boards and committees. I am part of the Executive committee of the International Association of Meiobenthologists and member of the International Society of Invertebrate Morphology, the American Microscopical Society and the German Zoological Society. I am currently an Associate Editor for the journal Acta Zoologica and have served as a reviewer of more than 15 other international scientific journals in the fields of taxonomy, morphology, systematics and evolution. I have also served in the Panel of the Royal Society of the UK, Research Fellowships scheme.

I am currently co-supervising 1 PhD and 1 master's student, and I am part of the PhD committee for another PhD student. In addition, I have supervised 2 MSc and 3 BSc at UBC and UCPH. I have been assistant lecturer of 6 courses (graduate and undergraduate levels) in 3 different institutions (UCM, UBC and UCPH). I am qualified as "Contratado Doctor, Ayudante Doctor, and Profesor de universidad Privada" by ANECA (Agencia Nacional de Evaluación de la Calidad y Acreditación).

I have an extensive fieldwork experience participating in campaigns in 10 different countries including Brazil, Canada, Curaçao, Denmark, Italy, Norway, Portugal, Spain, South Korea, and USA funded by various national and international organizations in collaboration with a worldwide network of scientists.

I have participated in multiple outreach activities including a podcast featuring my research "New species podcast", 3 articles 1 interview and 1 award-winning documentary on meiofauna in the on-line "Hakai Magazine ", and an interview showcasing my research in the Bitplane-IMARIS webpage. During 2022, I had invited seminars at University of Vienna, Autonomic University of Madrid, University of Jenna, and University of Copenhagen.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	LAPIEDRA GONZALEZ, ORIOL
Referencia:	RYC2022-037728-I
Correo Electrónico:	o.lapiedra@gmail.com
Título:	The ecological and evolutionary consequences of animal behavior

Resumen de la Memoria:

I am a La Caixa Junior Leader, a National Geographic Explorer and hold a position as a Severo Ochoa Senior Group Leader at CREAF. The primary goal of my recently created research lab is to unravel the role of animal behavior in determining whether and how animals adapt to new selective pressures, a question of major relevance in the current context of global change.

At every step of my career, I have significantly contributed shedding light into this question. In my PhD, I showed that changes in ecologically relevant behaviors accelerate morphological evolution (e.g. Lapiedra et al. 2013, Proc. Royal Soc. B., highlighted in Nature). During my postdoc at URI, I studied how behavior determines the chances of animals to persist in an urbanized Planet (e.g. Lapiedra et al. 2017, Global Change Biology). At Harvard, I designed and carried out a large-scale field experiment manipulating predation pressure in island populations of Anolis lizards. This study (Lapiedra et al. 2018, Science), provided unprecedented evidence that variation in behavior can be strongly targeted by natural selection and that this selection can occur in parallel to, but independently of, selection on morphology.

The ongoing research program at my lab aims to continue to examine how animals adapt to novel ecological challenges by integrating the eco-evolutionary consequences of behavior at different levels: from genes to phenotypes, populations, and entire biological communities. In my ongoing long-term experimental study system in the Caribbean, we have already collected data for six generations that will represent a solid foundation for high-impact research publications during my RyC fellowship. In addition, my research team and I have established a new study system in the Balearic Islands where we are investigating the ecological and evolutionary consequences of biological invasions for island endemic species and the ecosystems they live in.

My work has been cited over 1700 times and >90% of my publications are in the 1st quartile of their research fields. I have 5 years of research experience in the USA including four years at Harvard University. I have presented my research at 18 conferences and I have given invited seminars at seven institutions in the USA and Europe and invited talks at six symposia at prestigious international conferences. Work in my laboratory is currently being funded by four projects where I am the sole Principal Investigator: Proyectos de Generación de Conocimiento (2021), National Geographic, La Caixa Junior Leader, and an 'Excelencia Europa' project awarded by the AEI.

I am currently supervising two PhD students (two more joining next year with FPI fellowships awarded to my group), one postdoc and a MsC student from Antwerp Univ. I have supervised five MsC at CREAF, and an award-nominated senior thesis at Harvard University. I have successfully and repeatedly raised competitive funds as a Principal Investigator from reputed Spanish (Ministerio de Ciencia e Innovación, Agencia Estatal de Investigación, La Caixa Foundation, two Beatriu de Pinós) and international institutions (National Geographic, Harvard MCZ, NSF) to cover both salary and research costs totaling over 850.000€ In 2020, I was a finalist for an ERC Starting Grant which obtained a recommendation for funding score 'A'.

Resumen del Currículum Vitae:

Research activity
I have 16 years of research experience including 3 as a post-graduate (UB) and MSc student (UAB) and 4 years as a PhD student (CREAF). As a postdoc, I spent 3 months at the University of Chicago, 1 year at the University of Rhode Island (URI, USA), and 4 years at Harvard University (USA). I was awarded two Beatriu de Pinós postdoctoral fellowships and I currently hold a La Caixa Junior Leader and Nat Geo Explorer positions and I am Severo Ochoa Senior Group Leader at CREAF.

Publication record
I am the first author of 14 scientific papers published in: Science, Proceedings Royal Soc. B. (2), Global Change Biology, Global Ecology & Biogeography or J. Evolut. Biology, among others and collaborative work in Ecology Letters, Evolution, Am. Nat., and PNAS (2). Eleven research articles authored independently of my PhD advisor and nine as corresponding author prove my independence as a researcher. Apart from my peer reviewed publications, I have also published three book chapters and multiple outreach publications. My citation record shows a solid progression over time.

Research Projects
I have participated in 23 funded research projects. I have been the principal investigator in seven of these projects: a Plan Nacional from the Spanish Ministry of Science, an 'Excelencia Europa' project, two independent 'National Geographic Explorer', a 'La Caixa Junior Leader', and two Harvard MCZ research grants. Since my PhD, I have raised over 850.000€ including salaries and research funds. I have been research personnel in four projects from the National Science Foundation (NSF, USA) and I am currently a research scientist in one more.

Scientific conferences and invited seminars
I have presented 17 oral contributions in international conferences and I have been invited as a speaker in six international symposia and seven seminar series across Europe and the USA. In 2020, I organized an online symposium on the biology of Mediterranean Podarcis wall lizards that included presentations by a diverse group of researchers from 4 different countries and in 2021 I coordinated a 'Hublet' for the ASAB conference at CREAF.

Supervision and mentoring

I am currently supervising two PhD students (two more joining my lab next year with FPI fellowships awarded to our group) and one MsC student while five more already graduated between 2020 and 2022. I was trained as a mentor through the Harvard College Office for Undergraduate Research and I supervised a senior thesis project awarded with highest honors. I have supervised over 20 research assistants across 13 fieldwork campaigns in the USA, Bahamas, and Spain.

Reviewer activity, outreach and public dissemination of research
I have reviewed articles for 18 of the most prestigious international scientific journals in my field. My research has been highlighted in Spanish and international media (e.g. Forbes, ScienceDaily, Nature, Current Biology, Harvard Gazzette, El País). I have published a variety of outreach pieces (e.g. Anole Annals blog, VII Anolis Newsletter, Youtube video featuring my research, and even an article in a journal for kids). I conduct regular public outreach talks to local communities in my study site in Bahamas and Ibiza. I recently obtained funding to launch a citizen science project for high school students in the Balearic Islands and have been repeatedly interviewed on TV, radio and newspapers regarding how animals cope with human-induced rapid environmental ch

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	MARTÍN DEL REY, MARTA
Referencia:	RYC2022-038454-I
Correo Electrónico:	mmartindelrey@fis.ucm.es
Título:	Variabilidad del Atlántico tropical: interacciones aire-océano,impactos y modelización

Resumen de la Memoria:

During my career, I have acquired broad expertise in the tropical Atlantic variability, air-sea interactions, ocean dynamics, teleconnections and climate modelling. My research findings about tropical basin interaction changed the prevailing paradigm of global climate; while our results about the decisive role of ocean waves in tropical Atlantic variability modes have allowed to conciliate the different structures reported in the literature. Remarkably, the new research line about the connection between AMM and AZM (MSCA-IF-FESTIVAL project) will provide a conciliated framework to achieve a general view of tropical Atlantic variability.

I have spent a total of 72 months in outstanding research centers (ICM-CSIC; CERFAC and LOCEAN-UPMC) and I have been engaged I have been engaged in 24 research projects: 4 international projects, 9 Spanish projects, 2 French projects, 5 cooperation projects and 4 projects of innovative education. This has allowed me to create my own international network and stablish scientific collaborations, which has been materialized in a considerable number of scientific publications (16 articles, 1 book chapter and 1 CLIVAR review report).

I have consolidated my scientific independence and leadership. I am an international recognized expert in the tropical Atlantic climate, co-author of review papers in in Science, CLIVAR report, WIRES and 1 book chapter in Cambrige University Press and with 5 publications cited in the latest IPCC 2021 report. Convener of an EGU session about tropical Atlantic climate from 2019. I have PI of 3 research projects: ENMASCARADO (Cooperation, VR. 28/22) in 2022; MODELANT (Computational Resources, IS-ENES3 grant agreement 824084) in 2021 and MSCA-IF-EF-ST FESTIVAL (grant agreement 797236) in 2019-2021.
I have co-supervised 2 PhD theses (on-going), 1 (on-going) JAE-intro fellowship, 1 degree thesis and 4 master theses.

My future research line is focused on a better comprehension of tropical Atlantic climate and the climate-health challenge. It can be divided in two different research axes:
i) An integrated view of tropical Atlantic variability

The goal is to determine the existence of evolving (from spring-to-summer) tropical Atlantic modes and characterize their associated physical processes; to explore the multidecadal modulation of the emergence of these evolving modes and the role played by the background state; and finally assess the precursor role of AMM for the predictability of Atlantic Zonal Mode.

ii) Learning from climate: Opening new health horizons

Infectious diseases remain as an important burden for the socioeconomic development of low-income countries. The climate-sensitive feature of infectious diseases brings to light climate as major driver of health risk.
To achieve a comprehensive climate framework for the environmental conditions suitable for the outbreaks and transmission of infectious diseases, it is necessary to study the seasonal to interannual variability of infectious diseases over West Africa; to characterize the impact of tropical Atlantic variability modes on setting a favourable/unfavourable environment for infectious diseases; and finally to explore the precursor role of tropical Atlantic variability modes to anticipate infectious diseases.

Resumen del Currículum Vitae:

PhD in Physics in 2015 at University Complutense of Madrid. Postdoctoral researcher at LOCEAN-IPSL (Paris) from July 2015 to September 2017 under PREFACE-EU project. Postdoctoral researcher at CERFACS (Toulouse) from October 2017 to December 2018 under MORDICUS project. Marie Skłodowska-Curie Postdoctoral -Curie Postdoctoral researcher at ICM-CSIC under MSCA-IF-FESTIVAL (grant agreement 797236) from January 2019 to January 2021. Currently, Juan de la Cierva Incorporación researcher at UCM since February 2021.
I have a total of 16 peer-review publications (14 of them in Q1), 1 book chapter and 1 CLIVAR review report (From Google Scholar: h-index: 11; Total number of Citations: 973. From Scopus: h-index: 10. Total number of Citations: 725). More than 70 contributions to national (10) and international (61) meetings, most of them as first author (43/71) and with a total of 27 oral presentations. I have been engaged in 24 research projects: 4 international projects, 9 Spanish projects, 2 French projects, 5 cooperation projects and 4 projects of innovative education.
I have I co-supervised 2 on-going PhD theses, 1 on-going JAE-intro fellowship, 1 degree thesis and 4 master theses. Active participation in outreach activities through by holding scientific workshops, participated as scientific communication in high-schools and interviews in the media.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	CHEFAOUI DÍAZ, ROSA MARÍA
Referencia:	RYC2022-037993-I
Correo Electrónico:	rosa.chef@gmail.com
Título:	Biogeografía Integradora y Cambio Global en Ecosistemas Costeros

Resumen de la Memoria:

I am an ecologist and biogeographer mainly focused on marine and coastal environments, investigating in the intersection between ecological modelling and ecophysiology. After earning my degree in Biological Sciences (UAM) and the MSc in Education and Pedagogy (UCM), I passed a Community of Madrid competitive examination to teach Biology and Geology at public High Schools. While working as full-time teacher (1998-2013, with a long sick leave in 2007-2008), I conducted a part-time PhD at the Museo Nacional de Ciencias Naturales (CSIC, Madrid) under the supervision of Drs. J.M. Lobo and J. Hortal. My PhD was focused on methodology and applications of Ecological Niche Modelling and I gained experience in quantitative ecology and spatial analysis. My findings provided useful insight into practical applications of species distribution models (SDMs) and two highly-cited publications (Chefaoui et al 2005, Biol Conserv; Pub 10).

Due to my interest in the marine realm, I moved to Dr. E. Serrão BEE Team at CCMAR (U. Algarve), through competitive FCT fellowship and Research Assistant contract. In this internationally recognized marine centre, I specialized in the ecology and biogeography of algae and seagrasses. I tested climate-driven shifts of marine populations along the Atlantic and Mediterranean coasts, attending also to their genetic structure and diversity (Pub 4), and used reconstructions of Last Glacial Maximum climate to identify past coastal regions acting as glacial refugia, revealing now genetic signatures that are the result of accumulated genetic diversity (Pub 7). I developed a novel methodological approach to incorporate topographical complexity of the coastline into niche models (Pubs 8; 9), and investigated invasive species (Pubs 3; 5) and community ecology, particularly in relation to the spatial and temporal dynamics of coastal communities using field surveys (Pub 2; Chefaoui and Chozas 2019, Appl Veg Sci). I developed mechanistic models integrating reproductive phenology (Pub 3) and local adaptation processes (Wesselmann et al 2021, Front Mar Sci). Further, I innovatively predicted how the effects of sea level rise will affect shallow seagrass ecosystems (Pub 1), useful for seagrass restorations.

My research is transitioning towards a greater integration of field surveys and physiological experiments with diverse analytical tools related to statistical and spatial analysis. From 2021 to 2022, I coordinated my personal MSCA-IF European project entitled MARHOT at URJC. I investigated the effects of temperature on persistence and extirpation of macroalgae populations (in prep.), working with Drs. R. Viejo and B. Martínez. I also gained an Assemble Plus EU H2020 project to visit Dr. F. Arenas' lab at CIIMAR (U. Porto). By physiological experiments in mesocosms we investigated how sea surface temperature and other stresses affect the growth and mortality of habitat-forming marine species (in prep.). Since 2023, I am Distinguished Researcher at URJC and PI of 2 "Plan Estatal" projects (PERSIST and INTERMARES). During these projects I will supervise a team of 3 research technicians. I will investigate the persistence and restoration of macroalgae populations using "in situ" experiments.

Resumen del Currículum Vitae:

I have published 25 peer-reviewed articles in SCI journals (sole author: 2; 1st author: 15; co-1st author: 2; 2nd author: 4), 1 book chapter and 2 articles of popular science. I have also one educational publication (invited by the Editor). I have been intensely involved in all my publications, from collecting and analyzing data, to leading the writing and discussing ideas. My research has received 773 citations (Hi = 13) according to Scopus (1224, Hi=14; Google Scholar).

I have presented 19 oral talks (3 + 1 in April' 23 by invitation) and 5 posters in scientific conferences. I have been panelist and co-organizer of a Humboldt Day event (IBS, 2020), session chair (IBS, 2018), and mentor at Asociación Española de Ecología Terrestre (AEET, 2017).

I have nearly 8 years of post-doctoral experience at CCMAR, a very international research centre, where I initiated international collaborations, publishing with 64 co-authors of 32 countries. I have participated in international workshops (EuroSea, Aquacosms, Marfor project meetings). I have been the PI of 5 projects for a total amount of 428,000 €

I have shared R code and datasets from these projects, and transferred science advances into policy and decision-making by collaborating as a contributor at IUCN (GIS expert). I have engaged with non-specialist audiences by disseminating my research at 5 events and 11 press releases. I was Jury Member in 2 PhD dissertations, invited to review in 2 international project calls (biodiversa+, Nat. Geographic), and in 68 occasions for 24 SCI journals, obtaining a peer reviewer award (WoS). I am Member of BECA (AEI) evaluators and Project Peer Reviewer of the Science Fund of the Republic of Serbia (SF).

I have co-supervised 5 undergraduates (IMBRSea, EMBC+, Erasmus, ongoing TFG) and helped mentor 5 PhD students. I have been teacher at Public High Schools, where I was Head of the Natural Science Dept. for 3 years, supervised dozens of students, and participated in 2 educational projects. At University level, I am accredited by ANECA, I am teaching at URJC, I am representative for postdocs in the Faculty, and Member of spaces commission of the Biology Depart. (URJC). I also taught in a specialized international training course on SDMs at CIIMAR. I received the I3 certification (2021). I belong to 3 scientific societies (IBS, AEET, Sibecol) and I actively participated in MadresBDV.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	ROMERO FREIRE, ANA
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Título:	ECOTOXICOLOGÍA

Resumen de la Memoria:

During my career, my scientific research studies have been mainly focused on metal pollution, ecotoxicology and geochemistry of common heavy metals. Last years I started to develop interest in elements of an increasing application in high-technology, that could become an environmental concern in next years, the Technology-Critical Elements (TCEs). Therefore, the main objectives of my future research line will be to advance in the knowledge of the role of some TCEs in soil systems; to determine the environmental and health concerns related to their increasing use; to establish regulatory approaches for the TCEs, that are still not yet established; and, to study the use of phytoextraction for obtain TCEs from enriched unproductive materials and/or wastes. A better understanding of their anthropogenic cycles (technosphere) and their biological role clearly reflect the policy priorities of the Horizon 2030, investigating a new concern that could affect the entire population, as well as making improvements to the competitiveness and security of Europe. My planning research work will evaluate the complete occurrence, distribution, role and risk posed by representative TCEs in terrestrial environment and could be one of the first approach for REACH regulation of these elements. The outputs of the planned research line could be beneficial to a wide community of regulatory international bodies such as the Organization for Economic Co-operation and Development (OECD) or the European Commission (EC) as they develop standards, guidelines, and recommendations under a framework of co-operation to assist countries in their pollution and emission management programs. Obtained information will also aid in the decision making of TCEs exploitations and waste treatment plans. I would also like to implement a new insight of the biological role of the TCEs for soil ecosystems by the determination of oxidative stress in soil organisms using realistic concentrations that can be found currently in soils. Following with the same topic, other parallel research line that I would like to implement is the possibility of (fito)extract TCEs from hyperaccumulator plants using wastes or useless materials that could be enriched in TCEs (e.g. phosphogypsum, volcanic ashes, high-tech wastes...). with the idea of found an environmentally sustainable source for these elements.

Therefore, my main short-term personal objective is to participate in different national and international calls (National and Regional R+D+i Plans and the ERC starting grant) to obtain financial support to establish my own research team and study, in depth, the TCEs in terrestrial systems. My main scientific challenges will be to disclose, with advance techniques, the concern levels of TCEs in soil systems, the possible existence of a biological role of TCEs for soil living organisms and if we can obtain, by environmentally friendly techniques, TCEs from waste materials in order to reduce the dependence on imports of these critical raw materials coming from open pit mines.

Resumen del Currículum Vitae:

I hold a Double cum laude European PhD in Earth and Life Sciences (University of Granada and VU Amsterdam, 2015). And I have postdoctoral research experience at the University of Lorraine (France), CSIC (Spain), Univ. of Naples (Italy) and Univ. Aveiro (Portugal) (with a total of 33 months experience abroad); I am contracting currently with a postdoctoral project of the Junta de Andalusia (Post-doctoral Operating Research Program FEDER 2014-2020) at the Univ. of Granada (from 01/04/2022) where I act as PI. My scientific research studies have been mainly focused on metal pollution, ecotoxicology and geochemistry. My works determined that existing soil guideline values are not sufficiently accurate to declare soils contaminated by heavy metals; I did several contributions in the ecological risk of several Technology-Critical Elements (TCEs), a group of emergent elements mainly used for the production of high-tech devices, in freshwater and marine systems. In the last years being dedicated to investigate the TCEs in different environmental fractions such as water bodies, sediments and soils, thus actively contributing to the advance of their knowledge and their potential environmental and health concern. My total number of publications belonging to SCI journals is 36 (h-index:16, cites:720, WoS 02/23). Most of my publications are in collaboration with international researchers (49 international co-authors). I have taken part in 11 competitive international and national research projects (EU HORIZON, COST, ANR, FP7-NMP, Plan Nacional) and 1 national teaching project. I got the positive Certification as Associated, Assistant and Private Professor (ANECA, 2016) and the certificate I3 as distinguished researcher (2022). During my research career, I have obtained a total funding of 355.673€ in competitive open calls for human resources and for research stays; and I participated, when I was allowed for contractual requirements, in several calls for obtaining findings to be PI with my own research project obtaining high scores (>74/100); and this year I have applied to the R+D+I Projects of the Spanish Ministry of Science and Innovation. I participate as professor of the bachelor's degrees of Biology, Environmental Sciences, Food Science and Technology, and Pharmacy in several courses (425 hours of official teaching) and in the Master of Conservation, Management and Restoration of Biodiversity. I have experience in training and supervising students from different academic levels and young researchers: 4 short-stays of international PhD students, 4 MSc students, 6 BSc students and 1 Erasmus+ student. I did different knowledge transfer activities: Organizing Committee of one national (RENS, 2015) and one international conference (IEBS, 2019); exhibition and workshops for elementary, high school students and for general public. I obtained several awards in research (Special Award for Doctoral Thesis and 2 Best Poster Awards). I am member of the Evaluation Committee of EVALUA panel (AEI) from 2021, member of the COST expert database, frequent reviewer of significant journals of my research field (Sci Rep, Chemosphere, Sci Total Environ, Env Poll, Water Res, etc); executive Editor of the journal Environmental Pollution and Climate Change and Editor of several Special Issues (Minerals, IF. 2.25, Q2; Frontiers, IF. 4.91, Q1; and Toxics, IF. 4.48, Q2).

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	PITA ORDUNA, PABLO
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Título:	Development of transdisciplinar approaches in the management of complex marine socio-ecological systems

Resumen de la Memoria:

The scientific career of the applicant is based in a transdisciplinary approach in the integrated management of marine living resources in complex marine Socioecological Systems (SES). The research of the applicant covered key gaps in the knowledge of relevant human activities worldwide, from tourism to fisheries. The applicant created new operational frameworks to study different components of SES: 1) a method to perform census by divers with variable bandwidths; 2) a theoretical framework based on signal loss to improve resolution in telemetry studies; 3) an operational framework to integrate Fishers' Ecological Knowledge (FEK), Vessel Monitoring Systems, and participatory models in fisheries management; 4) an operational framework to obtain ecological and socioeconomic information of Marine Recreational Fishing (MRF) for management purposes; 5) a conceptual framework to assess compatibility between the management of MRF and the Ecosystem Approach to Fisheries; and 6) a conceptual framework to include specialization of recreational fishers in research and management, that was applied to assess the impacts of COVID-19 on MRF. The applicant is very active disseminating this research in popular magazines, blogs, project webs, videos, reports, and webinars, and developed collaborations and transference contracts between different academic, and private institutions during his career, including contracts that helped to the creation of Os Miñarzos and Cedeira MPAs, in Galicia. He maintains a wide international network after his research stays in prestigious centers, especially prominent in MRF research. He created the Grupo de Trabajo en Pesca Marítima Recreativa, a network that is fostering socio-ecological sustainability of MRF by promoting collaboration and knowledge transfer between fishers, research centers, private companies, NGOs, and public administrations. He is chairing the International Council for the Exploration of the Sea (ICES) Working Group on Resilience and Marine Ecosystem Services (WGMES) and is permanent member of WGs in Recreational Fishing Surveys (WGRFS), and on Social Indicators (WGSOCIAL). During his first research period the applicant developed a solid background on the ecology of coastal marine resources and ecosystems, including spatial management tools like MPAs. However, he realized that a transdisciplinary approach was needed to perform sustainable fisheries management. To achieve this objective, he created a research line at the University of Santiago de Compostela to explore benefits of integrating different stakeholders in coastal fisheries management. The experience developed by the candidate in research on ecological, socioeconomic and governance aspects related to the exploitation of marine resources, especially in MPAs, will be helpful in facing the challenges in research and management of blue spaces. The line of research that the candidate proposes is called Multidimensional Assessment, Management, and Governance of MPAs to Maximize Nature Contributions to People. This line of research applies the different scientific-technical results, knowledge acquired by the candidate during his career with the objective of creating a new operational framework to sustainably manage natural protected areas, maximizing the benefits to people derived from the conservation of biodiversity in an equitable manner

Resumen del Currículum Vitae:

I have a PhD in in Marine Sciences, Technology and Management and a PhD in Marine Biology and Aquaculture. I published 5 book chapters and 36 papers in science journals (19 Q1; 19 Open Access; 22 as first or last author). My H index is 17 and I have about 1000 cites (G. Scholar). My research contributed to the integrated management of marine Socioecological Systems (SES), to perform sustainable fisheries management and improve the conservation of marine biodiversity and other ecosystem services by increasing stakeholder involvement and bridging interfaces between science and policy. I investigated in different Marine Protected Areas (MPAs), including my involvement in the creation of 2 MPAs by integrating the stakeholders' Traditional Ecological Knowledge in policymaking by collecting and processing fishers' knowledge, by establishing the ecological baselines by Underwater Visual Census, ultrasonic telemetry, underwater cameras and ROVs. I integrate economic valuation methods in coastal management and Marine Spatial Planning. I published more than 90 outreach and technical reports and authored 40 contributions to national and international conferences. I organized an International Symposium on Marine Recreational Fisheries. I made 13 stays in national and international research centers, leaded 5 regional and national projects and participated in more than 50 national and international projects. Total funding received since 2015 exceeds 15 M€, including 346 000€ as Principal Investigator. Transference contracts with private organizations exceeded 500 000€ I was awarded by the international IACOBUS program that recognized international research cooperation. I disseminate my research in a veteran popular marine science blog and as editor of the popular magazine Espacio Submarino, where I published more than 70 outreach papers. I share press releases about my research, so many are covered by the local, national, and international press. I advise different public institutions (Xunta de Galicia, Fundación Biodiversidad, or Fishers' Guilds), companies (e.g., Inditex), and NGOs (WWF or Oceana). I created the Working Group (WG) in Marine Recreational Fisheries of Spain, integrated by top research centers of Spain, all public administrations, and main stakeholder organizations. I am also co-founder of the Working Group on Galician Small-Scale Fisheries, integrated by the Galician Federation of Fishers' Guilds and different research institutions. I am also co-chair of the ICES WG on Resilience and Marine Ecosystem Services, and member of the ICES WG on Recreational Fisheries Surveys (RFS), and ICES WG SOCIAL indicators. Lecturer of the subject Conservation Biology included in the Master in Marine Biology of the Universities of Galicia (2003-2016). I supervised 3 Master Thesis and 2 PhD, and I am part of the mentoring program of the USC to help PhD students to organize their non-academic professional development plan. I organized courses of scientific diving between the UDC and the Galician Federation of Underwater Activities. I am part of the editorial board of the international journals Animal Biotelemetry, Frontiers in Marine Science, and Sustainability, and part of the Expert Panel of the Spanish Agencia Estatal de Investigación. I am associate researcher in a European Research Council-funded project. I founded FISMARE SL, a university spin-off specialized in sustainable management of natural resources

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	SOUTO DERUNGS, JAVIER
Referencia:	RYC2022-036481-I
Correo Electrónico:	javier.souto-derungs@univie.ac.at
Título:	Diversity, biogeography, ecology and evolutionary history of bryozoan as a model of benthic invertebrates in marine habitats.

Resumen de la Memoria:

My research career is mainly focused in the study of diversity, biogeography, ecology and evolutionary history of Bryozoans. I obtained my PhD in Biology in 2011; focused in the study of Iberian Bryozoans in the framework of the Iberian Fauna Project. I had my first postdoctoral contract in the University of Santiago de Compostela (2011-2012) also associated to the study of Iberian bryozoan fauna, and from 2013 I carry out my postdoctoral research in the University of Vienna where I lead three international projects. During these last projects my research was focused in the study of deep water fauna and currently in the study of the genetic diversity and its relation with biotic and abiotic variables with a landscape genomic approach.

I have participated in 12 projects and contracts. I was the principal investigator in 5 of them, all financed by international programs: 2 small projects funding by the European program Synthesys and three big projects funding by Austrian Science Fund and hosted in the University of Vienna with the amount of 121.220 € (2 years), 234.654 € (3,5 years) and 405.372,45 € (4 years) respectively.

During my entire career, results of these projects have been published in 53 scientific publications including scientific papers, scientific-technical reports and monographs. These papers cover different areas of research: taxonomy, systematic and diversity of bryozoans; biogeographic patterns and ecology of the species and communities of bryozoans; phylogenetic relationships on bryozoans; and non-indigenous species of bryozoans.

I take part in undergraduate and master teaching, besides of courses and seminaries in different institutions. Been supervisor of Master, PhD and postdoctoral students in the University of Vienna

Along of this time I performed and organized fieldwork in several countries from the intertidal to deep waters of the Atlantic seamounts and of the mid-Atlantic Ridge; being invited to take part in a total of 11 international oceanographic campaigns in research vessels.

In all this time I have established myself as an independent researcher, with a strong international team of collaborators, holding in the last eight years projects for a value of over 800.000 € at the University of Vienna. Besides maintaining a big international activity with the participation in a big number of international collaborations, research consortiums, organization of congress and activities of formation and knowledge transfer.

Resumen del Currículum Vitae:

I graduated in biology in June 2005, and obtained my doctoral degree in 2011 with Sobresaliente Cum Laude and with distinction (Premio Extraordinario de Doctorado), both in the University of Santiago de Compostela.

From 2013 until now, my postdoctoral research career continued at the University of Vienna linked to the research group Conservation Palaeobiology and Historical Ecology.

During me research career I took part in a total of 12 research projects focuses in two main research areas: ecology and conservation of marine resources, and diversity, biogeography, ecology and evolutionary history of bryozoans, being this last line in which most of my research has focused. I was PI of five of these projects, holding in the last eight years projects for a value of over 800.000 € at the University of Vienna.

During this time, I made 11 stays in other international research institutions (NHM, London; Musée Oceanographique de Monaco; University of Cape Town, South Africa; MNCN, Madrid; Estructura de Missao para a Extensao da Plataforma Continental, Paço de Arcos, Portugal; Senckenberg am Meer Whilhemshaven, Germany; MNHN, Paris), from one week to 1 month, keeping active collaboration with all of them; and I took part in 11 international oceanographic campaigns.

Results are reflected in the publication of 41 articles in peer review journals, 4 books chapters (2 peer review), 2 peer review Monographs, and 6 Scientific-technical reports for the Galicia and Spanish administrations, including the coordination of the "Listado Patron de Especies Marinas". Besides, communications in a total of 29 international conferences.

Between the results is important to highlight the description of 70 new species, 7 new genera and 1 family of Bryozoans, and of the re-description of several species from type material. Besides the determination of biogeographic patterns, ecological factors of influence and phylogenetic relations from molecular and morphological data.

I taught 180 hours in the grade of Biology in the USC. And from 2012 until present, I am an invited professor in the Master de Biología Marina organized by the USC, UVigo and UdC, where I had taught during 188 hours.

I was supervisor of two master thesis and currently one PhD in the Univesity of Vienna.

Besides I was the supervisor of one postdoctoral researcher in the University of Vienna in the framework of the program Job Cross Mentoring.

I am a member of the PhD-Thesis monitoring commission to the international PhD program in marine science, technology and management DOMAR from Campus do Mar, and I took part in the defence commission of PhD to the Univ. of Barcelona and Univ. of Granada.

I also taught international courses about non-indigenous species in Spain and Portugal (27 hours) and I have been invited to give lectures and talks on institutions of Portugal, Spain, Germany and Austria

I am member of the Council of the International Bryozoology Association.

I was invited by the FAO (United Nations) to take part on the "FAO Expert Workshop on the indentification of SEAFO's research cruise biological samples", at University of Cape Town (2016).

I am a peer reviewer of scientific articles for several international journal and I was reviewer in the international panel for the FRCT of Azores, Portugal.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	ARENAS LAGO, DANIEL
Referencia:	RYC2022-036752-I
Correo Electrónico:	daniarenaslago@gmail.com
Título:	Environmental and agricultural implications of nanoparticles: Effects and fate in soil and water environments.

Resumen de la Memoria:

My research career began with the completion of my doctoral thesis "Heavy Metals in Soils. Identification of Sorbents, Distribution among Amorphous and Crystalline Phases and Physiological Response of Native Species" associated with a FPI grant, within the project "Fijación de metales pesados en suelos: Identificación de sorbentes, distribución y especiación en fases amorfas y cristalinas, modelización". This doctoral thesis deepened and contributed new knowledge related to the sorption and desorption of metals by different soils, deepening the determination of the distribution of retained metals among the different geochemical phases of soils and in the phytostabilizing capacity of plants with the ability to adapt to highly contaminated soils. After my doctoral thesis, I worked with a research contract associated with the project "Evaluación del uso de nanomateriales como modificadores de alta eficacia para mejorar la calidad de suelos de mina y cantería", whose research line was the use of nanotechnology applied to the recovery of soils contaminated with metals. In 2016, I got the postdoctoral contract of Xunta de Galicia "Ayuda de apoyo a la etapa de formación postdoctoral de la Xunta de Galicia (modalidad A)". With this research contract, I worked for three years at the Institute of Environmental Sciences at Leiden University, where my research work was focused on the study of the effects and fate of metal nanoparticles, carbon nanotubes, and nanopesticides in aquatic environments and soils, collaborating on two international projects (NanoFASE, BTBnano). In 2019, I got the "Ayuda de apoyo a la etapa de formación postdoctoral de la Xunta de Galicia (modalidad B)" whose line of research, "Effect and fate of nanoparticles and non-nanometric forms of metals and pesticides in aquatic and soil environments" is an extension of the research line initiated during the first postdoctoral period. In 2021, I got a Postdoctoral research Juan de la Cierva Incorporación. In this research group, I currently collaborate with the European project H2020 "SoildiverAgro" to develop strategies and tools for sustainable crop management. As a principal investigator, I lead the project "Environmental and agricultural implications of nanoagrochemicals: new challenges towards a sustainable food production (Envinagro)," where I conduct my primary research. The research line proposed for the next years is linked to the study of nanomaterials with agricultural applications to reduce phytosanitary products, improve soil biodiversity and ecosystem services, restore soil health and promote environmentally sustainable plant production. The overall objectives will be to create nanoparticles on demand for application in soils as fertilizers, fungicides, and/or bactericides to achieve a smart release of active elements that improve crop efficiency and, to assess the effects, behavior, and fate of nanoparticles in soils, water, plants, and soil microorganisms. This research line will contribute to increasing knowledge about the behavior of nanoparticles in soils and water and their fate in the environment, to expand the knowledge on the potential effects of nanoparticles on soil microbial communities, to increase understanding about the effects on plant development and crop production and, to reduce traditional agricultural inputs and reduce soil and water pollution.

Resumen del Currículum Vitae:

I performed my PhD (2011-2015) titled "Heavy Metals in Soils. Identification of Sorbents, Distribution among Amorphous and Crystalline Phases and Physiological Response of Native Species" under the direction of Dr. Maria Luisa Andrade Couce and Dr. Flora Alonso Vega in the Department of Plant Biology and Soil Science of Universidade de Vigo. During my PhD, I had a predoctoral fellowship, "Formación de Personal Investigador (FPI)." I performed three pre-doctoral stays at the Universidade Federal de Rio Grande do Sul, the Norwegian University of Life Sciences, and the Instituto Superior de Agronomia of the Universidade de Lisboa, publishing six scientific articles (JCR) in collaboration with these entities related to the research lines "metal distribution in soil geochemical phases" and "use of phytoremediation species for mine soils recovery." I got my first postdoctoral grant from the Xunta de Galicia in the Department of Plant Biology and Soil Science at Universidade de Vigo (2016-2019). With this grant, I have been researching and collaborating for three years with the Institute of Environmental Science of Leiden University under the supervision of Dr. Martina Vijver and Professor Willie Peijnenburg. I collaborated on 2 European projects H2020, and published ten scientific articles (SCI) with the Institute of Environmental Science focused on assessing the fate, behavior, and effects of nanoparticles in aquatic systems and soils. I have received a postdoctoral grant from the Xunta de Galicia in the Department of Plant Biology and Soil Science at Universidade de Vigo (2019-2021). Currently, I have a postdoctoral research contract "Juan de la Cierva Incorporación (call 2020)" at the research group "Suelo, Planta y Aprovechamiento de Subproductos" at Universidade de Vigo. I collaborate on the European project H2020 "SoildiverAgro," and on the development and transfer project, "COPPEREPLACE" directed by Dr. David Fernández Calviño. I have been PI of the regional project "Implicacións ambientais e agrícolas do uso nanoagroquímicos de urea-hidroxiapatita e sulfato de potasio cara unha producción alimentaria sostible de Solanum tuberosum L.". I am the PI of the project "EnviNagro" within the Proyectos I+D Generacion de Conocimiento (2021) of the Ministerio de Ciencia e Innovación. I have developed teaching activities in bachelor and postgraduate courses at the Universidade of Vigo and Leiden University. I have experience in the direction of several final degree and master projects. Currently, I (co)direct two doctoral theses. I have revised SCI articles in JCR journals. I have participated as a member of doctoral thesis and in final degree project committees at Universidade de Vigo and Leiden University. I have been a member of the organizing committee of the International Congress of Phytoremediation of Polluted Soils. I have been awarded the Extraordinary Doctorate Award at Universidade de Vigo and the SECS Award for the Best Doctoral Thesis in Soil Science 2016. I have a positive evaluation of teaching and research as "Profesor Ayudante Doctor," "Profesor de Universidad Privada," and "Profesor Contratado Doctor" by ANECA (2017). I have a positive evaluation of I3 certificate (2023). I am a member of the Spanish Society of Soil Science, and the European Geosciences Union.

Resumen de la Memoria:

I am a limnologist mainly focused on the conservation of temporary ponds, with large experience in the community ecology, biological invasions, and island biology of terrestrial and aquatic invertebrates. In my PhD thesis, I analyzed the macroinvertebrate assemblages of the Doñana temporary ponds, sampling macro- and micro-invertebrates, amphibians, and aquatic vegetation. My postdoctoral research is marked by large international experience and associated network of collaborators during almost six years of postdoctoral experience abroad (Brazil and Portugal), becoming an expert in biological invasions. I have demonstrated my capacity of leadership (and secure funding) through competitive research fellowships and grants, and recently leading national and European contract/projects; dedication to services to the scientific community through the organization of a symposium, being Associate Editor (Hydrobiologia), coordinating a scientific group (IBIG), being assessor of the National Agency for Research (AEI), and organizing outreach activities; independent thinking, reflected in my strong track record of first author publications; and teaching and mentoring, having supervised 2 Master projects (TFMs) and 7 undergraduate students' projects (TFGs), a young researcher (CAM contract), and I am currently supervising 2 TFGs, 2 TFMs, a hired technician, and 2 PhD thesis. I also had 2 maternity (2018, 2022) and medical leaves (> 90 days).

My main research interest is the prioritization for conservation of temporary ponds in peninsular Spain, integrating the biodiversity patterns of the aquatic invertebrates of temporary ponds with the current threats of these vulnerable ecosystems, such as biological invasions, anthropogenic perturbation, and climate change. To do that, I am the Principal Investigator (PI) of a national project aiming to construct two databases on native aquatic invertebrate species, invader occurrences, and environmental and anthropogenic variables: i) at local scale, including sampling of the same 80 temporary ponds at the Doñana National Park, along 16 years to understand the invasion success and how these alien species influence the invertebrate assemblages at the long-term; and ii) at regional scale, to elaborate a cartography of the temporary ponds of peninsular Spain in combination with a systematic sampling of > 100 temporary ponds across the latitudinal gradient of peninsular Spain. Also, As PI of the Partner in Spain of a European project, I am also interested on how emblematic species exclusive of temporary ponds, such as the large branchiopods (Anostraca, Notostraca), can modulate the ecosystem services of these singular waterbodies. I am also involved as research team in a national project to analyse the trends of desiccation of the Doñana temporary ponds. I am also interested in Odonata as flag species for conservation, the restoration and the ecological role of artificial ponds, the introduction of extirpated and vulnerable species, the effects of alien species on native invertebrates through meta-analysis, the limnology of arid zones, and the global change impacts on Iberian river biodiversity and ecosystem functions in the Iberian River Observatory (IberRios). I am also highly interested in creating awareness in the society about the conservation of temporary ponds, promoting day by day actions by the society.

Resumen del Currículum Vitae:

I am Assistant Professor at the "Universidad Autónoma de Madrid (UAM)", Dep. of Ecology, Madrid. I have got my own research funds, i) as Principal Investigator (PI) of a 4-year national project, ii) PI of the Spanish Partner of a 3-year European project; iii) work-team in a national project, iv) PI of a 1 year contract of the regional government of Madrid; and v) PI of a competitive fellowship (UAM) to fund a Master student (TFM). As co-coordinator of the Island Biology Interest Group (IBIG), I led a review about the most important findings in Macaronesia involving 32 experts, including a scientific news for society. I also supervised a TFM estimating the effect of alien species on native invertebrates worldwide through a meta-analysis, and as co-author of a publication about aquatic alien invasions. I have supervised 4 TFGs and this TFM, and I am currently supervising 2 PhD students, a hired technician, 2 TFGs and 2 TFMs. Also, I have been a postdoctoral researcher at the "University of Alcala (UAH)", Dep. of Life Science, Spain (2017-2018, Honorary Lecturer until 2021), also awarding a research project in the group of Biological Invasions. At the "Universidade Federal de Goias (UFG)", Goiania, Brazil (2015-2017), I was awarded a competitive national postdoctoral fellowship (CNPq) with the category A (record of publications > 75% of the awarded candidates), being the PI of a project in the Dep. of Ecology, and teaching in the postgraduate program of "Ecology and Evolution". I performed a systematic review about the global effects of alien species on invertebrates, including a scientific news. I had been a 3-year postdoctoral researcher at the University of Azores, Portugal (2012-2015), mainly detecting the contingence of biotic homogenization behind alien species introductions in arthropod assemblages, that alien species can construct new assemblages in human disturbed habitats, and the role of land-use and plant fidelity on canopy spiders at local and regional scales. I also supervised a TFM that resulted in 4 scientific publications about the Azorean ponds, and scientific news. My first postdoctoral contract was in the Doñana Biological Station (EBD-CSIC), Spain, (2011), where I analyzed the zooplankton assemblages in temporary ponds and performed experiments in climatic chambers. During my PhD Thesis at EBD-CSIC (2006- 2010), I assessed the biodiversity patterns of the macroinvertebrate assemblages of the Doñana temporary ponds. I have an H index of 16 (ISI Web of Science, 13/01/2023). In total, I have 49 peer review publications, 8 are books and book chapters, 35 are in ISI WoS, 33 are included in ISI index (17 as first author, 14 as Q1, one as D1). I have 828 teaching hours as recognized lecturer by ANECA ("Profesora Contratada Doctora"), I have 2 "Sexenios de Investigación", the European Mention of my PhD and the seal of excellence of a proposal Marie S. Curie Actions. I have collaborated in 9 research projects and 42 communications (24 congresses, 18 international), and have obtained funding from research projects >420000 € As an expert in outreach communication, I have organized 11 outreach activities, and participated in other 5. I am Associate Editor of Hydrobiologia and assessor of the AEI (National Agency for Research). I have acted as invited referee of international proposals (5), 34 manuscripts (26 journals), and 5 PhD Thesis. I have had 2 maternity (2018, 2022) and medical leaves (> 90 days).

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	JIMÉNEZ LEDESMA, JOSÉ LUIS
Referencia:	RYC2022-035220-I
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Título:	Catchment Hydrology, Biogeochemistry and Modelling

Resumen de la Memoria:

My research aims to understand the hydrological and biogeochemical processes controlling the mobilization, transformation, and transport of solutes from land to surface waters. My empirical work focusses on processes operating at hillslope, riparian (near-stream), and catchment scales with the ambition to upscale that understanding to the larger ecosystem scale. I am especially interested in the role of the riparian zone versus the upland area in controlling surface water quality. During my PhD, I developed the idea of a dominant source layer within the riparian zone, a conceptual model that explains timing and amount of solute transfer from soils to surface waters. In addition to my conceptual and empirical approaches, my research interest and expertise includes hydrological and biogeochemical modelling at the catchment-scale using process-based models. I am a developer and expert user of the Integrated Catchment (INCA) family of models for solute dynamics, including the rainfall-runoff model PERSiST. I am also familiar with the rainfall-runoff model HBV.

The core of both my empirical and modelling research is hydrological and extend to the study of organic carbon dynamics and their implications for the global carbon cycle and drinking water supply. Nevertheless, I am also interested and have worked with a large range of compounds with biogeochemical relevance including inorganic carbon, nutrients (nitrogen and phosphorus), base cations, silica, sulfate, chloride, metals (aluminium, iron, mercury), and microplastics. My interests expand to the quantification of anthropogenic impacts on catchment biogeochemistry, including climate change and land use management. These assessments require the integration of both my empirical and modelling approaches. My international network is extensive with active or past collaborations in Scandinavia, North America, UK, Ireland, Germany, Czech Republic, and Spain. Ultimately, my goal is to improve our fundamental understanding of solute transport and biogeochemical processes that can support successful management strategies for the preservation of surface water quality

Resumen del Currículum Vitae:

My research focusses on understanding the hydrological and biogeochemical processes that control the mobilization, transformation, and transport of solutes from catchment soils to surface waters through a combination of empirical and modelling approaches. Ultimately, I aim to improve our fundamental understanding of solute transport processes that can support successful management strategies for the preservation of surface water quality.

After studying Environmental Sciences in Spain, I completed a two-year (2009–2011) Master program at the Swedish University of Agricultural Sciences (SLU). During my MSc thesis I used a model to simulate dissolved organic carbon concentrations in a Swedish drinking water basin. In 2011 I started my PhD at SLU, which was more empirical and focused on riparian zone controls on stream chemistry in boreal catchments. I was supervised by Stephan Köhler and other leading catchment science experts. After completing the doctoral thesis in 2016, I obtained funding from difference sources and continued working at the same Department at SLU for three more years. During that time, my research shifted the focus back to hydrological and biogeochemical catchment-scale modelling for climate impact assessment using the INCA family of models under the supervision of Martyn Futter. I collaborated with researchers from Norway, UK, Canada, USA, Ireland, Czech Republic, and Spain.

In April 2019, I moved back to Spain where I started a "Juan de la Cierva-formación" grant, in which I was ranked 1st among 78 candidates in the Earth Science panel. I was based at the CSIC Centre of Advanced Studies of Blanes and worked with Susana Bernal and Eugènia Martí combining my catchment approaches with their stream ecological approaches to investigate hydrological and biogeochemical interactions in Mediterranean headwaters. In September 2020, I started a Marie Curie Individual Fellowship project at the Karlsruhe Institute of Technology, where my advisor was Wolfgang Wilcke, a recognized soil scientist. During my PhD, I developed the idea of a dominant source layer (DSL) within the riparian zone, a conceptual model that explains timing and amount of solute transfer from soils to surface waters. The Marie Curie project tested the DSL concept in Mediterranean and temperate catchments.

I highlight my international experience, which correlates with an expertise working across ecoregions (boreal, Mediterranean, temperate) and in interdisciplinary groups (hydrology, biogeochemistry, modelling, stream ecology, soil science). I have published 31 scientific articles in peer-reviewed journals (11 as lead author), including prestigious venues such as a lead-author publication in Global Change Biology. The citation count of these articles is 670+ (Scopus) and I am the lead author in the 5 most cited ones. I have reviewed for 21 different journals and my reviews are recognized for their exceptionally high level. I have presented my work in more than 10 International conferences and I have the capacity to obtain funding in competitive grants. I have participated in a number of graduate and undergraduate teaching activities, I have supervised MSc and BSc theses, and I co-supervised a PhD thesis. Overall, my scientific merits and contributions are prominent in relation to my level of experience (less than 7 years after my PhD).

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	SALAZAR GUIRAL, GUILLEM
Referencia:	RYC2022-037357-I
Correo Electrónico:	guillemetis@gmail.com
Título:	Ecological and evolutionary drivers of marine microbiomes

Resumen de la Memoria:

Life in the oceans is dominated by microorganisms that are central components of these ecosystems, forming the basis for ocean food webs, and being key regulators of the transfer, recycling and export of organic matter and energy. However, the vast majority of marine microbes remains uncharacterized, as we have only recently begun to capture and inventory microbial life in the oceans, unravel their genome-encoded functional potential and understand the molecular mechanisms that mediate microbial interactions in these ecosystems. Thanks to major advances in DNA and RNA sequencing technologies, the fields of microbial ecology and evolution have been transformed in the past decades into a discipline where we can now characterize in detail the composition and function of microbial communities in the ocean and develop mechanistic and predictive models that underpin ocean microbial biodiversity, interactions and activity at global scale.

Throughout my scientific career, I have learned, developed and applied combined expertise from multiple disciplines – including microbial ecology and evolution, oceanography and bioinformatics – to address my main research interests, which are in identifying the ecological and evolutionary drivers of microbial diversity in marine ecosystems, with a particular interest on how these are impacted by climate change. For over a decade, I have contributed to this field with both conceptual and methodological advances, which are reflected in my scientific productivity. For example, I have authored 36 peer-reviewed articles (9 as a first or second author), out of which 6 appeared in journals of high visibility (Nature, Science, Cell). I have also paid special attention to the dissemination of these research findings to the scientific community and to the general public, as demonstrated by giving multiple talks at national and international meetings in the areas of microbial ecology and evolution (e.g., ISME, ASLO, SAME), and by contributing to the formulation of a policy brief presented during the UN Climate Change Conference COP25.

I have developed my entire career in coordination within large and multidisciplinary teams while being able to build independent lines of research, contributing to bringing in research funding, building strong and independent collaborations and engaging in mentoring and teaching activities. I feel that I have acquired through this process a position of leadership and independence that enables me to establish a productive and independent research group. For that purpose, I propose to develop a research plan based on the combination of publicly available metagenomic data and new data created through the experimental control of simplified microbial consortia to understand the response mechanisms of microbial communities to climate change-associated shifts in seawater temperature.

Resumen del Currículum Vitae:

I am a computationally enabled, internationally well-connected microbial ecologist studying the drivers underpinning microbial diversity, function and activity in marine ecosystems. A particular focus of my interests is on the impacts of climate change. Playing a leading role in several multidisciplinary projects has allowed me to work on this topic at a global scale, to develop novel methods and to contribute several conceptual advances, which are reflected in my strong academic track record as well as independence and leadership skills.

I received my PhD in Oceanography at the ICM-CSIC (Spain) in 2019 in which I studied the biogeography of marine microorganisms at a worldwide scale, by applying cutting-edge high-throughput DNA sequencing techniques and bioinformatics to samples retrieved during two circumnavigation expeditions: the Tara Oceans and Malaspina2010. During it, I provided the first global description of the composition and biogeography of microbial communities in the deep ocean (Salazar et al. 2015, ISME Journal; Salazar et al. 2015, Molecular Ecology) and established several collaborations which have resulted in the co-authorship of several publications not directly related to my PhD topic (9 publications, including 2 in Science and 2 in Nature Communications).

Before defending my PhD, I joined the Microbiome Research Group at ETH (Zurich, Switzerland) first as a scientific associate and later as a postdoctoral researcher (2017 - present). As part of it, I have been leading the line of research centered on the study of the ocean microbiome. I have developed a roadmap for the integration of metagenomic and metatranscriptomic data in the study of the biogeography of the global ocean (Salazar & Sunagawa, 2017, Current Biology) which was later applied to disentangle the expression vs. turnover responses of microbial communities to temperature changes in the global ocean (Salazar et al. 2019, Cell). Importantly, the scientific results of this work have been presented to policy makers at the UN Climate Change Conference COP25 in a policy brief that I helped to prepare. My scientific contributions to the field also include the creation of new, freely available tools that can be used by the community to address other research questions, such as an open-source bioinformatic software for the taxonomic characterization of microbial communities (Salazar et al. 2022, Bioinformatics). I have kept establishing and maintaining collaborations resulting in a strong scientific impact (16 publications since 2019, including 1 in Nature and 1 in Science). During this time, I have had uninterrupted teaching experience at ETH (~120h/year). I have supervised 7 undergraduate students, co-advised 5 PhD students within the hosting group (2 finished, 3 ongoing) and have been invited as a thesis committee member for 2 PhD defenses. I have also transferred my findings to the scientific community through multiple other formats beyond publishing papers, including 5 invited talks. I have also acted as a reviewer for some of the leading peer-reviewed journals in the field.

In summary, I have been developing a highly international and collaborative research career which is reflected in my strong, high-impact and continuous publication record that comprises 36 manuscripts that have accumulated more than 5k citations with an H-index of 25.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	DIOGO SANTOS FARIA, MELISSA PAULA
Referencia:	RYC2022-035452-I
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Título:	Addressing realistic predictions of long- and short- term adverse effects of chemicals present in the environment

Resumen de la Memoria:

My research is based on using different disciplines such as Environmental Chemistry, System Biology, Ecotoxicology, Stress Biology, Molecular Biology and Animal Physiology, Behavioral Neurobiology, different organisms and levels of organization to address environmental problems in aquatic ecosystems. I obtained my PhD degree in 2011 at the Technical University of Catalonia. My work was focused on the development of a multi-biomarker approach to identify major aquatic pollutants causing detrimental effects in the field. I participated in six national and international projects and gained experience in working with different research groups. I spent two months conducting field expeditions in the Costa Rican National Park Palo Verde, monitoring the environmental hazards of pesticides used for pineapple production over fish populations. I spent six years with a postdoctoral fellowship at the University of Aveiro, Portugal. During this period, I engaged with several collaborative projects and focused on using different analytical and ecotoxicological approaches to identify emerging effects of contaminates in the different invertebrate aquatic species and later on with the zebrafish. I then joined Dr Demetrio Raldúa᾽ s research group at the IDAEA-CSIC institute, Barcelona with a two-year Beatriu de Pinós fellowship, where I helped set up and validate several behavioural assays for zebrafish. Furthermore, I developed the "Vibrational Startle Response Assay" (VSRA), a powerful behavioural tool able to conduced medium to high-throughput screening of pollutants affecting the normal function of the fish nervous system. During the last years, I᾽ ve started new lines of research at IDAEA-CSIC, including the long-term effects of early life exposure to neurotoxic chemicals, as well as integrative studies on the molecular bases behind the adverse effects on fish behaviour. I was the principal investigator (PI) of a cross-disciplinary research project in the frame of the Severo Ochoa programme, which aims to provide new insights into the fate of Rare Earth Elements in aquatic ecosystems, specifically on their potential bioaccumulate and affect biological tissues. Currently, I am working as a senior Researcher at the Leitat Technological Centre, where I have engaged in the execution of ongoing National and EU projects.

I plan to apply the adverse outcome pathways (AOPs) framework to identify environmental pollutants with the potential to develop hazardous effects at individual and population levels. I intend to integrate my strong biochemical background with my more recently acquired knowledge on different omic approaches as well as on system biology and behavioural neurobiology, to identify the main key events involved in the physiopathological effects of chemicals present in the environment. The impact of my work on the scientific community would be to establish early biomarkers for early diagnosis of potential hazards and, to society would be to contribute to the awareness of currently underestimated regulatory pre-assumptions of lethal effects of chemicals present in aquatic systems as well as for emerging chemicals. I believe that using the increasing mechanistic knowledge coming from the AOP framework would allow more realistic adverse predictions of multiple exposure paradigms.

Resumen del Currículum Vitae:

I obtained my Ph.D. degree in 2011 at the Technical University of Catalonia. In 2011, I was granted a postdoctoral fellowship at the University of Aveiro (Portugal) for three years with an awarded extension of a further three years by the Fundação para a Ciência e Tecnologia (FCT, Portugal - SFRH/BPD/78342/2011). Following my stay in Portugal, I returned to Spain with a two-year postdoctoral Beatriu de Pinós fellowship (2016 BP 00233) (AGAUR, Generalitat de Catalunya, Spain) at the IDAEA-CSIC (Barcelona) institute. Currently, I am working as a senior Researcher at the Leitat Technological Centre, where I have engaged in the execution of ongoing National and EU projects. I have had two maternity leaves throughout my research carrier. My research carrier is based on integrative biology, using different disciplines such as Environmental Chemistry, System Biology, Ecotoxicology, Stress Biology, Molecular Biology, and Animal Physiology, Behavioral Neurobiology, different organisms and levels of organization to address environmental problems in aquatic ecosystems. I have a great deal of experience in field expeditions and in working with a wide range of aquatic species including invertebrates (bivalves, crustaceans, and insects) and vertebrates (fish). Throughout my research, I have actively participated in 12 research projects, of which I have collaborated as part of the research group in 4 national and 2 international research projects. I was the PI of a 20-month research project in the frame of the Severo Ochoa Programme. I have published a total of 56 peer-reviewed scientific articles and 4 publications in scientific books, with 51 scientific articles published in leading journals of my field (Quartile 1). I am the 1st, 2nd co-author, and senior author of 65% of my scientific publications (articles and books). I have collaborated and established contacts with several international research institutes from Germany, Israel, the USA, France, Portugal, Mexico, and Costa Rica as well as government agencies. I have an h-index of 21 and accumulated 1355 citations (Scopus database). I have contributed to 32 publications in national and international conferences, which includes an invitation as a speaker and chair of sessions in SETAC and EUCHEMS-ICCE congress. At the IDAEA I was responsible for overseeing the Environmental Toxicogenomic - Enzymatic methods of analysis service. I am an Associated Editor for Aquatic Physiology for Frontiers and was a guest editor in three special issues. My experience in training and supervising students includes the supervision of 1 Ph.D. thesis, 5 master theses, and 2 bachelor projects. I was involved in the organization and execution of two outreach programs: "CSIC en el Aula" and "ESCOLAB" aimed to inspire future investigators additionally, participate every year in the program "Semana de la Ciencia", Barcelona and I was part of the IDAEA seminar committee responsible for organizing weekly presentations and special sessions of ongoing works at the institute. I am an active reviewer for 14 leader SCI journals, including Scientific Reports, Hazardous Materials, Science of the Total Environment, etc. I have tutored two courses, and I have been a member of the jury for various master's theses and invited as an external reviewer for Ph.D. theses.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	GUTIÉRREZ CÁNOVAS, CAYETANO
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Título:	Global change impacts on river biodiversity and ecosystem functioning

Resumen de la Memoria:

I investigate how rivers respond to global change through four research lines: 1) multiple stressor impacts across ecological and spatiotemporal scales, 2) biodiversity–ecosystem functional relationships under global change, 3) conceptual and methodological tools for estimating functional diversity, and 4) biomonitoring and conservation of naturally saline and non-perennial rivers. I started these research lines in my PhD, where I study ecosystem responses to natural and anthropogenic stressors. During my early postdoctoral stage, I expanded my research scope towards multiple stressors by developing methodological advances, empirical studies and syntheses. Later, I began to integrate ecosystem functioning techniques measures to understand the consequences of biodiversity and abiotic changes for global biogeochemical cycles. JdC-Incorporación and 'La Caixa' Junior Leader fellowships provided funding for research and offered me the opportunity to establish a research group at URJC. This budget allowed me to initiate independent research lines through the creation of the Iberian River Observatory, the first large-scale observatory to investigate the impact of multiple stressors on river biodiversity and ecosystem functions (Fig. 1). This observatory is maintained and developed through the IberRios network, which integrates a multidisciplinary team of more than 80 scientists and practitioners. Through this collaborative network, we will collect information on an unprecedented range of river organisms (i.e., prokaryotes, fungi, algae, macrophytes, macroinvertebrates, fishes, amphibians, reptiles, birds, and mammals) and ecosystem functions (e.g., carbon and nutrient cycling, pathogen control, and thermal regulation) over multiple years and across a large spatial scale. This research funding will cover the fieldwork and sample processing costs of the first three sampling campaigns of IberRios (2022-2024). By obtaining the RyC fellowship, I will be able to generate long-term datasets on river biodiversity and functions (2025+), build my laboratory team, and produce cutting-edge research based on this unique set of ecological data. The RyC will thus be fundamental in consolidating and fostering my independent research lines and to attain a permanent position within the Spanish research system. I plan to conduct four major blocks of research for the RyC period that will explore multiple stressor effects across different ecological and spatiotemporal scales, including large spatial scale, food-web, spatiotemporal and multiscale perspectives. Taken together, the data, results and knowledge produced through this RyC fellowship will provide novel insights into how global change is altering rivers and which actions should be prioritized to restore river health and the benefits for people and ecosystems.

Resumen del Currículum Vitae:

I investigate the causes of biodiversity change, and the consequences for ecosystems, biogeochemistry and people. My research integrates techniques and knowledge from biodiversity science, community ecology, macroecology and biogeochemistry to support policies that mitigate the impacts of the biodiversity crisis and global change. I have published 53 papers in JCR journals (first author:14; second author:17; senior author:4). My research has reached 2,094 citations (h-index=23). I played a major role as the first, second or senior author in 66% (35) of my JCR publications. In these papers, I made a key contribution to study conceptualization, literature review, fieldwork, data analysis, and manuscript writing. As a direct result of my mentorship activity of early career researchers, I published 12 articles (role:2nd or senior author). I have a strong interest in science communication, which I develop through the coordination of the Ecomandanga outreach platform, contributions to other blogs and regular participation in national and international media. I worked 36 months abroad as a postdoc at Cardiff University and University of Minho and performed three international stays (6.5 months, in total). I participated in international research networks (for example, SMIRES COST Action) and created IberRios, the first network to explore the impact of multiple stressors on Iberian rivers. As a direct result of my international activities, I have published 20 papers. I was invited to participate as a plenary speaker at the AIL 2020 conference and contributed to the organization of special sessions and international conferences. I have recognized international activity as a referee for more than 30 JCR journals and five funding agencies. I obtained two competitive fellowships that allowed me to develop new ideas and become an independent researcher. First, I was awarded with a 3-yr fellowship within the prestigious program JdC-Incorporación at the EBD-CSIC, offering my first opportunity to manage own funding. Second, I obtained an extremely competitive 'La Caixa' Junior Leader fellowship, which offered me the first opportunity to lead a research project. Both fellowships provided me with the necessary resources to establish a research group at URJC and initiate independent research lines through the creation of the Iberian River Observatory, the first large-scale observatory to investigate the impact of multiple stressors on river biodiversity and ecosystem functions. I supervised two final-degree projects and one MSc thesis at Univ. Minho and I was a member of 2 PhD thesis juries and 1 follow-up PhD thesis panel.

Resumen de la Memoria:

I completed my PhD in Pharmaceutical Sciences - Analytical Chemistry Specialty in 2013 at the University of Porto (Portugal) with distinction. During my PhD, I was supported by a competitive individual PhD grant funded by the Portuguese Foundation for Science and Technology (FCT) (Portugal). My PhD research focused on the development of innovative analytical methodologies to study the presence and fate of pharmaceuticals (PhACs) in the aquatic environment and on the evaluation of their environmental risk. The results of my PhD thesis included some of the first studies at the Portuguese and EU level about the contribution of hospital effluents to the load of PhACs into urban wastewaters and provided some of the first data on the occurrence of PhACs and their metabolites in Portuguese rivers. My PhD work comprises highly cited articles (articles with >400 and >1000 citations) that became a point of reference for environmental scientists.

After my PhD, I was postdoctoral fellow at CIIMAR (Portugal) (2013-2015) and at REQUIMTE/ICETA (Portugal) (2015-2106). My research focused on the development of analytical methodologies for monitoring the presence of PhACs in Portuguese rivers; evaluating their removal by WWTPs; and performing laboratory exposure studies to evaluate the toxic effects posed by emerging contaminants (ECs) to non-target organisms. I worked in collaboration with industrial water partners. In 2016, I moved to the Catalan Institute for Water Research (ICRA) (Spain), after being awarded with the highly competitive Juan de la Cierva – Formación (2016-2018) and Juan de la Cierva – Incorporación fellowships (2018-2021) from MICINN (Spain). Herein, I consolidated my research work on the evaluation of the environmental and human health risks posed by ECs and gained knowledge in non-target analysis, which I used to develop new analytical tools based on advanced HRMS-based workflows to identify unknown metabolites. I worked in collaboration with ICRA scientists from other areas, national and international researchers. I was scientific coordinator of the national project PLAS-MED that evaluated the presence, effects and risks of microplastics in the Mediterranean area. Since 2018 I established and lead a new research line at ICRA on the analysis of microplastics (MPs) in the environment. My research is now supported by a European H2020 project, where I am task leader. My research line focuses on studying the sources and fate of ECs, mostly PhACs and MPs, and their metabolites/transformation products in the environment and assess their risk to the environment and human health. Four main topics are complementarily approached: i) Development of innovative analytical methodologies to measure ECs in environmental samples, including the use of advanced HRMS-based workflows to identify unknown organic contaminants; ii) Characterization of sources of contamination and monitoring the fate of ECs in the environment; iii) Linking environmental exposure to ECs with the impact to non-target organisms in terms of toxicity, bioaccumulation, biotransformation of ECs, and changes in the metabolic profile. The impact of co-exposure scenarios to different ECs is also considered; iv) Evaluation of human exposure to ECs due to the ingestion of environmental contaminated food, including the impact of the digestion process in the accessibility of ECs.

Resumen del Currículum Vitae:

I am an internationally recognized expert on the sources, fate and environmental and human health risks of emerging contaminants. I was awarded with a competitive individual PhD grant (SFRH/BD/48168/2008) funded by the Portuguese Foundation for Science and Technology (FCT) to carry out my PhD in Pharmaceutical Sciences – Analytical Chemistry Specialty at the University of Porto (Portugal), that I completed in 2013. During the PhD I did two short term stays at the Charles University (Czech Republic) (April-July 2010) (funded by an Erasmus fellowship) and at the Catalan Institute for Water Research (ICRA) (Spain) (June 2011).

After my PhD, I worked in recognized national and international institutions in the field of environmental sciences: CIIMAR (Portugal) (2013-2015), REQUIMTE/ICETA (Portugal) (2015-2016) and ICRA (Spain) (2016-present). I was awarded with the highly competitive Juan de la Cierva – Formación (FJCI-2014-22377) (2016-2018) and Juan de la Cierva – Incorporación (IJCI-2017-32747) fellowships (2018-2021) from MICINN (Spain). At ICRA, I was scientific coordinator of the National project PLAS-MED (CTM2017-89701-C3-2-R), leading its research work group. Within the project, I did a short-term stay at the Portuguese Institute for the Sea and Atmosphere (IPMA) (Portugal) (November 2020). Since 2018 I implemented and lead a new research line at ICRA on the analysis, fate and risks of microplastics in the environment. My research is now supported by the European H2020 project HYDROUSA (GA nº 776643), where I am task leader for task 6.4 (WP6). My research has been developed in collaboration with ICRA scientists from other areas, national (IDAEA-CSIC, IEO) and international partners from Europe: Austria (Alchemia, PLENUM), Germany (RWTH Aachean University), Greece (NTUA), Italy (University of Pisa), Norway (NIVA, NORCE, NTNU), Portugal (IPMA, University of Aveiro), UK (Brunel University London); and South America (Argentina, Brazil, Uruguay). I also participate in the international network PRIORITY (EU COST Action, 2021-2025).

Overall, I published 41 peer-reviewed articles (most Q1 journals; 2 highly cited papers (1094 and 413 citations); 11 as first author; 6 as corresponding and leading scientist; 17 with international institutions) and 3 book chapters (total of 2967 citations; h-index 21, Scopus). I participated in 7 R&D projects: co-applicant of 1 Horizon Europe project; scientific coordinator of 1 MICINN National Project; task leader of 1 on-going European H2020 project; researcher of 3 Portuguese National Projects (FCT) and 1 European ERA-NET.SIINN project. I was PI of 2 JdC contracts and (co-)PI of 4 R&D contracts with public and private entities, ensuring funding for my research. I supervised 2 PhD theses (on-going), 6 MSc, 3 BSc, the internship of 1 BSc student, and visiting researchers (5 EU countries, Brazil, Argentina, Uruguay). My work was presented at 68 national and international conferences and seminars (22 platform, 7 as invited speaker). I participated in the organization of R&D activities (10 y-ICRA conference (Spain) (2019); chair of session: ICCE 2019 (Greece), 10 y-ICRA conference (Spain), webinar of WEC&N (China, online)), and in several dissemination activities to society. I was Guest Editor of a Special Issue in WEC&N journal and evaluator of the activity of research institutes of the Czech Academy of Sciences.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PASTOR OLIVERAS, ADA
Referencia:	RYC2022-036661-I
Correo Electrónico:	adapastor@gmail.com
Título:	Trayectora investigadora Ada Pastor

Resumen de la Memoria:

My research grounds on ecology, limnology, biogeochemistry, and microbiology, with focus on the impacts of global change on organic matter and nutrient dynamics in freshwaters, for what I have applied an array of approaches and techniques from different fields (chemistry, ecology, geology, microbiology). I enjoy being on the edges of the unknown and finding innovative ways to advance science. My research has assessed the biogeochemical relationships between water and aquatic organisms, emphasizing the linkages between of organic matter and nutrient cycles. I am interested to assess how climate-driven changes, such impacted land-use, warming, changes in hydrology, have a crucial effect on key ecosystem processes and biogeochemical fluxes. During the last five years, I have developed forefront research on Arctic freshwater ecology, fruitfully adding to my main lines of research. In April 2022, I started a position as a 3-year postdoctoral fellow at the University of Girona where I am continuing my research on the temperature dependence of freshwater nutrient cycles (main focus in nitrogen) and biofilm functioning.

I extend my efforts on the field of freshwater ecology and biogeochemistry by building on the close interdisciplinary collaboration, spanning a range of fields and areas of expertise. I will further develop two main lines of research (LR), with the major goal of contributing to understand freshwater ecosystems functioning in response to global change:

LR1. Land-to-ocean biogeochemical connectivity responding to global change. In particular, I will focus on two specific research goals: 1) define the role of riparian areas control the biogeochemical fluxes reaching the freshwaters and 2) reveal impacts of landscape to freshwater functioning.

LR2. Microbial aquatic biofilm functioning under warming, in particular, with the research goal, to resolve interactions between biofilm temperature dependences and changes in nutrient resources, across climatic gradients.

The outcomes of this Ramon y Cajal grant will provide relevant information for effective responses to environmental change and will significantly contribute to the excellence of research in the field of biogeochemical cycles, ecosystem functioning and global change.

Resumen del Currículum Vitae:

I completed my PhD thesis in Ecology in Jun 2014 at the University of Barcelona, conducted a first postdoc at the Catalan Institute of Water Research (ICRA, Girona, 2015-17), and then moved to Denmark for a following postdoc at Aarhus University (2017-22). In April 2022, I started a 3-year postdoctoral position at the University of Girona supported by the Beatriu Programme (Generalitat de Catalunya). During these years, my research activity has focus on the understanding on how global changes influence the structure and function of the aquatic ecosystems, with particular interest on the biogeochemical fluxes. My interests include soil-water microbial processes, aquatic metabolism, organic matter and nutrient dynamics, isotopes and Arctic ecology.

My research experience is reflected in my publication list, which includes leading prestigious journals publications such as Environmental Science and Technology and Global Biogeochemical Cycles (26 peer-reviewed publications of which 50% are as first author and 8% as last author). The last three years have been particularly prolific with 14 publications. I have contributed in high-level international conferences. Noticeable, I have been invited to give a highlight talk at the Arctic Science Summit Week (2023) and seven seminars at international institutions (Germany, Denmark, Switzerland, Cyprus, Belgium).

I would specially highlight my success in acquiring project funding to carry out my research, as well as acquiring my own personal funding in highly competitive calls (postdoctoral grants from the Ramon Areces Foundation and AGAUR), summing up >440,000 €in the last six years. Acquiring project funding gave me experience as PI and as coordinator of research groups. Already when I was finishing my doctorate, I led and experiment on N and organic carbon uptake in streams, in which I coordinate more than 40 researchers (2013-2016). During my time in Denmark, I have led several projects to carry out research in the Arctic. Of special mention, I was awarded the Villum Experiment project, which is extremely competitive grant, with which I could provide salaries, operational costs and fieldwork in the Arctic.

During my scientific career, I have woven a wide network of international collaborators. I completed several research abroad, including the Denmark, United States, New Zealand and Canada, and led five Arctic expeditions (Greenland and Canada). Also, I have worked actively to raise awareness about gender bias in academia and improve academic culture. In 2014, I was co-founder of the Gender and Science group at the Iberian Association of Limnology (AIL), in which I have actively participated with three peer-reviewed articles, one chapter book, the organization of events, development of an exhibition and teaching material for make visible the role of women limnologists. In addition, I am firmly committed to educational and outreach activities. I have collaborated in student teaching, taught both undergraduate and master's level classes, co-supervised several student projects (4 Msc and 6 BsC projects), and I am currently co-supervising a PhD thesis (Aarhus University), and 2 Master students at the University of Girona.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	PAGÈS FAURIA, JORDI
Referencia:	RYC2022-036196-I
Correo Electrónico:	jpages@ceab.csic.es
Título:	An interdisciplinary approach to coastal resilience

Resumen de la Memoria:

My research aims at identifying and quantifying the drivers, processes and feedback mechanisms that influence coastal resilience to global change. To achieve a mechanistic comprehension of such processes I combine a variety of perspectives: from biogeochemistry to landscape ecology, community ecology and, recently, methods borrowed from the humanities.

While my early scientific studies dealt with disturbances from an ecophysiological point of view, during my PhD I focused on ecological stability from a community ecology perspective, studying classical biotic interaction networks and trophic cascades. I later focused on understanding the influence of contextual conditions on ecological resilience, be them in the shape of storms, nutrients, ecological processes, temperature, landscape configuration or even animal movement. More recently, my aims focused on unravelling the specific mechanisms that provide resilience to ecosystems, particularly plant-plant, plant-animal, and plant-animal-soil feedbacks. During a postdoctoral fellowship in the UK, my collaboration with social scientists meant a complete re-evaluation of my perspectives. While my interest in coastal resilience have remained the same, I now include the human dimension, focusing not only on ecosystem resilience but also on the resilience of ecosystem service provision, and on public perceptions of undervalued coastal ecosystems. Some of my results on this matter highlight the importance of creating flexible governance structures, particularly when the ecosystems to be managed are extremely dynamic (e.g., saltmarshes in estuarine areas). Thus, my approach has increasingly progressed from an ecosystem-oriented approach to a more holistic and interdisciplinary perspective, bringing the human dimension and the dynamic nature of the coast to the foreground. These ideas have crystallised through funded projects I have led, co-led or conceptually designed. The increasingly social-ecological approach has exacerbated my natural interest in communicating research not only to the scientific community, but also to the wider society. I have also striven to transfer my knowledge to policymakers and practitioners both in Spain and the UK. Recently, this has resulted in my work being used as evidence base by the British Parliamentary Office of Science and Technology, and in a report by the British Ecological Society, as well as in a knowledge transfer contract with the Catalan Water Authority.

My intention is to continue delving into to the disturbances that affect coastal vegetated ecosystems and the factors that allow them to resist, recover, and adapt to such disturbances, which are predicted to increase under most climate change scenarios. My research in the near future will pay particular attention to the influence scale (temporal and spatial) on resilience, to the link between resilience of the ecosystem and the resilience of ecosystem service provision, and to the relationship between resilience and society.

Resumen del Currículum Vitae:

My research aims at identifying and quantifying the drivers, processes and feedback mechanisms that influence coastal resilience to global change. To achieve a mechanistic comprehension of such processes I combine a variety of perspectives: from biogeochemistry to landscape ecology, community ecology and, recently, methods borrowed from the humanities. My approach has increasingly progressed from an ecosystem-oriented approach to a more holistic and interdisciplinary perspective, bringing the human dimension and the dynamic nature of the coast to the foreground.

I have communicated my research in 15 international conferences, published 2 book chapters, and written 33 peer-reviewed papers in leading journals. These contributions prove my capability as a leading author (33 %) and coordinator (27 % as second or last author). In addition, the scientific relevance of my research is evidenced by its impact (>1000 citations), invitations to international conferences and seminars, and awards. Further, during my postdoctoral phase, I have been PI of 1 project and WP-leader of 2, awarded 3 competitive fellowships, and I have been positively evaluated for a científico titular position at CSIC (2022).

During my career, I have developed a professional independence and leadership capacity. The 36% of my publications are without my PhD supervisors. In addition, I have been responsible for managing more than €100k of funding as PI or WP-leader and participated in 15 research projects. As a result, I have collaborated with >60 researchers, from 13 different countries. My internationalisation is also evident from the extensive period abroad (>3.5 years), including a predoctoral stay in India (3 months) and a 3.5-year postdoc in Wales (UK).

My interest in science also includes lecturing, tutoring, and mentoring. I have supervised 19 students: 2 PhD students, a visiting Chinese PhD student, 2 Erasmus+ students, 5 MSc projects, 6 End-of-Degree projects and 3 End-of-Highschool projects. I also mentored two other PhD students at Bangor University and participated in 4 PhD thesis defence committees.

It is also worth highlighting my dedication to dissemination to the wider society. I have led the dissemination tasks of two international research projects (RESILCOAST and CoastWEB) that materialised in an exhibition at the Royal Geographical Society of London in 2020, I have also collaborated with a high-school to improve their educational programme through science (Magnet project) and contributed to many other outreach activities. I have also striven to transfer my knowledge to policymakers and end-users both in Spain and in the UK. This has resulted in my work being used as evidence for discussions by the British Parliamentary Office of Science and Technology, in a report on nature-based solutions by the British Ecological Society, and in a knowledge-transfer contract with the Catalan Water Authority (ACA).

Finally, I am committed to institutional duties, having reviewed >15 grants for the British Ecological Society, an MSCA-COFUND proposal, and >40 manuscripts from high-impact journals. Finally, in terms of institutional responsibilities, I was the organiser of the Advanced Seminar Sessions at CEAB-CSIC for 3 years (2011-2014), and I am an active member of the outreach commission and the new sustainability commission, also at CEAB-CSIC.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	CANTARERO CARMONA, ALEJANDRO
Referencia:	RYC2022-035559-I
Correo Electrónico:	alexcantarero85@hotmail.com
Título:	Carotenoid-based colorations and signaling theory

Resumen de la Memoria:

Trajectory title: "Carotenoid-based colorations and signaling theory"

My research aims to study those mechanisms involved in the expression of carotenoid-based ornaments. I am also interested in the behavioral ecology of birds, with the main focus on sexual selection and parent-offspring conflict.

I hold a PhD from the University of Córdoba (2011-2015), funded by the FPU program. My PhD research focused on the study of the behavioural adaptations of cavity nesting birds.

In 2016, I joined the National Museum of Natural Sciences - MNCN (CSIC), one year as hired researcher and two years funded by the 'Juan de la Cierva' (JDC) formación program wherein I started to establish the roots of my ongoing research line. My research during this period (2017-2018) focused on understanding the mechanisms involved in the expression of carotenoid-based traits and the role of the mitochondrial respiratory chain in this process. Hence, my current research builds on my expertise in evolutionary ecology and physiology acquired during my career.

In 2019, I moved to Turku (Finland) funded by the 'Fundación Ramón Areces' (postdoctoral fellowship) where I studied the way human wastes impacts the birds behaviour. In January 2021, I work again at MNCN (CSIC) funded by the 'Juan de la Cierva' incorporación program wherein I headed my own funded project about the carotenoid-based colorations and signaling theory. From March 2022, I have joined the Complutense University of Madrid as an Assistant Professor (Department of Physiology – Veterinary Faculty).

Main achievements:

1. During my PhD I aimed at understanding the mechanisms underlying adaptations for nest site selection and defense, for determining nest structure and composition, for defense against ectoparasites and for female nutrition. We experimentally found that ectoparasite loads led to change anti-parasite behaviours by adult hosts (J Avian Biol). Moreover, we experimentally demonstrated that female begging during incubation is an honest signal of energetic need and mates were able to respond such signals (Anim Behav).

2. My second line of research is the study of those mechanisms involved in the expression of sexual signals generated by carotenoid pigments and the role of the mitochondrial respiratory chain in assuring the reliability of colorations as signals of individual quality. We demonstrated that the enzymes responsible for yellow-to red carotenoid transformations (ketolases) are in the inner mitochondrial membrane (Biol Lett) and that expression of the enzyme responsible for such transformations (CYP2J19) and the expression of a red carotenoid-based trait are both affected by a mitochondrial antioxidant (PRSB). Finally, our last work revealed that red-ketocarotenoid-based ornaments indicate individual quality as mitochondrial function efficiency (Evolution).

Resumen del Currículum Vitae:

Research career/trajectory summary

I graduated from University of Córdoba (UCO) in Environmental Sciences in 2010. In December 2011, I got a FPU doctoral studentship to conduct my PhD (2015) at UCO focused on the behavioural adaptations of cavity nesting birds. During this stage, I also did one short-stay at the University of Turku (Finland) wherein I acquired lab skills (hormone analyses) that were applied in a series of companion papers about testosterone in songbirds. Subsequently, I spent 3 years at the Department of Evolutionary Ecology of the National Museum of Natural Sciences - MNCN (CSIC), one year as hired researcher (Juan Moreno lab) and two years (Carlos Alonso lab) funded by the 'Juan de la Cierva' formación program wherein I started to develop my current research lines. Specifically, my ongoing work aims to study those mechanisms involved in the expression of carotenoid-based ornaments and the role of the mitochondria on the expression of sexual colorations and phenotypes. In the framework of this ongoing research line, in 2018 I visited the University of Padova (Italy) funded by the prestigious program 'José Castillejo', an initiative launched to young scientists with a promising research trajectory. After that, I spent 2 years at the University of Turku funded by the 'Fundación Ramón Areces' (postdoctoral fellowship) where I worked with Toni Laaksonen to study the way human wastes impacts the birds. In January 2021, I work again at MNCN (CSIC) funded by the 'Juan de la Cierva' incorporación program wherein I headed my own funded project about the carotenoid-based colorations and signaling theory. From March 2022, I have joined the Complutense University of Madrid as an Assistant Professor (Department of Physiology – Veterinary Faculty). So far, my research has resulted in 46 publications (~4 per year) in SCI journals (including papers in Proc. R. Soc. London B, Evolution, Biology Letters [x2], Curr Biol, J. Anim Ecol., in which I have played a leading role; I am first (17), second (11) or last (5) author in ~70% of my publications. Despite most of my publications are recent contributions, they have already accumulated ~683 citations (h-index = 17; i10 = 29). I have been Principal Investigator in 2 Spanish R&D projects and I have also participated in 6 more of them (2 international), which indicates I have experience raising funds and managing research projects. I have reviewed manuscripts for more than 30 different scientific journals including Evolution, Scientific Reports, Proc. R. Soc. Lond. B, and Animal Behavior among others. Since 2018, I am member of the Editorial Board of Frontiers in Ecology and Evolution (Review Editor for Behavioral and Evolutionary Ecology). I also have served as an expert reviewer in several national and international funding calls. Results of my research have been disseminated in several international congresses (19 oral communications and 5 poster communications). I have mentored 1 BSc (+2 ongoing) and 9

MSc (+3 ongoing) students. All my former MSc students are pursuing PhD studies. I am also supervising 3 PhD students. I have more than 500 hours of teaching experience in different universities. I maintain an intense international scientific activity including ongoing collaborations with researchers from Finland, Italy, Sweden, Portugal, and UK. I have recently obtained the I3 certificate.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	QUIJADA FUMERO, LUIS JESÚS
Referencia:	RYC2022-036618-I
Correo Electrónico:	lquijull@gmail.com
Título:	Evolution of Leotiomycetes in the Gondwanaland

Resumen de la Memoria:

During my PhD I specialized as a morpho-taxonomist. My research line at that moment was about taxonomy and systematics of Ascomycota. When I finished my PhD, I had 11 publications (7 indexed, Q3 or Q4, 8 as first author). I had participated in 2 international and 6 national congresses (15 presentations, 5 oral and 10 posters). I had 3 main collaborators (Baral, Huhtinen, Beltrán-Tejera), I had some experience as a teaching assistant, some collaborations in national projects, and I did not have any international experience. In my postdoctoral career at Harvard University, I started a new research line about identification of fungal pathogens. In the last years, I also learnt how to get DNA from historical collections. During my 6 years at Harvard, I have increased my cv drastically: 48 publications [33 JCR (10 Q1)], 40 presentations in congresses [24 internationals, 16 nationals, 5 invitations], teaching experience in international universities (Mexico, Colombia, Chile), teaching experience in extension school (Spain), establish strong international collaborations (56 researchers). My independence and leadership have increased too. I have been PI in 2 international projects (USA), and collaborate in other 2 international projects (USA, Croatia). I have 23 publications as first authors, proposing novelties in my research fields like re-evolution processes and connections between anamorphs and teleomorphs, showing the ecology of a wood-inhabiting fungi with a symbiotic phase inside arthropods. I have learnt: SIG, phylogenomic, ecological niche, macroevolution analyses, and statistical analyses in ecology. I have mentored students: USA (4), Spain (2). I have been on the committee of 1 undergraduate and 2 graduate students, and form part of the editorial committee on 3 journals. My name is known worldwide as a specialist and therefore I act as reviewer for 13 different journals.

Nowadays I am more interested in evolution, biogeography, and functional morphology. My research line proposed "Evolution of Leotiomycetes in the Gondwanaland" is aimed to give insights into the evolution and diversification of Leotiomycetes in the southern Nothofagus forest considering tectonic history and host-distribution. This will also allow us to compare both hemispheres and understand better dispersal strategies and addaptations (macro-microclimatic conditions, isolation, vectors). Leotiomycetes diversity increase toward the poles and metagenomic studies have proved it (Nothofagus forest). Although unfortunately only 30% of the sequences matched known fungi. I will use my expertise to identify and collect them from different countries (Chile, Argentina, Australia, New Zealand = Gondwana). I have a strong network of collaborators in each of these countries, and during the project I am looking to stablish a multidisciplinary research group with students and seniors with different backgrounds, search for metabolites with interesting biological activity (applied mycology), improve my knowledge about metagenomics and genomics, supervise PhD and master' students, and promote fungi conservation.

Resumen del Currículum Vitae:

I am a systematic and taxonomic mycologist specializing in the study of inoperculate discomycetes. From specimens I obtain morphologic, genetic, ecologic, and biogeographic data that informs my integrative approach to research. I have developed two research lines: a) biology, systematics and evolutions of Ascomycota and b) fungal plant pathogens.

I started my research career in 2007 collaborating as undergraduate student in the department of Botany (University of La Laguna, ULL). I participated in my first national mycology project in 2008. The same year I got a PhD grant from the Government of the Canary Islands in the same department of the ULL, and finished my PhD in 2015 (program: life and environmental sciences). I worked in the botanical garden Oasis Park as technician for 6 months (2015-2016) and in a genomic lab (SEGAI, ULL) for 5 months (2017). I got in 2017 my first postdoc fellow (Ramon Areces Foundation) to do my postdoc at the Harvard University Herbaria (Department of organismic and evolutionary biology, Harvard University). After that, I got another fellowship in the same department for 8 months, and then I got the Farlow Fellowship (ends June 2023). All these grants have been competitive to develop a specific project as PI. I have right now more than 5 years of postdoctoral experience in the USA working in one of the most important universities of the world, Harvard University.

During my scientific career I have won 8 competitive grants, one award (best PhD in Science) and 3 quality mentions (Innovative teaching projects). I have participated in 12 projects, 8 nationals and 4 Internationals, 2 as PI. I have published 48 publications, 33 indexed JCR mainly in the area Plant Sciences and Mycology. 10 of my papers are indexed in the 1a quartile (Q1) and I am the first author of 23 of them. My number of citations and H-index according to Web of Science-Google Scholar-ResearchGate are: 831-831-861 and 9-10-11 respectively. My Research Interest Score is higher than 96% of ResearchGate members. I have co-authored 6 books and 4 book chapters. I have been reviewer for 13 different journals, and I am on the editorial board of 4 journals (Mycological Progress, Mycologia Montenegrina, Ascomycete.org). I have 44 presentations in congresses. I have been invited as plenary speaker 1 international congress (Pakistan), and invited as speaker at several symposium (Cyprus, Mexico, Panama). I have helped with the organization/scientific committee in 2 national and 2 international congresses. I worked on 5 educational innovative projects. For each project we created didactic books used to teach botany. I have been teaching assistant in ULL in the courses: Foundation of Applied Plant biology, Botany, Floristic Diversity, Mycology and Phycology [B.Sc. Pharmacy], Vascular Plants, and Mycology [extension school, EUPAM]. I helped teaching in mycology courses in Latin American Universities (Veracruzana University, Austral University, Rosario University]. I have mentored 2 undergraduate students in Spain and helped other 4 at Harvard University with their projects. I have been committee of undergraduate students in Colombia and graduate students in Spain and Mexico. I have 28 outreaches activities, mostly mycological exhibitions, but also, I have participated in several events like science festivals and workshops.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	HUBER , VERONIKA
Referencia:	RYC2022-036948-I
Correo Electrónico:	veronika.huber@helmholtz-muenchen.de
Título:	Climate change impacts on human health

Resumen de la Memoria:

My scientific contributions in the field of climate and health, and more generally climate change impacts can be categorized in four broad areas: attribution, adaptation, projections, and integration. The following summarizes the advances and major results that I have contributed to in each area.

1)   Attribution: In a landmark paper published in Nature Climate Change we presented, for the first time, estimates of heat-related mortality attributable to recent human-induced climate change in >40 countries around the world. Building upon this work, I now aim at attributing temporal trends in heat-related health outcomes (mortality and hospitalizations) to climate change, accounting for non-climatic drivers of change, as part of my ongoing Marie Sklodowska-Curie Actions project ATTACH. Through my participation in the COST Action PROCLIAS and my contribution to the IPCC Sixth Assessment Report (Working Group II), I have also been involved in efforts to develop methods of climate impacts attribution, which is a relatively new research field compared to the established disciplines of detection and attribution in the physical climate sciences.

2)   Adaptation: Accounting for adaptation in future projections of temperature-related mortality, without recurring to ad hoc assumptions, has always been a major challenge in climate and health studies. As a major result of the JPI-Climate ERA4CS project ISIpedia, we proposed a novel method to estimate the pace of adaptation based on observed changes in the associations of temperature and mortality, and to apply the found relationships in projections. Now, I am involved in a follow-on research project, partly through the COST Action PROCLIAS, that aims at identifying the driving factors behind the observed temporal changes in temperature-mortality associations, with a focus on heat early warning systems and heat-health action plans.

3)   Projections: I contributed to several publications that introduced important innovations regarding projections of temperature-related mortality under climate change scenarios (beyond those related to adaptation). These innovations concern i) the move from small to large spatial scales, as made possible through data collection efforts in the Multi-Country Multi-City (MCC) Collaborative Research Network that I am part of; ii) the presentation of projection results in terms of policy-relevant targets of global mean temperature rise; and iii) the explicit consideration of communicable diseases by studying temperature-related mortality due to enteric infections under future climate change.

4)   Integration: Being one of the founders of the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP), I have significantly contributed to integrating the knowledge on climate change impacts across spatial scales and most importantly across disciplinary sectors. These efforts have laid the foundation for several cross-sectoral assessments of societal vulnerability to climate extremes with my involvement, exemplified by a recent publication in Science on the intergenerational inequities in exposure to climate extremes. My multidisciplinary background, with a doctoral thesis on the impacts of climate change on freshwater ecosystems, has been a value added when developing simulation protocols and research designs for cross-sectoral climate impacts research within ISIMIP.

Resumen del Currículum Vitae:

The overarching goal of my research is to provide scientific knowledge on the impacts of climate change on human health, and on societies by large. Currently, I am a Marie Sklodowska-Curie Actions (MSCA) Postdoctoral Fellow at Ludwig-Maximilians-Universität (LMU) and Helmholtz Zentrum München in Germany, working on the attribution of observed heat-related mortality and morbidity to anthropogenic climate change. Previously, I worked as Research Fellow at Universidad Pablo de Olavide, Sevilla, as Scientific Personal Assistant to the Director and Postdoctoral Researcher at the Potsdam Institute for Climate Impact Research, and as doctoral student at the Leibniz-Institute of Freshwater Ecology and Inland Fisheries in Berlin. I have always been internationally mobile in my career, as further exemplified by research visits at the Joint Research Centre of the European Commission in Sevilla and, during my doctoral studies, at W.K. Kellogg Biological Station, Michigan State University, USA. I hold a PhD from Potsdam University in Ecology, and MSc and BSc degrees in Ecology and Biology from Université Pierre et Marie Curie, and Ecole Normale Supérieure, in Paris, France.

To date, I have authored 38 peer-reviewed publications (h-index=21), most of them in the area of climate and health, which is my current research focus. In addition, I served as Contributing Author to chapter 16 of the IPCC Sixth Assessment Report, Working Group II. I have been involved in four successful grant proposals and the related international research projects, as principal or participating investigator (my MSCA fellowship, JPI-Climate ERA4CS project ISIpedia, COST Action PROCLIAS, Inter-Sectoral Impact Model Intercomparison Project). I am also member of the Multi-Country Multi-City (MCC) Collaborative Research Network, a data sharing initiative aiming at providing scientific evidence on associations between environmental stressors, climate and health.

As part of the aforementioned projects, I have participated in the organization of >10 international workshops and meetings. During all of my career, I have been active in giving presentations both to scientific audiences as well as to lay audiences or professionals out of my field (with >20 invited contributions). Furthermore, I have a strong track-record in media interactions, with >15 interviews in newspapers, radio and television, and I have disseminated the societal relevant results of my research via contribution to online blogs, climate service platforms, social media, and a number of non-peer-reviewed articles and reports. I gained in-depth experience in high-level scientific policy advice working closely with the director of the Potsdam Institute for Climate Impact Research for about five years.

I have acted as supervisor to one PhD and two MSc theses of students based in Germany, Spain and Japan, and I have lectured in the MSc Epidemiology program of LMU in Munich. I have also served as a reviewer to numerous scientific journals, and I initiated a Special Issue in the journal The Lancet Planetary Health in 2021 together with a group of colleagues, assembling studies on different health outcomes affected by climate change. Since recently, I am member of the Scientific Committee of the MCC Collaborative Research Network, evaluating the research proposals developed within the network.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	BOLET MERCADAL, ARNAU
Referencia:	RYC2022-037745-I
Correo Electrónico:	arnau.bolet@icp.cat
Título:	Aspectos paleobiológicos de la paleoherpetofauna ibérica, con especial énfasis en lagartos y anfisbenas

Resumen de la Memoria:

Besides the description of fossil vertebrate specimens (paleoherpetofauna and, more specifically, small lizards and amphibians) that is the core of my research, I have been performing cladistic analyses in different softwares (PAUP, TNT, MrBayes) that use a Parsimony approach. Recently, I have also started using Bayesian methods that incorporate temporal information (tip dating) in phylogenetic analyses. I also have experience working with micro-Computed Tomography and, recently, applied new numerical methods to analyse macroevolutionary trends through geological time (morphospace, disparity, evolutionary changes) using R language. I plan to apply these and other methodologies of phylogenetic comparative methods to disentangle the conflict between morphological and molecular phylogenetic trees of squamate reptiles. These techniques complement a main research line focused on the study of the evolutionary history and fossil record of lizards and other groups of herpetofauna, mainly in the Iberian Peninsula, but also at a global level. Finally, an additional line of research concerns fieldwork and research in Permian and Triassic vertebrate localities from the Iberian Peninsula, where I have been involved in fieldwork for almost 20 years.

Resumen del Currículum Vitae:

I started my career as a paleontologist working exclusively as a fieldwork technician (and then as director) at several paleontological excavations in the Miocene and Pleistocene of Spain, for a total of three years and a half (2006-2009). After the elaboration of my PhD thesis (mainly thanks to a competitive FPI predoctoral grant that lasted 4 years, 2009-2013) at Institut Català de Paleontologia Miquel Crusafont (ICP), I combined paid paleontology fieldwork (director) and work as technician sorting microvertebrates from screen-washing concentrates, with unpaid research for close to four years (2014-2018). From February 2018 I returned to full dedication (paid) research thanks to the following competitive fellowships: 1) A Newton International Fellowship for conducting research at University of Bristol (UK, for two years, 2018-2020), 2) the ICP with a "Juan de la Cierva Incorporación" Fellowship to work at Institut Català de Paleontologia Miquel Crusafont (Spain, three years, 2020-2022); and 3) a "María Zambrano Junior" Fellowship to work for two years at Universidad de Granada (UGR)(Spain, Ongoing: from 1st January 2023, ongoing). I try to pay attention to all aspects of academic research, including the publication of research papers at the highest level (including journals like Nature, Science, Current Biology or eLife, see Orcid profile for a complete list), peer reviewing (36 certified reviews at WOS), participating in and organizing professional meetings and courses, providing lectures (MSc in Paleobiology and Fossil Record at UAB/UB), mentoring students at all levels (Erasmus, BSc, MSc, PhD), performing outreach actions (radio and TV shows, internet, and written press; ranked for two consecutive years in Geosciences section of the ranking Influscience), disseminating Paleontology at the highest level, and supervising fieldwork director (more than 30 excavations and prospections since 2008). I have obtained funding from multiple external sources, including an FPI and mobility BE grants (Ministerio de Ciencia e Innovación, Spain), Synthesys Grant (EU), Newton International Fellowship and Alumni Program (Royal Society), and Juan de la Cierva Incorporación and María Zambrano fellowships (AEI, Spain) and I have also participated in a high number (more than 10) of national and international projects as member of the working team.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	GERALDI , NATHAN
Referencia:	RYC2022-037914-I
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Título:	Multifaceted approach to understand and mitigate the effect of global change on marine communities

Resumen de la Memoria:

My research focuses on understanding community interactions that can assist in rebuilding human-altered ecosystems. I use multiple research tools, including field observations, experiments, molecular techniques, and synthesis of large-scale ecological datasets. My ultimate research goal is to improve conservation, restoration and adaptation efforts in the reality of global change. Past research on these topics included applied science for which results were used to enhance habitat restoration efforts. Currently, my interests have expanded to utilize environmental DNA (eDNA) to measure the biodiversity of communities within a global change framework. Matching eDNA to species assesses biodiversity over taxonomic breadths not feasible with traditional techniques. My research using eDNA includes the global quantification of diversity of macroalgae and marine metazoans in the open ocean. It also encompasses studies synthesizing existing data and combining this with large-scale datasets to understand global ecological patterns in anthropogenic impacts. Examples of this research are published in top-tier journals including Nature Communications, Nature Geoscience, Global Change Biology, and Nature Ecology and Evolution.

As a Ramon y Cajal Fellow, I will expand my current research topics focusing on translatable research providing real-world solutions for sustainably. This will include collaborations to create innovative molecular tools to identify primary producers, which in turn will be used to quantify the fate of primary production in marine systems and blue carbon habitats in particular. I will also continue and grow global collaborations to build upon existing datasets to answer pressing ecological questions such as providing intelligible and comprehensive diversity metrics to inform biodiversity credits. Finally, I will initiate local research focused on the ecology of seagrass meadows and other important biogenic habitats combining traditional methods and up-and-coming technology (e.g., eDNA, marine sensors and passive acoustics).

Resumen del Currículum Vitae:

I am a Senior Scientist since August 2021 at NatureMetrics (https://www.naturemetrics.co.uk), an innovative private company focused on providing scalable and practical solutions to our biodiversity crisis. It is not easy taking a career pivot away from academia. However, given my dedication to making a real change with my research I am proud that I took a step out of academia into industry to better learn how to translate research into real-world solutions. I obtained my PhD in Marine Sciences from the University of North Carolina in Chapel Hill in 2012. I have authored 56 papers in peer-review scientific journals (including Nature Communications, Nature Ecology and Evolution, Nature Geoscience, Nature Biotechnology and Global Change Biology; h-index 22, i10-index 38 and 1630 citations in google scholar 6/2/2023), including a single author paper in the journal Ecology. I have mentored 11 PhD students, as well as 4 masters students. I have taught lectures in undergraduate courses at the University of South Alabama (USA), University of North Carolina (USA), and Queen's University Belfast (UK) and was an instructor of a graduate course (Statistical Analysis using R) at King Abdullah University of Science and Technology (Saudi Arabia). I was awarded grants or fellowships (totaling > $540,000 USD), including funding for my Masters, and PhD, a National Research Council Fellowship and an additional $125,000 USD in grants and awards as a PI or co-PI. I developed a curriculum and presented a course for primary school teachers on habitat restoration. I was chief scientist for two research cruises (10 days in 2014 and 2 days in 2015) for the National Oceanographic and Atmospheric Administration (NMFS-NOAA; USA) and Queen's University Belfast (UK) and participated in another scientific cruises of more than 10 days (NMFS-NOAA; USA). I have had research contracts and fellowships for longer than one year at 8 different international research institutions in four countries (USA, UK, Saudi Arabia and Denmark) and visited additional three research institutions for 1-12 months in USA and Finland. As a Post-Doctoral Fellow, I co-led 2 synthesis international working groups. I am an Associate Editor for Estuaries and Coasts and a reviewer for 14 different scientific journals. I gave presentations in 49 international conferences and have been invited to give scientific talks 7 times. I often participate in outreach activities including public open-days to Marine laboratories in the USA, UK and Saudi Arabia, as well as visiting local schools to educate children about marine conservation and scientific careers in Saudi Arabia and Spain.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	TEIXIDO PLANES, MARC
Referencia:	RYC2022-037083-I
Correo Electrónico:	mteixidoplanes@gmail.com
Título:	Engineered and nature-based treatment sustainable technologies for emerging organic contaminants in the urban water cycle

Resumen de la Memoria:

MTP currently holds a 3-year Marie Sklodowska-Curie Actions-COFUND Beatriu de Pinós (2022-25) researcher position at the Institute of Environmental Assessment and Water Research (IDAEA-CSIC). MTP research focuses on water quality and contaminant fate (with special attention to emerging organic contaminants) in natural and engineered systems, with the long-term goal of developing cost-effective, sustainable, and climate-resilient treatment systems to manage water resources.

MTP's MSc (partially completed at Imperial College London, UK) and PhD research investigated the fate and mobility of emerging polar organic contaminants at the soil-water interface. At the University of Barcelona, MTP identified and modelled the primary soil retention mechanisms, and eventually developed an opensource educational tool to model sorption of polar organic contaminants onto natural adsorbents. To enhance contaminant attenuation, he investigated the molecular interactions involved in their sorption onto carbon-based adsorbents (i.e., biochar) at Yale University (US, 2009-2010), providing a sustainable solution for these difficult-to-remove compounds. In a following study, our work was the first to quantify and model the impact of biochar weathering (i.e., aging) on its contaminant removal capacity. His research also granted a position at the prestigious League of European Research Universities (LERU) Summer School for early-career researchers. During the last year of his PhD, MTP joined the R&D&I water technology center Cetaqua (Suez Environnement, Spain) to expand his expertise on water quality and treatment. Later, he joined the National Science Foundation funded "Reinventing the Nation's Urban Water Infrastructure Engineering Research Center (ReNUWIt)" as a 5-year postdoctoral researcher/Project Assistant at the Civil and Environmental Engineering Department in the University of California Berkeley (US, 2014-2020), and mentored by Professor David L. Sedlak. MTP employed his previous knowledge to optimize green infrastructure for persistent, mobile (polar), and toxic organic contaminant (PMT) stormwater treatment in applied research bridging laboratory (i.e., sorption studies in batch reactors) with field experiences (i.e., pilot-scale column testbeds). His past and ongoing (inter)national pilot studies have been located at Sonoma (US), Los Angeles (US), Barcelona (Spain), Viladecans (Spain), and being supported by multiple local/international publico-private partners, e.g., Sonoma County Water Agency, Los Angeles City Council (LADWP and LASAN), LA County Flood Control District, Agència Catalana de l'Aigua, Barcelona City Council (IMU and BCASA), along with companies like Suez Environnement.

In 2021, he joined the Institute of Environmental Assessment and Water Research (IDAEA-CSIC) as a Severo Ochoa Researcher "Talent Attraction". After receiving his Beatriu de Pinos fellowship, MTP projects aim to advance underutilized sustainable technologies, using low-enthalpy geothermal energy (LEGE) with green infrastructure to promote sustainable water treatment, fostering the water-energy nexus. To this end, MTP (including his 3 PhD students) research line will: i) Lab-scale optimization of PMT removal in the face of climate change (extreme events); ii) Re-imagine green infrastructures and LEGE systems to increase quantity and quality of local water supplies.

Resumen del Currículum Vitae:

M. Teixidó, PhD (MTP) is a chemist (Universitat de Barcelona, UB, 2006). MTP holds a MSc in Advanced Chemistry (UB, 2007), and a Cum Laude distinction PhD in Analytical Environmental Chemistry (UB, 2013). MTP international research stays cover nearly 7 years conducting research at Imperial College London (UK), Yale University (US), University of California at Berkeley (US) in full collaboration with Stanford University (US).

He currently holds a 3-year Marie Sklodowska-Curie Actions-COFUND Beatriu de Pinós (2022-25) researcher position at the Institute of Environmental Assessment and Water Research (IDAEA-CSIC). MTP research focuses on water quality and chemical contaminant fate in natural and engineered systems, with the long-term goal of developing cost-effective, sustainable, and climate-resilient treatment systems to manage water resources.

MTP has co-authored 14 peer-reviewed publications (plus 9 conference abstracts) with 719 citations (h-index 7 in Scopus), 2 submitted articles currently under revision, and 4 papers under preparation. He has participated in 2 international and 8 national projects (including 3 R&D&i contracts), 6 of them as (co-)PI. He has gained 1 PhD (APIF, UB), 1 postdoctoral contract (Severo Ochoa "Talent Attraction"), 1 postdoctoral fellowship (Beatriu de Pinós), and obtained 3 research awards/distinctions.

Currently, MTP is also lecturing in Industrial Technology Engineering as Profesor Asociado at Universitat Politècnica de Catalunya (UPC). MTP has lectured nearly 800 hours of university-level courses and holds a Teaching and Research activity accreditation. He has a proven track record in (co)supervising and coordinating 3 TFG, 1 REU and 2 RSS undergraduate students, 3 MSc students, and 1 junior field technician. MTP is currently officially supervising 3 PhD students. He has presented 14 oral and 4 poster international communications (mainly ACS Meetings, US), has chaired and organized as scientific committee a SETAC session on urban water treatment (Denmark, 2022), and a Workshop on Carbon materials (Colombia, 2018). One of his communications was awarded with the best scientific communication award at the Suez Water&Health Seminar aimed at bridging academia research with industry, granting MTP with a R&D&I contract in Cetaqua (Spain). MTP has recently been PI awarded with a: (1) Research Award on Urban Challenges 2021 funded by the Barcelona City Council to re-imagine sustainable stormwater treatment (ASSETWATER); (2) Plan Nacional 2021 (Tipo 1, early career researchers) on biotransformation of emerging contaminants by geothermal schemes (REACTANT); (3) TED 2021 towards an ecological and digital economy to enhance circularity on green infrastructure (URBPOL); (4) SINERGIA 2021 within the IDAEA-CSIC Severo Ochoa Program focused on emerging contaminant removal by green infrastructure (BRAINSTORM). MTP is the coordinator and PI of a Water4all JPI project with NIVA (Norway) and TU Delft (Netherlands) on urban resilience, adaptation, and mitigation to hydroclimatic extreme events (currently under evaluation). MTP is engaged in tech and knowledge transfer activities with Institute for Advanced Architecture of Catalonia IAAC (Spain) developing open-source stormwater sampling devices. Finally, MTP has actively participated in numerous education and outreach events to diverse audiences, including a TV appearance.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
Nombre:	MUÑOZ PADIAL, NATALIA
Referencia:	RYC2022-037132-I
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Título:	Environment-friendly photoredox reticular catalysis

Resumen de la Memoria:

After my Ph.D. defence in January 2016, I have been almost 6 years away from my former institution (University of Granada). As a postdoctoral researcher, I spent 10 months in 2017 at the Institute of Molecular Science (ICMol) shifting my focus to the areas of Reticular Chemistry and Materials Science. Subsequently, in 2018, I joined Prof. Phil S. Baran's group at Scripps Research (USA) for 2 years as MSCA fellow extending my stay there as Postdoctoral Associate for a few additional months. During this period, I improved my knowledge in radical chemistry and acquired new transferable skills in the field of organocatalysis and biological chemistry. Subsequently, I returned to my former institution with the return phase of my MSCA fellowship. Finally, in 2021, I moved to the Institute of Molecular Science as a La Caixa Junior Leader Retaining where I have stablished my independent research line in photoredox reactivity with porous photocatalysts.

It should be noted that the multidisciplinary training received throughout these years allowed me to acquire invaluable scientific experience and increasing my abilities to generate novel ideas and concepts that have evolved in a very distinct profile capable of working at the interface between two areas conventionally regarded disparate as Organic and Inorganic Chemistry. This interdisciplinary profile has facilitated me to establish my own research line that intends to transfer concepts associated to classical homogeneous organometallic catalysts to the design of new porous materials that can act as photoactive, heterogeneous catalysts. The main objective of my research line is to develop a sustainable and efficient alternative for performing radical, photochemical and heterogeneous cross-coupling reactions by using photoactive titanium MOFs as catalysts.

Resumen del Currículum Vitae:

My research career started in 2010 at the University of Granada in the Dpt. Organic Chemistry. In 2012, she obtained a fellowship granted by the Junta de Andalucía for conducting a multidisciplinary Ph.D. thesis under the supervision Prof J. E. Oltra (Dpt. of Organic Chemistry) and Prof. J. A. R. Navarro (Dpt. of Inorganic Chemistry). As a part of her scientific formation, in 2014, she carried out a pre-doctoral stay at University of Michigan in the group of Dr. Melanie S. Sanford. She defended her international Ph.D. thesis in 2016, obtaining the highest grade ("sobresaliente, Cum Laude", Extraordinary Award by University of Granada and RSEQ Award to the best Doctoral Thesis of the territorial section of Andalusia). After that, I have obtained several competitive postdoctoral fellowship granted by: i) the "Junta de Andalucía (Spain); ii) Marie Skłodowska-Curie IF_Global-2016; iii) "JdC Formación-2016" (Declined due to incompatibility with MSCA funding); iv) "JdC Incorporación-2019" (Declined due to incompatibility with La Caixa Fellowship) and; v) La Caixa fellowship-Postdoctoral Junior Leader Retaining 2020.

Since 2011, I have published 40 articles in peer review journal of chemistry, including: Science (1), Chem (1), JACS (8), Angew. Chem. Int. Ed. (5), etc; and 2 book chapters. My publications accumulate 1306 citations (h-index 19). In addition, she is principal investigator (PI) of 6 research projects for a total of ca. 1.13 M€ I have developed a multidisciplinary career that includes synthetic organic chemistry and material science (metal organic framework) for an interdisciplinary profile that can tackle challenging targets in the interface of both disciplines. Moreover, I have experience as teaching assistant and academic supervisor of: i) 2 Ph.D. students (3 more ongoing); ii) 1 Master Thesis (2 more ongoing); iii) 4 final degree projects (1 more ongoing); iv) 1 Internship (2 more ongoing). In 2018, I obtained the Certification from ANECA to "Profesor ayudante doctor", "Profesor contratado doctor" and "Profesor de Universidad Privada". I have just received the i3 certification (score 10 over 10). In addition, I have participated in the organization of 7 scientific conferences and has been regularly involved in outreach activities for academic and non-academic public throughout her career.

I am also committed to the transfer of scientific knowledge to the society required to target to societal challenges as supported by: i) supervision of an Industrial Ph.D. in collaboration with Sensient Fragrances S.A.; ii) principal investigator of a collaboration research project between the multinational company Sensient Fragrances S.A. and the University of Granada; iii) co-inventor of 3 patents (2 licensed) iv) co-founder of the spin-off "Porous Materials in Action S. L." v) collaboration with the multinational pharmaceutical company Bristol-Myers Squibb (5 research articles and 1 patent licensed); vi) collaboration with the multinational pharmaceutical and biotechnology Pfizer Inc. (1 research article). A solid testament to the impact and visibility of my work are the 4 awards received to date: i) Green Chemistry Challenge 2021; ii) VLC startup 2021 awards; iii) 2022 Organic Division Horizon Prize: Robert Robinson Award in Synthetic Organic Chemistry; iv) 2022 INNOVA- XII Premios SusChem.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	HERRERA DIAZ, RENE ALEXANDER
Referencia:	RYC2022-035782-I
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Título:	Green engineering to produce multifunctional wood-based materials

Resumen de la Memoria:

Comencé a trabajar en el área de investigación en 2013 en la universidad de País Vasco (UPV/EHU) en el departamento de Ingeniería Química y del Medio Ambiente de la escuela de Ingeniería de Gipuzkoa. Desde mi incorporación, he participado en el desarrollo de nuevos materiales para la industria de la celulosa y el papel, y en la investigación de tecnologías de la madera aplicadas en el País Vasco, concretamente nuevos tratamientos térmicos, y productos para el mercado de la madera. En 2014 comencé los estudios de Doctorado Internacional en Ingeniería de Materiales Renovables, obteniendo una beca predoctoral del Gobierno Vasco, que me permitió trabajar a tiempo completo en la tesis sobre "Modificación industrial de la madera por tratamientos térmicos" durante un periodo de cuatro años. En 2018 inicié el periodo postdoctoral Dokberri concedido por la Universidad del País Vasco (UPV/EHU) por un año investigando nuevos productos de recubrimiento para madera y tratamientos quimioenzimáticos. De 2019 a 2021 he estado en el extranjero como investigador postdoctoral en el centro de investigación Innorenew CoE (Izola, Eslovenia) gracias a una beca competitiva obtenida por el Gobierno Vasco para realizar actividades de investigación en el extranjero durante un período de 3 años. Además, fui investigador visitante durante 3 meses en Abo Akademi (Turku, Finlandia) profundizando en técnicas cromatográficas y analíticas. Actualmente soy beneficiario de la ayuda postdoctoral Juan de la Cierva-Incorporación, concedida por el Ministerio de Ciencia e Innovación de España por un período de tres años (2022-2024).

La línea de investigación tiene como objetivo contribuir significativamente a la sustitución de materiales tradicionales derivados del petróleo crudo u otros recursos fósiles por materiales de base biológica como la madera y los productos derivados de la madera, mejorando las propiedades de estos materiales y añadiendo nuevas funcionalidades. Se pretende aplicar las mejores prácticas de gestión sostenible, como el uso de ingeniería verde en los procesos de obtención de ingredientes para formulaciones y en el uso de disolventes, así como el uso de metodologías analíticas avanzadas, limpias y no intrusivas para el control de calidad. de los procesos y productos finales, evitando desperdicios químicos y caracterizaciones que consumen mucho tiempo.

Dentro de mi trayectoria investigadora he publicado estudios sobre la modificación de la madera tanto en superficie (productos de revestimiento) como en profundidad (modificación química y térmica e híbrida), así como en la preparación de productos protectores frente a agentes bióticos y abióticos. Además, se han desarrollado productos ignífugos para madera, reemplazando algunos polímeros sintéticos con productos de base biológica, y se ha explorado preliminarmente la caracterización no destructiva.

Paralelamente, se exploran metodologías avanzadas de caracterización y simulación para mejorar la comprensión de las relaciones estructura-propiedad-función de la madera natural y modificada, permitiendo un control más preciso de las propiedades, así como predecir posibles comportamientos del material. Se espera conseguir un enfoque multidisciplinar con la exploración de métodos de simulación computacional, así como la modelización predictiva mediante técnicas espectrometrías vinculadas a métodos quimiométricos.

Resumen del Currículum Vitae:

He publicado 41 artículos científicos en revistas internacionales de alto nivel en mi campo de investigación (13 como primer autor, 4 como autor correspondiente,> 70% Q1) con 955 citas e índice h 16 (Scopus-WoS). Además, he sido coautor de un capítulo de libro y de 12 actas de congresos y talleres, he participado en 19 congresos científicos internacionales (11 presentaciones orales y 8 presentaciones de póster) y en 9 talleres de la organización Cooperación Europea en Ciencia y Tecnología (COST Acciones), con presentaciones orales sobre mi trabajo de investigación a audiencias interdisciplinarias. En 2014 obtuve una beca predoctoral del Departamento de Innovación y Ciencia del Gobierno Vasco, realizando 2 estancias doctorales (en Polonia y Chile) e iniciando mis actividades colaborativas con investigadores e industrias. Concluí mi doctorado internacional en 2018 en el campo de la Ingeniería de Materiales Renovables recibiendo la calificación de sobresaliente Cum Laude y obteniendo el Premio Extraordinario de Doctorado.

He realizado un total de 33 meses de estancia posdoctoral en el Centro de Excelencia InnoRenew CoE (Izola, Eslovenia), donde aprendí nuevas herramientas analíticas espectrales y trabajé con equipos de espectrales e hiperespectrales aplicables a mi investigación. Además, participé en la preparación y ejecución de proyectos de investigación. Durante la estancia me concedieron como P.I. en un proyecto bilateral del programa PHC Proteus Francia-Eslovenia (UPPA-Innorenew CoE) para desarrollar bioproductos ignífugos de madera. Fruto de estas colaboraciones he sido coautor de 30 artículos científicos con investigadores de otras instituciones. Mi liderazgo se refleja en mi participación en 17 proyectos de I+D competitivos europeos, nacionales, regionales, locales e industriales, donde soy P.I. en 4 (1 europea, 1 bilateral, 1 industrial y 1 regional), y líder de tareas en otras 4 ((2 europeas, 1 industrial y 1 regional). Me gustaría destacar que en 2022 me adjudicaron un proyecto de investigación postdoctoral en una convocatoria altamente competitiva (HORIZON-MSCA-2021-PF-01, 155.559,36 €) para desarrollar estrategias innovadoras para mejorar las propiedades clave de la madera, basadas en formulaciones de base biológica alternativas recientemente infrautilizadas. Por otro lado soy cofundador una start-up de base tecnológica, recibiendo financiación y apoyo del Gobierno Vasco y del centro de innovación empresarial (30.000 €).

Además, he participado en clases optativas para estudiantes de pregrado de ingeniería civil (Universidad de Bio-Bio, Concepción, Chile), para estudiantes de doctorado de Materiales Renovables para Ambientes Construidos Saludables (Universidad de Primorska, Eslovenia), y en un curso de verano sobre economía circular en el sector forestal (Universidad del País Vasco, España). Además, he codirigido una tesis de master en el programa de ingeniería de materiales renovables en la Universidad del País Vasco, España. He participado en un comité de tesis doctoral (Universidad Federal de Pelotas, Brasil, 2022), y en un comité de dirección de tesis (Université de Pau et des Pays de l'Adour, Francia, 2022), así como evaluador de proyectos científicos en Uruguay y España. Participo activamente en Acciones COST interdisciplinarias como parte del comité de gestión (CA18220) y como miembro de grupos de trabajo (CA20127, CA15216). Tengo la acreditación oficial como Personal Investigador (UNIBASQ).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	NAPPI , MANUEL
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Título:	Novel synthetic methodologies in organic chemistry and biochemistry using photochemistry, organocatalysis and palladium-catalyzed C-H activation

Resumen de la Memoria:

Since my first year of PhD, I had the great opportunity to carry out outstanding synthetic chemistry in world-leading research groups, working in cutting-edge institutions such as ICIQ (Spain), Princeton University (USA), University of Cambridge (UK) and CIQUS (Spain).

During the PhD studies, funded by the FPU fellowship in the group of Prof. Paolo Melchiorre (ICIQ), I was involved in the development of new, operationally simple synthetic reactions using aminocatalysis, photochemistry and their combination.

At the end of the second year of my PhD I spent 6 months in the group of Nobel Laureate Dave MacMillan, world leader in organocatalysis and photochemistry. This period was crucial for my professional and personal development since I was introduced to the important field of photoredox catalysis.

The subsequent period in Cambridge was characterized by different professional and personal phases. At first, I joined the Gaunt group at the end of 2014 as Postdoctoral Research Associate. In 2016 I was awarded with the Marie Curie Fellowship by the European Commission and in 2018 I was promoted to Senior Research Associate until September 2020. I decided to remain in the same research group for 6 years because of the opportunity to explore different new fields in organic chemistry and biochemistry such as palladium catalysis, C-H activation, photochemistry in DNA and RNA and proteins bioconjugation.

At the end of 2020 I started my independent career at CIQUS as "Investigador Distinguido". Our group is dedicated to the invention of new sustainable chemical transformations at the interface of synthetic chemistry, biochemistry and material science. The main goal is to use visible light to activate and valorise simple organic feedstocks and greenhouse gases in synthetic chemistry. Given the incredibly mild reaction conditions, our methodologies can find applications in other fields such as DNA-encoded libraries, promising technologies used in medicinal chemistry for the discovery of new drugs. Importantly, our group (currently formed by 2 PhDs and 1 postdoc) is founded by two national research grants (which I obtained as only PI) for a total funding of 303.200 euro: 1) "Proyectos I+D+I 2020 Generación de conocimiento" and 2) "Proyectos Estratégicos Orientados a la Transición Ecológica y a la Transición Digital 2021".

Overall, I worked and I am working in various fields of organic chemistry and biochemistry such as aminocatalysis, NHC catalysis, photoredox catalysis, photochemistry, palladium catalysis, C-H activation, DNA and RNA chemistry, epigenetics and proteins functionalisation. This resulted in 13 peer-reviewed publications of very high impact (1169 citations in total, average citations/article: 90) published in the best-quality journals (11 on the top 10% scientific journals in chemistry: 1 Nat. Chem., 1 Chem. Rev, 3 J. Am. Chem. Soc., 3 Angew. Chem. Int. Ed., 1 Chem. Sci. and 2 Org. Lett.) and the formation of a scientifically independent, versatile and highly dedicated chemist expert in organic transformations across various chemical disciplines. Finally, I was selected as one of the recipients of the Thieme Chemistry Journals Award 2023, which is presented every year to up-and-coming researchers worldwide who are in the early stages of their independent academic career as assistant or junior professors.

Resumen del Currículum Vitae:

I obtained a Chemistry bachelor's and MPhil degree at the University of Turin, Italy, graduating with first-class honours and distinction. Fascinated by the field of organocatalysis during my master studies, I moved to the Institut Català d'Investigació Química (ICIQ) in Tarragona, Spain, and joined Prof Paolo Melchiorre group where I did my PhD, funded by the FPU national fellowship. At first, my research interest focused on aminocatalysis and NHC catalysis, working on catalytic asymmetric Diels-Alder reactions (JACS 2011). In 2012, I joined the group of Nobel Laurate David MacMillan at Princeton University, USA, where I developed the first photochemical δ-aldol reaction using the synergistic combination of photoredox and organocatalysis (JACS 2013). Returning from my placement in Princeton, I applied the acquired experience to develop a photochemical perfluoroalkylation (ACIE 2014). For my postdoctoral studies, I moved to the group of Prof Matthew Gaunt at University of Cambridge, UK, where I was awarded with the Marie Curie fellowship. My research at Cambridge initially focused on palladium-catalysed C-H functionalisation of aliphatic amines. I have developed a new method to synthesize substituted azetidine (ACIE 2018) and recently I discovered the first catalytic method to activate sp3 C-H bonds in tertiary alkylamines (Nature Chemistry 2020). During my last three years in Cambridge, in collaboration with the group of Prof Shankar Balasubramanian, I developed a visible-light photoredox reaction to functionalise a newly discovered methylated base in DNA, N6mdA (JACS 2020 and patent, currently licensed to Cambridge Epigenetix).

Remarkably, I independently designed, developed and managed most of the projects carried out during my pre-independent career, thanks to the opportunity and trust that I have received from my supervisors.

At the end of 2020 I have joined CIQUS, where I became "Manuela Barreiro" USC Distinguished researcher in Oct 2021 to develop my independent research line on visible-light promoted chemical reactions. Currently my research group consists of three people: 2 PhD students and 1 postdoc. Research expenses and staff contracts are fully supported by two national research grants that I obtained as only PI from AEI: 1) "Proyectos I+D+I 2020 Generación de conocimiento" and 2) "Proyectos Estratégicos Orientados a la Transición Ecológica y a la Transición Digital 2021"; for a total funding of 303.200 euro. After one year of my start, I published my first work as only corresponding author: Metal-free deoxygenative coupling of alcohols and pyridines for small molecules and DNA-encoded libraries synthesis (Chem. Sci. 2022).

My studies so far have covered various fields of chemistry and biochemistry such as organocatalysis, photochemistry, radical chemistry, palladium catalysis, protein and DNA bioconjugation, epigenetics. This resulted in 13 peer-reviewed publications of very high impact (1169 citations in total, average citations/article: 90) published in the best-quality journals (11 on the top 10% scientific journals in chemistry: 1 Nat. Chem., 1 Chem. Rev, 3 J. Am. Chem. Soc., 3 Angew. Chem. Int. Ed., 1 Chem. Sci. and 2 Org. Lett.) due to the ground-breaking nature of the chemistry. Finally, I was one of the recipients of the Thieme Chemistry Journals Award 2023.

Área Temática:	Ciencias y tecnologías químicas
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Título:	Transition-metal-mediated chemoselective functionalization of biomolecules

Resumen de la Memoria:

Undergraduate studies (before 2012)

I graduated in Chemistry at the University of Santiago de Compostela in 2012 with honours. During the last summer of my BSc degree, I was selected as "ICIQ Summer Fellow" to perform a 3-months internship in Prof. J. Mendoza's group at ICIQ. During this period, I worked on the development of diguanidinium-based organogelators for controlled drug delivery. Later, I got a Collaboration grant to research in the Chemistry Department of the USC.

PhD (2013-2016)

My PhD in chemical biology was supervised by Profs. M. E. Vázquez and J. L. Mascareñas. My work focused on the development of new strategies for the specific recognition and modification of DNA and supramolecular control of cell internalization using synthetic systems. I also performed a 3-months internship in Prof. T. Carell's group at LMU (Germany). During this time, I worked on the functionalization of proteins using DNA-salen complexes.

I obtained with honours my European PhD degree in Nov. 2016 (in only 3 years). My PhD work resulted in 1 patent and 14 papers (e.g., 3 JACS, 1 ACIE, 1 ACS Catal., 3 Chem. Sci.) and was recognized with the Extraordinary Doctorate Award from the USC, an honorific mention of the RAGC and the Award for the best PhD thesis in Chemical Biology from the RSEQ-GEQB. I was also selected as finalist of the Reaxys PhD Prize 2017.

Postdoc at the LHFA, France (2017-2020)

In Feb. 2017, I joined Prof. D. Bourissou's group as a postdoctoral researcher in organometallic chemistry funded by Ramón Areces and Marie Curie Fellowships. During this time, I worked on the design, synthesis and characterization of reactive Au(III) complexes and the study of their catalytic properties. This subject allowed me to acquire the necessary tools for (1) the synthesis and handling of highly reactive organometallic species, and (2) the development of metal-catalyzed processes.

My work during this period resulted in 7 papers (1 JACS, 2 ACIE, 2 Chem. Sci., 1 ACS Catal., 1 Chem. Commun.), all as first author, and was recognized with the Young Postdoctoral Researchers Award 2020 from the RSEQ. I was also finalist of the European Young Chemists Award 2018.

Postdoc at the IRB (2020-2021)

In Oct. 2020, I joined Prof. M. Orozco's group as a postdoctoral researcher in computational chemical biology. I learned about the use of molecular dynamics to study protein-DNA interactions. The results of this project have been recently submitted for publication and I am first and corresponding author of the paper.

Reintegration period (2021-present)

In Apr. 2021, I returned to the USC as Juan de la Cierva-Incorporación Fellow (ranked second in the chemistry panel), leading my own research line focused on the application of transition-metal-mediated transformations for the manipulation of biological processes. My work during this time has resulted in 1 paper (RSC Adv.) + 2 submitted.

In summary, in my short career, I have gained a multidisciplinary background in diverse areas of chemistry (organic, biological, organometallic, computational and catalysis) and demonstrated to be productive in all of them: I have co-invented 1 patent and published 24 papers (17 as first author, 8 without my PhD supervisors, 2 as corresponding author, 9 with international collaborators) + 2 submitted (1 as first and corresponding author).

Resumen del Currículum Vitae:

I graduated in Chemistry at the University of Santiago de Compostela (USC) in 2012. During my BSc degree, I performed a 3-months internship in Prof. Mendoza's group at ICIQ as "Summer Fellow". Later, I got a Collaboration grant to research in the Chemistry Department of the USC.

My PhD in chemical biology (2013-2016) was carried out at CIQUS under the supervision of Profs. Mascareñas and Vázquez and funded by fellowships from Gil Davila Foundation and Xunta de Galicia. My work focused on the development of new strategies for the specific recognition and modification of DNA using synthetic systems. During my PhD, I also performed a 3-months internship in Prof. Carell's group at LMU (Germany). I obtained my PhD in Nov. 2016 (in only 3 years).

In 2017, I joined Prof. Bourissou's group at the LHFA (France) to carry out postdoctoral research in organometallic chemistry, funded by Ramón Areces and Marie Curie Fellowships. During this time (2017-2020), I worked on the design, synthesis and characterization of reactive Au(III) complexes and the study of their catalytic properties.

In Apr. 2021, after a 6-months postdoc in Prof. Orozco's group (IRB) working in computational chemical biology, I returned to the CIQUS as Juan de la Cierva-Incorporación Fellow. My current research is focused on the use of metal-mediated transformations for the manipulation of biological processes.

In summary, in my short career (9 years since the start of my PhD), I have gained a multidisciplinary background in diverse areas of chemistry (organic, biological, organometallic, computational and catalysis) and demonstrated to be productive in all of them. I have:

a)   performed research in 5 prestigious international institutions: CIQUS, LHFA (France), IRB, ICIQ and LMU (Germany), accumulating 47 months of international mobility.
b)   secured funding at every stage of my career with 8 fellowships (total amount > 380k €) in (inter)national competitive calls (Xunta de Galicia, Ramón Areces, Marie Curie, Juan de la Cierva-Incorporación...), and participated in 9 R&D projects (2 national and 1 european as PI, total amount: >266k €).
c)   co-invented 1 patent (granted in Spain, Australia and Mexico).
d)   published 24 papers in premier international journals (2 as corresponding author), including 4 JACS, 3 ACIE, 2 ACS Cat., 5 Chem. Sci., 2 Chem. Commun. and 3 CEJ. + 2 submitted (1 as first and corresponding author).
e)   received 8 awards: e.g., I was selected as finalist of the Reaxys PhD Prize 2017 and got the Young Postdoctoral Researchers Award 2020 from the RSEQ.
f)   supervised 4 students, carried out 220 hours of teaching duties and been qualified as "Contratado Doctor" by ANECA.
g)   participated in many (inter)national symposia, including 5 invited talks and 12 oral communications, and in the organization of the HC3A Meeting in 2018 (France) and the J2IFAM Meeting in 2022 (Spain).
h)   been evaluator of the Reaxys PhD Prize (since 2019), the Marie Curie Fellowships (since 2021) and the EIC Pathfinder Challenges (2022). I am in the editorial board of Catalysts and reviewer for RSC Adv. and Chem. Eur. J.

Altogether, I have demonstrated leadership, critical thinking and scientific maturity to perform independent research at the highest level. Obtaining a "Ramón y Cajal" fellowship is key to start a completely independent career at the frontier of chemistry and biology.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
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Título:	Computational Chemistry for Homogeneous Catalysis and Photochemistry

Resumen de la Memoria:

My research career has been always focused on the use of computational chemistry to solve chemical challenges in homogeneous phase. Along the different research stages, I have worked in different topics but those has been always related to catalysis and/or photochemistry, especially in reaction mechanism characterization. During my PhD, I worked in oxidative coupling mechanisms and water oxidation catalysis from a mechanistic perspective. Then, during my postdoc in RWTH, I keep working in homogeneous catalysis (Pd cross-coupling) and photorredox chemistry and I learned new skills in data science and machine learning, resulting in the first unsupervised machine learning mediated catalyst discovery.

Since 2020, I am part of the photochemistry group of La Rioja, led by Prof. Diego Sampedro, where I have been able to develop my own chemistry as an independent researcher and to direct some of the research lines in the group. Also, I have received my first national project as Principal Investigator. Here, I have expanded my research contributions to applied science (sustainable energy research based on Molecular Solar-Thermal energy storage materials, called MOST systems, and photoprotection) and I have continuously contributed to the field of homogeneous catalysis mechanisms, particularly to boron chemistry and photoredox catalysis, creating a large network of international experimental collaborators (including among others, Prof. Yin (Wuhan University), Prof. Ye (Shanghai Jiao Tong University), Prof. Teskey (RWTH Aachen University), Prof. Wencel-Delord (Strasbourg University).

Nowadays, my research lines are structured as follows:

1-   Photoredox catalysis: we aim to develop a comprehensive mechanistic scenario for this chemistry, as it is underdeveloped compared to classical cross-coupling catalysis. Our main goal is to enable asymmetric transformation mediated by light and radical chemistry in close collaboration with experimental research groups.

2-   Computational reaction mechanisms: as the main research line of my entire career, I will continue working in the field of homogeneous catalysis mechanism understanding. To do so, we plan to expand our contribution to the field through the use of data science and machine learning.

3-   Photoprotection: this is the most applied research line of our group. Particularly, I aim to contribute creating a unique platform including all the information available for commercial sunscreens and expanding this chemical space by the use of unsupervised machine learning, with a special focus on biodegradability, one of the most important challenges in the field. I also aim to apply to EU funding (ERC starting grant) to develop this research line.

4-   Sustainable energy research: I have recently received, with Dr. Sampedro as co-PI, with the national project ("transición ecológica y digitalización") TED 2021-131896B-I00 to transfer the MOST technology from organic solvents, that are flammable and non-sustainable, to green solvents, particularly water. We have received 138000 euros for the next two years and we aim to hire a PhD student to develop this research line.

Also, in these topics, we are planning to develop outreach activities to transfer the advances to the general audience through social media (webpage), local and state activities (Pint of Science among others). This is endorsed by several outreach prizes

Resumen del Currículum Vitae:

My research career started back in 2011 at the University of La Rioja, Spain, as an undergraduate student (supervision of Dr. Diego Sampedro), focusing in computational photochemistry and photoprotection (8 publications, 1 patent). Then, I moved to the Institute of Chemical Research of Catalonia (ICIQ), where I received my PhD degree in September, 2017 (extraordinary prize and Josep Castell prize of the RSEQ), under the supervision of Prof. Feliu Maseras. I then continue my career as a postdoc in the same group for a year. At ICIQ, I became interested in homogeneous catalysis, and particularly, I focused in the study of homogeneous redox catalysed reaction mechanisms, and specifically, in water oxidation and oxidative coupling catalysis, by means of DFT calculations. I contributed with 20 publications, including two corresponding author manuscripts, showing leadership capabilities even as a young researcher. I did a 3-month internship at the University of Oxford with Prof. Robert S. Paton, where I contributed to the development of the well-recognized Goodvibes chemistry software, extensively used in the computational chemistry community. In 2018, I received the Humboldt postdoctoral fellowship to work with Prof. Franziska Schoenebeck at the RWTH Aachen University. During the next two years, I worked in the computational study of transition metal-catalyzed reactions with a strong experimental/computational synergy, due to the interdisciplinary character of the team. There, I focused in cross-coupling and photoredox catalysis (8 publications) and I started a new research line based on unsupervised machine learning applied to speciation in chemistry, which ends up with a seminal study published in Science. Also, the mentorship capabilities increase considerably due to the training of 4 master students and the supervision of one master thesis. In parallel, I kept the collaboration with Dr. Sampedro (University of La Rioja) and BASF company in the development of a new class of sunscreens (1 publication, 1 patent).

Then, in 2020, I moved back to the University of La Rioja as a postdoctoral researcher first, and "Juan de la Cierva-Incorporación" researcher (since May, 2022), where I started to develop my independent research. I gained national and international visibility and leadership due to the publication of 8 corresponding author publications in leading journals (Science, JACS, Nature Communications) and started key collaborations with several experimental groups (Prof. Yin, Dr. Ye, Prof. Wencel-Delord, etc.). My research interests mainly focused in light-mediated chemical processes from a computational perspective, including photoredox catalysis, radical chemistry, sustainable energy research and photoprotection. I am currently co-supervising 4 PhD students (two at the third year, two at the second year) and I am involved in teaching duties at the chemistry department (>150 hours, in bachelor and master levels), including the supervision of bachelor and master (2 master thesis and one bachelor thesis). I have published 50 manuscripts, 2 patents, 2 book chapters and have attender more than 25 conferences/seminars (4 as invited speaker). I have received different awards (Thieme Chemistry Journal, RSEQ young researcher, SusChem Investiga, Josep Castells-RSEQ) and I have one national project as Principal Investigator (PI),

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
Nombre:	CALL QUINTANA, ARNAU
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Título:	Investigador postdoctoral

Resumen de la Memoria:

I obtained Bachelor's degree in Chemistry at the University of Girona (UdG) in 2011 receiving the excellence award for academic performance. After that, I pursued a Master's (2012) and PhD (2016) in the group of Prof. Lloret with the FPU graduate fellowship from the Spanish Ministry of Education and Science. Research work during my PhD involved a 3-month internship at Arizona State University (USA) at the group of Prof. Ghirlanda (FPU mobility grant) to develop artificial metalloenzymes for H2 evolution. I also performed a 2 years stay at the Institut Català d' Investigació Química (ICIQ) when my supervisor became a group leader at ICIQ. My PhD project was mainly directed at the development of molecular systems for H2 evolution and for the reduction of organic compounds using light and water as a source of hydrides. During my PhD, I also established fruitful collaborations with Prof. Mas-Ballesté and Prof. Pérez-Prieto to develop materials for H2 evolution. In addition, I also participated the experimental detection of cobalt intermediates at the Diamond Light Source Synchrotron (UK).

After defending my PhD dissertation in December 2016, I moved to the group of Prof. Sakai, at the International Institute for Carbon-Neutral Energy Research (Japan). My postdoctoral work in Japan was focused on the development of photocatalytic systems for CO2 reduction. In January 2021 I returned to the UdG in the group of Prof. Costas where I continued my postdoctoral research with a Juan de la Cierva fellowship, working on the development of catalytic systems for asymmetric C-H oxidation. Recently I performed a 4-month internship at the University of Utah (USA) in the group of Prof. Sigman to learn multivariate regression models combining DFT and experimentally-derived reaction outputs with a mobility grant from the UdG.

I am currently leading several projects which also comprise the development of recyclable polymers based on hybrid bicyclic lactones prepared by selective sp3 C-H oxidation.

Within this frame, the project presented in this proposal intends to bring together the knowledge that the candidate has acquired during his research career in different fields: photochemistry, coordination chemistry, catalysis for solar-energy conversion, mechanistic analysis, DFT calculations, multivariable regression modeling, and stereoselective C-H oxidation catalysis. The project aims to develop an efficient photochemical method for the generation of well-defined metal nitrenoid species under visible light irradiation and employing first-row transition metal complexes, reinforcing the sustainability benefits of this approach. The photogenerated metal nitrenoid species will be tested in diastereo- and enantioselective C-H amination reactions. The cornerstone of the project is the efficient visible-light-driven generation of metal nitrenoid species using catalysts based on modular ligands, a requisite for the rapid elaboration of libraries of catalysts to improve the stereoselectivity of the reaction. In this regard, rational manipulation of the properties of the catalyst guided by multivariate linear regression models utilizing molecular descriptors will be used to optimize the efficiency. This project will provide a promising and sustainable tool for the synthesis of chiral amino compounds through the use of light energy.

Resumen del Currículum Vitae:

I obtained Bachelor's degree in Chemistry at the University of Girona (UdG) in 2011 receiving the excellence award for academic performance. After that, I pursued a Master' s (2012) and PhD (2016) in the group of Prof. Lloret with the FPU graduate fellowship from the Spanish Ministry of Education and Science. I have acquired experience in research having conducted several research projects in seven different institutions in four different countries (Spain, USA, UK, and Japan) covering a variety of topics. I have established fruitful collaborations with national and international teams, which have resulted in important publications in scientific journals. My international experience has notably enriched my scientific training while diversifying my expertise. I have acquired skills in synthesis, spectroscopic techniques (X-Ray diffraction, NMR, mass spectrometry, IR, UV-Vis, laser flash photolysis, time-resolved luminescence spectroscopy, and EPR, among others), electrochemical techniques as well as in mechanistic studies (kinetic monitoring, isotopic labeling). In addition, I have experience in theoretical calculations and in the elaboration of multivariate linear regression models for predicting reaction outputs. I have also participated in the detection of cobalt intermediates in the synchrotron. During my research career, I have been responsible for managing laboratory duties and I have led several research projects which I have signed as the author of correspondence.

My compromise to achieve high-quality research is reflected in a strong high-impact track record of 16 peer-reviewed publications. The average impact factor of his publications is 8.9, and all my work has received 400 citations with an h-index of 8. Three of his scientific works have been highlighted on the cover of a scientific journal, and four of them have been highlighted as important papers. One of my works published in Chemical Science was also highlighted in Chemistry World and Chemistry Views, besides being among the 11 most downloaded articles of 2017 in Energy and Catalysis. Some of the synthetic chemical methodologies developed during my career are being implemented in the industry in collaboration with a pharmaceutical company. In addition, I have been involved in two patents, one of which comprises the design and construction of a photoreactor, which is licensed to a Spin-Off. The work has been presented at 22 prestigious national (JSCC, SIJ) and international conferences (for example ICBIC, EuCheMs, ICCC, ISPCC, PacifiChem, and Gordon Research Seminar) as well as in two chemistry schools. I have also disseminated my work to a non-expert audience and I have trained and supervised 3 master' s and 4 PhD students and co-directed one Bachelor' s Degree and one Master' s project. I am coursing teaching activities at UdG where I am currently co-directing two PhD theses. I have recently been recognized as a principal investigator at the IQCC for obtaining the two grants "Proyectos de generación de conocimiento" and "Proyectos de Transición Ecológica y Transición Digital 2021" from the Spanish Ministry of Science and Innovation. I am also a reviewer of scientific journals such as ACS Catal., ACIE, and ChemCatChem and a member of the evaluation committee of research projects founded by the Agencia Estatal de Investigación.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	ESTEBAN SERRANO, JESÚS
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Título:	Green Chemistry, Process Intensification and Reaction Engineering for the Sustainable Production and Separation of Value-Added Chemicals

Resumen de la Memoria:

El marco de mi trayectoria investigadora es la Química Sostenible para la obtención de productos de valor añadido. Los tres principales ejes de mi investigación son la Ingeniería de la Reacción Química, la Intensificación de Procesos y la Química Verde aplicada, en muchos casos, a catálisis multifásica y separaciones con disolventes sostenibles.

Parte de mi investigación ha explorado procesos empleando materias primas de origen renovable, como por ejemplo la glicerina (residuo de la industria del biodiesel) para obtener productos como el carbonato de glicerina, solketal y diversos ésteres empleados como biocombustibles y disolventes verdes. Los estudios se basaron en el entendimiento fenomenológico de reacciones con catalizadores moleculares, sólidos y enzimáticos, empleando para ello técnicas ópticas para la observación de la reacción. En conjunción con análisis químicos convencionales, he desarrollado la propuesta y desarrollo de modelos cinéticos que describen el proceso, discriminando estadísticamente aquellos no significativos.

Durante mi primera etapa postdoctoral, realicé el estudio del comportamiento de fases y la interacción entre surfactantes y partículas sólidas para el desarrollo de detergentes en polvo. En este proyecto industrial se realizó una caracterización extensa de las partículas (tomografía computerizada, diferentes análisis de porosidad, fluidez y resistencia a la tracción) y de los surfactantes (tensión interfacial, densidad, viscosidad), así como de la interacción entre ambos y de la capacidad de recubrimiento de los sólidos con los líquidos. Posteriormente, apliqué mis conocimientos del comportamiento interfacial de sustancias a reacciones catalíticas multifásicas, donde los sistemas combinan procesos de separación simultáneos o en serie con las reacciones químicas. Un ejemplo es la deshidratación de azúcares para la producción de furanos (relevantes para la producción de biocombustibles, disolventes y otros materiales), en los cuales se ha demostrado que es beneficioso realizar este proceso en medio líquido-líquido para extraer simultáneamente durante la reacción y así evitar la degradación del producto. Otro caso que forma parte de mis líneas de investigación es el empleo de medios gas-líquido-líquido para reacciones como hidrogenaciones o hidroformilaciones, las cuales precisan complejos organometálicos como catalizadores. Estos catalizadores contienen metales nobles como rutenio, rodio o paladio, cuyo elevado coste requiere la búsqueda de estrategias para reciclarlos, que pasa por su inmovilización en un medio líquido adecuado. Para la optimización de este tipo de procesos, es crucial (i) el empleo de un disolvente adecuado, el cual se ha estudiado empleando el método termodinámico predictivo COSMO-RS y (ii) el diseño de reactores avanzados que intensifiquen el contacto entre las diversas fases y reduzcan las limitaciones a la transferencia de materia.

Por último, caben mencionar mis colaboraciones para el desarrollo de los conceptos de selección de disolventes neotéricos (disolventes de origen biológico o mezclas eutécticas). Estos se pueden emplear como medio de reacción y/o extracción para la valorización de residuos alimentarios como fuente de productos de interés industrial o para la recuperación de metales.

Resumen del Currículum Vitae:

Jesús Esteban Serrano es Ingeniero Químico (2009) y Máster en Ingeniería de los Procesos Industriales (2010) por la Universidad Complutense de Madrid (UCM). En 2015 obtuvo su doctorado en UCM con la calificación Sobresaliente cum laude y Mención Europea por su tesis doctoral "Green processes for the production of glycerol carbonate and solketal".

Durante su tesis doctoral en la UCM realizó una estancia predoctoral en 2014 en Technische Universität Dortmund (TUDo, Alemania), financiada por el Servicio Alemán de Intercambio Académico. Como investigador postdoctoral, en 2015 se unió a University of Birmingham (UoB, Reino Unido) para realizar un proyecto conjuntamente con la empresa Procter & Gamble. En 2017 retornó a TUDo en el marco del Programa Green Talents para unirse en 2018 al Max-Planck-Institut für Chemische Energiekonversion (MPI-CEC, Alemania). En 2020 se unió a University of Manchester (UoM, Reino Unido) como Lecturer in Chemical Engineering con labores docentes en los programas de Grado y Master en Ingeniería Química y de Doctorado en Catálisis y es líder de su propio grupo de investigación "Reaction Engineering and Sustainable Chemistry" con 4 estudiantes de doctorado a su cargo.

Ha participado en 7 proyectos internacionales y 5 nacionales. A partir de su investigación se han publicado 3 capítulos de libro y 35 artículos en revistas científicas indexadas en JCR con altos índices de impacto en las categorías de Ingeniería Química (Q1: 13; Q2: 10; Q3: 1; Q4: 1), Química Multidisciplinar y Química Física. En la actualidad cuenta con 955 citaciones totales, índice-h: 16 e índice i-10: 25. Así mismo, ha presentado 40 comunicaciones en congresos nacionales e internacionales, mayoritariamente en el campo de Ingeniería Química y Química Verde, 15 de ellas orales, de las cuales 1 fue premiada y 5 fueron por invitación. Colabora regularmente como revisor en 30 revistas indexadas en JCR y desde 2022 forma parte del Early Career Research Board de Chemical Engineering Journal.

Su investigación ha sido reconocida con varios premios, entre los cuales destaca el galardón a la mejor Tesis Doctoral en Ciencias Experimentales y Tecnológicas de la Real Academia de Doctores de España (2015), el premio Green Talents otorgado por el Ministerio de Educación e Investigación de la República Federal Alemana (2016), el Premio a la Excelencia en Ingeniería de la Reacción Química de la Federación Europea de Ingeniería Química (2018), el Premio Future Leaders del Chemical Abstracts Service de la American Chemical Society (2018), la mención en la Tabla Periódica de Jóvenes Investigadores Químicos de la IUPAC (2019), el Premio Hermann Neuhaus de la Max Planck Society (2020), el Premio a Jóvenes Investigadores del Grupo de Ingeniería Química de la RSEQ (2020) y el Premio Alumni UCM de Investigación Científica (2021). En 2022 llego a la fase de entrevistas de la ERC Starting Grant.

Jesús Esteban ha participado en varias actividades de divulgación científica y ha colaborado con la ANQUE en la organización de eventos para jóvenes investigadores en los congresos ANQUE-ICCE en Sevilla (2012), Madrid (2014) y en el 10th World Congress of Chemical Engineering en Barcelona (2017), de los cuales ha formado parte del comité de estudiantes. Desde 2018 es miembro de la Junta de Gobierno del Grupo Especializado de Ingeniería Química de la RSEQ.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	JIMENEZ GALLEGO, JUAN-RAMON
Referencia:	RYC2022-037255-I
Correo Electrónico:	juanjg30490@hotmail.com
Título:	Molecular materials based on coordination compounds for energy storage, magnetic memories, lighting and sustainable photochemistry

Resumen de la Memoria:

My scientific career started at UGR thanks to a Collaboration Fellowship (2013) in the Department of Inorganic Chemistry, where I also developed my Master's Project (2014) within the group of Pr. E. Colacio. Afterwards, I got a predoctoral grant from the French Government to carry out my PhD studies at UPMC (Paris, France) under the supervision of Pr. R. Lescouëzec. In February 2018 I became a postdoctoral fellow in the group of Pr. C. Piguet at UNIGE (Switzerland). Subsequently, in May 2020 I earned a position as Junior Lecturer at UNIGE. In February 2021, I came back to UGR as a senior researcher, with a grant from the Andalusian Government first (PAIDI 2020), followed by a Juan de la Cierva-Incorporación contract.

My scientific contributions during the predoctoral stage were focused on the synthesis and advanced characterization of molecular models of Prussian Blue Analogues (PBAs). Some of the scientific achievements were: (i) design of molecular materials capable of reversibly inserting Li+ or Mg2+, which can act as cathodes in new generation batteries. This material was patented in 2018 and published thereafter in Chem. Commun. (IF: 6.167) and J. Mat. Chem. C (IF: 8.067); (ii) design and characterization of the first molecular model of FeMn PBA with spin-state switching at room temperature, published in Angew. Chem. Int. Ed (IF: 15.595); and (iii) the elucidation of the role of the inserted alkali ion on PBAs and their impact on the photomagnetic properties, what was published in J. Am. Chem. Soc. (IF: 16.383).

During my postdoctoral stage (2018-2020) and junior lecturer position (2020-2021) at UNIGE I gained some research independency over this period, and I got notable scientific achievements: (i) I designed and prepared chiral luminescent CrIII complexes with a strong circularly polarized emission for light-energy converting devices. From these works derived two high-impact publications in J. Am. Chem. Soc. (IF: 14.695) in 2019 and Angew. Chem. Int. Ed. (FI: 15.595) in 2021; (ii) I prepared the first luminescent NIR-II CrIII complex, in collaboration with Pr. Wenger from Basel, which was published in Angew. Chem. Int. Ed. (IF: 15.595) in 2021; and (iii) I was invited to prepare a review on the synthesis and photochemical properties of CrIII chemistry which was published in Coord. Chem. Rev. (IF: 22.315) in 2021.

At present, two are the research topics that I'm leading as PI. The first one is focused on the synthesis and study of multifunctional hybrid nanomaterials based on coordination compounds by means of three approaches: Single Molecule Magnets, luminescent nanoparticles and bifunctional nanocomposites. It is expected that these new molecular materials will enable the fabrication of smaller, faster and more energy efficient electronic devices than those currently available. Secondly, and inspired by the challenges that society is facing within the frame of environment and energy, I'm leading a project dedicated to sustainable photochemistry. My efforts are devoted to the conceptual development and synthesis of photoactive coordination compounds based on 3d metal ions (Cr, Fe, Co) to use them in electronic devices (OLEDs), in solar cells and in photocatalysis. The development of these compounds could replace the expensive and low abundant 4d and 5d ions (Ru, Ir, Pt) which are broadly used in these fields.

Resumen del Currículum Vitae:

I earned a bachelor's degree in Chemistry (2013) and a master's degree in Biotechnology (2014) at the University of Granada (UGR). I developed my PhD studies (2014-2017) at Université Pierre et Marie Curie (UPMC, France). Then, I worked as postdoctoral researcher first, and Junior Lecturer thereafter at the University of Geneva (UNIGE, Switzerland) (2018-2021). Since early 2021, I work in the department of Inorganic Chemistry of the UGR.

All my research experience is reflected in a prolific scientific production: 27 papers in prestigious international journals. I have h-index=13 and >550 citations ($\sim$90/year, postdoctoral period). I am corresponding author of >30% of these contributions and I am listed as first author in >60% of them. My research works are coauthored by more than 80 researchers from 10 world-wide recognized institutions. I have participated in 20 national and international scientific conferences (10 posters, 7 oral communications and 3 invited talks) and I have been a member of the organizing committee of two national congresses. Moreover, I have taken part in 6 research projects funded by national and international sources, acting as principal investigator (PI) in two projects funded by the Spanish Ministry (TED2021-129598A-I00) and UGR (PPJIA2021.11.), as well as co-IP in an international project in collaboration with Pr. Piguet funded by Swiss National Science Foundation (200020_207313). I also appear as co-inventor in one international patent that protects the results obtained in an international collaborative work. Over my scientific career, I have been awarded with several fellowships (Collaboration grant from the Spanish Government, predoctoral fellowship from the "Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation" of France, grant from the Andalusian Regional Government (PAIDI 2020), and Juan de la Cierva-Incorporación contract).

I am currently supervising 2 PhD candidates, in collaboration with Pr. C. Piguet (UNIGE) and with Pr. JM Herrera (UGR). I have also directed 2 Degree's and 7 Master's projects, and I have overseen several international visiting researchers. I have accumulated 700 hours of teaching experience in Bachelor's degrees at UPMC, UNIGE and UGR and I have participated in a teaching innovation project. I regularly act as reviewer of scientific journals (i.e., Nat. Commun. Dalton Transactions, ChemPhotoChem) and I'm scientific evaluator at the Agencia Estatal de Investigación. In addition, I actively participate in science outreach activities, such as the European Researchers' Night, the Science Week or "Chimiscope", and I have acted as invited Speaker in the online congress Divulga NextGen. I hold a positive evaluation of teaching and research activity from ANECA as "Profesor Titular de Universidad" since July 2021.

Área Temática:	Ciencias y tecnologías químicas
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Referencia:	RYC2022-038390-I
Correo Electrónico:	vazquezgonzalez.marga@gmail.com
Título:	Functional nanomaterials

Resumen de la Memoria:

From my doctoral stage to my current position, my research has been framed within the wide purview of functional nanomaterials. I have been working in the design of nanomaterial for different applications, which could be divided into two big areas: biocatalysis and stimuli-responsive DNA based materials.

My research has been pursued while obtaining a PhD (Spain), during a five year of postdoctoral stay at The Hebrew University of Jerusalem and my current position as Juan de la Cierva fellow (Spain). Altogether, my research activity has contributed to the publication of 33 articles, 11 of them as a first author and 2 as corresponding author, accumulated more than 2400 citations and conduced to a h-index of 23. I have recently received grant funding for 1 research project I am currently directing 3 PhD students. I participate in several public science initiatives within my research institute and in collaboration with high schools.

Resumen del Currículum Vitae:

Currently Margarita Vázquez holds a Juan de la Cierva Incorporation fellowship (Minister of Science and Innovation, Spain) at the Research Centre – CINBIO, Universidade de Vigo, Spain. Her research focuses on the preparation of functional nanomaterials with applications in different fields, such as catalysis and drug delivery. She started her scientific carrier in the Group of Prof. Agustín Sánchez, Inorganic Department, Universidade de Santiago de Compostela in 2009, where she did her final project degree. Then, she was awarded with a "FPI" scholarship (Minister of Science and Innovation, Spain) and she continued with her Master and PhD degrees, compliting his doctoral thesis in 2016, with a cum laude qualification. In order to complement her PhD studies in 2013 she was in Germany for 6 months working at the University of Marburg, Group Prof. Wolfgang Parak, an internationally well recognized Prof. in the area of nanotechnology (h-index: 114). After her PhD she moved to the Hebrew University of Jerusalem, Israel, to work as a fellow postdoc (2016-2021) with Prof. Itamar Willner, pioneering in the area of nanotechnology (h-index: 165).

Margarita Vázquez has participated in various projects, both national and international, and is the principal investigator of a project financed by the Ministry of Science and Innovation. To date, she authored or co-authored 33 publications, among them 29 were published during her postdoctoral stage. 25 of her publications are in the first quartile (Q1, SJR) and 16 of them in the first decile (D1, SJR). To name some: 2 Nat. Cat. (Impact factor, IF, 40.706), 3 J. Ame. Chem. Soc. (IF 16.383), Angw. Chem. Int. Ed. (IF 16.823), 4 ACS Nano (IF 18.027), 3 Nano Let. (IF12.262), 2 Adv. Funct. Mat. (IF 19.924), Adv. Energ. Mat. (IF 29.698), Chem. Soc. Rev. (IF 60.615). These publications led to 1988 citations (G. Scholar), h-index of 21 (Scopus), 23 (G. Scholar). She has 21 contributions to international (17) and national (4) conferences and has presented 4 invited talks. Regarding technology transfer, she is the coinventor of 1 patent (WO2021140509 A1 2021-07-15). She acted as a consultant for Strauss Water Company, Israel in 2019.

Apart from the research activities Margarita Vázquez is involved in the supervision of Degree and PhD students and she is university lecturer at the Universidade de Vigo. She serves as reviewer for multidisciplinary journals and has participated in outreach activities (Organization of the International Day of Women and Girls in Science, participation in the DayOpen Lab at CINBIO, direction of 5 STEMbach projects).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	GIMENO CARDELLS, ANA MARÍA
Referencia:	RYC2022-037985-I
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Título:	Chemical Biology: Synthesis, Molecular Recognition & Beyond

Resumen de la Memoria:

My research profile highlights by my multidisciplinary training, gained through positions in world-leading groups in Organic Chemistry, NMR applied to Molecular Recognition and Chemo-enzymatic Carbohydrate Synthesis. The initial steps in my research career in the metal-catalysis field (Prof. Asensio) combining different expertises and techniques, founded my scientific versatility and guided my research interests through different disciplines. Indeed, in my 1st postdoctoral period, I moved to work in NMR & molecular recognition (Prof. Jiménez-Barbero), where, besides being involved in many collaborations, I applied state-of-the-art NMR-based molecular recognition methods to unravel structural and kinetic details in the binding of glycans to relevant human lectins and antibodies. As a further step in my research career, in 2020, I moved to Utrecht University (Prof. Boons), where I developed and applied cutting-edge chemo-enzymatic methodologies for the synthesis of glycoproteins and antibodies with therapeutic applications. Along the different periods of my scientific career I have been surrounded by highly stimulating environments and, my scientific background has been nourished by different disciplines, techniques, and scientific views, that allowed me to build a robust research profile in the Chemical Biology field. Now, incorporated in a maximum level excellence institution, such as CICbioGUNE, I am in a strong position to further develop my own research line and and build up my own working team. The current fellowship will enhance my career prospects and entails a steady step towards becoming a fully independent group leader in the Chemical Biology field. In this sense, altered protein glycosylation is undoubtedly a characteristic cancer feature, and in the era of personalized medicine, it offers fascinating opportunities for diagnosis, prognosis and therapy development. Noteworthy, understanding how glycoproteins modulate the interaction between tumour and host, and then, the cellular functions, is of paramount importance. However, the enormous molecular heterogeneity and chemical complexity of the cancer cell glycoproteome definitely hinders obtaining comprehensive information. Capturing all current technological barriers, I propose exploring new scientific avenues to decipher the cancer cell glycoproteome interactions in their native biological context and then unambiguously determine the key structural aspects laying behind glycosylation in cancer research. In accordance with my scientific background, I will exploit a multidisciplinary approach that combines Synthetic Chemistry, Chemical Biology, NMR, and additional technologies applied to disentangle the molecular recognition phenomenon. In particular, I will employ synthetic tools to remove natural glycan heterogeneity and break NMR chemical shift degeneracy, that will allow, at different levels of molecular complexity, gradually decoding cancer cell glycoproteome interactions at atomic resolution. The obtained chemically-based picture of the molecular recognition event will provide invaluable information for developing rationally-designed glycan-specific cancer diagnostic/prognostic tools and therapies, in the quest for precision medicine.

Resumen del Currículum Vitae:

I hold a multidisciplinary research profile gained through previous positions in different fields and locations: PhD in organic synthesis (Valencia) and postdoctoral fellows in NMR applied to molecular recognition (Bilbao) and chemoenzymatic glycan synthesis (Utrecht), with a strong track-record of 36 publications in journals, including 3 publications in J Am Chem Soc, 4 in Angew Chem Int Ed, 1 ACS Cent Sci, 1 PNAS and 6 in Chem Eur J. Additionally, I co-authored 3 book chapters. I carried out my PhD in organic synthesis under the supervision of Gregorio Asensio, developing new methodologies in the metal-catalysis field for the synthesis of heterocyles. During this period, I performed secondments at world-leading groups (Alcarazo–Max Planck Institute fur Kohlenforschunf, Mascareñas–University of Santiago de Compostela). Nevertheless, since my career is always stimulated by my inquiring mind, I changed my research interests in the postdoctoral period to the molecular recognition field, and especially to the applications of NMR in this area. This successful shift to the interface between Chemistry and Biology, which requires highly skilled researchers and diverse expertise, definitely proved my scientific competence. During 5-years period, under the guidance of Prof. Jiménez-Barbero, I reached professional maturity and scientific independence, taking a leading role both in terms of project management (dealing with collaborators, daily lab operations and guiding PhD students, and postdoctoral fellows) and scientifically, guiding my own research, writing manuscripts, and preparing oral/poster presentations for international conferences. During those years, I applied state-of-the-art NMR molecular recognition methods, assisted by MD simulations and other biophysical techniques to unravel the structural and kinetic details in the binding of carbohydrates to relevant human lectins and antibodies. I also acquired an extensive collaboration network supported by many co-authored publications, where my participation was key to provide the structural view to interaction processes (molecular recognition concepts, NMR, ITC and molecular modelling studies). These collaborations include world-leading groups from academia (J Codee, NC Reichardt, C Unverzagt) and private sector (R Adamo, GSK Vaccines) in Glycoscience, and also in Molecular Biology (L Gales), Radiochemistry (J Llop), Drug Discovery (G Arsequell), and Bioorganic (FP Cossío) and Supramolecular Chemistry (X Ribas). As further step in my research career, in October 2020 I decided to move to Utrecht University (with Prof. Boons) to expand my knowledge in chemo-enzymatic synthesis of glycoconjugates. Accessing to pure and well defined complex chemical structures is of paramount importance to perform top-notch studies on the interaction of glycans related to scientific and social problems of biomedical interest. I developed and applied cutting-edge methodologies for the synthesis and structural analysis of glycoproteins with therapeutic potential, which for sure will be a breakthrough in the development of biologicals in pharmaceutical pipelines. After this 2-years period, surrounded by a highly cutting-edge scientific environment I have built a broad, strong and multidisciplinary scientific profile in the Chemical Biology field.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
Nombre:	SÁNCHEZ FERNÁNDEZ, ADRIÁN
Referencia:	RYC2022-037909-I
Correo Electrónico:	adriansanchez.fernandez@usc.es
Título:	Development of functional systems based on supramolecular assembly and biomolecule adaptation

Resumen de la Memoria:

My scientific career can be divided into 3 stages (S), where I acquired multidisciplinary knowledge that converged in my current research activities: S1 –University of Bath, UK; S2 –Lund University, Sweden; S3 –Universidade de Santiago de Compostela, Spain. These stages add to a total of 7.5 years of international experience.

During my PhD (S1), my research foundations were built on a strong training in physical chemistry, particularly in the self-assembly of molecular systems in deep eutectic solvents (DESs). These activities resulted in 6 publications, which constitute the core of the field of molecular assembly in DESs. Also, I took the initiative to perform a 6-month research stay at the Physical Chemistry Division at LU to study protein biomolecule behaviour in DESs. I was supported to lead these research activities, resulting in the first publication on the topic of protein folding in DESs, accumulating 87 citations since 2017. Related to the impact of this publication, I was invited to write a book chapter on protein behaviour in DESs.

I further enriched my profile by working in the leading group of Pharmaceutical Technology at LU as a Postdoc (S2). The initial project was oriented towards the study of the behaviour of proteins under chemical stress. We published 2 papers and a third one is currently in preparation. After becoming a research fellow at LU, I applied for research funding to perform my ideas, receiving a research grant from the Crafoord Foundation. I stablished my first own independent research line, RL1, to study molecular co-assembly and colloidal stability in DESs. These investigations were highly successful, leading to 2 papers in top chemistry journals. During S2, I was also involved in the co-direction of a PhD thesis on sustainable surfactants with controllable assembly. Under my supervision, the student published 4 papers in highly-ranked journals and successfully defended his thesis in January 2022. My involvement in this project seeded the development of RL2. This RL explores a novel approach based on molecular architectonics for the design and synthesis of surfactants, complying with the Green Chemistry principles. This project was funded by 2 research grants, Vinnova and Tillvaxtverket, and has already resulted in an early communication (awarded with the front cover of the journal) and 2 more are in preparation.

This unique career path allowed me to achieve my strategic goal of returning to the Spanish academic system after receiving the highly competitive fellowships Maria Zambrano and Marie Curie. At this stage (S3), I started RL3, which aims to use DESs to control the stability and function of biomolecules through changes in the physicochemical properties of the solvent. Despite being at an early stage, RL3 has already produced impressive results, resulting in two publications in top chemistry journals.

My goal as a RyC fellow will be to develop a convergent RL (RL1+RL3) at the frontiers of biophysics and chemical biology. Exploiting the tailorable character of DESs, this project will follow two orientations: (1) to enhance the stability of labile nucleic acids and proteins in DESs and (2) to enable transmembrane transport using DESs as molecular transporters.

Resumen del Currículum Vitae:

Career:
2014-2018: PhD in Physical Chemistry at University of Bath, UK – 11 papers (i.a., Chem. Comm., Langmuir, Soft Matter). Predoctoral stay at Lund University, Sweden.
2018-2020: Postdoctoral associate at Lund University, Sweden – 2 papers (Nanoscale Adv., Langmuir).
2020-2021: Research fellow at Lund University, Sweden – 8 papers (J. Am. Chem. Soc., J. Colloid Interface. Sci., Pharmaceutics) and 1 book chapter.
2022-Present: María Zambrano Research fellow at Universidade de Santiago de Compostela, Spain – 3 papers (J. Am. Chem. Soc., Green Chem., Langmuir)
Metrics:
h-index: 14
Total citations: 702
Number of publications: 25
First author publications: 15
Corresponding author publications: 10 (incl. x2 J. Am. Chem. Soc.)
Senior author publications: 2
Dissemination:
Participated in 4 invited seminars (e.g., Technical University of Munich, NIST Center for Neutron Research), and 25 international and national conferences, having delivered 14 oral communications.
Grants:
Marie Sklodowska-Curie Postdoctoral Fellowship 2021 (98.8% score)
Maria Zambrano Postdoctoral Fellowship 2021
2 research grants as principal investigator (25 k€ in total)
2 research grants as co-principal investigator (117 k€ in total)
Major recognitions:
- Finalist for the 2022 Emerging Investigator Award from the International Association of Colloid and Interface Scientists
- Langmuir Student Award 2017
Supervision:
1 Postdoctoral associate, 2 PhD students, 6 MSc students, and 2 undergraduate students.
Summary:

I obtained my PhD from the University of Bath (UK) in 2018 in the field of the physical chemistry of self-assembled systems, publishing 11 papers in highly ranked journals. After my PhD, I moved to Lund University as a Postdoctoral fellow in 2018, and then began my own independent career in 2020 as a research fellow. During that period, I published 10 papers in the best chemistry journals (e.g., J. Am. Chem. Soc.) leading the research lines, which resulted in 5 papers as corresponding author. After making the strategic decision of returning to the Spanish academic system, I received two highly completive grants with outstanding ratings (e.g., 98.8% in the MSCA). During this new stage, I have already published 3 papers in leading journals (e.g., J. Am. Chem. Soc.) as the first and corresponding author.

My current research lines are genuinely interdisciplinary and oriented towards the development of new functional materials based on deep eutectic solvents, particularly focused on biologic applications. The research efforts are sustained by a personal commitment to excellence in all the stages of the research process: the projected strategies, the results produced and, importantly, the development of a fully independent research career.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
Nombre:	ARÁN AIS, ROSA MARÍA
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Título:	Electrochemistry on well-defined surroundings

Resumen de la Memoria:

Her research focuses on fundamental studies on surface structure-activity-selectivity relationships for electrocatalytic processes, work based on the use of single-crystal electrodes and metal nanoparticles of controlled size and shape in combination with electrochemical, microscopic and spectroscopic methods.

The determination of the double-layer properties is essential for the correlation of the electrode surface charge and the electrochemical reactivity. Thus, her first study was devoted to the characterization of Pt surfaces in alkaline electrolyte and established the basis of future works on the identification of adsorbed OH on Pt electrodes. Another set of her fundamental studies were carried out on the electrocatalysis of small organic molecules (C2), which are relevant to the electrocatalysis of fuel cells. These investigations address the strategies used to avoid poisoning of the electrode and weakening the C-C bond of these molecules, thus achieving its full oxidation to CO_2 and higher energy yield. Considering practical purposes, a second set of studies were centered on the synthesis and characterization of shaped metallic nanoparticles (NPs). Important contributions on this field allowed the correlation between surface structure and the voltammetric profile of the NPs. Especially relevant is the development of a new cleaning protocol for NPs synthesized using the oleylamine/oleic acid mixture, which was demonstrated to be also applicable to bimetallic systems such as PtNi nanooctahedra without compromising their structure and composition.

As postdoctoral researcher, her work was focused on the CO_2 electroreduction (CO2RR) on Cu catalysts and was part of the EU funded project OperandoCat (ERC-725915), where she led the Electrochemistry group. She headed a high-impact study on the role of in situ generated Cu(I) species for higher C2+ products generation. By tuning the surface structure and oxidation state of the Cu catalysts through pulsed CO_2 electrolysis, improved efficiency towards ethanol was demonstrated, and a correlation between the enhanced production of C2+ products and the presence of (100) terraces, Cu_2O and defects was established. This potentiodynamic procedure was further applied to more practical catalysts, such as Cu_2O cubic NPs, demonstrating a similar effect. This work thus opened a novel strategy to steer catalyst selectivity through dynamically controlled structural and chemical transformations. The experience gathered in CO2RR also includes works on the restructuring of Cu cubic nanocatalysts under reaction conditions, electrolyte-driven effects on the CO2RR selectivity and a combination of theoretical studies with experimental results using Cu single crystal electrodes, as well as two highly cited reviews on the subject.

During her research career she has acquired a diverse technique skillset including in situ and operando microscopic and spectroscopic characterization methods to be used under electrochemical reaction conditions, in particular, EC-FTIR, EC-Raman, L-TEM, quasi in situ-XPS and XAFS. She currently investigates the interfacial processes of bimetallic single crystal electrodes and her research is directed towards surface structure effects on electrochemical reactions involved in the conversion of biomass and waste products into valuable chemicals.

Resumen del Currículum Vitae:

Author of 38 research articles in peer reviewed journals (85% in Q1, JCR) and 1 book chapter, with h-index of 20 and more than 2200 citations with a rising trend (Scopus source). Graduated in Electrochemistry (2016) by the University of Alicante (Spain), during her PhD she was awarded with two mobility scholarships within the framework of the "Researcher training program" (FPI) to perform her research at Cornell University (USA) and at Technical University Berlin (Germany). Her PhD thesis was 3-times awarded (2016-2018) at a national level, including extraordinary doctoral award 2016, the award for the best thesis in Alicante 2016 (RSEQ) and the III Antonio Aldaz Award 2018 (GEE-RSEQ) for the best PhD in Electrochemistry. She was a postdoctoral researcher in Germany at Ruhr-University Bochum and Fritz-Haber Institute Berlin (2017-2020) where she was part of the EU funded project OperandoCat (ERC-725915) and led the Electrochemistry group. In 2020 she joined the Surface Electrochemistry group (University of Alicante) through the PlanGenT program (GVA), where she is PI of a CDEIGENT project. In 2021 she was appointed Head of a Partner Group associated with the Max Planck Society (around 90 Partner Groups all over the world, 6 in Spain). In 2022 she has been PI of a regional project for the Ecological Transition related to green hydrogen production. She has established extensive international collaborations all over the world: FHI Berlin, TU Berlin, U Cornell, TU Eindhoven, DTU Copenhagen and ICN2, among others. Also, at a national level with ongoing projects with INESCOP and ICB Zaragoza. She received the Santiago Grisolía Award for the Research Projection of Young Scientists (2022). Her records include 9 participation in competitive projects (3 of them international) and 18 scientific oral communications in congresses (11 of them international conferences). She is censor for the Nature Publishing Group, Royal Society of Chemistry and the American Chemical Society, among others. She was part of 1 PhD committee, directed a master student (TFM) in 2022 and is currently the advisor of 5 PhD theses and an undergraduate student (TFG). With more than 300 hours of teaching experience, she has 7 participations in innovative teaching projects (Redes Docencia e Investigación) and 8 educational publications. At the moment she teaches the subjects "Electrocatalysis" and "Hydrogen as energy vector" in the Master in Electrochemistry at the University of Alicante.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
Nombre:	ARTES VIVANCOS, JUAN MANUEL
Referencia:	RYC2022-035412-I
Correo Electrónico:	juan_artesvivancos@proton.me
Título:	Single-molecule biochemistry and biophysics: Towards the study of the ultra-small and the ultra-fast

Resumen de la Memoria:

During my more than ten years of research experience, I have acquired a solid multidisciplinary research profile in Nanoscience, Chemistry, Biophysics, and Biosciences and developed projects resulting in publications in leading international journals. My research interests have always been the biochemical and biophysical aspects of fundamental biological processes and their applications for new technologies aiding in the most pressing societal challenges (climate change, its impacts, and human health).

My Ph.D. at the Institute for Bioengineering of Catalonia focused on single-molecule biophysics of proteins, demonstrating new nanodevices based on individual biomolecules. Afterward, during my postdoctoral period at UC Davis, I developed new methods for detecting oligonucleotides based on nanotechnology. I used STM molecular break junctions to find electrical fingerprints of DNA and RNA molecules.

Also, I have been awarded prestigious research grants (Marie Curie under Horizon 2020 and Human Frontiers) to expand my research skills in a second postdoc experience at VU Amsterdam to include optical techniques and nonlinear ultrafast spectroscopies for the study of biophysics and biological processes. This research has also resulted in high-impact reports. Currently, I am further expanding my research, teaching, mentoring, outreach, and research managing experience as a principal investigator at the University of Massachusetts Lowell with my research group focused on the study of biophysics and biosensors. I have secured federal funding to develop these activities.

I have authored 25 publications with around 980 citations, with an H-index of 15 (Google scholar, i-10: 17). These research products also include a patent. I was the first author in 14 and the corresponding author in 5. I have also contributed more than 50 talks and posters to conferences, including invited contributions and contributions from students at all levels I have mentored. I am also organizing symposiums and conferences about nanoscience. Finally, I also acquired plenty of experience, including student supervision, mentoring, and participation in outreach events (e.g., I represented my institution as an observer at the UN COP26 meeting).

Resumen del Currículum Vitae:

I graduated in Biotechnology and in Biochemistry, both BS degrees from the Autonomous University of Barcelona. These studies included research internships in places like a startup company (IBQ S.L., 2005) and the Vall d'Hebron Research Institute at the hospital (2006), where I developed my first skills in Biochemistry and Molecular Biology Lab Practices. Around that time, I also did my MS in Experimental Chemistry (2008) and my MS in Molecular Biotechnology (2009), both from the University of Barcelona, doing research at the group of Prof. Fausto Sanz. This exposed me to the fascinating world of physical chemistry and nanoscience, and helped me to develop a multidisciplinary research profile by enrolling in a Ph.D. program under the supervision of Prof. Fausto Sanz and Prof. Pau Gorostiza at the Institute for Bioengineering of Catalonia. I graduated in 2012 (CUM LAUDE and Ph.D. extraordinary award), after developing a method for the study of redox proteins at the single molecule level using Electrochemical Scanning Tunneling Microscopy. During the Ph.D., I could also enjoy a funded research internship abroad in the group of Prof. NJ Tao at Arizona State University; this research stay exposed me to STM-based molecular break junctions techniques. Combining all this training, I could succesfully complete a complete electronic characterization of the redox protein azurin at the single molecule level. In particular, I reported its current-distance characteristics (ACS Nano 2011), azurin transistor-like behavior (this was the first single-molecule device based on a wired redox protein, Nano letters 2012), its current-voltage characterization (JACS 2012), and its single-molecule redox properties (Small 2015). Also, during that period I developed other collaborations and learned diverse techniques, including electrochemistry (JPCC 2009) and optical microscopy (Nat Chem 2011).

Postdoctoral and international research experience in USA and Europe:

After graduating, I joined the group of Prof. J Hihath at the Electrical and Computer Engineering at the University of California Davis (now the director of the Biodesign Institute at ASU) as a postdoctoral associate. There I developed new methods for the detection and study of oligonucleotides, including DNA (Nat Comm 2015) and RNA (Small 2015, JPCL 2016, and Nat Nano 2018). In particular, I trained and mentored students in projects for biosensing of RNA biomolecules (Nat Nano 2018), and single-molecule electrical devices (Nat Materials 2015). Those years also helped me to get involved in multiple review papers (XnY)...\\

At UML, current research interests\\

Achievements track:\
According to Google scholar, my H-index is 15 and my publications have been cited over 980 times, they received more than 100 citations per year in the last two years, and around 39 citations per article. I have coauthored 25 publications, including 3 review papers and two book chapters, and I have first authorship in 14 and corresponding authorship in 5 of them. My publication's portfolio includes relevant publications for my field such as Nature Nanotechnology, Nature Chemistry, Nature Materials, Nature Communications, ACS Nano, Nano Letters, 2 Journal of the American Chemical Society, 2 Small, among others. These publications equal a cumulative impact factor of 285, equivalent to around 4 Nature or Science publications.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	MOLPECERES DE DIEGO, GERMÁN
Referencia:	RYC2022-035442-I
Correo Electrónico:	molpeceresgerman@gmail.com
Título:	The First Molecules: Tracing our Chemical Heritage with Computational Chemistry

Resumen de la Memoria:

I have dedicated my research trajectory to astrochemistry, combining experiments and computational modelling. During my postdoctoral time, my focus has been computational astrochemistry, tackling problems relevant to gas-phase and surface-phase chemistry in astronomical environments. In particular, I have developed research lines tackling the collision of adsorbates on interstellar ices and their diffusion and desorption. Likewise, a significant portion of my research is dedicated to studying reactivity under cryogenic conditions.

My main research goals have been developed in four parallel research lines. The first one uses machine learning tools to study physical processes in the interstellar medium. Using them, I have evaluated the dynamic evolution of astrophysical ices made of thousands of atoms, studying elementary processes such as adsorption, diffusion, or energy dissipation at interfaces. The second research line studies astrophysical molecules with phosphorus and sulfur. These elements are pretty rare but fundamental in building organic molecules. In this research line, I have discovered formation routes of molecules of significant astrophysical interest, such as phosphine or thioformic acid. The third research line is dedicated to studying isomerism in the interstellar medium. For example, I discovered one of the first diastereoselective formation routes of molecules on the surface of ice. I have also investigated isomerization processes promoted by radical reactions in ice. The fourth research line, and the most relevant for this proposal, is dedicated to studying aromatic molecules in space, with a specific focus on organic heterocycles. For example, I have developed this line by studying hydrogenation reactions in heterocycles, spectroscopically characterizing polycyclic aromatic hydrocarbons in the gas and solid phases, and investigating the gas-phase reactivity of these cycles.

Methodologically, my research uses a combination of quantum chemical tools, along with my own routines and programs. For example, I collaborate in developing a code for generating interatomic potentials using machine learning, and I implement routines for automatic reaction path sampling. My research employs cutting-edge techniques that are not conventional in computational astrochemistry, such as the instanton method for studying chemical reactions including quantum tunnelling effects, the aforementioned machine learning potentials or astrochemical models. Additionally, in this project, I plan to improve my machine learning techniques for reaction path search and astrochemical modelling, techniques that I am currently using in my current position at the University of Tokyo.

I conclude the summary with a brief description of my future research. In this project, I will unravel the formation pathways of aromatic and heterocyclic molecules in the interstellar medium by combining all the techniques I mentioned above. The last few years have been crucial in determining that the chemical complexity in the interstellar medium is much greater than we anticipated. However, our current knowledge is observational. This project will deepen the chemical bases for the emergence of these molecules, giving the astrochemical community arguments rationalize the discovery of new aromatic molecules in space and proposing new aromatic molecules for detection

Resumen del Currículum Vitae:

I am a computational astrochemist with demonstrated expertise in the simulation of gas and surface chemical processes occurring in interstellar environments. In addition, I also have significant experience in carrying out and interpreting experiments in the field, thanks to the multidisciplinary nature of my PhD project. During my scientific trajectory, I have been employed at leading national and international institutions, such as CSIC, for my PhD or the University of Stuttgart (3.5 years). In addition, I am currently enrolled at the Department of Astronomy of the University of Tokyo, one of the best universities in Asia.

My scientific productivity includes 30 (with three more under review) published articles in international journals in astrophysics and physical chemistry, with a vast majority in Q1 journals for these disciplines and two book chapters. I have around 20 contributions to congresses, of which five include keynote/invited talks. Besides, I imparted four research seminars at international institutions, like the University of Stuttgart, the University of Leiden, CAB-CSIC and the Federal University of Rio de Janeiro.

I have managed three research projects obtained through competitive grants from different institutions. To date, I have been awarded an Alexander von Humboldt Postdoctoral Fellowship and a Japan Society for the Promotion of Science International Fellowship, as well as a project entitled "Simulation of Surface Processes using Machine Learned Potentials" funded by the German Science Foundation and the SimTech cluster of the University of Stuttgart. In addition to the projects as a PI, I am also part of the scientific teams of several national projects and collaborative research networks. Specifically, I am regularly part of the working team of the Department of Molecular Physics of IEM-CSIC national projects. More recently, I also participate in a project under evaluation with researchers from CAB-CSIC. In terms of collaborative networks, I participated as an international collaborator in several CSIC iLink projects, as well as in the University of Leiden's "Energy of Dissipation at Interfaces" collaborative symposium.

I am also experienced in mentoring and teaching. I hold the "Profesor Ayudante Doctor" and "Profesor Contratado Doctor" accreditations and I have supervised 11 student projects at the MSc and BSc levels, including internships, four BSc theses, and two MSc theses. I also taught "Programming and Numerical Methods" at Stuttgart University. I won the "Outstanding Doctorate Award" of the Chemistry Program of the University of Valladolid in 2019/2020 and the prize for the best article written by a young researcher in atomic and molecular physics by the Royal Society of Physics of Spain (GEFAM group). I act as a regular reviewer for journals in the field of astrophysics and for the Chilean research agency.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	NAVARRO BLASCO, MIQUEL
Referencia:	RYC2022-037597-I
Correo Electrónico:	miquel.nblasco@gmail.com
Título:	Chiral Hemilability for Metal Catalyzed Asymmetric Transformations

Resumen de la Memoria:

My long-term research goals is to master and overcome different key catalytic challenges using organometallic catalysts in order to develop more sustainable catalytic transformations. Therefore, from the beginning I have designed my research career to acquire different technical skills and expand my scientific knowledge in order to accomplish this purpose. I specializad in ligand design and organometallic chemistry at Universität Bern (Switzerland), where I obtained my PhD under the supervision of Prof. Martin Albrecht in 2017 (summa cum laude & Best PhD Thesis Award Universität Bern). This has permitted me to study the different combinatorial effects between ligands and transition metals in the design of active catalysts. Particularly, I developed the use of carbon(N-Heterocyclic Carbenes) and nitrogen donor ligands (PYA) to study different catalytic transformations of high interest such as water oxidation catalysis and the hydrogenation of CO2. The development of this new class of nitrogen ligands (PYA) and their potential as highly versatile and accessible ligands laid the foundations for future PhD candidates in the group.

In January 2018 I joined the group of Dr. Didier Bourissou (LHFA – Université Paul Sabatier Toulouse) as postdoctoral researcher (SNF EarlyPostdoc Mobility Fellowship 69,400 CHF) bringing my background in N-heterocyclic carbene chemistry to develop new hemilabile ligands for their use in gold chemistry. This allowed me to get trained in the preparation and characterisation of highly sensitive organometallic compounds and their use as catalysts.

In 2020, I joined the group of Dr. Jesús Campos at the IIQ-CSIC as a postdoctoral fellow (JdC-Formación-2018, 50,000 € and Personal Investigador Doctor 124,350 €). My research line explores the synthesis of extremely bulky phosphine ligands to develop new cooperative systems. This last stage of my career has allowed me to develop research independently managing my own research projects and supervise different BSc and MSc students working on different projects, as well as learning new techniques such as X-ray diffraction and DFT calculation methods.

Over my research career, I have worked in 6 different research centres (UB, UCD, UniBe, UAM, LHFA, IIQ-CSIC) in 4 countries (Spain, Ireland, Switzerland and France) that have allowed me, from a very early-stage of my career, to expand my scientific knowledge and background and foster a great network with scientists all over the globe establishing different successful research collaborations. I have especializad in organometallic chemistry focusing on the development of new catalysts for challenging homogeneous catalytic transformations, as well as, on investigation reaction mechanisms. I firmly believe that my achievements and track record shows my interdisciplinary profile and my capacity to work on a broad variety of topics (20 publications, 18 as first author and 2 as corresponding author).

Additionally, I have demonstrated my capability to develop independent research in the field of ligand design and organometallic chemistry: 2 papers as corresponding author, 1 project selected for interview (Junior Leader Retaining La Caixa 2022), supervision of 4 BSc, 2 MSc and 2 PhD visiting students and to secure funding in all stages of my career.

Resumen del Currículum Vitae:

I obtained my BSc (2012) and master (2013) in Chemistry at the Universitat de Barcelona (UB). Then, I moved to University College of Dublin (UCD) to start my PhD studies in organometallic chemistry and homogeneous catalysis under the supervision of Prof. Martin Albrecht. In 2015 I moved with the entire group to Bern, where I obtained my PhD degree in late 2017 with the highest distinction summa cum laude, and receiving the Universität Bern best PhD Thesis Award. I also undertook a 3- month research visit in the Universidad Autónoma de Madrid (Dr. Mariola Tortosa) learning new techniques and expanding my knowledge in homogeneous catalytic reactions. In January 2018 I joined the group of Dr. Didier Bourissou (LHFA, Toulouse) supported by an EarlyPostdoc Mobility Fellowship by the Swiss National Science Foundation (SNF) to develop new hemilabile ligands for gold chemistry. Since February 2020, I am a postdoctoral fellow (Juan de la Cierva Formación and Personal Investigador Doctor) at the Instituto de Investigaciones Químicas (IIQ – CSIC, Sevilla) in the group of Dr. Jesús Campos developing new bulky phosphines for metal-metal and metal-ligand cooperativity. I have 20 publications in top journals such as ACS. Catal, Chem. Sci., J. Catal. Chem. Comm. Inorg. Chem., Organometallics among others (h-index 11) that reflect my multidisciplinary background (18 as first author, from which 2 as corresponding author).

I have supervised 4 BSc students, 2 MSc students and 2 PhD visiting students (2 currently at IIQ – CSIC, Sevilla). In addition, I have been involved in different teaching activities in all the institutions that I have been part of with ~400h of teaching (UB, UCD, UniBe..). I have delivered 1 invited lecture at LHFA department seminar series invited by Dr. Bourissou and contributed to several different national an international conferences (11 oral communications).

I have secured funding in all stages of my career:
1) BSc and MSc:
- Beca de Colaboración Universitat de Barcelona 2012
- Beca de Actividades Académicas Dirigidas de Apoyo al Profesorado 2013 (Generalitat de Catalunya)
2) PhD studies:
-Doctoral Fellowship 2013 by the Science Foundation Ireland (SFI)
3) Postdoc period:
- EarlyPostdoc Mobility Fellowship 2017 (P2BEP2_178600) by the Swiss National Science Foundation (SNF).
- Ayuda JIQ para Asistencia a Congresos 2019 by JIQ-RSEQ
- Juan de la Cierva Formación 2018 (FJC2018-035514-I) by Ministerio de Ciencia e Innovación
- Personal Investigador Doctor 2019 (DOC_00149) by Junta de Andalucía
Moreover, I am selected for interview at La Caixa Junior Leader Retaining 2023 (305.100 €, interview 23/02/23).

I am also a referee in peer-reviewed well-respected journals (e.g. Inorg. Chem.). I have been member of the local organizing committee of different conferences and symposium such as Swiss Chemical Society Fall 2017 Meeting (Bern, Swtizerland) and the 1st Stable Carbene Symposium 2018 (Toulouse, France) and member of the core organizing committee of the XVIII Simposio de Jóvenes Investigadores Químicos RSEQ (Sevilla 2022). Additionally, I have participated in outreach activities (University open days for primary and high school students, Science festivals, etc. since 2013).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	LANZALACO , SONIA
Referencia:	RYC2022-037688-I
Correo Electrónico:	sonia.lanzalaco@upc.edu
Título:	Devices based on smart materials for biomedical applications

Resumen de la Memoria:

I am a Chemical Engineer and Ph.D. by the Università degli Studi di Palermo (UniPA, Italy), currently working as senior postdoctoral researcher and adjunct lecturer at the Innovation in Materials and Molecular Engineering (IMEM) group at Universitat Politècnica de Catalunya (UPC), where I was hired in 2018. During my Ph.D., I developed a research based on the modification and the sterilization of polymers, in collaboration with LIMA Corporate, a leader biomedical company, which co-funded my Ph.D. scholarship. To better understand and improve my knowledge about one of the newest polymerization techniques invented in the last 2 decades, the atom-transfer radical polymerization (ATRP), I carried out a 4-month stay at the Chemistry Department of Carnegie Mellon University (CMU, Pittsburgh, USA), under the supervision of a world-renowned scientist, Prof. Krystof Matyjaszewski, who is one of the inventors of this technique in 1995. During my post-doctoral studies (7 years), at UniPA, UB and UPC, I have gained large experience as team member and with a leading role in some research projects based on: i) Polymeric smart platforms that act as electrochemical sensors for biomolecules and bacteria; ii) New methodologies for the synthesis of polymers widely used in engineering and their processing by 3D printing; iii) New technologies for the modification and the in vitro sterilization of commercial devices for applications in bioengineering; and iv) Biomass-based polymers for environmental and health applications. The internationalization of my career, by moving to Spain from Italy, helped me to establish collaborations with scientific groups from the UB and the UPC, as well as with private companies. On April 2018, I was awarded with the prestigious Marie Curie Individual Fellowship (MSCA-IF) under the H2020 program of the EU. This European project (4D-POLYSENSE) was carried out in collaboration with a worldwide leader biomedical company, B Braun Surgical S.L.U., where I did a secondment of 6 months. The results of my project derived in a new generation of surgical meshes for hernia repair, acting as thermal and motion sensors with dissemination of the results in high impact journals. During these years, I developed a great experience in thermosensitive hydrogels (TSHs) at the group of Prof. Carlos Alemán and Prof. Elaine Armelin. Regarding my international collaborations, I am also engaged in a joint project on biomass valorization for environmental electrocatalysis applications, led by Dr. Ignasi Sirés from UB. Thanks to the world relevance of this group at UB, as well as the participation of Prof. C. Durante from renowned Università degli Studi di Padova and some researchers from China (e.g., Chongqing University), significant scientific results related to H2O2 production and water treatment were achieved.

Currently, a new collaboration has been established with Prof. Helder Santos from University of Groningen (The Netherlands), to work on the preparation of nanoparticles based on different materials (Au, Ag, MgO,..) for biomedical applications.

Resumen del Currículum Vitae:

I have participated in 15 research projects (4 as PI), and I have published more than 32 publications, in high-rank indexed journals from a diversity of areas (chemistry, chemical engineering, materials science and engineering, electrochemistry). The majority of them are Q1 journals (several with IF > 15) and I am the corresponding author in 13 papers; which demonstrate my ability to the conceptualization and design of successful investigations. These works have more than 748 citations in Google scholar and 602 in Scopus, yielding an h-index of 15 in Google scholar and 12 in Scopus. I have also participated in almost 30 communications (half of them oral) in national and international congresses, 2 of the as Invited Keynote, being awarded with a Best Poster Prize in an international congress in 2020. I am also the co-author of 1 book chapter in Springer. In addition, I have got solid technology transfer experience, being co-inventor of 1 patent, having one more under revision. Since my MSCA-IF Fellowship (4D-POLYSENSE project, 2018-2020), I maintain close collaboration with worldwide companies like B Braun Surgical S.L.U.); Onalabs Inno Hub ; LIMA Corporate SPA; MecWins S.A.. Currently, I am co-supervising one PhD student, Mrs. Júlia Mingot; and have tutorized other 3 PhD Thesis, since 2022. I have also supervised 8 Master and 4 undergraduate students. I have also been jury member in 9 Final Degree projects, 6 Master Theses and 6 PhD Research Plans. Finally, I would like to emphasize that I combined some of such previous activities with teaching responsibilities. All together proves my enthusiastic motivation for the academic field and to drive force for much-needed advances in the field of biomedical engineering.

Selected Publications:

-P. Xia, Q. Xue, L. Zhao, S. Lanzalaco, Q. He, Z. Ye, X. Qi, I. Sirés*. (2023) Tailoring robust single-atom FeN4 moieties for high-performance electro-Fenton treatment of micropollutants. Appl. Catal. B: Environ. 322, 122116. (IF: 24.319). https://doi.org/10.1016/j.apcatb.2022.122116.
-S. Lanzalaco,* P. Gil, J. Mingot, A. Àgueda, Carlos Alemán, E. Armelin*. (2022), Dual-Responsive Polypropylene Meshes Actuating as Thermal and SERS Sensors. ACS Biomater. Sci. Eng. 8, 8, 3329–3340. (IF: 5.395). https://doi.org/10.1021/acsbiomaterials.2c00334.
-S. Lanzalaco*, P. Turon, C. Weis, C. Mata, E. Planas, C. Alemán, E. Armelin*. (2020) Toward the new generation of surgical meshes with 4D response: Soft, dynamic, and adaptable. Adv. Func. Mater. 30, 2004145. (IF: 18.808). https://doi.org/10.1002/adfm.202004145

Selected Invited presentation:
-Invited lecture at the First International Young Researchers Symposium on Applications of Electrochemical Technology. S. Lanzalaco. Polymer hydrogels: Looking for green synthesis and bioengineering applications. June 2019. Santander (Spain).
-Invited lecture at a Seminar of Prof. Morbidelli's group at "Institute for Chemical and Bioengineering (ICB)", ETH Hönggerberg. Grafting of vinyl monomer onto halogenated polymers by Atom Transfer Radical Polymerization assisted by supercritical carbon dioxide or by electric field". September 2013. Zurich (Switzerland).
PhD supervision: Applications of thermosensitive hydrogels in biomaterials and chemical engineering (Fellowship: 2021 FI SDUR 2017SGR 00359, Agència de Gestió d'Ajuts Universitaris-AGAUR; Programme: PhD in Polymers and Biopolymers.)

Área Temática:	Ciencias y tecnologías químicas
Nombre:	BARAWI MORAN, MARIAM
Referencia:	RYC2022-038157-I
Correo Electrónico:	mariam.barawi@gmail.com
Título:	Photoelectrochemical generation of solar fuels and added-value chemicals through advanced hybrid electrodes

Resumen de la Memoria:

I am a Senior Assistant in Imdea Energy specialised in the photoelectrochemical (PEC) conversion of solar energy into fuels and value added products from renewable resources. My broad experience at different universities and research centres has provided me with an inquisitive scientific view and a research approach that includes a comprehensive toolset of research expertise that includes: (1) synthesis of metal sulphides, metal oxides an organic polymers with fine control over their final morphology by the use of different fine state-of-the-art techniques such as the deposition of metallic thin films and their growth in reactive atmospheres and colloidal and hydrothermal synthesis (2) Advanced characterization of the optoelectronic, electrochemical and PEC properties of materials 3, testing of photoelectrochemical devices for energy conversion applications and (4) Elucidation of the structure-property relationship and the reaction mechanisms of interest through in situ and operando experiments. These expertise has allowed me to publish 40 JCR indexed articles and 10 presentations as main author at international conferences. The high quality, relevance and impact of these publications is validated by more than 2000 citations and a H index of 23.

Since the beginning of my career I have had a high internationalisation. During my PhD I participated in a COST action under which I was awarded a grant to carry out a scientific short stay in CNRS, France. Soon after my PhD, I moved to Italy for my first postdoctoral experience in the Italian Institute of Technology (IIT), Italy. My second postdoctoral experience started at Imdea Energy, through an ERC-consolidator grant and includes a short research stay at ALBA Synchrotron. Besides, I have been involved in 6 European projects, and published several articles in collaboration with foreign universities and research centres.

During my career as a researcher, I have demonstrated my independence and ability to organise and lead different research projects, subprojects and work packages, being in fact, the PI of two national projects. Besides, I have a wide experience in development of synchrotron projects and secured funding for a competitive beamtime application in ALBA as PI. In total, I have participated in 15 regional, national, European and private company research projects.

Regarding my proposed future activities, my intention in the next few years is to advance in the development of two emerging energy conversion reactions through the use of PEC cells. I have envisioned a PEC cell with hybrid photocathodes for the selective CO_2 reduction and N_2 fixation in one side, and photoanodes for the effective waste water oxidation in the other side. As photocathodes I will developed hybrid systems composed of cooper based oxides and Conjugated Porous Polymers (CPPs) multifunctional layers that will provide photo-stability, improve light absorption and reduce charge recombination. As photoanodes, I plan to synthesise several inorganic semiconductors known by their oxidising properties such as TiO_2, Fe_2O_3, WO_3 or $BiVO_4$ and work in their application as high quality thin films for efficient photoelectrodes. The best performing photoelectrodes will be subsequently assembled in a tandem PEC photoelectrochemical cell with the final ambitious aim of being capable of working under zero bias conditions.

Resumen del Currículum Vitae:

I am a Senior Assistant Researcher in Imdea Energy in the Photoactivated Process Unit and I am the leader of the solar energy conversion by photoelectrochemical cells and smart window devices research lines. I started my PhD at Universidad Autónoma de Madrid, investigating the synthesis of different metal sulphides and its use in photoelectrochemical cells for solar energy conversion. I received my PhD degree with Summa Cum Laude in 2015. In this stage I was awarded a grant for a short research stay under a COST action program in CNRS, Paris, France, where I investigated hydrogen storage properties in metal sulphides. As result of my PhD I published 14 scientific articles being first author in 6 of them and corresponding in 3.

For my first postdoctoral position I moved to Italy (Lecce) to the Istituto Italiano di Tecnologia (IIT) within the framework of a company project. At this stage I focused on the synthesis and characterisation of colloidal metal oxides for their application in smart window devices. I investigated the electrochromic and localized surface plasmon resonance properties responsible for the performance of these materials. I was fully dedicated to this project as evidenced by the 4 high impact scientific works that emerged, two of them signed as first author.

In January 2017, I joined the Photoactivated Processes Unit and in the same year I was awarded a Juan de la Cierva-Formación grant. In this group, I took on the responsibility of starting the photoelectrochemical cells research line from where I have been leading the application of different inorganic and organic semiconductors and hybrid systems as photoelectrodes for solar energy conversion to fuels. Two years ago, I opened a new research line based on the synthesis and characterisation of different doped metal oxides nanocrystals and organic porous polymers for electrochromic and photoelectrochemical devices. In 2020 I was awarded a Juan de la Cierva-Incorporación grant which served to enhance my career as an independent researcher.

As a result of this remarkable scientific trajectory, I am at this moment co-author of 40 scientific publications with more than 2000 citations according to Google Scholar with a H index of 23 (1700 based on Scopus metrics). I sign as first author in 11 of these publications, and I am corresponding author in 6 of them, which shows the leading role I have had in my research output. During my scientific career, I have actively participated in 15 research projects financed by different national and international institutions, both academic and industrial, being Principal Investigator (PI) in two of them.

I have supervised 6 MSc and 1 PhD international student stage and 2 researchers in training, and currently I am co-directing 4 PhD thesis, one of them expects to be defended in the next months. These training activities have earned me appointment as Profesora honoraria (tipo B) from UAM.

I also act regularly as reviewer of scientific articles in several journals and as a project evaluator for several Spanish government grants and projects. Moreover, I enjoy participating frequently in outreach activities such as: "EU Researcher's Night", "Science Week" and "The day of women and girls in science".

All these merits have recently been recognized through the I3 research accreditation, obtaining the maximum score (10 points out of 10).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	STEBER , AMANDA
Referencia:	RYC2022-037922-I
Correo Electrónico:	amandasteber@gmail.com
Título:	Desarrollo instrumental de la espectroscopia rotacional para desentrañar problemas astroquímicos y agregados moleculares

Resumen de la Memoria:

Tras trabajar en cuatro laboratorios diferentes de todo el mundo, he adquirido experiencia en espectroscopia rotacional y desarrollo de instrumentos, y he aplicado esta experiencia a la investigación de moléculas y sistemas de relevancia astroquímica, agregados de agua y análisis quiral. Estas actividades me han valido 48 publicaciones, muchas de ellas en revistas de primer nivel como Nature Communications, Angewandte Chemie, Journal of the American Chemical Society, Journal of Physical Chemistry Letters y otras. Tengo un índice h de 19 con 987 citas, y he impartido ocho conferencias como invitada. Tengo dos patentes internacionales cuya licencia ha sido concedida la empresa BrightSpec Inc. Estas patentes fueron el resultado de mis investigaciones durante mi doctorado bajo la dirección del Dr. Brooks H. Pate en la Universidad de Virginia (Estados Unidos). El Dr. Pate es el creador de la técnica espectroscópica de microondas por transformada de Fourier de impulsos chirpeados (CP-FTMW), y yo fui un miembro fundamental del equipo que amplió esta técnica al régimen de ondas milimétricas y desarrolló un instrumento para usos comerciales. Paralelamente al desarrollo de la instrumentación, participé en actividades de divulgación e investigación astroquímica.

Tras mi doctorado, me incorporé al grupo de la Dra. Melanie Schnell en Hamburgo (Alemania) como becaria Louis Johnson, y más tarde fui nombrada jefa del subgrupo de astroquímica dentro de su grupo y nombrada personal permanente en enero de 2019. Mi investigación se orientó de nuevo hacia el desarrollo de instrumentos y la astroquímica, y también me diversifiqué para aprender otras técnicas, como la espectroscopia VUV y ion-dip. Durante este tiempo, desempeñé un papel clave en el desarrollo de la investigación que se estaba llevando a cabo en este grupo, y esto dio lugar a siete artículos en los que soy el autor de correspondencia.

En octubre de 2021, comencé mi beca individual Marie Skłodowska Curie en la Universidad de Valladolid. La beca - AstroSsearch: The quest to understand interstellar sulfur and metal chemistry through synergetic laboratory and radio telescope observations- tiene como objetivo ayudar a responder a la pregunta de dónde está almacenado el azufre en el medio interestelar a través de un enfoque sinérgico de espectroscopia rotacional de laboratorio y radioastronomía. El trabajo ha sido continuo y hay publicaciones en preparación. Además de investigar, he participado en actividades de divulgación, he sido revisor de varias revistas científicas, y organizador de varias conferencias.

En la próxima etapa de mi carrera, me propongo ayudar a mitigar los impactos de la actual crisis climática desarrollando un nuevo espectrómetro de cribado de combustión rotacional que hará avanzar nuestra comprensión de la relación entre los combustibles, los procesos de combustión y los contaminantes resultantes para generar combustibles limpios. Con este instrumento, podré caracterizar y cuantificar con precisión las emisiones de las llamas, comparando al mismo tiempo los resultados con los modelos cinéticos más avanzados. De este modo, obtendré nueva información sobre cómo se forma el primer anillo aromático y la química del carbono que tiene lugar en las reacciones de combustión, y se probarán y desarrollarán fuentes de combustible nuevas y limpias para las reacciones de combustión.

Resumen del Currículum Vitae:

A lo largo de mi carrera, he trabajado en cuatro grupos de investigación de renombre internacional (EE.UU., Alemania y España) utilizando la espectroscopia rotacional para abordar problemas de Física y Química Molecular. Mi investigación se ha llevado a cabo en la Eastern Illinois University de EE.UU., la University of Virginia (UVA) de EE.UU., el Hamburg Centre for Ultrafast Imaging (CUI) y el Deutsches Elektronen-Synchrotron (DESY) de Hamburgo, Alemania, y actualmente en la Universidad de Valladolid (UVa). Esto ha dado lugar a 48 publicaciones, muchas de ellas en revistas internacionales revisadas por pares de primer nivel, y otras más en preparación. Soy el autor de correspondencia de 7 de ellas, y he presentado mi trabajo en 27 comunicaciones orales, 8 de ellas charlas invitadas.

Durante mi doctorado de 2009 a 2014 en la UVA, construí y automaticé cuatro instrumentos de microondas, y fui responsable del diseño y construcción de un nuevo espectrómetro para usos comerciales de química analítica. Este instrumento sirvió de base para la puesta en marcha de la empresa BrightSpec Inc. Como resultado, tengo dos patentes internacionales que se centran en el desarrollo de este instrumento, y han sido licenciadas por la empresa BrightSpec. Enseñé varios laboratorios de química física de pregrado en la UVA, y a lo largo de mi doctorado, enseñé a 3-4 estudiantes de pregrado con la Virginia-North Carolina Louis Stokes Alliance for Minority Participation (LSAMP) durante 8 semanas cada verano (2011-2014). Les enseñé fundamentos de química física y cómo hacer investigación y difundir los resultados.

En 2015 me trasladé a Hamburgo (Alemania) como becaria Louise Johnson en CUI (un clúster de excelencia de la Fundación Alemana para la Ciencia) en la Universidad de Hamburgo. Trabajé con la profesora Dra. Melanie Schnell para construir la línea de investigación de astroquímica en su grupo, donde ocupé un puesto destacado en el subgrupo, dirigí las operaciones diarias y tomé decisiones científicas y de personal. Tras nuestro traslado al DESY en 2018, me nombraron líder del subgrupo y me hicieron personal permanente en enero de 2019. Fui mentor de 4 posdoctorados, 5 estudiantes de doctorado y 5 estudiantes de máster y licenciatura.

Tras un permiso de maternidad, comencé mi beca individual Marie Sklodowska Curie en la UVa en octubre de 2021. He implementado una boquilla de descarga y he estado obteniendo espectros de nuevas especies portadoras de azufre y metales, a veces terrestremente inestables, relevantes para la química astronómica. Utilizando estos conjuntos de datos, he colaborado con el Prof. José Cernicharo del Consejo Superior de Investigaciones Científicas (CSIC) en Madrid en el Grupo de Astrofísica Molecular del Instituto de Física Fundamental para identificarlas en el ISM.

Fui editor del boletín AstroPAH de 2017 a 2021, soy revisora de artículos en varias revistas internacionales de revisión por pares y, en noviembre de 2019, me convertí en miembro de la acción de Cooperación Europea en Ciencia y Tecnología (COST) Molecular dynamics in the gas phase (MD-GAS). Fui miembro del comité de gestión para Alemania, y he sido el co-líder del grupo de trabajo 1 desde febrero de 2020. Organicé una reunión en línea de ~150 participantes para la acción, y estoy organizando una segunda reunión que se celebrará en marzo de 2023 en Sofía, Bulgaria.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	OLLER SALVÍA, BENJAMÍ
Referencia:	RYC2022-036272-I
Correo Electrónico:	benjami.oller@iqs.url.edu
Título:	Developing chemogenetic strategies for the generation of smart, selective, and efficient protein targeted therapeutics

Resumen de la Memoria:

After a first contact with research at IQS-URL and MIT, I conducted my PhD project in Prof. Giralt's group at IRB Barcelona funded by "La Caixa" International PhD fellowship. My main contribution was the development of protease-resistant peptides capable of transporting a variety of compounds across the blood-brain barrier. The patent of this peptides is licensed to Gate2Brain. Another main contribution from my PhD is a review now considered a reference in the brain shuttle peptide field. My PhD thesis was recognized with several awards, including: extraordinary prize, Ramon Maragalef award (UB) and Pioner (CERCA).

Intrigued by the possibility of encoding novel functions in proteins, I moved to Prof. Jason Chin's group at the MRC Laboratory of Molecular Biology in Cambridge, where I held an EMBO long-term fellowship. There, I developed platforms to produce antibody-drug conjugates using genetic code expansion and to genetically encode non-canonical amino acids for the directed evolution of antibodies. Both projects have resulted in high impact publications and have drawn considerable attention in academia and industry.

After three years in Cambridge, I obtained an assistant professor position at IQS-URL. Soon after returning to Barcelona, I was awarded a Marie-Sklodowska Curie Fellowship that enabled me to start my research lines with complete autonomy. I currently lead a team of 1 postdoctoral researcher, 4 PhD students (including an FPU awardee), and 2 master's students. We have engineered two novel strategies to generate therapeutic proteins with activity on demand and a new family of peptidomimetics to transport drugs into the brain. We have also established collaborations with two companies, and I recently conducted a 3-month sabbatical at UW funded by Fulbright and EMBO. I have been awarded an ERC Starting Grant in the 2022 call to work on a potentially paradigm-breaking brain delivery strategy based on the creation of an orthogonal brain gate.

My research vision is that the future of therapeutics lies in merging chemical and genetic approaches. With my team we build on our previous experience in targeted therapeutics aiming to address two main challenges: 1. To develop chemical and synthetic biology tools to study and to enhance the transport of therapeutic and diagnostic agents across the blood-brain barrier (BBB), and 2. To develop conditionally activate biotherapeutics and drug delivery systems that enable engaging targets otherwise considered undruggable.

With the Ramon y Cajal aid, I aim to expand my current research lines in 4 directions:

i. Work on smart internalization moieties to construct a gene delivery vehicle with high selectivity for brain endothelium. This effort will be complementary to the ERC project.
ii. We will combine these smart ADCs with the new brain shuttles we have developed to enhance transport across the BBB and reach the cells in the invasive front of the tumor, where the blood-brain barrier is still intact.
iii. We will apply the masked antibodies we have generated to target a gene delivery nanotherapy we are currently developing aiming to eradicate cancer stem cells.
iv. We will expand our current strategies toward different stimuli such as light, reducing environments, and pH, as well as toward reversible switching.

Resumen del Currículum Vitae:

I am assistant professor at IQS-URL since 2019, where I lead the Protein Therapeutics Laboratory (www.pptn.iqs.edu). My group is currently composed of 1 postdoctoral researcher, 4 PhD students (including an FPU awardee), and 2 master's students. Together with my research team, we combine chemistry and synthetic biology to create novel targeted therapies, especially to treat brain diseases. We have 4 on-going funded projects and will soon start a new project funded by an ERC Starting Grant.

My career can be divided in 3 stages so far: PhD at IRB Barcelona, postdoc at MRC LMB in Cambridge, and Junior Principal Investigator at IQS-URL. I have trained and pursued research in numerous highly prestigious laboratories and institutions, including: MIT, IRB Barcelona, ETH Zurich, EPFL, MRC LMB and University of Cambridge, University of Washington, and IQS-URL.

I have published 1 book chapter and 16 research articles, including 7 articles in the top 5% in their category in the Scientific Journal Ranking, 7 as first author, and 3 as corresponding author. In addition, we have 2 articles in press, one in revision, two recently submitted for publication. I have participated in over 23 conferences, including 11 talks and 7 seminars.

This work has been recognized with numerous prestigious fellowships and awards, including "La Caixa"/IRB International PhD fellowship to pursue my PhD at IRB Barcelona, EMBO long-term fellowship, Marie Sklodwoska-Curie Individual Fellowship, "La Caixa" Junior Leaders Fellowship, scientific exchange grants (Fulbright, EMBO, Boheringer Ingelheim, AGAUR), the PhD extraordinary prize, the Ramon Margalef award (UB), and Pioner award (CERCA).

Until now, I have obtained 8 projects as principal investigator, 6 of them in the last 2 years, including an ERC Starting grant, a fellowship form "La Caixa" Junior Leaders program, and a "Plan Estatal" (Poryectos I+D+I. Retos).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

I hold the research accreditation by AQU, as well as a "Sexenio de investigación". I have been evaluator of UK and EU projects and in several committees, acted as reviewer for several journals, as special issue editor for Pharmaceutics, and as a consultant for several companies.

Regarding science translation, I hold one granted patent that is the main active of the spin-off company Gate2Brain, we are working on a patent on a technology developed in my lab, and have collaborations with two other companies, including an Industrial PhD partly funded by AGAUR.

Furthermore, to me, research is not only about pushing the boundaries of knowledge but also mentoring and educating new generations of scientists. This is why I have trained and directed the thesis of 4 PhD (on-going), 8 master's, and over 10 bachelor's students in the last 4 years. I am also responsible for two master's and one undergraduate courses. In addition, I am currently a board member of the Catalan Chemical Society, with which I have recently co-organized many outreach activities, including two meetings of young scientists in Catalonia.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	PECCATI , FRANCESCA
Referencia:	RYC2022-036457-I
Correo Electrónico:	francesca.peccati@gmail.com
Título:	Multiscale simulation of biochemical processes

Resumen de la Memoria:

Trajectory

Along my career, I have gained experience in most aspects of computer modelling, encompassing protein structure and aggregation, properties and reactivity of biomaterials, noncovalent interactions, description of molecular excited states and different types of catalysis. After obtaining my MSc in Italy, where I familiarized myself with quantum mechanics applied to the properties and reactivity of biomaterials, I undertook a PhD at the Autonomous University of Barcelona, Spain, working on the computational design of fluorescent markers for the detection of amyloid-beta aggregates, expanding my set of skills to include techniques for the simulation of biomolecules. During this time, I developed an interest in protein folding, which led me to pursue a two-years postdoc in Sorbonne Université, France, focused on the analysis of non-covalent interactions in biomolecules. In 2020, I moved to CIC bioGUNE, Spain, where I hold a Juan de la Cierva Incorporación Fellowship since 2022. My main research line is the development of new computational approaches for protein design and engineering, leading the enzyme engineering and evolution subgroup at the Computational Chemistry Lab of my institution (PI of the group: Gonzalo Jiménez-Osés). Additionally, I am involved in a number of national and international collaborations (e.g. Prof. J. Jiménez-Barbero – CIC bioGUNE, Spain; Prof. J. L. Mascareñas – CIQUS, Spain, Prof. N. Martin – IMDEA, Spain; Dr. Gabr – Stanford, USA; Prof. J. L. Ayitou – University of Illinois Chicago, USA; Prof. D. Hilvert – ETH, Switzerland; Prof. Buller – ZHAW, Switzerland) working on biomolecular recognition, photoactive materials and enzyme design.

Research line

Harnessing the high activity and selectivity of enzymatic catalysis to develop sustainable production processes is the major objective of enzyme engineering. Customizing enzymes to optimize conditions and increase yields of natural and abiotic reactions allows chemical manufacturers to set up bio-industrial processes working under milder and more environmentally friendly conditions than those of classical chemical synthesis. Despite significant advancements in the field over the past decade, several synthetic processes based on classic organometallic catalysis do not have a biocatalytic counterpart yet, highlighting the need for improved enzyme engineering strategies to promote transition to a sustainable society. The proposed research line aims at developing a radically new approach to in silico enzyme engineering that will answer the fundamental question of how enzymatic function responds to sequence variation. This approach will use AlphaFold to predict the three-dimensional structures of enzymatic variants, and a newly defined, multifactorial, fitness function to predict enzymatic activity and selectivity of engineered variants from structure. This approach will be used to develop novel biocatalytic processes by unlocking unnatural enzymatic reactivities. The target reaction will be one of industrial interest for which no biocatalytic process is available, i.e. a stereodivergent Diels-Alder bimolecular reaction.

Resumen del Currículum Vitae:

Along my career, I have achieved a high level of internationalization. After obtaining my BSc and MSc degrees in Italy, my home country, I moved to Barcelona, Spain, to pursue my PhD studies. After four years, I moved to Paris, France, with a two-years postdoctoral position, after which I moved to Bilbao, Spain, where I am currently holding a Juan de la Cierva fellowship. In addition, I did a short stay (3 months) in Vienna, Austria, during my PhD and one in Santiago, Chile (1 month) as a postdoctoral researcher. Overall, I have worked in five different countries and actively contributed to the different research groups having published in recognized journals with all of them, including the ones where I performed short stays. I have participated as a postdoctoral researcher in various international projects (Agence Nationale de la Recherce, Evaluation-orientation de la coopération scientifique, Partnership for Advanced Computing in Europe) and am currently involved in several international collaborations with groups in Switzerland and the United States (ETH Zürich, Stanford, University of Illinois Chicago). Throughout these various career stages encompassing different topics and academic environments, I have maintained a consistent balance between corresponding author publications in specialized and generalist journals (e.g. The Journal of Chemical Information and Modeling and Chemical Science) and high impact factor publications (e.g. Angewandte Chemie, PNAS, and ACS Catalysis), for a total of forty journal articles in fifteen of which I am the first author and eight of which also the corresponding author. These corresponding author publications cover a wide range of topics in computational chemistry spanning from materials to fundamental aspects of non-covalent interactions, to protein design, and testify my intrinsic ability to take the lead of research projects and collaborate with national and international research teams. I have contributed as invited speaker to four congresses in Spain, France, and Portugal, and have been actively seeking funding to establish my career as an independent researcher, having secured a Juan de la Cierva Incorporación position and having applied to the la Caixa Junior Leader, Ikerbasque Research Fellowship and ERC Starting Grant calls in the current and past years. During my career I have mentored 2 PhD students (CIC bioGUNE), 2 MSc students (Sorbonne Université) and 2 BSc students (Universitat Autònoma de Barcelona), formed part of a PhD thesis committee (Guillermo García-Marquina, Universidad de la Rioja) and served as a reviewer for several journals, including ACS Nano, Journal of Physical Chemistry, and Journal of Chemical Information and Modeling. I have also been involved in technology transfer in the form of a research contract with a private company (Arquimea), and in scientific dissemination publishing a popular science article for the Catalan Chemical Society journal. I have received several awards, most recently the Best Paper Award from the Computers in Chemistry division of the Spanish Royal Society of Chemistry (GEQC-RSEQ) and the Extraordinary Doctorate Award from the Autonomous University of Barcelona.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	TONNELÉ , CLAIRE
Referencia:	RYC2022-037260-I
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Título:	Computational modelling of the photophysics of organic (functional) materials at the molecular and supramolecular scales

Resumen de la Memoria:

I am a computational chemist with research interest in the study of organic (functional) systems for application in organic electronics, with the central aims of establishing structure-property relationships and obtain a comprehensive picture of the underlying photophysical processes.

After graduating in Chemistry at U. of Bordeaux (FR), I completed a PhD in Physical Chemistry in 2013 at U. of Mons (BE), working on the computational modeling of organic optoelectronic materials, especially changes in photophysical properties associated with metal binding for use in fiber-optic based cation sensing applications. I addressed: (i) the structure-optical properties relationships of organic chromophores and (ii) the photophysical features associated to cation complexation, and developed strong expertise in quantum chemistry (QC) for the study of ground- and excited-state properties of organic molecules.

In 2014, I joined the group of Prof. Burn at U. of Queensland (AUS, industrial funding) and acquired significant experience in molecular dynamics (MD) simulations of organic soft matter. I autonomously trained to MD, consolidating new knowledge by collaborating with MD expert Prof. Mark, and investigated the structural and dynamical properties of the amorphous emissive layer of OLEDs. I developed a modelling procedure mimicking experimental co-evaporation of organic/organometallic host/guest couples to provide realistic bulk morphologies of the active layer, and evidenced structural features (aggregation, percolation pathways) that can result in non-radiative processes detrimental to the overall device efficiency.

I moved to France in 2016 where my research focused on investigating the structure-property relationships of functional organic systems including a photoresponsive component using QC and MD. I proposed original computational approaches to model photoresponsive supramolecular systems for organic electronics (photoisomerization process and nonlinear optical responses of self-assembled monolayers). I ultimately devised and lead autonomously my research projects as well as managed independently collaborations.

In 2019, I joined Dr. Casanova group at the Donostia International Physics Centre (DIPC, ES) to investigate the photophysics of organic materials. I rapidly integrated the local scientific environment (contribution to international project NEXT), but also engaged in new collaborations: (i) role of intermolecular excited states in delayed fluorescence emitters (D. Beljonne, BE; A. Gillett, UK), (ii) chemical tuning of molecular excited states (C. J. Bardeen, US), (iii) excited state aromaticity (M. Solá, ES; H. Ottosson, SE), (iv) photophysics of curcuminoid dimers (F. Fages, FR). After a six months postdoc at UMONS (BE) investigating the spectral signature of aggregation in nanographene quantum dots, I returned to DIPC and further strengthened my collaborative network, addressing new research lines such as radical OLEDs (E. Evans, UK) and intersystem crossing mechanism in TADF materials (Y. Puttisong, SE).

My trajectory provided me with the self-management skills and scientific knowledge necessary to reach a more mature research position and I am now carrying on my own research, opening two new lines of research on neutral organic radical based systems for optoelectronic and quantum computing applications, and mechanoluminescence.

Resumen del Currículum Vitae:

My research activity lies in the study of organic (functional) systems for application in organic electronics from a computational perspective with the central aims of establishing structure-property relationships and obtain a comprehensive picture of the underlying photophysical processes, in close connection with experimental investigations. I have built a multidisciplinary computational materials scientist profile served by a core expertise in both quantum and classical simulations, independent thinking and self-management. I am currently carrying my own research at the Donostia International Physics Centre (DIPC, Donostia, Spain) as a Junior Researcher supported by the Woman and Science Individual Fellowship funded by Gipuzkoa Council and DIPC.

I have published 30 scientific articles (12 first/co-first author, 7 corresponding author), in high impact chemistry and interdisciplinary peer-reviewed journals (such as Nature, Angew. Chem., JACS and Acc. Chem. Res.), and a book chapter (590 citations, h-index of 14, Scopus). My work was notably highlighted in the "2022 Emerging Investigators" issue of the Journal of Materials Chemistry C. I systematically aim at settling the outcome of my work within the Open Science policy and FAIR principles. I co-authored about 50 contributions (oral and poster) at national and international conferences, regularly presented my work at project meetings, gave 3 invited talks, and engaged in outreach activities with secondary and high-school students.

After a master degree in Chemistry at the University of Bordeaux (UBx, France), I completed my PhD in Physical Chemistry at UMONS, Belgium (supervision: Dr. D. Beljonne and Prof. R. Lazzaroni). Then, I obtained funding in the form of postdoctoral contracts within 7 national and international interdisciplinary academic or industrial research projects, and acted as principal investigator of a project that I autonomously devised and lead. I also obtained funding to co-supervise a PhD student (starting from 10/2022). I am part of the research team of a project recently submitted to the "Proyectos de Generación de Conocimiento" 2022 call (PID2022-136231NB-I00). I am organizing the next international CPiC symposium due to happen in February 2024.

I have accumulated extended international mobility in Belgium (4 years, 9 months), Australia (1 year), France (3 years), and Spain (3 years, 1 months), in internationally recognized institutions. I extensively collaborated with leading theoretical and experimental scientists (B. Champagne, BE; J. Casado, ES; F. Cossío, ES; E. Evans, UK; Y. Puttisong, SE; C. J. Bardeen, US; M. Blanchard-Desce, FR, and B. Lessard, CA, among others) and have now established a wide international collaborative network. So far, I have opened 6 lines of research in the different groups I belonged to. I am now responsible for the Photophysics section of the Molecular Electronic Structure Group at DIPC (https://molecular-electronic-structure-group.github.io).

In my early-career, I cumulated 112h of practical classes in quantum chemistry to Bachelor and Master students (UMONS, Belgium and UBx, France), and regularly contributed to the training of undergraduate students (UQ, Australia and UBx, 2016-2018). Since 2021, I have co-supervised 2 Master's thesis and 1 summer internship, and I am currently co-supervising a PhD student and a Master student.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	TROYANO PRIETO, JAVIER
Referencia:	RYC2022-036283-I
Correo Electrónico:	j.troyano.prieto@gmail.com
Título:	Metal-organic materials processing towards applications

Resumen de la Memoria:

Dr Javier Troyano is a chemist whose research has been focused on using the principles of coordination and supramolecular chemistries to create novel functional materials. His career evidences his curiosity and capacity to move into different chemical systems, such as molecular complexes, nanomaterials, porous solids, or soft matter, developing alternative approaches for their exploitation as functional materials. During his PhD at Autonomous University of Madrid (UAM), he developed a new research line on coordination compounds exhibiting stimuli-responsive behaviour. The PhD was a great opportunity for him to develop experimental skills related to the synthesis and characterization of metal-organic compounds, as well as gain expertise in their processing as nanomaterials. This work led to 10 publications (9 as first author, 1 as corresponding author). As a postdoctoral researcher in Prof. Daniel Maposch's laboratory at the Catalan Institute of Nanoscience and Nanotechnology (ICN2) in Barcelona, he participated in the European research project ProDIA (H2020-NMP-2014-2015). This interdisciplinary project provided him with a wide knowledge and a valuable perspective of the state of the art in the production and industrial exploitation of porous materials. In the frame of this project, as technical manager, he gained experience in the preparation of a wide range of metal-organic frameworks (MOFs), developing new green routes for upscaling their production, resulting in the efficient transfer of knowledge to industrial partners. During this period, he acquired a remarkable experience in management, task planning, and communication, preparing periodical reports and participating in scientific-technical meetings. Further, direct contact with scientific and industrial partners allowed him to expand my scope of research, ranging from basic research in the laboratory to industrial production for practical and commercial purposes. Besides, during his postdoctoral stay in ICN2, He started a new line of developing programmable hybrid porous materials with autonomous actuation capacity, evidencing the potential of controlling the spatial location of reticular porous materials for the fabrication of novel functional objects. The work led to 9 publications (5 as first author, 1 as corresponding author). After gaining a postdoctoral JSPS fellowship, he moved to the group of Prof. Shuhei Furukawa at iCeMS (University of Kyoto, Japan) to increase his research expertise. He developed hydrogels with dynamic behaviour from novel homo- and heterometallic metal-organic polyhedra (MOPs), as well as porous materials with conductive properties. Thanks to the great expertise of Prof. Furukawa's group on the preparation of gels and hierarchical assemblies, he acquired a strong knowledge of advanced techniques for the characterization, analysis, and control of (hydro)gels and aerogels. This work led to 4 publications (2 as first author, 1 as corresponding author) and another 4 publications (one as first author, 3 as corresponding author) under preparation. Upon being awarded the Maria Zambrano grant for attracting international talent in 2021, he began his own research project at UAM focused on the processing and modification of gels of colloidal porous materials, such as MOFs, MOPs and COFs (covalent-organic frameworks) for novel applications.

Resumen del Currículum Vitae:

Dr. Javier Troyano graduated in 2010 from the Complutense University of Madrid. Then he started his PhD (2011−2015) under the supervision of Prof. Felix Zamora and Prof. Salomé Delgado at the Autonomous University of Madrid (UAM), working mainly on the development of novel coordination polymers (CPs) displaying stimuli-responsive optical and electrical properties. His experience in coordination chemistry was further strengthened during his post-doctoral studies in Prof. Daniel Maposch's laboratory at the Catalan Institute of Nanoscience and Nanotechnology (ICN2) in Barcelona. There, he worked in the frame of the multidisciplinary European collaborative research project (ProDIA, H2020), focused on the development of green methods for the spray-drying synthesis and shaping of metal-organic frameworks (MOFs) for large-scale production and technology transfer to industry. The fruitful postdoctoral stage at ICN2 allowed him to be awarded a 2-years postdoctoral fellowship by the Japanese Society for the Promotion of Science (JSPS). Thus, he moved to the group of Prof. Shuhei Furukawa, at Kyoto University (Institute for Integrated Cell-Material Sciences, iCeMS), working on the processing of porous metal-organic polyhedra (MOPs) into functional materials via reversible assembly. In 2021 he was awarded the Maria Zambrano Atracción de Talento fellowship to join UAM as a senior postdoctoral researcher. Since 2022 he is developing his own research line at the Department of Inorganic Chemistry at UAM, focused on the processing of colloidal porous materials for novel functional materials. In 2022 he was awarded a Marie Skłodowska-Curie fellowship (declined).

Dr Javier Troyano is co-author of a total of 23 scientific articles, of which 20 were first or second authors, and four as corresponding author. All these articles were published in the first quarterly journals and 9 of them were in journals with IF > 15 (Advanced Materials, JACS, Angew. Chem. Int. Ed, ACS Nano, Advanced Functional Materials). The total number of citations since 2018 is 785 (h-index = 15). During his career, he has participated in 7 research projects (4 international and 3 national). He has given 3 oral and 3 poster presentations at national and international scientific meetings. He has also participated in the JSPS Science Dialogue Program, giving a lecture at high school (Okazaki, Japan). He has been serving as a reviewer for high-impact journals: Angewandte Chemie, Chemistry of Materials, Nanomaterials, Inorganic Chemistry, Scientific Reports, and Materials. He is also a guest editor of a special issue in Nanomaterials. Since 2022 he belongs to the Institute for Advanced Research in Chemical Sciences at UAM (IAdChem) an interdisciplinary unit encompassing researchers from four different Departments of UAM. He is also a member of the JSPS Researchers Network (JSPS-Net). Currently, he is co-supervising one PhD and 3 undergraduate students (UAM). In addition, he is a teacher at the Inorganic Chemistry department at UAM. He has been accredited as Profesor contratado doctor (ANECA).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	RODRÍGUEZ RIEGO, RAFAEL
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Correo Electrónico:	rafael.rodriguez.riego@usc.es
Título:	Taming helices: from structure to functions

Resumen de la Memoria:

My scientific career reflects a highly multidisciplinary profile obtained through different stages. Along these, I have obtained a robust background in chiral materials, with a special taste on polymer chemistry, supramolecular chemistry and spectroscopical techniques.

The initial stage of my scientific career was my PhD obtained at the group of Prof. Freire and Prof. Quiñoá lab as FPI fellow at CiQUS (Universidade de Santiago de Compostela), where I was introduced into polymer chemistry. At this period, I focused on the structural elucidation of helical poly(phenylacetylene)s to unravel structure-function relationship. Moreover, I worked on complex chiral communication mechanisms in copolymers formed by two different chiral units (i.e., chiral coalition). Additionally, I performed a predoctoral stay at Prof. J. Nitschke lab, Cambridge University, where I gained a strong background in coordination chemistry.

The second stage of my scientific started with the obtention of an Assistant Professor position in the laboratory of prof. K. Maeda at Nano Life Science Institute (NanoLSI) at Kanazawa University, supported by the prestigious World Premier International Research Center Initiative (WPI). This position allowed me work on three main research lines: a) in liquid real time AFM techniques to visualize polymeric materials with molecular resolution and b) asymmetry induction by light and c) chiroptical spectroscopy (i.e., CPL and VCD). This position boosted both my scientific maturity, grant writing skills and leadership to new horizons. As a proof, I obtained 2 projects a principal investigator (PI) that allowed me to develop my original research and co-direct the international internships of two students (M. Fukuda and H. Ishibashi) through the competitive TOBITATE! program.

Fascinated by the ability of some chiral luminophores to emit CPL light I decided to move to the group of the worldwide known expert on the field Dr. J. Crassous at the Institute de Sciences Chimiques de Rennes (Rennes 1 University, France). This third stage was possible thanks to the auspices of the competitive Xunta de Galicia Modalidade A Postdoctoral fellowship, that allowed me to start a 2.5 years postdoctoral stay at her group. Comsequently, I got in charge supramolecular chemistry branch of the group, developing new CPL active systems based on helicenes which can be tuned by external stimulus (e.g., redox, metal coordination or the aggregation state). At that stage I had the opportunity to co-supervise 4 international students for they predoctoral internships (M. Kos, B. C. Baciu, A. Valverde and G. Bonneti), enhancing my mentoring skills.

The forth and current stage of my scientific career supposes the reincorporation to the Spanish scientific system, after the obtention of a prestigious Juan de la Cierva Incorporación, I joined the group of Prof. F. Freire and Prof. E. Quiñoá CiQUS at Universidade de Santiago de Compostela. With the acquired abovementioned skills I'm currently developing a brand-new research line based on coordination chemistry/halogen bond to generate innovative chiral materials with targeted functions. I'm co-direct two master students (H. Landín and D. Aguilar) and four bachelor students (B. Hermida, S. Labiano, I. Martiñán and S. Nogueira), providing me the workforce to accomplish my proposed research projects

Resumen del Currículum Vitae:

I obtained my Ph. D. degree in 2018 (Cum Laude, CiQUS, USC, Spain, supervised by Prof. F. Freire and Prof. E. Quiñoá, as FPI fellow) in the field of materials chemistry, with a special focus on the structural elucidation and applications of helical polymers. During my PhD I developed a strong background in organic and polymer chemistry as well as a deep knowledge of different spectroscopies (NMR, UV-Vis/ECD, IR/VCD, Raman/ ROA) and microscopies (AFM, TEM, SEM). To complement my PhD studies, I performed a 4-months internship in the group of Prof. J. R. Nitschke at the prominent University of Cambridge, working on porphyrin-based self-assembled supramolecular cages for fullerene trapping, expanding my knowledge in coordination/supramolecular chemistry. As a result of my PhD, I was awarded with the Prize as Best science PhD Thesis of 2018 from the University of Santiago de Compostela.

After my PhD viva, I joined Prof. K. Maeda's group at the Nano-LSI/Kanazawa University (Japan) appointed as Assistant Professor (international competitive selection). At this stage I started working on two main topics: new AFM protocols in liquid media to visualize polymeric materials with molecular resolution and biocompatible CPL active peptide-based polymers. During this stay, I was awarded with 2 research grants as Principal Investigator to develop my original research. These successful applications provided me with a strong background in grant writing, highlight my funding securing, project management skills, scientific maturity and independency.

In 2019, I was awarded with a competitive Xunta de Galicia Modalidade A Postdoc Fellowship to carry out the preparation of cutting-edge supramolecular CPL active materials based on helicenes/metallohelicenes at Dr. J. Crassous lab (Rennes 1 University, France). These two competitive international fellowships gave me the opportunity not only to develop a high degree of internalization and mentoring international visiting students —I had the opportunity to co-supervise to date 6 visiting students, 2 of them through the competitive Japanese TOBITATE! program—but also enriching my mentoring skills and expanding my research network with some of the top-rank groups in supramolecular chiral materials.

In 2022, I have been awarded with a prestigious Juan de la Cierva Incorporación fellowship to rejoin the Spanish academic system at CiQUS (USC). Thanks to my current position, I'm co-directing 2 master and 4 bachelor students.

Additionally, I have been actively looking for funding —ensuring my own position and internships funding with different fellowships, but also helping my host group acquiring different grants—as well as disseminating my research in numerous conferences —see below for a selection of most relevant contributions—as well as different programs and activities for the general public at both national and international level.

The expertise acquired throughout my career in the field of chiral materials allowed me to serve as reviewer for prominent journals like ACIE, ACS Macroletters, Adv. Funct. Mat., Chem. Sci., Macro Rappid Comm. and Polymer Chemistry.

My current research interests and efforts are strongly focused on the development of state-of-the-art chiral materials —based on coordination chemistry and halogen bond strategies—with potential applications as CPL sources and spin-filtering materials.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	ORTUÑO MAQUEDA, MANUEL ANGEL
Referencia:	RYC2022-035453-I
Correo Electrónico:	ort.maqueda@gmail.com
Título:	Computational catalysis for sustainable chemistry

Resumen de la Memoria:

Dr. Ortuño did his PhD at Universitat Autònoma de Barcelona and postdocs at University of Minnesota (USA) and Institute of Chemical Research of Catalonia. He visited University of St. Andrews in UK and University of Bonn in Germany. Currently, he is a junior PI in Centro Singular de Investigación en Química Biolóxica e Materiais Moleculares. Due to his strong motivation, extensive network of collaborators, and mobility between research institutions, he has learnt a wide variety of computational techniques and has the necessary skills to lead a research group focused on the computational simulations at different scales: molecules, solids, and liquids.

He succeeded in competitive fellowships (FPU, Juan de la Cierva–Incorporación, Beatriu de Pinós, Investigador Distinguido), supercomputing time calls (HPC-Europa3, Red Española de Supercomputación), and funding (RTI 2021 and TED 2022 by MCI). He received a PhD award by Universitat Autònoma de Barcelona and the Marie Curie Seal of Excellence by the European Commission.

He has co-supervised 1 MSc student and is co-supervising 2 PhD students. He has participated in management (scientific coordinator), outreach (editorial member of a newsletter, seminar), and teaching activities at BSc and MSc levels.

His main research line targets the computational design of chemical processes for sustainable applications (biomass conversion, plastic recycling). The main thrusts are summarized as follows:

-Catalysis. This line focuses on the computation of mechanisms of catalytic processes to gather insight at atomic level of detail, where experiments often cannot. Understanding them paves the way to guide experiments for homo- and heterogeneous catalyst design in order to increase the efficiency of chemical processes.

-Reticular Chemistry. To bridge the gap between homogeneous and heterogeneous worlds, this line is devoted to the simulation of systems based on reticular chemistry, where the structure of porous materials can be finely tuned and controlled. Both clusters and periodic models will be employed to elucidate structures and reaction mechanisms involving metal–organic frameworks and covalent organic frameworks.

-Ionic Liquids. The huge variety of chemical compositions makes them suitable for fine-tailoring their properties. Herein, a dynamics perspective is mandatory to properly model solute–solvent and solvent–solvent interactions, where time, temperature, and concentration must be explicitly considered (ab initio and classical molecular dynamics). This line will focus on revealing the role of ionic liquids in plastic recycling via chemical depolymerization processes.

Overall, due to his mentoring and leadership skills, prolific scientific production, ability to get funding, and his participation in international projects and collaborations, Dr. Ortuño has the experience and skills to become an excellent group leader in the field of computational chemistry.

Resumen del Currículum Vitae:

Dr. Ortuño devotes his scientific career to understand catalytic systems for sustainable applications using computational simulations at different scales.

In 2010-2014, he got a FPU fellowship at Universitat Autònoma de Barcelona under the supervision of Profs. A. Lledós and G. Ujaque to model organometallic homogeneous catalysis. He supervised visiting scholars and taught BSc courses. He visited the group of Prof. M. Bühl at University of St. Andrews (UK). He received a PhD dissertation award in 2017.

In 2015-2017, he did a postdoctoral stay with Prof. C. J. Cramer at University of Minnesota (USA) to design metal–organic frameworks for natural gas conversion. In 2016, he joined the editorial board of a newsletter and was the junior scientific coordinator of the Inorganometallic Catalyst Design Center directed by Prof. L. Gagliardi.

In 2018-2020, he joined the group of Prof. N. López first as Juan de la Cierva–Incorporación postdoc and later as Beatriu de Pinós postdoc at Institute of Chemical Research of Catalonia (ICIQ) to model heterogeneous catalysts. He received the Marie Curie Seal of Excellence from the European Commission and was awarded with two mobility grants by HPC-Europa3 to visit the group of Prof. Kirchner at University of Bonn (Germany). He secured computer resources in high-performance computing centers: HLRS-Stuttgart and "Red Española de Supercomputación". He taught MSc courses, co-supervised a Master student, and is co-supervising one PhD student.

In late 2020, he was awarded with the competitive grant Investigador Distinguido to join the Centro Singular de Investigación en Química Biolóxica e Materiais Moleculares (CIQUS) as junior PI. He succeeded in 3 competitive calls for HPC resources by RES. He was awarded with Retos-2020 and TED-2022 projects by MCI as PI. He supervised 1 postdoc and is supervising 1 PhD student as only director.

He has a prolific scientific production with 63 articles (13 as corresponding author). His multidisciplinary profile granted him experience to simulate chemical systems at different scales: molecules, surfaces, porous materials, solid–liquid interfaces, and bulk liquids. His experience through 6 institutions and 4 countries has provided a big network of collaborators. Together with his mentoring skills and ability to secure HPC resources (~3,000 kh) and funding (~€320,000), Dr. Ortuño has the profile to become a leading researcher in the field.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Ciencias y tecnologías químicas
Nombre:	OLIVER MESEGUER, JUDIT
Referencia:	RYC2022-036154-I
Correo Electrónico:	joliverm@itq.upv.es
Título:	Design, synthesis and catalytic activity of metal single atoms, clusters and multimetallic nanoparticles for sustainable organic reactions and their characterization by in situ techniques.

Resumen de la Memoria:

I specialized in catalysis at the ITQ, Valencia (Spain) and obtained my PhD (2015) under the supervision of Dr. Antonio Leyva and Prof. Avelino Corma. The thesis dealt with the study of the Au, Pd and Cu clusters as catalytically active species formed in solution during reaction and led to 5 publications. The results obtained from the thesis were awarded with 2 prizes, and opened a new research line at the institute, confirmed by the multiple publications related to metal clusters and the research for almost 5 PhD candidates. Besides, I also developed research projects with metal supported clusters and nanoparticles (7 publications). Later, I moved to Lawrence Berkeley National Laboratory, US, to perform my postdoc with Prof. Miquel Salmeron (2016-2019, 26 months), focused on the in-situ characterization of bimetallic catalysts, including PdAg systems in collaboration with Prof. Cynthia Friend (2 publications). Moreover, the research also evolved to CoMn bimetallic systems for Fischer-Tropsch Synthesis, and CoAu, CoPt systems for CO oxidation. The research project proposed for the postdoc was awarded with the Seal of Excellence (H2020-MSCA-IF-2017) and 2 pubications related to them are under revision. In February 2019, I returned to the ITQ to work in a RETOS Colaboración project with Dr. Leyva Zschimmer & Schwarz Company, to develope new synthetic methods for the synthesis of target oligomers (2 publications and a PhD co-supervised). This project also evolved to a new contract with the company to develop a new procedure for the synthesis of organic esters (2 patents, 1 licensed). Meanwhile, I obtained the Juan de la Cierva Incorporación contract. During this period, the main objective of the project is the in-situ characterization of metal single atoms, clusters and multimetallic systems, by X-Ray absorption Spectroscopy (4 publications), thanks to the Grupos emergentes project (GV/2021/138) and three proposals approved in ALBA as a PI. Thanks to this, I started an independent research line, collaborating with the UPV/EHU, and co-directing 4 PhD candidates (4 publications as co-corresponding author) in different topics: one-pot sustainable reactions, solid acid catalyzed exchange reactions, functionalization of Polyethylene, and C-H bond activation in flow conditions. Moreover, I have contracts with different companies as PI (LAMBERTI and ISTOBAL). Recently, I also obtained a public financed project by AVI to develop the synthesis of new polymers from limonene and CO2 (BUILDLIMONENE). In summary, since I started the Master in Organic Chemistry, followed by a PhD thesis in catalysis, postdoc in characterization of catalysts surfaces and nowadays with sustainable organic reactions (involving all the fields previously learned), I published 26 papers (3 more under revision), 4 as corresponding author and all Q1, with more than 950 citations and h-index 15; 1 book chapter, assisted to 11 conferences (4 international, 7 oral communications) and obtained 6 patens (1 licensed). Moreover, I co-directed a Master Thesis and a PhD thesis and I am co-directing 4 PhD thesis. I received 3 awards, the Seal of Excellence from MSCA global fellowship, Juan de la Cierva contract, 2 public competitive projects and PI of synchrotron experiments. The total funding obtained as PI until date is 272.594,31€

Resumen del Currículum Vitae:

During the realization of the PhD, I observed the formation of small metal aggregates formed in solution as the real catalyst for different organic reactions with Au, Pd and Cu. These relevant findings were published in Science 2012, Angew 2013, Chem Commun 2013, ChemCatChem 2013 and JACS 2015. These findings led to a new research line at the ITQ with excellent results, demonstrated by following publications (ChemCatChem 2017, Chem Commun 2017, Recent Advances in Nanoparticle Catalysis in Frustrated Lewis Pairs 2020), patent in 2012, and conferences (RSEQ 2015). Because of these excellent results, I was awarded with the Special Award of the UPV 2015 for the PhD thesis and IX Edition of Algemesí Scientific and Technical Research Award in 2014. Moreover, I was also involved in different projects using supported metal NPs (ACS Catal. 2013, J. Catal. 2014, Angew 2017, JACS 2018, and conferences SECAT and RSEQ 2013, 17thTetrahedron 2015 and JIQ RSEQ 2019). After that, I moved to the LBNL to learn about in situ techniques, as Ambient Pressure XPS and X-Ray Absorption Spectroscopy (at synchrotron sources) with Prof. Salmeron. My research dealt on the in-situ characterization of the surface of bimetallic catalysts, as PdAg (J Phys Chem C 2019 and Nature Comm 2020). Furthermore, the research also evolved to CoMn, CoAu and CoPt. This project was awarded by the SEAL of excellence from MSCA in 2018. Back to the ITQ in 2019, I had the opportunity to apply the knowledge to other catalytic samples, as single atoms or clusters in MOFs or zeolites, leading to various publications related to in situ characterization (JACS 2019 and 2021, Chemical Sci 2020, Chem. Eur. J. 2021, Nature Catal. 2021, Chem. Commun. 2022 and Nanoscale Adv. 2022), and were also presented in different conferences (JIC RSEQ 2021, YoungSCS 2022, ALBA user 2022, Euchems 2022, RSEQ 2022 and IZC 2022). Worth noting that at YoungSCS, I received an award by the oral communication presented. Also, since 2020, I was leading different public research projects, as Juan de la Cierva Incorporación (JC2018-036514-I), Proyectos Grupos Emergentes GVA (GV/2021/138) and 3 approved proposals in ALBA. Regarding the contribution to the society, I was also a member of the projects in collaboration with ZSE, to obtain new surfactants. The results obtained from these collaborations are published (Molecular Catal. 2021 and Chem. Eng. Process. 2022), patented (2021, 2022), and led to an Industrial PhD (Excellent Cum Laude, 2022). I am also providing technical assistance to AVI projects MOBACT and DOTMASK and leading the project from Cátedra Istobal. Recently, I was awarded by the AVI to lead the project BuildLimonene. I co-supervised 1 industrial PhD nd at this moment I am also codirecting 4 Phd candidates in different research lines: one-pot sustainable reactions (Chem. Eur, J. 2022), solid acid catalyzed exchange reactions (Catal. Sci. Technol. 2023), functionalization of Polyethylene (TFM codirection and patent 2022) and C-H bond activation in flow conditions. On the other hand, I was also evaluator from the OSF Funding Stream Support System for PRELUDIUM call. was also intrigued by the research career development, for that reason I joined the Berkeley Lab Postdoc Association and the Equity, Diversity and Inclusion committees (LBNL and ITQ). Recently I also joined the Dissemination Committee (ITQ).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	RINCON BONILLA, MAURICIO
Referencia:	RYC2022-036500-I
Correo Electrónico:	mrincon@bcamath.org
Título:	in-silico design and characterization of materials for energy, environmental and consumer applications

Resumen de la Memoria:

I have over 10 years of experience in developing, implementing, and applying multiscale modelling methods to the understanding, characterization, and design of nano and mesostructured materials for energy storage, separation, catalysis, and consumer product applications.

I obtained a Ph.D. in Chemical Engineering (2014) under the supervision of Prof. S. K. Bhatia at the University of Queensland, Australia (UQ), where I developed multiscale techniques for the modeling of multicomponent diffusion in nanoporous zeolites, carbons, and silicas. I subsequently joined the Australian Centre of Excellence in Plant Cell Walls as a postdoctoral fellow in the group of Prof. Jason Stokes (School of Chemical Engineering - UQ, 2014 - 2016). Here, I investigated the link between interstitial diffusion and deformation in biopolymer networks by combining atomistic methods, continuous simulation, and experiments, in close collaboration with partners from U. Melbourne, U. Adelaide, and IBM Research Australia.

I joined the Basque Center for Applied Mathematics – BCAM in 2017, where I hold the position of postdoc fellow (Juan de la Cierva – Incorporation) in the group of Ikerbasque Prof. Elena Akhmatskaya. Here, I co-lead a multidisciplinary team that tackles complex problems in energy materials engineering through enhanced molecular simulation and probabilistic schemes. My primary focus lies in the in-silico characterization, optimization, and screening of materials for chemical and electrochemical energy storage. Our research on oxide and polymer-based electrolyte materials for solid-state batteries has received over 60 citations since 2018 and is the seed for a BCAM-led IKUR-HPC&AI project (Plan Nacional de Materials Avanzados) that includes CIC energiGUNE, BCMaterials and Polymat (I am core investigator). I am also BCAM co-PI of the Elkartek grant Cice2021 which gathers centers of the Basque Research and Technology Alliance (BRTA) to optimize critical interfaces in commercial lithium batteries.

Since 2022, I am a core investigator in the Elkartek projects ICME and M-KONTAK, bringing together members of the BRTA and two private companies to develop multiscale models for the prediction of weakening in metal alloys associated with hydrogen in fuel storage and transport operations. In this context, I am co-supervising a Ph.D. student (Ram Mohan, March 2023 -) with Dr. Iban Quintana (Tekniker).

In parallel to these lines of inquiry, I collaborate closely with Prof. G. Yakubov (U. Nottingham) and Dr. P. Lopez-Sanchez (U. Santiago de Compostela), on the design of carbohydrate-based materials for food, consumer goods, and energy applications.

My future research will pursue two objectives along the lines described above, with a high potential economic impact in the medium term: (i) exploiting atomistic modelling and Machine Learning (ML) methods to rationally screen polymer/filler combinations providing highly conductive, thermomechanically stable and cost-effective composite electrolytes for safe and energy dense solid-state batteries. And (ii) building multiscale models and ML surrogates that, in combination with CALPHAD phase-prediction schemes, allow the optimization of the entire metal manufacturing process of hydrogen-resistant alloys.

Resumen del Currículum Vitae:

EDUCATION
-Jul 2009 - Mar 2014: Ph.D. Chemical Engineering, U. Queensland, Australia.
-Jan 2004 - Aug 2007: M.Sc. Chemical Engineering, U. Nacional de Colombia.
-Jan 1999 - Dec 2003: B.Sc. Chemical Engineering, U. Nacional de Colombia.

WORK EXPERIENCE
-Jan 2017 - present: Postdoctoral fellow (Juan de la Cierva – incorporation since 2020). Basque Center for -Applied Mathematics (BCAM), Bilbao, Spain.
-May 2014 - Dec 2016: Postdoctoral fellow, U. Queensland, Australia.
-Mar 2007 - Jul 2009: R&D engineer, Nutresa S.A., Medellín, Colombia.

RESEARCH VISITS
-U. de Antioquia (Colombia), Jun 10 - 25, 2022. Host: Prof. Jorge A. Calderón.
-U. St Andrews (UK), Apr 06 - May 26, 2019. Host: Dr. Tanja V. Mourik.
-RISE institute, Gothenburg (Sweden), Feb 20 - 22, 2019; March 3 - 6, 2020. Host: Dr. P. Lopez-Sanchez.
-IBM Research (Australia), Sept.10 - 30, 2015. Host: Prof. Toni Bacic.
-Leipzig U. (Germany), Jul 1 - Nov 5, 2012. Host: Prof. Jörg Kärger.

ACADEMIC OUTPUT
-29 publications (13 as first and 5 as the corresponding author). 26 in Q1 journals (23 D1). Scopus, 2022.
-h-index = 17/16, 825/672 citations (541/418 in the last 5 yrs), G. Scholar/Scopus, Jan. 2022.
-Co-developer multiHMC-GROMACS and LICA 1.0 packages, https://gitlab.bcamath.org/.

DISSEMINATION
-6 invited talks at international events. 15+ oral conference presentations.

-Invited seminars at U. Nacional, U. de Antioquia (Colombia), U. Queensland, U. Melbourne (Australia), U. St Andrews (UK), RISE (Sweden).
-Co-organizer of 2 international conferences: DSABNS 2022 (Bilbao, Spain) and PCWB 2014 (Palm Cove, Australia).
-"Multiscale Simulations to Develop Advanced Battery Materials" - highlights of BCAM - CIC energiGUNE collaborative research in EU-MATHS-IN Success Stories.
-My work in solid electrolytes was highlighted in the popular science on-line journal "Mapping Ignorance" (2019)
-Participant in the Program "Somos Cientificos y Cientificas" (March 2022) from FECYT.
-Co-wrote the storyboard for a film on the molecular structure of the plant cell wall directed by science animator Drew Berry.

LEADERSHIP
-2017-present: Co-leader (with Prof. E. Akhmatskaya) of the Energy Materials research line of the MSLMS group (BCAM).
-2021-present: Co-coordinator of BCAM Knowledge Transfer Unit.
-2021-present: BCAM representative in the "efficient, secure and clean energy" group of the Spanish Technology Platform in Modelling, Simulation & Optimization in a Digital Environment.
-2014-2016: Member of the Project Management Team in the ARC Centre of Excellence in Plant Cell Walls.
-2012-2014: Treasurer of the postgraduate research society at U. Queensland, Australia.

SUPERVISION & MENTORING
-Ph.D. Student: Ram Mohan (March 1, 2023 -). Co-supervised by Dr. Iban Quintana, Tekniker (Spain).
Internship Students/Research Technicians: A. C. Girder (SFSU, USA), G. D. Zhao (Shanghai University, China), H. A. Cortés (UBA, Argentina), B. K. Das (Jadavpur University, India).
-BCAM Mentees: M. Echeverría and C. Galán.

RESEARCH PROJECTS
-PI: Juan de la Cierva-Incorporation (AEI), 2020-2023. HPC Europa, 2019 (EU).
-Co-PI: Cice2021 (Basque Gvt), 2021-2022.
-Core investigator: Elkartek M-KONTAK, 2022-2023. Elkartek ICME, 2022-2025 (Basque Gvt).
-Team member: FORMAS 2018-01346 (Sweden Research Council), 2019-2021, MTM2016-76329-R (MICINN), 2020-2023, PID2019-104927GB-C22 (MICINN), 2017-2019.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	RIZO PÁRRAGA, RUBÉN JAVIER
Referencia:	RYC2022-037376-I
Correo Electrónico:	rjrizo@hotmail.com
Título:	Reactivity and mechanistic studies for electrochemical reactions of interest: From fundamental to applied electrochemistry

Resumen de la Memoria:

I finished Chemistry in 2011 and I joined Prof. Juan Feliu¿s group, at the University of Alicante, to start my Master thesis in fundamental electrochemistry. There, I published 4 highly cited articles in Q1 JCR-indexed journals, and I participated in 1 conference. In 2013, I started my Ph.D. at the University of la Laguna under the supervision of Prof. Elena Pastor, thanks to an FPI fellowship. There, I gained experience in electrochemical and physicochemical catalyst characterization and synthesis. I published 7 works in Q1 JCR-indexed journals (all of them as a first author), 1 of them in the prestigious Journal of the American Chemical Society as a corresponding author. I participated in 2 different projects, 4 dissemination events, and 8 conferences. I finished the Ph.D. being awarded the "Extraordinary Mention Award" in 2017. Then, I moved to the Technical University of Munich for 4 months to work in Electrochemical Scanning Tunneling Microscopy in the group of Prof. Aliaksandr Bandarenka. In November 2017 I joined the group from Prof. Beatriz Roldán at the Fritz Haber Institute from the Max Planck Society, to study electrochemical reactions of interest under in situ/operando conditions, funded by an ERC project. There, I published 7 articles in prestigious Q1 journals such as Nature Energy or Nature communications. In 2020 I joined the University of Alicante after being awarded the Juan de la Cierva-Formación. Even though I became a dedicated father in 2021, I could manage to publish 10 articles in high impact factor journals such as Nature Chemistry, Nature Communications or ACS Sustainable Chemistry and Engineering. During this period, I have also participated in 4 international conferences. In 2021, I was awarded the "ISE travel Award" and I was a finalist in the "9th edition of the GEC awards". Nowadays I have an h-index of 17 with more than 1400 citations (Google Scholar by 06/02/2023), 30 articles (5 as a corresponding author), 230 hours of teaching experience, I have participated in 10 projects I am the Principal Investigator of 1 project and the coordinator of 1 teaching research network, I have supervised a Master Thesis and I am co-supervising 1 Ph.D. thesis and an undergraduate project. Last year I ended 3rd in the reserve list of the Ramon y Cajal Fellowship 2021. From March 1st I will join Springer-Nature company as the new Associate Editor of Nature Communications in Energy Materials.

The line of research to develop will be focused in the use of electrochemistry to obtain value-added products from gases contained in the atmosphere as nitrogen (abundant and inert) or CO2 (less abundant but harmful). The reactions will be initially studied using voltammetry and then by FTIR both using internal and external reflection approaches

The analysis of the results will be complemented with DFT calculations, as done previously for the ORR. The energies for the different intermediates will be determined so that a reaction mechanism will be calculated, always using as inputs in the model, the results obtained experimentally. With the proposed mechanism and the energetics of the different steps calculated by DFT, it will be tested whether the same scaling relationships between the different adsorbed species are operative for this reaction, as happens for the ORR

Resumen del Currículum Vitae:

As a summary:
- 3rd in the reserve list of the Ramon y Cajal Fellowship 2021
- 10 participations in competitive projects (2 Internationals)
- 1 as Principal Investigator (PI)
- 1 principal coordinator of a teaching research network
- Índice h = 17 with more than 1450 citations from 2014 (Google Scholar))
- 30 original articles in JCR-indexed international journals and 5 as a corresponding author.
- 1 Postdoctoral Fellowship (Juan de la Cierva)
- 32 communications in international conferences
- Part of the organizing committee in an international conference (http://www.hyceltec2015.ull.es/index.php/ symposium-committees/organizing-committee)
- 5 dissemination activities
- Co- invited editor in 2 special issues (Applied Science y Frontiers in Catalysis)
- Editor in the journal Frontiers in Electrochemistry
- Associate Editor in Nature Communications starting on 1st March, 2023
- 7 internships (University of Cornell, University of Leiden, University of Rio Cuarto, University of Alicante, Institute of Carbochemistry, Technical university of Munich, Fritz Haber Institute)
- 2 postdoctoral stays (Technical university of Munich, Fritz Haber Institute)
- Invited speaker in "IX Jornada de Actualización Científica en Química". University of Nariño
- 2 works highlighted in journal¿s covers (ACS Energy Lett. and J. Phys. Chem. C)
- Awarded 3 prizes
- Supervisor of 1 Master thesis
- Co-supervising an undergraduate project student and a PhD student
- More than 200 hours of teaching experience

Área Temática:	Ciencias y tecnologías químicas
Nombre:	COBO GUTIÉRREZ, SELENE
Referencia:	RYC2022-035377-I
Correo Electrónico:	selencob@hotmail.com
Título:	Ingeniería de procesos sostenibles

Resumen de la Memoria:

I have developed most of my scientific career at ETH Zürich and the University of Cantabria, where I defended my PhD thesis. The results of my research have been presented in twelve peer-reviewed papers, five scientific reports, one book chapter, four conference papers, three invited lectures and fifteen congress communications.

My postdoctoral research at ETH Zürich has focused on the sustainability assessment of Negative Emissions Technologies and Practices within the framework of NEGEM, an international consortium funded by the EU's Horizon 2020. I am responsible for the technical aspects of the Work Package assigned to the ETH, having led five tasks. My responsibilities at ETH also include mentoring Master and PhD students working in the field of sustainable process engineering.

As a graduate researcher, I developed a life cycle optimization framework for the sustainable design of circular waste management systems and was involved in the supervision of undergraduate students. During this period, I spent a total of six months as a visiting scholar at Cornell University and North Carolina State University. Furthermore, my research also benefited from the collaboration with several industrial partners.

The research project I propose here builds on my previous experience in academia and industry, and aims to devise sustainable pathways to attain a climate-neutral materials and chemicals industry by 2050, focusing on structural materials and platform chemicals.

Multiple strategies have been proposed to mitigate industrial emissions, but they are usually studied in isolation, and their cross-sectoral implications are often overlooked. Redesigning the materials and chemical industries to operate more sustainably requires an integrated systems approach to determine the best use of the limited available resources.

We will develop a bottom-up mechanistic model to design optimal production systems in terms of sustainability indicators that quantify not only global warming impacts and total costs, but also the overall life-cycle damage to human health, biodiversity, non-renewable resources and critical Earth-system processes, e.g., biogeochemical flows, freshwater use or land-system change. The proposed research plan consists of three phases:

1. Analysis of individual technologies and processes. We will conduct a prospective life cycle assessment and techno-economic analysis of alternative processes based on electrification, circular (bio)economy and Carbon Capture Utilization and Storage.

2. Integrated assessment. We will develop a superstructure comprising the technologies and processes previously assessed and formulate an MILP problem to establish optimal pathways to meet the EU's demand for the selected materials and chemicals in the period 2025-2050, accounting for the constraints set by the EU's fit-for-55 package and the European Green Deal.

3. Identification of potential bottlenecks. We will further investigate the factors that could hamper the decarbonization of the industrial sector, focusing on the availability of freshwater and critical raw materials.

In summary, the results of this project will underpin the development of science-based targets to facilitate the transition to a climate-neutral EU, and provide for the first time a holistic view of the implications of decarbonizing the materials and chemicals sectors.

Resumen del Currículum Vitae:

Throughout my scientific career, I have used process systems engineering and sustainability assessment tools to optimize the management of waste streams, namely greenhouse gas emissions and solid wastes.

During my postdoctoral phase at ETH Zürich, I have primarily focused on the sustainability assessment of Negative emissions technologies and Practices (NETPs). My involvement in NEGEM—an EU-funded international consortium integrated by leading researchers in the field—has allowed me to produce novel scientific contributions to this emerging area of research. These results have crystallized in five scientific reports for the European Commission. The main outcomes of my work in this project are as follows: i) we have identified the most promising Pareto-efficient NETPs, ii) studied the implications of the large scale-deployment of NETPs for human health and their ability to operate within the Earth's biophysical limits, and iii) evaluated the consequences of delaying CO_2 removal for the EU. Some of these results have been published in prestigious journals such as Nature Communications.

As a postdoctoral researcher, I have progressively taken up more responsibilities mentoring Master and PhD students. Some of these supervision duties have led to publications focusing on sustainable ammonia production routes and the valorization of waste polymers.

Regarding my predoctoral work at the University of Cantabria, it tested the—prevalent—hypothesis that a circular economy will decrease resource consumption and environmental impacts without hampering economic growth. I demonstrated that improving the circularity of resources can lead to undesired side-effects, and therefore the circular economy should not be viewed as an objective to optimize for, but rather as a potential pathway to attain sustainable production systems.

Beyond the value of these insights for the scientific community and the relevance of the results obtained for the case study (focusing on the design of sustainable systems to recover nutrients from municipal organic waste), the life cycle optimization model I developed can be further used as a decision-support tool to draft sustainable policies and design or analyze waste and resource management systems.

The quality of my PhD thesis was recognized by i) the Spanish Royal Society of Chemistry, which awarded me the prize for the best doctoral thesis in Chemical engineering (2019), and ii) the journal Environmental Science & Technology, where I obtained the second best paper award in the Environmental policy category.

I have participated in the evaluation of research activities as a peer reviewer for multiple journals (top reviewer award 2020/21 from the journal Sustainable Production and Consumption) and as an external expert in the evaluation of a PhD thesis.

In preparation for future research projects, I have been improving my programming skills in Python and taking courses, e.g., on prospective life cycle assessment and disjunctive programming. Moreover, my experience in different international institutions (ETH Zürich, Cornell University, North Carolina State University, and the University of Cantabria) has allowed me to observe how successful research groups are managed, which will help me take on leadership roles in the future.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	PLAZA MARTÍNEZ, MANUEL
Referencia:	RYC2022-035485-I
Correo Electrónico:	manuplaza1515@gmail.com
Título:	Nuevas reacciones de acoplamiento cruzado y carbociclaciones libres de metal y procesos fotoquímicos.

Resumen de la Memoria:

Mi carrera científica comenzó durante mis estudios de máster en la Universidad de Oviedo. Seguidamente, realicé un doctorado en el programa de Síntesis y Reactividad Química (Mención Internacional, cum Laude) en el departamento de Química Orgánica e Inorgánica en la misma universidad bajo la supervisión del profesor Carlos Valdés. En esta etapa, descubrimos y desarrollamos reacciones de carbociclación libres de metal sin precedentes en Química Orgánica, basadas en la formación de dos enlaces C-C diferentes en el mismo átomo de carbono con incorporación de una cadena lateral. Durante el doctorado, disfruté de dos becas predoctorales. Además, realicé una estancia predoctoral de tres meses en la Universidad del Sur de Florida (EE. UU.), donde adquirí una valiosa experiencia en química médica (síntesis de fármacos de triple acción bactericidas).

En enero de 2019, me incorporé como investigador postdoctoral en la Universidad Técnica de Múnich (mejor universidad técnica de Alemania según el Ranking de Shanghai) bajo la supervisión del profesor Thorsten Bach, galardonado con el Gottfried-Leibniz Award al mejor científico de Alemania en 2020. Durante esta etapa, contribuí al campo del conocimiento gracias al descubrimiento y desarrollo de nuevas reacciones de desracemización fotoquímicas, uno de los temas candentes en Química hoy en día, las cuales han marcado una dirección sin precedentes en el campo de la fotoquímica durante los últimos tres años. Además, en esta etapa codirigí oficialmente el TFM de tres estudiantes de máster.

En enero de 2022, regresé al grupo de investigación QOSCAT en la Universidad de Oviedo, donde empecé mi carrera científica independiente al haber obtenido una beca postdoctoral de reincorporación "Margarita Salas Joven para la atracción y retención de talento" por la fundación FICYT. Gracias a esta oportunidad, he iniciado y lidero una línea de investigación inédita en mi Departamento, basada en el descubrimiento y desarrollo de nuevos procesos fotoquímicos, una de las áreas de investigación más punteras a día de hoy en Química. Además, contribuyo activamente en otras líneas de investigación del grupo QOSCAT, aportando nuevos enfoques desde un punto de vista de la fotoquímica. El inicio de mi trabajo como investigador independiente queda reflejado en mi primera publicación a finales de 2022 como único autor de correspondencia en la revista Chemical Science (Q1 en la categoría de Química Multidisciplinar), recientemente nominada a "Mejor artículo científico de 2022" por la sección territorial de Asturias de la RSEQ. La financiación de esta investigación ha sido posible gracias a la dotación económica del proyecto asociado a mi ayuda Margarita Salas (presupuesto total: 103.538 €), que cuenta con 20.000 € destinados a cubrir costes de investigación. Actualmente soy codirector de tres estudiantes de doctorado en la Universidad de Oviedo, los cuales trabajan en dichas líneas. Me gustaría destacar que pretendo continuar mi investigación independiente gracias a diferentes proyectos que han surgido de mi etapa como investigador independiente (ver parte 5 de la memoria). En este sentido, la ayuda Ramón y Cajal sería una oportunidad única que me permitiera lograr este objetivo. Finalmente, quiero resaltar que estoy preparando la escritura del proyecto de la ERC Starting Grant en mi cuarto año de postdoc.

Resumen del Currículum Vitae:

Durante mis estudios de máster en la Universidad de Oviedo, recibí becas como la "Beca de Retención de Jóvenes Talentos por la Universidad de Oviedo" y la "Beca para Estudios de Máster Universitario del Consejo de Educación, Cultura y Deporte". En la etapa predoctoral, disfruté de los contratos predoctorales FICYT "Severo Ochoa" (22 meses) y "Ayudas de Formación del Profesorado Universitario" (26 meses). En mi etapa postdoctoral en Munich, fui contratado como investigador postdoctoral durante 3 años. A finales de 2021, recibí una ayuda postdoctoral "Margarita Salas Joven para la atracción y retención de talento" por la fundación FICYT. He participado en tres proyectos de investigación financiados como investigador predoctoral contratado y tres proyectos como investigador postdoctoral contratado, en uno de los cuales soy el investigador principal. He recibido un premio al mejor póster durante un congreso nacional, y una nominación a mi artículo como autor de correspondencia a mejor artículo científico de 2022 por la sección territorial de la RSEQ de Asturias.

Me gustaría resaltar la multidisciplinariedad de toda mi carrera científica: he trabajado en campos muy diferentes como son la química orgánica sintética, química médica, fotoquímica, química computacional y síntesis de productos naturales. Durante las etapas pre- y postdoctorales, he conseguido mantener un nivel muy alto de producción científica, habiendo descubierto y desarrollado líneas de investigación punteras (como las descritas arriba). Desde un punto de vista científico, cabe destacar que soy el primer autor o autor de correspondencia de todas mis publicaciones científicas, muchas de ellas publicadas en revistas de Química Multidisciplinar de alto índice de impacto (1 en Angewandte Chemie, 3 en Journal of the American Chemical Society y 1 en Chemical Science). Actualmente, mi índice h es 8. Asimismo, he diseminado mis resultados científicos en 19 congresos internacionales/nacionales (4 presentaciones poster y 6 comunicaciones orales) y en actividades de divulgación científica para un público general, como entrevistas en periódicos y webs de difusión científica (ver apartado 2 de la memoria). Formo parte del panel de revisores de Royal Society of Chemistry, Elsevier y Springer y tengo experiencia acreditada como revisor en renombradas revistas científicas como Chemical Reviews y Nature Reviews Chemistry. También pertenezco al Portal Expert Database, el panel de revisión de expertos de la Comisión Europea. Tengo 621 horas de docencia universitaria acumuladas y cuento con una evaluación positiva de la ANECA como Profesor Ayudante Doctor. En total, he co-dirigido oficialmente el TFM de 3 estudiantes en la Universidad Técnica de Múnich y estoy co-dirigiendo tres tesis doctorales en la Universidad de Oviedo. Actualmente, no puedo solicitar financiación de la Agencia Estatal de Investigación española para mis proyectos como IP debido a la falta de vinculación permanente con mi universidad. Sin embargo, quiero resaltar que estoy preparando la escritura del proyecto de la ERC Starting Grant en mi cuarto año de postdoc.

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	URANGA BARANDIARAN, JON
Referencia:	RYC2022-035790-I
Correo Electrónico:	jonur9@gmail.com
Título:	Exploring the Frontiers of Protein Structure and Catalysis: Unraveling Mechanisms and Advancements

Resumen de la Memoria:

As a theoretical chemist with a background in biophysics, I bring extensive knowledge and expertise in the field of protein structure and catalysis. I possess a profound understanding of fundamental physico-chemical principles, which are essential for the advancement of industrial applications. During my PhD, with a specific focus on bioorganic redox processes and Density Functional Theory, I was awarded a competitive fellowship from the Basque Government and published several high-profile papers. During my postdoctoral period, I gained expertise in multiscale QM/MM PMF methodology, molecular dynamics, data analysis, regression algorithms, and electronic structure approaches, as well as collaborating with X-ray crystallographers to deepen my knowledge in protein structure determination. I have a well-rounded understanding of the limitations of different methods due to my collaboration with theorists from diverse backgrounds. I have also demonstrated a consistent track record in leading research in the field of biophysics through speaking at international conferences and acquiring third-party funding from renowned organizations. I have experience in supervising others and have taken on leadership roles during my academic career, which has equipped me to continue making meaningful contributions to this field.

Resumen del Currículum Vitae:

Throughout my academic journey, I have been privileged to receive several competitive fellowships, including the Basque Government Scholarship for my doctoral studies and the Ramón Areces and University of Göttingen postdoctoral grants. My participation in various research projects has sharpened my expertise in redox processes, density functional theory, time-dependent density functional theory, molecular dynamics, data analysis, and electronic structure approaches through collaborations with X-ray crystallography experts and theorists from diverse backgrounds. I have also established a solid record of success in leading research in biophysics, presenting at international conferences such as the Electronic Structure: Principles and Applications 2022, and securing funding from esteemed organizations. Furthermore, I have extensive experience in mentoring students at the undergraduate and graduate levels, having supervised 4 bachelor's theses, 1 master's thesis, 2 PhD theses, and served as a representative for master's and doctoral students as well as a postdoctoral researcher at the University of Göttingen. To date, I have published 13 papers in peer-reviewed journals, including two covers in the Nature family, and hold a patent.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	ABÁNADES ABÁNADES, ISABEL
Referencia:	RYC2022-036868-I
Correo Electrónico:	isabelabanadeslazaro@gmail.com
Título:	Metal-Organic Frameworks for drug delivery, catalysis and gas separation

Resumen de la Memoria:

Dr Isabel Abánades Lázaro's scientific career includes a bachelor's in chemistry from the Univ. de Alcalá and Trinity College Dublin (with three research internships), a PhD in Chemistry from the Univ. of Glasgow (UK) with stays at the Univ. of Cambridge and the Fundación Jiménez Díaz, and two postdoctoral positions, including a Marie-Sklodowska Curie postdoctoral fellowship (Funimat, University of Valencia) and a Juan de la Cierva Incorporación postdoctoral fellowship (Crystal Engineering lab, University of Valencia).

Her research is based on the interrelation between materials synthesis, properties, and function, including applications such as catalysis, drug delivery and gas storage and separation. She has developed both the click modulation protocol, the defect-drug loading protocol and the multivariate modulation protocol (solo author J. Mat. Chem. A 2022). During her MSCA Fellowship she unravelled the defect chemistry of Ti-MOFs, which remained unexplored to date (8 first author publications), enhancing their catalytic applications and during her JdC-I fellowship she is tuning the pore size and environment of MOFs for gas separation.

Her high-level research career is supported by her scientific productivity, with 21 articles (16 as first author and 6 as the corresponding author) with average IF> 11, that enclose >1300 citations (87th Average citation percentile according to the Web of Science). Moreover, she has participated in national and international conferences, with 28 contributions including 11 oral presentations (7 invited).

Isabel has received several distinctions, including being selected to attend the prestigious 70th and 71st Lindau Meeting of Nobel Laureates (Interdisciplinary and Chemistry). She has also obtained national and international funding from competitive calls such as Marie Sklodowska-Curie Actions, Juan de la Cierva formación and incorporación (currently), ApostD, RSC Mobility Grant, 8 synchrotron proposals (2 PI, 6 co-PI) and has been appointed for and in La Caixa Junior Leader retaining program.

The research line that the applicant aims to develop is based on the combinations of heterogeneity and defect chemistry through the novel concept of Multivariate Modulation of Metal-Organic Frameworks, introducing multiple ligands with fewer coordination sites than the linkers (modulators) for defect-assisted functionality. This will result in multifunctional structures with higher porosity and reactivity.

This innovative research line will explore advanced ex-situ and in-situ molecular characterization techniques to understand and control the self-assembly of these heterogeneous structures, their composition, the structural distribution of functionalities within them, and therefore, their physical and chemical properties. The introduction of multiple dynamic modulators with controlled stimuli-responsive behavior into MOFs in a controlled manner will result in unprecedented multi-responsive and self-sorting structures, opening the doors to encode information in MOFs. Thus, heterogeneously controlled materials will be applied to enzyme-like cascade catalytic reactions under mild conditions (Enzyme-MOFs for hydrogen production from water) and to store information in binary and quaternary mode for the creation of new memory devices through stimuli-responsive modulators (DNA MOFs).

Resumen del Currículum Vitae:

Dr Isabel Abánades Lázaro obtained a bachelor's in Chemistry from the Univ. Alcalá (2014) and received a PhD in Chemistry from the Univ. Glasgow (United Kingdom) in 2018. After spending a large part of her research career abroad (2013-2018) with 5 years of international research experience (Trinity College Dublin, Univ. Glasgow and Univ. Cambridge), she obtained a Marie Sklodowska-Curie Fellowship at the Institute of Molecular Science (ICMol) of the Univ. Valencia (May 2019 - 2021), where she is now a Juan de la Cierva Incorporación Fellow.

Her multidisciplinary research is based on the interrelation between materials synthesis, properties, and function, including applications such as catalysis, drug delivery and gas storage and separation. Choosing quality over quantity, Isabel has published 21 articles with an average IF of 11.6, being the first author of 16 (av. IF 12.4) and the corresponding author of 6 (av. IF 7.4), including two solo author publications. Her publications collect > 1300 citations since 2017, with an average 87th citation percentile according to WoS, and a normalised impact factor of 2.3 (Clarivate metrics for applied materials).

Isabel has successfully obtained scholarships, projects and awards such as Marie Sklodowska-Curie Postdoctoral Fellowship, Juan de la Cierva formación and incorporación (currently), ApostD, RSC Researcher Mobility Grant, 7 synchrotron proposals for ALBA (1 PI, 6 co-PI) and one for Elettra, Trieste (PI), securing over 500K€ funding. Her La Caixa Junior Leader proposal (ca. 300K€) has been appointed for interview (30 proposals chosen from over 260). Isabel has been part of the research team of several national and international projects, including two ERC starting grants and one ERC consolidator grant. She has attended the 70th and 71st Lindau Meeting of Nobel Laureates (Interdisciplinary and Chemistry), reunions that selects the young scientific leaders of the future to exchange views and experiences with Nobel Laureates during a week, which together with other merits, means that her research is recognized internationally beyond her field.

Isabel has successfully communicated and disseminated her research to the scientific community (21 publications, 28 communications in national and international conferences, with 11 oral communications -7 invited), and to the wider community (Pint of Science 2018, Expociencia 2019, Girsl4Stem professional talk 2020, 8 talks at high schools with the 11Febrero association among others, and press release and interviews).
Isabel has exhibited leadership both in the publication of results and in the acquisition of funding, as well as in the direction of students.

The high level of Isabel¿s research career is underpinned by her high research productivity, the high quality of the publications derived from it, the large number of citations, the successful application to prestigious scholarships, the recognition with various awards, and the invitation (and initiative) to participate in conferences and outreach activities. Isabel has experience in project management and organization of R&D activities, has co-directed

three master' s theses, demonstrated 91 hours of diverse chemistry subjects (Univ. Glasgow) and taught 19 hours of general chemistry theory (Univ. Valencia).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	BOUZA ARECES, MARCOS
Referencia:	RYC2022-035852-I
Correo Electrónico:	mbouza86@gmail.com
Título:	Exploring the Frontiers of Chemical and Clinical Analysis: a Journey of Cutting-Edge Ion Source Solutions and Innovative Method Development in Mass Spectrometry

Resumen de la Memoria:

As a multidisciplinary analytical chemist, I have made significant contributions to the field of Mass Spectrometry (MS) through my participation in various research projects. My thorough knowledge of both elemental and molecular MS has enabled me to develop innovative solutions and employ advanced instrumentation to tackle complex issues, with a primary focus on ion source development, biomarker discovery, and disease diagnosis. During my PhD studies, I established methodologies for thin film quantification through elemental MS, characterized prototype instruments, and devised new strategies for untargeted metabolomics breath analysis using molecular MS. At the Georgia Institute of Technology, I led the development of unique ambient ionization techniques for increased chemical coverage, in-depth lipid annotation, and low volume sample analysis utilizing the triboelectric effect, which are now widely employed in similar studies. Additionally, I spearheaded the effort to annotate the reaction products of prebiotic transcendent reactions in the origins of life research field through high-resolution MS. Currently, I am evaluating the performance of plasma-based ion sources and other ambient ion sources, such as paper spray, at the University of Jaén. Additionally, I presented my work as featuring invited and oral communications at leading conferences in my research area such as ASMS, SCIX, and ACS national conference.

I have gained valuable experience and knowledge from 42 months of research at renowned international institutions in Europe and the USA, as well as 27 months at a respected research group at the University of Jaén. I have demonstrated my ability to secure funding, lead, and manage my own research projects, including my current role as the H2020-MSCA-IF project leader (SPOTplasma) at the University of Jaén. Throughout my postdoctoral stage, I have attracted funding for stipends and project management through competitive processes, totaling over 300,000€

I have a strong international profile, demonstrated by my mobility and also by numerous ongoing collaborations with researchers from a range of institutions and countries, including projects with the University of New South Wales (Australia) and the Leibniz-Institut für Analytische Wissenschaften–ISAS (Germany), as well as former and current collaborations with the Georgia Institute of Technology, the University of Calabria (Italy), and the University of Cyprus (Cyprus).

The current application reflects my research interests, which center on the development of innovative approaches and methodologies for small molecule analysis using MS. My goal is to create novel solutions that will improve the speed and accuracy of detecting and quantifying crucial molecules in the clinical field, with a particular emphasis on personalized healthcare and early disease diagnosis.

Resumen del Currículum Vitae:

During my Master's and PhD studies, I focused on developing methodologies for the analysis of solid materials and volatile organic compounds, with a strong emphasis on mass spectrometry (MS). I was privileged to work for three months with Professor Clemmer at Indiana University, Bloomington (Indiana, USA), one of the leading laboratories in ion mobility MS. My PhD research culminated in the publication of 9 research papers in relevant journals (Analytica Chimica Acta, Talanta, Journal of Analytical Atomic Spectroscopy, among others), with seven as first author, and successful technology transfer to industries such as Ramem SA and Horiba.

Following my PhD graduation with Science extraordinary distinction from the University of Oviedo in 2016, I was selected for a competitive position at the Center for Chemical Evolution at the prestigious Georgia Institute of Technology. There, I served as a project leader, managing the analytical efforts on the identification and sequencing of protopeptides and protonucleotides by high-resolution MS, resulting in high-impact publications in Nature Communications 2022 and ChemBioChem 2020. I also led the development of a unique low-sampling consumption ion source for metabolomics and lipidomics, resulting in publications in Analytical Chemistry 2021 and Nature Communications 2020. My contributions to this international research have been reflected in 11 multidisciplinary research articles, including 2 in Nature Communications, 1 in Plos Neglected and Topical Disease, and 3 in Analytical Chemistry.

In 2020, I joined the University of Jaén, where I have been developing new ambient ion sources and methods for small molecule analysis. I was awarded the Marie Skłodowska-Curie Actions (MSCA) IF-2020 for the use of AIMS in newborn screening. My efforts have resulted in two publications as the first and corresponding author in Analytical Chemistry and Journal of Separation Science, with co-authorship on an additional five publications in prestigious journals such as TrAC Trends in Analytical Chemistry and Microchemical Journal.

I am also dedicated to mentoring and training the next generation of scientists, supervising students at all levels, including co-supervising a PhD student and overseeing the work of two Master's students and four degree thesis projects. I have also served as a mentor and teacher to aspiring young students.

In addition to my research, I am committed to outreach and open science, participating in events to promote STEM education in Spain and the US and publishing 13 articles in open-access journals.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

My international profile and leadership skills are demonstrated by my 42 months of research experience in renowned institutions in Europe and the US, my ability to secure self-funding through competitive grants and programs, and my publication record of 27 articles in high-impact journals, with 74% as first, second, and/or corresponding author. I have presented at over 30 national and international conferences and seminars, including 16 oral presentations at top conferences such as ASMS, SCIX, and ACS National meetings, and have given three invited talks.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	RAMOS SORIANO, FRANCISCO JAVIER
Referencia:	RYC2022-037742-I
Correo Electrónico:	fj.ramos@iiq.csic.es
Título:	Development of (glyco)tools for biological applications

Resumen de la Memoria:

Dr. Ramos-Soriano is a determined researcher presenting an exceptionally wide scientific expertise in different topics spanning organic chemistry, carbohydrate chemistry, chemical biology, nanomedicine, nanomaterials and photochemistry. A chronic ambition towards the develop of (glyco)tools for different biological applications has represented a constant driving force in his career to move across disciplines, conferring him a marked multidisciplinary profile.

He has worked independently since early stages, leading the work and designing the projects in many of the cases. One of the projects designed and managed independently on an unexplored topic for the group was published on ACIE (Hot Paper), where he is corresponding author, showcasing his ability to conduct and manage ground-breaking research independently. Dr. Ramos-Soriano's academic excellence can be illustrated by his strong track record of publications in top international multidisciplinary journals such as Sci. Trans. Med., JACS, ACIE, Chem. Sci. Chem. Soc. Rev., etc., being acknowledged with several awards. His creativity and problem-solving skills have allowed him to address diverse challenges in chemical sciences and open new research lines in different groups (namely UK and Seville's group).

Since his doctoral studies at Dr. Javier Rojo's group, where he acquired ample experience on the synthesis of glycodendritic systems as tools in biomedicine, he has gathered significant expertise and knowledge on chemical biology, nanomaterials and photochemistry, working in Spain and abroad in different countries (UK, Italy). He has led cutting-edge research programs, exhibiting the ability to succeed in high-risk/very-high-gain projects, including: 1) synthesis of novel carbon (glyco)nanostructures for biomedicine and the search of new applications, 2) the development of bio-inspired fluorescent (glyco)nanoprobes, 3) photoswitchable G-quadruplex ligands and, 4) fluorescent chemoreceptors. Based on this previous research experience, the applicant is implementing and leading different research lines between carbohydrate chemistry, photochemistry and fluorescent chemosensors in his current research group: 1) fluorescent glycochemosensors for the selective and naked-eye recognition of and 2) visible-light photoswitchable glycoligands to target C-type lectins, among others.

Dr. Ramos-Soriano aims to hold a Ramon y Cajal Fellowship to contribute solving global challenges of social, academic and health interest, aiding to promote the visibility and prestige of the Spanish Scientific system.

Resumen del Currículum Vitae:

Dr. Ramos-Soriano started his scientific career at Univ. de Sevilla (Spain) through an undergraduate fellowship and a collaboration grant from US and MEC and conducted his MSc under the supervision of Prof. I. Robina (2 publications). In 2012, he moved to IIQ to perform his PhD studies under the supervision of Drs. J. Rojo and J.J. Reina, funded by a FPI fellowship. The output of his PhD research led to 10 articles and 1 patent, including three four-month collaborative stays in the groups of Prof. A. Molinaro (2014, Naples, Italy) and Prof. N. Martín (2015 and 2016, UCM). After obtaining the PhD title, he was a postdoctoral researcher in the group of Prof. N. Martín (2017-2019), working on novel carbon (glyco)nanostructures for biomedical applications, among others, which resulted in 8 publications, 1 book chapter and 1 international patent. In 2018, Dr. Ramos-Soriano secured a prestigious Marie Curie Individual fellowship (15% success rate) to work in Carmen Galán's group at the University of Bristol (2019). His work there focused on develop bio-inspired fluorescent (glyco)nanoprobes and photoswitchable G-quadruplex ligands, leading several projects simultaneously that already resulted in 10 publications. After >40 months of mobility in national and internationally-renowned institutions, in 2021 he secured a Talent Hub Fellow (Feb 2021-Apr 2022), following a Juan de la Cierva-Incorporación Fellow (20% success rate, May 2022-to present) to work at IIQ (Seville), implementing and leading different research lines based on current and previous investigations as part of 2 PhD theses under his supervision.

The excellence results produced during Dr. Ramos-Soriano's career can be readily noticed in his publication track (36 publications), including the most prestigious journals in multidisciplinary science and chemistry (e.g. Sci. Trans. Med., JACS, ACIE, Chem. Sci. Chem. Soc. Rev.), 1 book chapter and 2 patent (1 international). He has worked independently, as can be checked from the number of publications as first and/or corresponding author: 15 as first author, 3 as corresponding author and 4 as first and corresponding author as well as established by himself international (3) and national (2) collaborations, including an exchange of a PhD student. Dr. Ramos-Soriano's outstanding productivity during his scientific career has been recognised with several awards: 1) the best PhD Thesis defended in Andalusia in 2017(STAO-RSEQ), 2) the Carbohydrate National Award (GEHC-RSEQ), 3) 2nd place in the RSEQ Reaxys Young Researcher Award (2018) and 4) the prestigious International Carbohydrate Organisation Young Researcher Award 2022. He has disseminated his research in 19 different national and international congresses (e.g. International and European Carbohydrate Symposiums), being invited speaker in some of them, and participated in several R&D projects (including ERC). He has mentored 9 students (PhD, TFM and TFG), supervised 3 PhD (in progress) and 4 Master theses and collaborated in the teaching assignments both in Spain and the UK. He has also participated in outreach activities to promote scientific vocations in high schools and had several institutional roles, such as external referee in PhD thesis, reviewer of international grants and reviewer for several high-impact international journals.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	NÚÑEZ VILLANUEVA, DIEGO
Referencia:	RYC2022-035730-I
Correo Electrónico:	diegonuvi@hotmail.com
Título:	Novel synthetic supramolecular approaches for the development of functional materials and bioactive peptides

Resumen de la Memoria:

I am an emerging scientist with a multidisciplinary and broad experience at the interface of organic, biological and supramolecular chemistry.

During My PhD (2008-2013), I developed stereoselective synthetic routes to access quaternary amino acids and their application as peptide secondary structure inducers. The ability of these amino acids to constrain peptide conformations is of interest to achieve fundamental understanding of complex protein-protein interactions in the search of novel therapeutic agents.

As postdoctoral researcher at the universities of Sheffield (2013-2014) and Cambridge (2014-2022), I started a new research program studying chemical alternatives to nucleic acids for encoding and transferring sequence information. This research provided fundamental understanding of the relationship between structure and self-assembly and set the first steps towards the application of evolution for the search of functional synthetic oligomers. This has been translated in several articles in high impact journals, some of them highlighted in prestigious journals as well as a review in Accounts Chem. Res. I had the opportunity to carry out my own research project in the University of Cambridge (2017-2022), developing novel stimuli responsive materials with potential biological applications. I designed and synthesized a giant macrocycle able to form a thermostable ultrasound-induced gel, resulting in my first corresponding author article. This achievement demonstrated my ability to successfully lead my own research projects.

Working as Senior Scientist at Bicycle Therapeutics (2022-2023), biotech founded by the 2018 chemistry Nobel prize winner Greg Winter, I was involved in the design and synthesis of complex molecules for bioconjugation to bioactive bicyclic peptides, gaining an invaluable experience in pharma industry.

Recently, I was awarded a prestigious ComFuturo fellowship from the FG-CSIC. I will be therefore principal investigator of my own research line, which has been funded with my salary and 45.000 € for expenses.

During my 15 year-long career I have shown great potential for leading challenging and innovative research projects in top institutions, with a significant contribution to the generation of knowledge and technology transfer in the field of medicinal and supramolecular chemistry. My career has therefore an eminent international projection with research experience in France, Spain, Germany and UK. This expertise allowed me to achieve a high level of research independence and maturity. The award of a ComFuturo fellowship demonstrates my ability to design and lead innovative research projects able to attract competitive funding. My expertise in different areas of synthetic supramolecular chemistry, molecular recognition and template-directed synthesis will be the basis for the development of future research projects. I am particularly interested in the development of an original and innovative chemical approach to engineer novel functional properties into peptide mimetics, which will serve to decipher key protein-protein and sugar-protein interactions beyond current knowledge. The Ramon y Cajal program would help me reach the next natural step in my career as independent researcher, providing me with resources to play a leading role in this research field.

Resumen del Currículum Vitae:

I am an emerging scientist with a multidisciplinary and broad experience at the interface of organic, biological and supramolecular chemistry.

During My PhD at the CSIC Medicinal Chemistry Institute, I developed stereoselective synthetic routes to access quaternary amino acids and their application as peptide secondary structure inducers. The ability of these amino acids to constrain peptide conformations is of interest to achieve fundamental understanding of complex protein-protein interactions in the search of novel therapeutic agents. My PhD yielded 4 first-author articles and 1 patent. My profile was strengthened with a research stay at the Max-Planck Institute of Molecular Physiology.

In 2013, I joined the University of Sheffield as a postdoctoral researcher, moving to the University of Cambridge in 2014. There I started a new research program studying chemical alternatives to nucleic acids for encoding and transferring sequence information. This research provided fundamental understanding of the relationship between structure and self-assembly and set the first steps towards the application of evolution for the search of functional synthetic oligomers. I published 14 articles in top journals, some of them highlighted in prestigious journals, as well as a review in Accounts Chem. Res. During this time, I was also involved in teaching and supervision activities.

Between 2017 and 2022, I had also the opportunity to carry out my own research project in the University of Cambridge, developing novel stimuli responsive materials with potential biological applications. This project yielded my first corresponding author article, demonstrating my ability to successfully lead my own projects.

Between September 2022 and March 2023, I worked as Senior Synthetic Chemist at Bicycle Therapeutics, gaining an invaluable experience in pharma industry.

In December 2022, I was awarded a prestigious ComFuturo fellowship from the FG-CSIC. I will be therefore principal investigator of my own research line, which has been funded with my salary and 45.000 € for expenses.

During my 15 year long career I have shown great potential for leading challenging and innovative research projects in top institutions, with a significant contribution to the generation of knowledge and technology transfer (20 articles; 1 patent; ~275 citations; h-index: 11). This expertise allowed me to achieve a high level of research independence and maturity, demonstrated by the opportunity to develop my own research project at the University of Cambridge and the award of a prestigious ComFuturo fellowship. My career has an eminent international projection with research experience in France, Spain, Germany and United Kingdom along with the participation in international conferences. I have been recipient of important fellowships as well as playing a key role in prestigious funding schemes, such as ERC grants, as reflected in first/corresponding authorship of most of the articles. My profile has been strengthened by important responsibilities in research management (reviewing, supervision and laboratory organization) and teaching. The Ramon y Cajal program will allow me to consolidate my own independent research program with access to resources to play a leading role in the field of biomimetics.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	GARCÍA ALTARES PÉREZ, MARÍA
Referencia:	RYC2022-036211-I
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Título:	Mass spectrometry techniques to uncover chemical mediators and disruptors

Resumen de la Memoria:

Chemical mediators are metabolites that are excreted or released into the environment, where they mediate interactions with other organisms or induce changes in their environments. As chemical mediators play a critical role in ecosystems, I believe that by gaining a deeper understanding of these chemical mediators, we can effectively work to protect both human health and the environment.

The most suitable analytical technique to investigate chemical mediators and disruptors is mass spectrometry (MS). Thus, I have dedicated my research career to two research lines: 1) advances in MS techniques for chemical ecology (especially for marine ecosystems); and 2) technological and software-related advances for MS Imaging.

My research on MS applied to chemical ecology has impacted multiple disciplines, especially in the fields of toxicology, ecology and biomedicine. In the field of toxicology, I dedicated my predoctoral research to marine biotoxins produced by microalgae, which can contaminate seafood and provoke extreme toxic syndromes in people. In the field of ecology, MS-based techniques helped me uncover the hidden roles and mechanisms that natural products play to regulate microbial interactions (such as bacteria-microalgae), pathogenic relationships (like bacteria-fungus) and predation models (e.g. marine sponges and sea slugs). In the field of biomedicine, for instance, in the context of non-alcoholic fatty liver disease, I applied MS Imaging to detect and identify up-regulated triglycerides on liver tissues from mice exposed to a high-fat diet.

My research focused on innovations for MS Imaging contributed to a novel research line on the use of nanostructures for label-free multimodal imaging. The nanostructure developed in our research lab is the first substrate able to both promote laser ionization-assistance for MS and Raman-enhancement capabilities. On the other hand, I am part of the developer team of the open-source software rMSI for the visualization, processing and analysis of datasets from MS Imaging experiments.

Over the next five years I plan to undertake the following research goals:

1.   To achieve the highest spatial resolution, sensitivity and selectivity in MS and MS Imaging. I am eager to learn how to work with aptamers and antibodies to improve the selectivity of nanosurfaces.

2.   To couple MS with other label-free spectroscopic techniques compatible with analyses on living cells and organisms, such as Raman imaging, which allows to the analysis of single-cell metabolism. I am interested in mastering additional microscopy techniques to perform multimodal imaging on cells.

3.   To design computational tools to extract as much information as possible from MS big-data, in a reliable and automatic way. Moreover, I intend to improve my skills in programming and data science to apply machine learning algorithms for the interpretation of metabolomics data.

Advances in analytical chemistry and chemical ecology have a great impact on our society. First, better MS methodologies enhance the accuracy of results and increase the understanding of complex biological phenomena. Research on chemical mediators and interactions between organisms can accelerate natural product discovery, assist conservation efforts for endangered species and their habitats, and guide policy decisions to mitigate and adapt to climate change.

Resumen del Currículum Vitae:

I am a multidisciplinary analytical chemist expert in mass spectrometry (MS). My research aims to uncover and characterize the chemical mediators that define complex biosystems.

In the last 8 years, I have established my independence as a European scientist, as recognized by the I3 certificate. I have published 39 articles (11 as leader author; 33 in Q1), and presented 14 communications in scientific meetings. My publications got over 900 citations since my first article in 2014 (h-index 19).

I obtained my Ph.D. in 2015 at University Rovira i Virgili (URV, Tarragona, Spain; carried out at IRTA) in the field of marine natural products. For my first postdoc (2015-18, 44 months), I joined the department of Prof. Christian Hertweck at the Leibniz Institute for Natural Product Research and Infection Biology-HKI (Germany). There, I opened my own research line on MS Imaging for discovering natural products in microbial interactions. I managed my own project, funded by the European Union with a Marie Sklodowska-Curie-IF and co-authored 13 articles published in high IF journals.

In Germany, I provided my expertise to the Collaborative Research Center "ChemBioSys": a consortium of +20 research groups that investigate how metabolites control the biological world. Inspired by their multidisciplinary, I later decided to broaden my career toward "spatial metabolomics". Thus, in 2019, I joined the Metabolomics Interdisciplinary Laboratory (Mil@b), part of CIBERDEM (CIBER on Diabetes) and integrated into the Department of Engineering of the URV.

As a Principal Investigator, I have successfully secured approximately 390,000€ to support my research and positions, including three highly competitive postdoctoral programs: Marie Sklodowska-Curie-IF, Juan de la Cierva-Incorporación, and Beatriu de Pinós. My expertise has resulted in the publication of articles with institutions from six countries.

I have made significant contributions to the field of MS Imaging data analysis collaborating in the development of the open-source software "rMSI". In addition, I have established a successful collaboration with Moorfield Nanotechnology (UK) to develop and adapt their products for MSI applications, expanding their market reach.

I am committed to promoting scientific literacy and I engage in regular outreach activities, including European Researcher's Night (2017-2021) and the "100tífiques" program aimed at encouraging women in science (2021, and 2022). Through these efforts, I am dedicated to inspiring the next generation of scientists and making science accessible to the public.

As a co-leader of the research line "Label-free spectrometry imaging for biological applications" at URV, I supervise two Ph.D. theses (one defended in 2021), and mentor one postdoc and two Ph.D. students in bioinformatics. Additionally, I have supervised MSc theses in Analytical Chemistry and BSc theses, as well as practical students from various disciplines.

I am also an accredited lecturer at URV, teaching courses in Bioinformatics and Data Analysis, and Image Processing. I am highly committed to the scientific community and served on the Scientific Committee of the Spanish Metabolomics Society during the 1st meeting in 2022. Moreover, I regularly review for several journals, including Analytical Chemistry, Journal of Chromatography A, and Mass Spectrometry.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	DSOO , RAYMOND KORSHI
Referencia:	RYC2022-035644-I
Correo Electrónico:	korshi.dosoo@gmail.com
Título:	Material and Linguistic Approaches to the Coptic Magical Papyri

Resumen de la Memoria:

The research program presented here continues and develops my previous work on the magical papyri of Egypt, key sources for many aspects of history in the period of their production, notably those of lived religion and private life. This project will focus in particular on the Coptic magical texts of which I am one of the leading scholars, but which remain understudied and to a large degree inaccessible to non-specialists. I propose an approach which focuses simultaneously on basic research and the investigation of more complex theoretical questions, with the publication of two volumes of manuscripts, carried out in tandem with focused studies on questions of language and material culture. These aspects have been little addressed in previous works: the often fragmentary and nearly always difficult nature of the texts requires a thorough knowledge of the whole corpus, while their complexity in terms of practices and constituent elements demands the development of a systematic approach. I propose two distinct programmes of analysis, focusing on the interconnected problems of language and materiality. These approaches will enrich one another, with the publication of new materials providing data for analysis, and the process of systematic analysis helping to resolve questions which arise in the course of text edition.

This project builds on my previous work and existing international collaborations in order to carry out both basic research (the publication of new manuscripts held in Spanish and international collections) and deeper analyses of questions of language and material culture. These analyses will be important both for better understanding the Coptic magical corpus, key evidence for lived religion in Egyptian history, but also for larger questions of historical interest – the Coptic language, early Christian vernacular practice, and the relationship between written texts and material culture.

Resumen del Currículum Vitae:

My work centres on the study of lived religion in Egypt from the Hellenistic to early Mediaeval period, a span of time dictated by my primary sources, the magical papyri, a multi-lingual corpus written in Coptic, Greek, and Demotic and dating to between the 1st century BCE and the 12th century CE. My work has sought to understand them at all levels, from basic text publication to the study of materiality, language, corpus-level analysis and reception history. As a key part of this work, I lead the Coptic Magical Papyri project at the University of Würzburg, part of a programme based on the Emmy Noether, with funded positions for myself and two researchers (1 doctoral, 1 post-doctoral) for 5 years. In the context of this project I have developed the Kyprianos database, available in open access online since 10/2020 and consulted more than 14,000 times by users from around the world. This database brings together information on all magical papyri in Greek, Coptic, and Demotic from Egypt, and is in the process of adding Greek, Latin and Aramaic manuscripts from outside Egypt. It also contains new editions of over 200 Coptic texts, produced by myself and my team, likewise accessible in open access. I am currently preparing the first of a projected ten-volume series of Coptic magical texts, which will bring together for the first time the entire corpus according to the standards of modern papyrology, scheduled for publication by De Gruyter in late 2023. A monograph, The Construction of Magic in Christian Egypt, is due to be published by the American Society of Papyrology series American Studies in Papyrology in 2024.

I have published editions and translations of over thirty manuscripts in Coptic, Greek, and Demotic, accompanied by commentaries discussing features of language and content. My work has been key in reorienting the study of ancient magic to pay attention not only to the content of manuscripts, but also to their material features – their layout, organisation, writing style, use of annotations, and so on – and what these tell us about their social context; I have explored this in particular in four recent articles which provide overviews of trends in manuscript production over time – e.g., technological shifts from roll to codex and papyrus to paper, or language shifts from Greek to Coptic to Arabic – as well as detailed studies of individual manuscripts, exploring how they were compiled over time and how this process of compilation can be used to reconstruct their use. These surveys, taking into account hundreds of manuscripts, are only possible because of the data accumulated by my project, and my ability to make use of statistical analysis.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	COLLINS , REBECCA
Referencia:	RYC2022-036135-I
Correo Electrónico:	becky.rebecca99@gmail.com
Título:	Interdisciplinary and Artistic Research for Global Issues

Resumen de la Memoria:

As tenured Associate Professor at the University of Edinburgh since 2017, my interdisciplinary research explores nonconventional outreach methods for science communication, medical research, biodiversity, and environmental issues. I draw on contemporary art practices, including the use of sound art, creative and critical writing, installation, theatre, performance and design to devise strategies to engage academic and non-academic audiences in real world issues. I have successfully applied for and received over £222,351 in research funding as Principal Investigator on a variety of interdisciplinary projects over the past ten years of her career. I have been an external Co-Investigator on a series of projects which have collectively received a further £32,000 in research funding. I have been Principal Investigator on the international research project ' Parametres for Understanding Uncertainty' . My research has contributed to the advancement of unconventional methods for scientific communication. Through my last project I have initiated and led a network of 26 artist-scholars and scientists. I obtained a grant from the Royal Society of Edinburgh to the value of £62,000 and a grant of £4,000 for an exhibition to disseminate the research. I have been Principal Investigator on ' Stolen Voices' Collins and secured £52,000 worth of funding from national and regional funders in the UK. The research puts forward an embodied site-specific listening practice as a method to better understand how the solid identification of coastal towns can be troubled. I am creative arts lead for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems (IPBES). My contribution makes use of literature and praxis examples from the arts and humanities to illustrate five future values essential to tackle the current ecological crisis. For this work I received the 2022 Gulbenkian prize for humanity. I have been Co-Investigator for "Don' t Smile", a collaboration with the School of Dentistry and Theatre of Debate. I was responsible for devising methods to bring medical research into contact with theatre researchers and undergraduate fine art students. I made use of theatrical techniques to incite debate and explore complex research related to dental health and hygiene across a range of disciplinary perspectives. The work received two public engagement prizes. I am co-organiser of Women On Sound Women In Sound an international hub of networks and individuals including artists, researchers, technologists, musicians, archivists, and engineers. The central aim, I put forward, is to tackle gender inequality in the fields of sound, music and technology. I was Co-Investigator alongside O' Keeffe, and developed a loanable toolkit as a practical solution to ongoing equality issues amidst young women and girls, particularly in educational settings. This open access resource includes a feature to enable users to contribute from across the globe. I recently submitted a grant with a scientific researcher from Harvard University to investigate the use of diagrams and language across science and art. In March 2023 I will submit a £250,000 grant to continue my interdisciplinary research.

Resumen del Currículum Vitae:

I completed my PhD in 2016, since then I have consistently held academic positions at Universities in the UK. I am currently a tenured Associate Professor at the University of Edinburgh in the School of Art, College of Arts, Humanities and Social Science. Prior to this I worked at the University of Leeds as Teaching Fellow and during my doctorate I worked as Assistant Professor at the University of Sunderland and the University of Aberystwyth. My interdisciplinary research explores nonconventional outreach methods for science communication, medical research, biodiversity, and environmental issues. I draw on contemporary art practices, including the use of sound art, creative and critical writing, installation, theatre, performance and design to devise strategies to engage academic and non-academic audiences in real world issues. I have been awarded a total of £222,351 in research grants. I have been principal investigator of six national research projects and one international project. I have been co-investigator on 1 international research project and 4 national projects. I have held 3 research leadership positions where I mentored early and mid-career researchers, peer reviewed grant applications to external funding bodies. I have won 3 prizes for my research: the 2022 Gulbenkian prize for humanity; the National Co-ordinating Centre for Public Engagement Award and the Leeds Uni Engagement Award. I have a strong track record of publications and unconventional outputs, with 16 peer-reviewed articles, 3 book chapters, an intergovernmental policy document, 2 exhibitions, more than 10 live theatre works, 5 installations, 10 videos, design works, 1 album (shortlisted for a New Music Scotland Award), an online open access kit and open access datasets. My work is cited by scholars working in South America, the USA, the UK, and Europe. My first open-access book publication is under contract with Punctum Books (2023). I am regularly invited to give public talks and seminars. I have extensive teaching experience. I have lectured on Undergraduate and Postgraduate courses for the past 12 years. I have over 1000 hours of teaching experience and held course organizer roles, designed and delivered new courses and has been a personal tutor in three British Universities. I use methods from my own interdisciplinary research in the pedagogical design of my courses. I have designed and led large student cohorts (130+) on cross-college courses and led a team of 5 tutors. In all activities, student feedback is extremely positive with scores systematically above departmental average. I have supervised 1 PhD thesis to completion (Pearce, 2021) I have directed one MA thesis and over 30 Undergraduate final year projects. I have supervised 1 postdoctoral fellow and been academic advisor of 25 Undergraduate students per year for the past 5 years. I have an international profile and have led and organised activities in international settings including the USA, Germany, Holland, Spain, the UK and Norway. I am the convenor of the ' Documenting Performance' working group for the Theatre and Performance Research Association and co-organiser of Women In Sound Women On Sound, an international hub of individuals and networks, including artists, researchers, technologists, musicians, and archivists with an interest in sound, technology and education.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	FERREIRA LOPES, PATRICIA
Referencia:	RYC2022-036213-I
Correo Electrónico:	patriciawfl@gmail.com
Título:	Knowledge graph model for the reuse and interpretation of intangible and immovable heritage data documentation

Resumen de la Memoria:

Currently, I am a scientific researcher at the Andalusian Institute of Historical Heritage (IAPH). I am also an expert evaluator and rapporteur at the European Commission Services (2019-2022). Since 2019, I am an honorary researcher at ETSA University of Seville (US), lector at the International University of La Rioja (UNIR) and an external researcher at the Institute of Contemporary History (IHC) - FCSH Nova Lisboa.

After my BA in Architecture (2009), I won two Master scholarships (UPM and US), and one PhD fellowship (FPI). My thesis "Digital Information Models – GIS and Graph –applied to heritage." (international PhD) received the Extraordinary Doctorate Award from the US. In 2019, I was selected in a competitive call (FCT - Portugal) to coordinate the Digital Humanities Lab at FCSH Nova Lisboa. In the same year, I obtained the Juan de la Cierva Formación and I was selected in a competitive call for a permanent contract – Digital Humanities Scientific Researcher – at the IAPH. Three years later, I obtained the José Castillejo Mobility Grant (6 months) and I started the project "Modern Heritage Data Management Infrastructure" as Principal Researcher (funded by the Ministry of Innovation and Competitiveness of Spain). These achievements, together with the previous ones, reflect my leadership in the fields of heritage studies and Digital Humanities.

My research spectrum encompasses a wide range of well-connected competences, including both theoretical and experimental parts, and is reflected in the networks I have built up – at national and international level.

Throughout my research career, main scientific contribution were the development of digital models and simulations to document and study architectural history and cultural heritage. During my PhD, I created a historical dataset based on events that could be used for both – GIS and Graph model - to study the production of architecture during the late Gothic period in the south of Spain. The results were presented at different International and were published in high qualified journals: Digital Application in Archaeology and Cultural Heritage, ISPRS Archive, Journal on Computing and Cultural Heritage, Digital Humanities Quarterly, among others. In the last four years, I have been contributing to new ways to study historical cities, historical events and heritage data science. For this, I combined the knowledge of Space Syntax methods, mathematical models (linear programing), GIS and Graph Knowledge. The results were published in Arqueología de la Arquitectura, VAR Jornal, Conservar Patrimonio, DAACH Journal, JOCCH journal, among others. Since 2015 I have been engaged in scientific committees and as a reviewer in relevant journals and Conferences.

Since 2012, my main research line focused on the application of digital information methods (relational and objected oriented databases, historical GIS and Graph model) on architectural heritage for its study, documentation, analysis and data management. During the R&C fellowship I want to research on the application of conceptual model standards in knowledge graph models for the reuse and interpretation of intangible and immovable heritage data, which influences the improvement of understanding, documentation, conservation, safeguarding and actual inclusion of heritage.

Resumen del Currículum Vitae:

Patricia Ferreira-Lopes has a BSc in Architecture and Urbanism (2009), an MSc in Building Pathology and Intervention Techniques and Management and Expert on Economic Activity in Rehabilitation (2010, UPM), an MSc in Architectural and Historical Heritage (2012, US), and a PhD in Architecture (2018, US). Currently, Patricia is a Staff Scientist at the Center of Documentation and Studies (CDE) of the Andalusian Institute of Historical Heritage in Seville, Spain, where she leads a transdisciplinary co-research line in digital information models and industrial heritage. The final goal of her research line is to develop theories, methodologies and technologies to understand, analyze and assist the knowledge generation phenomena on the domain of cultural heritage and to generate better mechanisms for its documentation.

Previously, Patricia has worked in various academic organizations, in Spain, Portugal and Brazil, in the areas of cultural heritage management, digital humanities, digital information modelling, and protection plans with a special orientation towards architectural heritage and documentation process. Patricia is also active in the Digital Humanities Community, being a member of the Committee of AHDO, HDH, CIPA HD, IRPR, among others. Since 2019, she is lecturing at the MSc of Digital Humanities since 2019 (UNIR) and Msc Cultural and Natural Heritage Management (UNIR). Patricia is also a research project evaluator in the European Commission since 2019.

During the research career, Patricia has collaborated with international and national centers: CulturePlexLab (Western University of Ontario); CLUE+ (Vrije Universiteit Amsterdam); UNESCO Chair in Cultural Landscape and Heritage (UPV); CERIS (University of Lisbon); European Project DARIAHeu; FSCH (Nova Lisboa), Incipit CSIC, Algarve University, Eurocity of Guadiana, among others. She has also participated in four R&D&I projects of the National Plan as member of the research team: HAR2016-76371-P, HAR2016-78113-R, HAR2012-34571 and PID2020-114758RB-I00.

In 2019, she has been awarded with a Scientist Invitation grant (10 months' postdoctoral contract) through a competitive call, at the FCT, where coordinated the Digital Humanities Lab at the Faculty of Social Sciences and History Nova University. In the same year, she won a Juan de la Cierva Formación (2 years' postdoctoral contract), however, this year she became pregnant and could not enjoy the scholarship. In this same year, she was selected, through a competitive process, for a permanent research position in digital humanities at IAPH.

In 2022, Ferreira won a José Castillejo Grant, in which she directed the research project "Cross-border industrial heritage in the Eurocity of Guadiana" [PITGUADIANA]. Also, in 2022, she started the project "Modern Heritage Data Management Infrastructure" as Principal Researcher (funded by the Ministry of Innovation and Competitiveness of Spain). In 2023, she joined the State Research Agency (AEI) database of evaluators.

Since 2019, her main duties are: teaching Master and PhD courses; supervising research student's internships and postdoc researchers; research on Digital Cultural Heritage and Digital Humanities; developing technical reports; participating in Scientific and Evaluation Committees; disseminating and communicating knowledge; managing projects; coordinating project teams.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	PLAZA MORILLO, CARLOS
Referencia:	RYC2022-035462-I
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Título:	Arquitectura del Renacimiento entre España, Italia y América

Resumen de la Memoria:

El principal campo de estudio del solicitante es la Arquitectura de la Edad Moderna entre España e Italia como territorio común de experimentación arquitectónica y espacio privilegiado para la búsqueda de los significados de la modernidad en la arquitectura del período.

El solicitante ha dedicado años de investigación a este tema, así como numerosas publicaciones y su aportación en proyectos. A través de su conocimiento del Renacimiento en Florencia ha estudiado las limitaciones derivadas de la actual interpretación del Renacimiento en otras realidades locales, entre la que destaca Sevilla como caso de estudio donde la dificultad de aplicar una lectura estilística derivada de la relación con la arquitectura y la ciudad italianas se muestra en modo elocuente. A través de sus estudios se pone en evidencia la importancia de indagar temáticas tradicionalmente olvidadas en el estudio del período, como el estudio de la Antigüedad Clásica desde un enfoque filológico, lo cual ha sido estudiado a partir de la figura de Hernando Colón como mayor bibliófilo y una de las personas más cultas de su tiempo. Pero lejos de considerar el Renacimiento únicamente como la búsqueda de la Clasicidad también ha sido indagado 'otro' Renacimiento, más ligado a la interpretación de la historia y la arquitectura locales de raíz medieval, andalusí y mudéjar en particular, y su vinculación con los fenómenos de identidad local. Estos nuevos enfoques han sido aplicados a la interpretación de algunas de las más importantes obras de arquitectura, como el patio de las Doncellas del Real Alcázar y los palacios de los Enríquez de Ribera, también al análisis de la extraordinaria cultura de unión entre la arquitectura y el jardín proveniente tanto de la herencia andalusí en la Sevilla del siglo XVI.

El objetivo general de la investigación es estudiar el Renacimiento en Sevilla bajo nuevas categorías interpretativas, incluyendo un ámbito cronológico más amplio que incluya el siglo XV así como muchos otros temas poco indagados para la historia urbana y de la arquitectura como la herencia andalusí y mudéjar, la búsqueda de la Antigüedad, la naturaleza en la ciudad, la salud y las condiciones climáticas, el territorio, el paisaje, la relación con otros centros menores, los nuevos perfiles sociales y sus intereses en lo que respecta a la arquitectura y la ciudad, los espacios del nuevo comercio mundial y su relación con el comercio local de herencia medieval, los conflictos entre el puerto y la ciudad, el papel de la industria en la configuración urbana, la teatralidad, los espacios de sociabilidad, la simbología del agua, los conflictos de poder entre la Corona y el Ayuntamiento, así como estas instituciones o las órdenes religiosas como comitentes de arquitectura. Muchos de estos aspectos adquieren un gran interés debido precisamente a la relación de la ciudad con América ya que será la nueva dimensión del mundo la que repercutirá notablemente en las nuevas estructuras sociales y urbanas que se construyen en Sevilla, entrando en conflicto con un tejido social y urbano de raíz medieval andalusí y mudéjar.

El resultado al que se aspira es una historia de la arquitectura y la ciudad del Renacimiento más rica e inclusiva de las tantas facetas que inciden en los aspectos arquitectónicos y urbanos de una ciudad de la Edad Moderna dentro del espacio histórico hispánico.

Resumen del Currículum Vitae:

Carlos Plaza se ha formado como arquitecto en las Universidades de Sevilla y Florencia (2008), en las que consiguió posteriormente el doctorado internacional en cotutela en Historia de la Arquitectura (2013). Condujo sus estudios de doctorado íntegramente en Florencia con el profesor Amedeo Belluzzi, ampliando sus estudios con el profesor Howard Burns en la Scuola Normale Superiore di Pisa (2010-2012). En Italia frecuentó prestigiosos cursos de especialización de postgrado como el 51º curso del CISA Andrea Palladio (2009), fue fellow en Harvard University (Villa I Tatti, 2015) y en la Max Planck Gesselhaft (Kunsthistorisches Institut in Florenz [KHI], 2016), dos entre las más prestigiosas instituciones de investigación a nivel mundial según diferentes rankings internacionales, y ha realizado más de 26 meses de estancias postdoctorales de investigación en universidades e instituciones (U. de Nápoles, Iuav, U. de Florencia, KHI, Courtauld Institute of Art). Desde el curso 2015-2016 es profesor en el Dpto. de Historia, Teoría y Composición Arquitectónicas de la U. de Sevilla, primero como Profesor Sustituto Interino y desde 2019 como Investigador postdoctoral, impartiendo docencia en Grado, Máster y Doctorado.

Si bien sus aportaciones científicas se pueden encuadrar también en cuestiones patrimoniales, su campo de especialización es la Historia de la Arquitectura, con especial interés en la Edad Moderna y el siglo XX entre España e Italia y ampliando sus intereses recientemente a la América española. Ha participado en equipos de investigación de 1 proyecto europeo (ERC), 5 estatales (I+D+i) y 1 autonómico, habiendo sido IP de otro proyecto autonómico (FEDER-Andalucía 2020). Sus investigaciones han sido seleccionadas para ser publicadas en revistas y libros de prestigiosas editoriales, entre las que destaca 1 monografía (con 6 recensiones en revistas especializadas), 4 libros como editor (con 7), 9 artículos de revistas con evaluación por pares dobles ciegos, más de 30 capítulos de libros y 10 recensiones de libros científicos.

Su transferencia de conocimiento a la sociedad busca el papel de la arquitectura del patrimonio histórico en la sociedad contemporánea. Destaca su papel como coordinador general del I Plan Director del Patrimonio Histórico Municipal de Sevilla (2022-2030) que ha diseñado una estrategia unitaria de gestión para los 130 bienes inmuebles de titularidad municipal del Ayto. de Sevilla. Es también miembro del equipo de investigación que trabaja en el Plan de Manejo del Confort Térmico en Sevilla (2022-2025) que se enfrenta al desafío de la renaturalización de la ciudad a través de una estrategia que, aplicada a Sevilla como caso de estudio, busca la adaptación de la ciudad contemporánea a sus condiciones climáticas en favor del bienestar ciudadano, siendo su aportación el estudio de las estrategias históricas de la ciudad de adaptación al clima desde la arquitectura, el urbanismo y el paisaje.

Sus líneas de investigación han tenido continuidad en Trabajos Fin de Grado (5) y tesis doctorales (3 direcciones en curso en las U. de Sevilla y en el Iuav de Venecia.

Ha organizado congresos internacionales y participa habitualmente como ponente invitado u organizador de sesión en congresos de 6 sociedades científicas a las que pertenece y participa activamente. Es miembro de 8 comités editoriales de revistas y monografías científicas internacionales relevantes en Historia de la Arquitecura.

Resumen de la Memoria:

During my scientific career, I have made numerous notable contributions to Heritage Science, developing and applying state-of-the-art analytical techniques and new methodologies to answer fundamental research questions from the Heritage, Arts, culture, and Humanities sectors. I particularly focused my expertise on the characterization of inorganic porous art materials (i.e., historic wall paintings, mosaics, and mortars), their degradation phenomena, and the development of technologies for their conservation.

My scientific career began at the Uni. of Vigo during a pre-doctoral internship at UVigo's Heritage Conservation Lab, where I learnt a wide range of analytical skills to characterize art materials. This experience highly motivated me to pursue a career in heritage science. After this experience, I moved with an ICON-Intern grant to the National Trust of Scotland (UK) where I analyzed several historic decorative interiors on more than 50 historic buildings. During this experience, I carried out several analytical studies to study decay and to establish several conservation strategies. Following this experience, I moved to Sheffield (UK) with the VC Scholarship to undertake PhD in the study of "nanolime as a consolidation method for historic structures". The outcome of this PhD was 9 articles in high-impact JCR journals and ~100 citations in ~3 years. Additionally, in the early stages of my PhD, I also travelled to do research at the Smithsonian's Museum Conservation Institute laboratories (USA) where I tested additives to improve the effectiveness of nanolime. One of these additives, i.e., sticky rice, ended up being fundamental for my PhD and my further research (e.g., NANOMORT). Additionally, during my PhD, I also obtained additional funding from the Research Council UK (RCUK) to undertake a stay at the Uni. of L'Aquila (IT), where I learnt the know-how of the synthesis of nanolime by anion exchanges, which was also crucial when designing NANOMORT.

After my PhD, I moved to Los Angeles to do research at the Getty Conservation Institute labs (USA). During this post-doc, I worked on the project "Methodology for Evaluating Conservation Treatments". In this experience, I could analyze several analytical tests to characterize heritage materials. My work during this period was presented in international meetings, yielding 4 publications, 2 of them as first author. This experience also helped me to establish a large network of renowned collaborators. In this experience, I act de facto as a junior leader (non-permanent), designing, conducting and interpreting research, including my own areas of investigation. I even officially supervised 1 MSc student (Uni. of Amsterdam). Based on my background with analytical tests, and previous networks, after this experience, I was offered to do research again at the Smithsonian and to write a book for them, which was published in 2021.

Based on previous research experience and how-know in the synthesis of nanoparticles, I designed, in 2020, a totally new research line (NANOMORT) which has been funded by the EU (MSCA-IF) to be implemented at the Univ. of Granada. I have generated confidential knowledge while also publishing 8 articles, lecturing, mentoring PhD/MSc students and actively participating as an expert member in several ICOMOS experts' committees with scientific and technical responsibilities

Resumen del Currículum Vitae:

After my MSc studies (score: Sobresaliente) and an Internship at UVigo's Heritage Conservation Lab, I was awarded by the Institute of Conservation (UK), a highly competitive one-year fully-funded Fellowship (73 applicants for 1 position), to carry out research at the National Trust of Scotland (NTS, UK) where I could learn from NTS senior scientists in the analysis of ~50 historic structures and collections. After this experience, I was subsequently awarded by Sheffield Hallam University (UK) the VC Scholarship (300 applicants for only 1 position) to undertake my fully-funded Ph.D. on nanolime to consolidate historic materials. Additionally, at the beginning of my Ph.D., I was also awarded by the Smithsonian's Museum Conservation Institute (MCI), one of the most recognized heritage research centers in the world, with an MCI-Fellowship to develop a fully-funded 4-month research. In this experience, I was mentored by Prof. Charola, one of the world's leading experts in heritage conservation. During my Ph.D., I was also awarded additional funding by the Research Council UK (6000 applicants for 100 grants) to undertake a fully-funded 6-month research stay at the Uni. of L'Aquila (IT). After my PhD., I was awarded by the Getty Conservation Institution (USA), another internationally renowned heritage research center, with a one-year fully-funded post-doctoral Fellowship. In this experience, I was co-mentored by Prof. Viles (Uni. of Oxford, UK), another world's leading figure in heritage conservation. After this post-doctoral experience, I was offered, by the MCI, to do research again at the MCI and write a book for the Smithsonian Scholarly Press, which has been worldwide distributed by the Smithsonian. After this stage in the USA, in 2020, I was offered both the Juan-de-la-Cierva-Fellowship and the EU Marie-Curie-Individual-Fellowship (Score: 98.2/100) to carry out my own designed and planned research (NANOMORT) at the Uni. of Granada. This experience as PI of NANOMORT has significantly reinforced my professional maturity/independence as a researcher, mentor, project manager, expert and lecturer.

My independence, maturity and leadership indicators are consolidated by editorial (editor of 3 special issues in Q1 journal) and reviewing tasks (~10 articles/year), proactive grant/fund seeker (8), expert member of international scientific committees (e.g., ICOMOS for stone and Mural paintings), invited expert to write a book for the Smithsonian (1), single author articles (1), PI of an EU-funded project, high international network, and lecturer for several University courses. I supervise 2 MSc and 1 PhD students and mentored many other colleagues. I have published by now 23 peer-review articles, most of them, as the first or single author, at high-impact journals or presented at major international conferences, also often with international and/or renowned collaborators. I am highly engaged to disseminate conservation to broader audiences, through informal articles, press releases or interviews for international media (e.g., Weekendavisen). Beyond academia, I regularly collaborate in Granada with local communities to

develop, apply, and evaluate methodologies that connect science and art; while also participating with other local craft professionals in Andalucia for a horizontal exchange of knowledge between academia and mosaics/tile craft artisans

Área Temática:	Cultura: filología, literatura y arte
Nombre:	HSU , SHIH-WEI
Referencia:	RYC2022-035138-I
Correo Electrónico:	swhsu2012@gmail.com
Título:	Realeza e ideología en el antiguo Egipto

Resumen de la Memoria:

My research interests lie with the ancient Egyptian royal inscriptions from the Old Kingdom to the Ramesside Period (ca. 2543–1077 BCE) and include many aspects of ancient Egyptian studies, including history, kingship, ideology, language, rhetorical stylistics, metaphor, simile, literature, and pictorial narratives. After achieving my PhD, my research area broadened. I extensively investigated ancient Egyptian amulets, their definitions, religious meaning, types, etc., as well as ancient Egyptians' expressions of emotion, historiography and the history of the intermediate Periods. Up to now, I have published two monographs (Images of the Pharaoh, Saarbrücken: Golden Light Academic Publishing, 2015 [ISBN: 978-3-639-73783-5] and Bilder für den Pharao. Untersuchungen zu den bildlichen Ausdrücken des Ägyptischen in den Königsinschriften und anderen Textgattungen, Leiden: Brill, 2017 [ISBN: 978-90-04-34779-3]), three edited books with other relevant scholars (with Vincent Pierre-Michel Laisney and Jan Moje, Ein Kundiger, der in die Gottesworte eingedrungen ist. Festschrift für den Ägyptologen Karl Jansen-Winkeln zum 65. Geburtstag, Münster: Zaphon, 2020 [ISBN: 978-3-96327-094-9]; with Jaume Llop-Raduà, The Expression of Emotions in ancient Egypt and Mesopotamia, Leiden: Brill, 2021 [ISBN: 978-90-04-43075-4]; with Benedict Davies, Gabriella Dembitz, and Hana Navrátilová, Ramesside inscriptions, translated and annotated: notes and comments, volume VII, Addenda, London: Wileys, 2022 [ISBN: 978-0-631-18441-6]), and more than 30 articles in different languages (Chinese, English and German) in many prestigious journals (indexed at A&HCI or ERIH).

From 2009 onwards, I attended different international conferences to present my research results every year. I have been invited as a keynote speaker by some prestigious universities as well. In addition, during my academic stays at international universities and institutes, I made fruitful academic connections with scholars abroad and participated in several international projects.

From 2017 to now, I have received an offer to become an associate professor at Nankai University in Tianjin (P.R. China). I obtained budgets to arrange various lectures and workshops; as the host, I invited international Egyptologists and Assyriologists to Nankai to exchange academic ideas. The funding for these events allowed me to organize a series of lectures at Nankai University twice, in 2019 and 2022. In 2019, also the year of Nankai University's 100th anniversary, I was honoured to invite Anthony Spalinger, Pascal Vernus, Mu-Chou Poo and Jaume Llop-Raduà. Altogether, seven lectures were presented at the Faculty of History to audiences of mostly BA, MA and PhD students of Ancient World History. In 2022, China's pandemic policy limited visiting lectures to video chats. I invited four experts, Roberto Gozzoli, Nozomu Kawai, Mu-Chou Poo and Stephen Vinson, to celebrate 200 years of Egyptology.

I am currently conducting an ongoing project on ancient Egyptian 850 unpublished amulets with the Ducal Museum Gotha in Germany. I intend to publish several articles in prestigious journals of Egyptology, a brief catalogue of these objects for the museum brochure and a scientific monograph that will contain a detailed investigation and analysis of all of the amulets.

Resumen del Currículum Vitae:

My research interests lie within the field of Egyptology, which is the study of ancient Egypt and encompasses history, culture, language, literature, art, and religion. However, Egyptology is not offered as a major at any Taiwanese universities. I chose to attend the Chinese Culture University and studied German language and literature. During my bachelor studies, I participated in the joint-exchange program with the Ruprecht-Karls-Universität Heidelberg. I stayed in Heidelberg for one year and not only intensively studied the German language but also gained broad knowledge about Germany. I learned that Egyptology was offered at Heidelberg University. After I earned my bachelor's degree, I decided to return to Heidelberg to study Egyptology. In this field, learn about ancient Egypt from many perspectives, including history, languages, literature, culture, art, religion, archaeological methods, etc. To develop my ability to comprehend ancient Egyptian, I learned Akkadian, Sumerian, classic Arabic, classic Hebrew, Old Syrian and Latin, as well as modern languages, including French, Spanish and Egyptian Arabic. In addition, I joined excursions with other Egyptologists to visit several Egyptian museums in Italy (Turin, Florence, Bologna and Rome) and participated in an archaeological excavation in Stillfried (Austria) and three campaigns in Abydos (Egypt). My Magister's thesis focused on ancient Egyptian royal inscriptions, in particular their different text genres and development from the Old Kingdom to the 18th Dynasty. Later, I moved to Berlin to carry out my doctoral degree at the Free University of Berlin. My doctoral dissertation concentrated on figurative expressions in ancient Egyptian texts from the Old Kingdom to the Ramesside Period, placing particular emphasis on royal inscriptions. Meanwhile, I gained my academic experience through publishing Chinese, English and German articles in many prestigious journals (indexed at A&HCI or ERIH) and participated at many international congresses, as well as visited varied institutes (IPOA Barcelona, Albright Institute in Jerusalem, CSIC Madrid etc).

From 2017 to now, I have received an offer to become an associate professor at Nankai University in Tianjin (P.R. China). There, I have taught the "History of Ancient Egypt" to undergraduate students and "Introduction to Middle Egyptian Grammar" and "Reading of Ancient Egyptian Texts" to master's students. I already supervised two bachelor's students and five master's students in the field of Egyptology. In the summer of 2019, I led a group of 26 undergraduate students to Dalian. They completed a practicum at the Lüshun Museum, the Japanese and Russian Prison Site Museum in Lüshun, Mountain of Baiyu and Port Arthur. I have also frequently reviewed graduates' theses, reading 12 from other universities (Northeast Normal University, Beijing Normal University and Shanghai University) and have reviewed five research articles for top scientific journals (Aula Orientalis, Religion Compass, Journal of Ancient Egyptian Interconnections, World History Studies and Nankai Historical Studies). I am also a regular member of the International Association of Egyptologists (IAE).

Área Temática:	Cultura: filología, literatura y arte
Nombre:	ELERT , KERSTIN
Referencia:	RYC2022-037633-I
Correo Electrónico:	kelert@ugr.es
Título:	Alteration and Conservation of the Cultural Heritage

Resumen de la Memoria:

My research activities are focused on the Alteration and Conservation of the Cultural Heritage with special emphasis on lime-, gypsum-, and clay-based materials and polychrome surfaces. I started as an intern in the conservation dept. of the Ethnographic Museum, Bremen (Germany) in 1986, where I was later awarded a position in a 3-year training program. In 1990 I completed a 6-month internship at the Denkmalpflegeamt Hannover (Germany) and was later admitted in the prestigious graduate conservation program at the Fine Arts Academy Stuttgart (University Degree, Germany). During the 4-year program I interned in international ethnographic museums in Stuttgart, Hamburg, London and Canberra. In 1994 I was awarded a 1-year Graduate Internship at the Getty Conservation Institute (GCI, USA), a renowned non-profit institution dedicated to scientific research in the heritage conservation field. Subsequently, I was offered a 3-year Research Fellow position at the GCI, producing 4 JCR/peer-reviewed articles, 3 congress contributions, 1 book. In 1999 I started interning in the Dept. of Mineralogy & Petrology (UGR), participating in various national/international projects alteration and conservation of stone, lime mortars and earthen architecture (among others: Lime Mortar and Plaster Project in collaboration with the GCI and KU Leuven, producing 2 JCR articles, 1 annotated bibliography; a research contract financed by TRENZA METAL S.L., producing 2 patents; and EU projects SALTCONTROL and DeltaMIN). During 2003-2010 I was on maternity leave for a total of 5 years. In 2014 I successfully defended my PhD thesis in the program Ciencias de la Tierra (UGR) on a novel conservation method: Alkaline Activation of Clays for the Consolidation of Earthen Architecture (5 JCR articles). Subsequently, I was a Postdoc Researcher in various national projects on biotreatments for stone conservation (1 JCR publication, Nat. Commun.), pollution-induced paint alteration (7 JCR articles, 5 congress contributions, 1 Master Thesis), and in the Unidad Científica de Excelencia (UGR) (4 JCR articles, 1 Master Thesis), fomenting international collaborations with researchers from Bern and Konstanz University, and KU Leuven. During 2019-2021 I was a contracted researcher in two projects on lime optimization for SO2 capture financed by the Belgium Lhoist Group (patent on Ca(OH)2 nanoparticle synthesis for conservation treatments under review). I was the leader of a research project on Biomineralization for Earthen Architecture Consolidation in collaboration with the GCI (USA) and the Patronato de la Alhambra y Generalife (1 JCR article, 1 international congress contribution Terra 2022) and collaborated in a project with Harvard University (USA) on Maya stone and mortar conservation financed by the Santander Foundation (2 JCR articles). Currently, I am a postdoc researcher in a project on stone damage induced by soluble carbonates and I am participating in the EU projects EXITE and SUBLIME (responsibilities: supervision of a PhD student (ESR) and teaching in the Research Training School). I am also a scientific advisor in an international project on earthen architecture conservation at Hili (UNESCO site, Abu Dhabi).

Resumen del Currículum Vitae:

I started as an intern/trainee in the conservation dept. of the Ethnographic Museum, Bremen (Germany) in 1986 and was later admitted in the prestigious graduate conservation program at the Fine Arts Academy Stuttgart (University Degree, Germany) in 1990. During the 4-year program I interned in international ethnographic museums in Stuttgart, Hamburg, London and Canberra. In 1994 I obtained a 1-year Graduate Internship at the Getty Conservation Institute (GCI, USA), a renowned institution in the field of heritage conservation science, where I was later offered a 3-year Research Fellow position. In 1999 I started interning in the Dept. of Mineralogy & Petrology (UGR), participating as a researcher in various inter-/national projects. During 2003-2010 I was on maternity leave for a total of 5 years. In 2014 I defended my PhD thesis in the Program Ciencias de la Tierra, UGR. Subsequently, I was a Postdoc Researcher in projects on biotreatments for stone conservation, pollution-induced paint alteration, Unidad Científica de Excelencia PP2016-05, contracts on lime optimization financed by the Belgium Lhoist Group, led a research project on Biomineralization for Earthen Architecture Consolidation in collaboration with the GCI (USA) and the Patronato de la Alhambra y Generalife and collaborated in a project with Harvard University (USA) on Maya stone/mortar conservation. Currently, I am a postdoc researcher in a project on salt-induced stone damage, participating in EU projects EXITE and SUBLIME and a scientific advisor in an international conservation project at Hili (UNESCO site, Abu Dhabi). So far my research activities have resulted in 56 Scientific publication (41 JCR articles; Q1: 27/41; D1: 12/41; First and last author: 20/41 and 7/41; h-index (Scopus): 18; Total number of citations (Scopus): 1438; Average number of publication/citations in the last 5 years: 4.2 pub./year and 178 cit./year; 3 Patents (2 in commercial exploitation); 2 Books published by Getty Publications (USA), and participation in 25 Research Projects/Contracts and 15 National and International Congresses. I was an invited speaker/lecturer at international meetings/seminars (NCPTT 1998, GCI/USA 2001/2005, University of Milan 2022) and in the Jornada Técnica CEMOSA-UGR in 2016. Since 2011 I am teaching in the Master¿s Program Ciencia y Tecnología en Patrimonio Arquitectónico (UGR), and since 2013 in the Bachelor Degree Conservación y Restauración de Bienes Culturales (UGR), being a member of the "Comisión Evaluadora de Trabajos Fin de Master", "Comisión Académica", and "Comisión de la Garantía de la Calidad" of the former. I have co-/supervised 18 Master Theses (2 JCR articles), 10 Research Projects (mandatory internships for master students at the UGR), and 1 international PhD research project financed by BECAR/SEPIE. Currently, I am supervising 2 PhD theses on the conservation of traditional gypsum (2 JCR article) and the functionalization of conservation lime mortars. I taught in 4 specialized courses on earthen architecture and lime mortar/plaster conservation. In May 2017 I was successfully evaluated by the ANECA, obtaining the academic rank Profesora Contratada Doctor. In 2020/21 I led a multidisciplinary "Innovación Docente" Project on the application of XRD for heritage materials, producing a webpage, 1 article and 1 congress contribution.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	GARCÍA MARTÍNEZ, PABLO
Referencia:	RYC2022-037666-I
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Título:	Memory and Modernity: The Case for Galician Culture in late and post-Franco Spain

Resumen de la Memoria:

As a Ramón y Cajal fellow, my objective would be to expand and complete the two-pronged project that I started upon returning to the Universidade de Santiago de Compostela in January 2022.

First, I will conclude my ongoing research on the various cultural forms (such as music, literature, journalism, cultural criticism, and graphic novels) produced by self-proclaimed "popular nationalism" in Galicia from its inception in the early 1960s until the beginning of the Autonomic period, marked by the approval of the Galician Statute of Autonomy in 1981. I expect this line of inquiry to culminate by Fall 2024, when I will submit a book-length manuscript on the topic to Liverpool University Press's series, "Contemporary Hispanic and Lusophone Cultures."

The second dimension of my work as a Ramón y Cajal Fellow would involve utilizing the interdisciplinarity that defines my Cultural Studies approach to research. This approach blends my experience as an art curator with my training in areas such as Media Studies, the philological approach to Theoretical Literature, Hispanic Studies, and Romanistik studies. I will use this analytical toolset to lead an in-depth exploration of the most ambitious project originating in Galicia that aimed at engaging with 20th-century global modernity, the Laboratorio de Formas. Conceived from Argentina, this business conglomerate was established in the 1960s by multi-faceted intellectuals Luís Seoane and Isaac Díaz Pardo. The Laboratorio de Formas was home to the Museo Carlos Maside, the ceramics factory Cerámica de Sargadelos –along with the Seminario de Sargadelos, a site for research on the interplay between art and industry– and the publishing house Ediciós do Castro, among other institutions.

A comprehensive study of the Laboratorio de Formas' legacy could lead to various lines of inquiry, including but not limited to, transatlantic cultural exchanges with the Global South during the Cold War, the re-framing of the relationship between Marxism and memory after World War II, and the issue of art-as-labor in the context of the crisis of Fordism between 1950 and 1980. The most significant aspect of the Laboratorio de Formas is that it enables an interdisciplinary research project. This project would involve researchers from different academic fields, such as art history, architecture, philology, sociology, and history, engaging in dialogue with non-academic creators such as video artists, plastic artists, writers, designers, and art curators. The project's research team project would also replicate the transatlantic nature of the Laboratorio de Formas. The part of the team working from Spain will collaborate with a network of Argentina-based scholars specializing in modern Argentinian culture with whom I have maintained ongoing communication after having collaborated with some of them during my doctoral training, a 2016 six-week research stay in Argentina, and a 2022 exhibition I co-curated at Buenos Aires's Museo Larreta.

The two-pronged project sketched above constitutes a pending contribution to the impressive and growing body of knowledge that attempts to understand the late Franco period and Spain's Transition to democracy. I have set this contribution as my goal for the next stage of my research career, and the Ramón y Cajal program provides the ideal scenario for me to achieve it.

Resumen del Currículum Vitae:

I hold a Ph.D. in Latin American, Iberian and Latino Cultures from the City University of New York (CUNY), awarded in 2018. My research, drawing on the tradition of Cultural Studies, examines the interaction of print, visual arts, and literature in contemporary Iberian cultures. Conducting research overseas during the last decade, diaspora has come to be both the condition under which my interdisciplinary work developed and the object of my studies. The locus of my research is 20th-century Trans-Atlantic cultural exchange, with a particular emphasis on culture produced by Spanish Republican exiles in Latin America. I have presented papers or given invited talks at universities such as Oxford, Columbia, Harvard, Georgetown, Johns Hopkins, University College Cork, and University of Turku. My funding awards include an Enhanced Chancellor Fellowship (CUNY, 2012-2017), a CIMO Scholarship (Finnish Government, 2015), a Humboldt Fellowship for postdoctoral researchers (Alexander von Humboldt Foundation, 2020-2021), and a Margarita Salas Postdoctoral Fellowship (Spanish Government, 2022-2024). I consistently share my research with wider audiences through educational articles in cultural magazines and encyclopedic entries in the Real Academia de la Historia's Diccionario Biográfico Español and the Biblioteca Virtual Miguel de Cervantes's Edi-Red. Additionally, I have curated two exhibitions on my work, first at the Fundación Luís Seoane, (A Coruña, 2021) and subsequently at the Museo Larreta (Buenos Aires, 2022), where I have engaged with diverse audiences and shared new ideas arising from my research.

I am the author of the book Un largo puente de papel. Cultura impresa y humanismo antifascista en el exilio de Luís Seoane (CSIC, 2021), which has been reviewed in academic journals such as the Arizona Journal of Hispanic Studies (USA), Bulletin of Spanish Studies (UK), Prismas. Revista de historia intelectual (Argentina), Caiana. Revista académica de investigación en arte y cultura visual (Argentina), Galicia 21 (UK), Iberoamericana (Germany), and Madrygal. Revista de estudos galegos (Spain). My work on Republican exile has been published in several academic journals and books. These include Revista Hispánica Moderna from the University of Pennsylvania Press, Bulletin of Hispanic Studies from Liverpool University Press, a forthcoming article in Modernism/modernity from Johns Hopkins Press, and a chapter in a book published by Palgrave Macmillan.

The fruits of two secondary lines of research have been published in the leading academic journal for Iberian Cultural Studies, Journal of Spanish Cultural Studies (JSCS), published by Taylor & Francis. In 2020, I published an article analyzing the prominent role of cinema in the generation of cultural hegemonies during Francoism. My focus was on film director José Antonio Nieves Conde and the previously unreported relationship he maintained with the most prestigious film magazine of the period, Primer Plano. In 2017, JSCS published an article summarizing some of my findings on the role

played by Marxist cultural theory in the articulation of Spanish peripheral nationalisms during the 1960s and 1970s. I began this line of research during my time as a CIMO Fellow in Europe' s leading Cultural History Department, at the University of Turku in Finland, where I studied nationalism and romanticism.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Cultura: filología, literatura y arte
Nombre:	FERNANDES CARDOSO, ELSA RAQUEL
Referencia:	RYC2022-037715-I
Correo Electrónico:	elsa.fc@gmail.com
Título:	Islamic Court Studies, written culture and orientalism: Iberia and beyond

Resumen de la Memoria:

My career has focused on two lines of research, which take al-Andalus in its Mediterranean context:

1) Diplomacy and ceremonial was first developed during my MA with the thesis Diplomacy and oriental influence in the court of Cordoba (9th-10th cents.). In this line, I have published with international editors, e.g., journal Medieval Encounters or the volume Byzantium in Dialogue with the Mediterranean (Brill). Taking my MA thesis as a starting point, I am currently working on a book which will be published by the Spanish Society of Medieval Studies in partnership with the CSIC.

2) Models, concepts and court started with the PhD. While Court Studies is an established field for Modern European chronologies, Islamic courts lack consistent research, which my line of investigation has contributed to overtake. With this innovative line, I presented a PhD project which won a competitive grant of FCT and internationalized my profile with the co-supervision of Hugh Kennedy of SOAS (U. London). The granting of the Juan de la Cierva, from 4/2022, which I am currently enjoying, is also the result of this line. Its most relevant result is the invited publication of the thesis as a book by Routledge (The Door of the Caliph, 2023). Thus, for the first time, the conceptualization of the Umayyad Andalusi court – the palace, the caliph and his entourage – was consistently studied, having established that the Umayyad caliphs coined the original concept of Bab Suddat al-Khalifa, in an abstract reference to the main door of Cordoba. Under this line, I have also obtained a competitive contract (4/2021-03/2022) at the RomanIslam Centre (U. Hamburg), funded by the DFG, with a project on the process of permeability of rituals prior to the Islamic conquest of Iberia. A joint publication with J. Albarrán (UAM) in the journal Intus-legere Historia is one of the results of this project. As an input for this line, I organized the international workshop The Umayyads-From West to East (03/2021) at the University of Hamburg.

For the Ramón y Cajal, I will also develop: 3) Historiography, literature and orientalism, for which I have been presenting preliminary results. I organized a joint panel (J. Albarrán, UAM; A. Krasner, New York University) for the international conference Using the past (12/2020, Portugal), discussing ideas on al-Andalus in literature, which resulted in a chapter in Brepols, in press.

I am also working on the perception in sources of the Gharb al-Andalus (Western al-Andalus), resulting in a chapter on the taifas of the Gharb in a volume edited by A. García-Sanjuán (U. Huelva), in Brill, in press. Also, I am now part of the academic project Cine y Edad Media, led by A. Miguélez (IEM-NOVA Lisbon), funded by Portuguese universities and the Portuguese Cinematheque. As a result, we are organizing a cycle of cinema with a public scope at the Círculo de Bellas Artes of Madrid (12/2023), with the participation and funding of UAM, CSIC, the Portuguese Embassy, Institute Confucius.

Resumen del Currículum Vitae:

I have been a researcher in Arabic Studies and History of Islam since my M.A. in History of Medieval and Islamic Mediterranean Societies (2015, University of Lisbon), having been trained in Arabic both during my career and in Tunis. Having been granted my PhD in 7/2020 from the University of Lisbon, Portugal (Distinction and Honours), funded by the Portuguese state agency for science (FCT), my independent profile as a professional researcher has already been widely developed internationally. In less than two years after I got my PhD, I have obtained two international competitive postdoctoral contracts. The first, a one year resident fellowship in history of Islam (4/2021-3/2022), at the RomanIslam Center of the University of Hamburg, funded by a major project of the German state agency for research DFG. The second, the Spanish Juan de la Cierva (formación), also an international postdoctoral contract, considering my training path, began in April 2022 at the CSIC Institute of Languages and Cultures of the Mediterranean and the Near East (ILC), in Madrid.

The results of my research can be summarized in: 1 competitive pre-doctoral contract; 2 international competitive postdoctoral contracts; 1 book in a renowned international publishing house; 1 book in press (Spanish Society of Medieval Studies); 1 international co-edited volume, in one of the main international journals of Islamic studies (Der Islam, in press); 8 published articles (e.g., Medieval Encounters, Intus-legere); 2 chapters (Brill, Trea); 3 chapters in press (e.g., Brepols, Brill); 3 dictionary entries in press (e.g., Routledge); 5 dissemination articles (e.g., Desperta Ferro, al-Andalus y la Historia); 12 invited presentations (e.g., Paris Panthéon-Sorbonne, UCM, Instituto Cervantes de Hamburgo, CSIC/Casa de Velázquez); organization of 1 international scientific congress (U. Hamburg); organization of 1 academic course (University of Hamburg); 14 communications in conferences (mostly international, e.g., International Medi eval Congress of Leeds, British Association for Islamic Studies, U. Stockholm); responsible for teaching 2 BA courses; invited participation in several BA classes (U. Lisbon, UAM); reviewer for journal articles (Medievalista, Medievalismo). Also, my incorporation into the research team of the CSIC Platform MEDhis has allowed me to organize seminars which will take place from 3/2023 onwards.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	RAGUIN , MARJOLAINE
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Título:	Raguin. SCIENTIFIC AND TECHNICAL REPORT

Resumen de la Memoria:

Since 2011, I have been working as a researcher or postdoctoral researcher, with a strong international and multidisciplinary background. My scientific career thus far has been divided into 4 stages. I first worked on Occitan epic literature (2008-2014), then on Occitan and French Crusade lyric songs (2015- 2019), and then on the lives of saints and their writings, linked to the development of the Beguine movement (2020-2022). Finally, I currently work on Guilhem de Berguedan's anticlerical poetry. After training in Romance philology, Christian theology and Law, and obtaining my PhD in France, I have secured researcher or lecturer-researcher positions at several universities in France, Italy, Canada, Belgium, The Netherlands and Spain.

I obtained my PhD in Occitan Studies on 19 November 2011, aged 24. Under the co-direction of Profs. Gérard Gouiran (Univ. Montpellier) and Jean-Pierre Chambon (Paris-Sorbonne), my doctoral thesis focused on the construction of ideological discourse (political and religious) in the Song of the Albigensian Crusade. The thesis was awarded the Very Honourable Mention and the unanimous congratulations of the jury, as well as the Sydney-Forado Thesis Prize (Toulouse Academy of Sciences, Inscriptions and Belles-Lettres, 2012). In 2010, I was invited by Prof. Beverly Kienzle at Harvard University as her Research assistant. Prof. Kienzle wrote the preface of the published version of my dissertation (Champion 2015, 680 p.).

During my predoctoral training (2005-2008), I had studied Romance philology and Christian theology in France and Italy, and I completed my studies with a Master's degree in Law (2015). After obtaining my PhD, the international dimension of my profile has become wider. After working in France for 2 years, I worked as a researcher with Prof. Dorothea Kullmann at Toronto University (2014); Prof. Martin Aurell at the Centre d'études supérieures de civilisation médiévale (CESCM) at the University of Poitiers (2015-2016); collaborated with Prof. Linda Paterson (2015-2016), Prof. Nadine Henrard at the University of Liège (2016-2019), and Prof. Daniela Müller at Radboud University for two years (2020-2022). At Girona, I am working with Prof. Miriam Cabré and the research team of Medieval studies for two years (2022-2024). I have thus been able to expand the interdisciplinarity of my profile in both Romance philology and the history of Christianity and Christian societies.

Having took childcare voluntary leave (2019-2020), I have published 30 scientific articles and 1 monograph (Champion, 2015), edited 1 book (Lambert-Lucas, 2020) and 1 journal issue as guest editor (2017), participated in 2 co-translations of books (2020, Classiques Garnier and Lambert-Lucas), given 47 conferences and congress lectures or invited lectures, and organized or co-organized 8 colloquiums/seminars. Furthermore, I have 10 scientific articles in press or prepared for publication, 1 issue of the Revue des langues romanes (as guest editor), 1 edited book, and 2 co-edited books. During this period, I have benefited from competitive funding from 3 sources (MSCA Marie-Curie in Liège, Excellence Initiative in Radboud and, most recently, Maria Zambrano Fellowships in Girona); and waived 2 others. Moreover, I have conducted independent and interdisciplinary research that combines skills in Romance philology, history, and theology.

Resumen del Currículum Vitae:

I am a Romance philologist with a strong international background, and have secured prestigious fellowships and grants to fund my independent research projects. My complementary education (MA in Law and BA in Christian theology) allows me to develop a true interdisciplinary approach to medieval sources. My research and publications focus on the range of literary texts related to religious dissidence and wars of expropriation, with a particular interest in gender studies. I have worked on epic and narrative texts, as well as crusade lyrics in the East and the West (Occitan and French), and also Latin documentary texts, such as the Statutes of Pamiers. My PhD dissertation studied the political and religious propaganda in the Song of the Albigensian Crusade, a major Occitan epic poem. At Radboud Univ., I analysed Beguine martyrdom in 13th C. hagiography in a French, Occitan and North European Latin context. I am currently working at the Univ. of Girona on the first attestations of anticlerical literature in Occitania and Catalunya (12th c.). Additionally, some of my philological work is also concerned with contemporary literature: Rouanet, Rouquette, Larzac.

My professional academic experience in research and teaching also has a wide international context. In 2010, I was appointed research assistant to Prof. Beverly Kienzle (Harvard Divinity School), where I investigated ecclesiastic preaching during the Albigensian crusade. After obtaining my PhD in 2011, supervised by Profs. Gérard Gouiran (Montpellier) and Jean-Pierre Chambon (Paris-Sorbonne), I held several positions as a Lecturer and Postdoc researcher in France (Montpellier, Mulhouse, Clermont, Toulon, Poitiers), the USA (Harvard), Italy (Messina), Canada (Toronto), Belgium (Liège), the Netherlands (Radboud) and Spain (Girona). I obtained the French qualification as a maître de conferences in 2012.

Since 2011, I have been awarded several distinctions and prestigious grants including a PhD Excellence Award. As a PI, I received an ERC-Tempus foundation Fellowship (declined), Marie-Curie Fellowship, Radboud Excellence Fellowship, Margaritas Salas Fellowship (declined), Maria Zambrano Fellowship (total funding acquired: €526,672.32). I also obtained others fellowships and competitive postdoc positions. After having two children, I took a childcare career break (20/01/2019-30/04/2020).

My publication record includes a monograph, a book direction, 2 co-translations of books and 30 articles. I also served as a peer-reviewer for international journals and was guest editor for two thematic issues of the Revue des langues romanes. I have a solid collaborative trajectory: in particular on interdisciplinary projects, e.g 'Troubadours, trouvères and the Crusades' (AHRC funded; IP Prof. Linda Paterson, Univ. Warwick). I also substituted the IP of the Canadian project 'Linguistic duality in Occitan Epic literature' (SSRC funded) during her long sick leave, and collaborated in the Corpus des troubadours (Institut d'Estudis Catalans). I have been on the organizing committee of 8 conferences and produced several joint publications. Finally, I taught more than 2000 h. in various universities since 2008; and I have also experience with teaching and evaluation (MA and PhD thesis committees) of young researchers.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	GARBAYO MAEZTU, MAITE
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Título:	Historia del arte español contemporáneo y estudios de género

Resumen de la Memoria:

Actualmente soy Profesora Serra Hunter en el Departamento de Historia del Arte de la Universidad de Barcelona e IP del Proyecto de Investigación RITMOS. Ritmos del trabajo femenino en la historia del arte y la cultura visual (España, 1936-2022), Ministerio de Ciencia e Innovación.
La investigación que realicé para mi tesis doctoral (UPV/EHU, 2014, Premio Extraordinario de Doctorado), fue posteriormente publicada como libro: Cuerpos que aparecen: performance y feminismos en el tardofranquismo (Consonni, 2016, 2ª ed. 2019). El libro se ha convertido en un volumen de referencia para el estudio de la historiografía del arte contemporáneo en España desde una perspectiva de género, como demuestra su reedición en 2019, o las citas que acumula.

Destaca el perfil internacional de mi trayectoria académica, que se ha desarrollado entre España y América Latina, particularmente en México, donde fui Estancia Académica de Investigación en el Centro de Investigaciones y Estudios de Género de la UNAM (2013-2014) y obtuve un contrato posdoctoral de dos años (2015-2017) en el Instituto de Investigaciones Estéticas de la UNAM (publicaciones en Re-visiones, 2018, Debate Feminista, 2020 y MACBA, 2020). En México, también ocupé un puesto como Profesora Titular en el Departamento de Arte de la Universidad Iberoamericana.

Siempre he obtenido financiación para el desarrollo de mi carrera investigadora, tanto en el ámbito artístico como académico, con becas predoctorales, contratos postdoctorales (IIE-UNAM, 2015-2017; UOC, 2020-2021), y más recientemente un proyecto de I+D+i (como Investigador Principal) del Ministerio de Ciencia e Innovación (2022). He formado parte de 5 proyectos de investigación (3 internacionales), y he sido Investigador Principal en 3 contratos de investigación con la administración pública, destacando el Proyecto MUGAK/FRONTERAS (CICC Tabakalera y Donostia-San Sebastián Capital Europea).

Mi trayectoria investigadora se ha desarrollado tanto en el ámbito académico como en el profesional del arte contemporáneo, donde colaboro habitualmente con diversos museos y centros de arte (MACBA, MNCARS, MUAC...). Mi experiencia en transferencia de conocimiento a la sociedad es amplia, he comisariado exposiciones como Dar la oreja, hacer aparecer: cuerpo, acción feminismos (MUSAC, 2019) (incluida en el "Foreign Language Index" de la Society of Contemporary Art Historians, como una de las cuatro principales aportaciones a la historiografía del arte contemporáneo en España de los últimos años), o Yo, la peor de todas (Museo de Navarra, Fundación-Museo Jorge Oteiza y CACH, 2017).

En cuanto a mis contribuciones a la formación de jóvenes investigadores, he dirigido una tesis doctoral (UPV-EHU), y dirijo otras tres en curso, así como varios TFM (UNAM, UB, UPNA). He diseñado el Máster en Prácticas Artísticas y Estudios Culturales: cuerpo, afectos, territorio, (programa interuniversitario UPV, UPNA y CACH), del que soy Directora Académica.

En el marco del proyecto I+D+i que dirijo, estoy desarrollando una nueva línea de investigación centrada en las representaciones del trabajo reproductivo en España. He presentado los primeros avances en congresos (ALCES, 2021 y 2022; Socialism on the Bench, Croacia 2021; CAA Conference, Nueva York 2023), y en tres artículos científicos publicados en las revistas Re-visiones (2021), Arte, individuo y Sociedad (2022) y Journ

Resumen del Currículum Vitae:

Mi línea de investigación principal es analizar la historia del arte contemporáneo en España desde la perspectiva de los estudios de género. He trabajado y trabajo en la recuperación y puesta en valor de trabajos realizados por mujeres artistas durante los siglos XX y XXI en España, con el objetivo de construir genealogías propias. Mi aportación principal ha sido el libro Cuerpos que aparecen. Performance y feminismos en el tardofranquismo (consonni, 2016, y 2a ed. 2019), un análisis de la presencia de los cuerpos en el espacio público durante los últimos años de la dictadura, desde una óptica feminista y desde la perspectiva ampliada de los estudios culturales. Su principal aportación es que contribuye a trazar genealogías propias en la historia del arte español contemporáneo desde perspectivas feministas, a la vez que profundiza, desde una nueva óptica (basada en el cruce entre los estudios de género, los estudios de performance y la historia del activismo político), en la obra de ocho artistas del tardofranquismo y la transición que habían sido escasamente estudiados (o que eran desconocidos hasta el momento). Por otro lado, el volumen ensaya metodologías de análisis novedosas en su campo, pues subsana la escasez de bibliografía con la atención a la historiografía oral y al análisis de las imágenes.
Mi trayectoria de investigación se ha desarrollado entre el ámbito académico y el ámbito profesional del arte contemporáneo, donde he comisariado diversas exposiciones, utilizando el dispositivo curatorial como metodología de investigación en la historia del arte (Artículo Tergiversar, citar, tropezar: el comisariado como práctica feminista. Espacio Tiempo y forma, Serie VII, Historia del arte, 8, 47-73, 2020 https://doi.org/10.5944/etfvii.8.2020.27478
Buena parte de mi trayectoria académica ha tenido lugar en México, donde he sido contratada por la Universidad Nacional Autónoma de México (2013-2014 y 2015-2017) y por la Universidad Iberoamericana (2017-2018). Durante estas estancias, he investigado sobre arte contemporáneo y estudios de género en Latinoamérica, publicando diversos artículos sobre mujeres artistas mexicanas (por ejemplo: Body-Camera-Eye: Presence and Intersubjectivity in the Work of Pola Weiss. Debate Feminista, vol. 60, 2020 https://doi.org/10.22201/cieg.2594066xe.2020.60.05.)
En fechas recientes he comenzado a desarrollar una nueva línea de investigación, centrada en analizar las representaciones de la maternidad en el arte contemporáneo y la cultura visual en España. Esta línea se enmarca en el Proyecto de Investigación RITMOS. Ritmos del trabajo femenino en la historia del arte y la cultura visual (Estado español 1936-2022) que he obtenido como IP en la Convocatoria 2021-Proyectos de Generación de Conocimiento, del Ministerio de Ciencia e Innovación. He escrito tres artículos científicos (en las revistas Journal of Spanish Cultural Studies, 2023;

Arte, individuo y sociedad, 2022 yRe-visiones, 2021) Los dos últimos son aproximaciones a las representaciones de maternidad en la época de la Guerra Civil, y el primero está centrado en el momento actual. Pretendo explorar otros momentos históricos, por lo que los cinco años de duración del Contrato Ramón y Cajal son el marco temporal idóneo para continuar esta investigación.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	VARELLA BRAGA, ARIANE
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Título:	Material identities and transnational models in 19th-20th century architecture and decorative arts

Resumen de la Memoria:

I have up to now dedicated myself to two lines of scientific interest, becoming an established researcher in an original and niche research line.

The first concerns the relationship between architecture and ornamentation, polychromy and the industrial arts; I started to tackle this topic in my doctoral thesis, which was focused on Victorian England, but then my interest extended to the Swiss context and more recently to the Italian context. The second concerns the appropriation of Ibero-Islamic decorative motifs in the architecture of Spain, Switzerland and Italy. This focus on different geographical contexts has allowed me to consider the transnational dimension of the phenomenon and its constitutive mechanisms, which go beyond the simplistic model of the centre/periphery relationship. Rather, my interest has lied in the question of the relationship in architecture between the materiality of the building and the mediality of texts and printed repertories capable of spreading architectural types and ornamental motifs throughout Europe. This research, with a specific focus on Italy, is the object of my second book (to be published in 2024).

The new research line I now want to develop during the grant is totally original and concerns the relationship between architectural materials and identity-building, both political and national. The research question I ask myself is whether and in what ways a building material is able to represent a collective identity on a symbolic level. I have chosen to start with marble as a case study.

My research will develop using an approach that will borrow its conceptual tools from art and architectural history and memory studies. The analysis of the art and architecture of the selected buildings will be accompanied by an examination of the historical, socio-political, technical and economic aspects surrounding the promotion of marble as a national material. Drawing on the concept of nation as imagined communities and the invention of tradition, much attention will be given to the analysis of narratives and discourses. Considering that architecture is a particular site that reflects and activates the memory of the collective past and stages the idea of the nation, and taking into account recent approaches between materiality and architecture, the aim will be to interrogate the way in which a material such as marble has intervened in questions of identity construction in this delicate historical moment. My aim is to start by focusing on the uses and meanings of marble in architecture in the 19th and 20th centuries, considered in a transnational perspective, considering its use in Spain, Portugal and Italy. This is a topic that has not been addressed so far for the late modern and contemporary period. The aim is to address issues in which the history of architecture must dialogue with studies on memory and heritage conservation, with the aim of filling a conspicuous historiographical gap and opening up new research perspectives on the relationships between modern architecture, materiality, and identity ideology.

Resumen del Currículum Vitae:

After my MA at the University of Geneva (2002), I worked as freelance exhibition production (Brazil, Italy). In 2013, I obtained my PhD in art history (University of Neuchatel, 2013, summa cum laude) and have developed an intense research and teaching activity, working at international renowned research centers and university around Europe. A Fellow at the French Academy in Rome (2022-2023), I was Visiting Professor at the University of Milan (2022), Postdoctoral Fellow at the Bibliotheca Hertziana (2020-21), Adjunct Professor at the University of Geneva (2019-20), Postdoctoral Researcher at the University of Zurich (2014-19), and Lecturer at John Cabot University in Rome (2014).

I regularly publish in world-leading journals in my filed: Burlington Magazine, British Art Studies, International Journal of Islamic Architecture, Art in Translation, Bolletino d'arte, Revista de Historia de Arte, journals that are among the first in my field. Since 2013, I published 2 monographs, 11 journal articles, 28 book chapters, and edited 12 journals and books, including with world-leading publishers such as DeGruyter (SPI ranking 9/259), Peter Lang (SPI 9/259), Brepols (SPI 20/259) and Brill (SPI 16/259). I am co-director of the international academic peer-reviewed series Pensieri ad Arte, (Artemide Editoriale, Rome).

I regularly lecture on the topic of my research, having been invited speaker at 13 conferences since 2015, including as keynote speaker at the Gubelkian Foudation (The Art of Ornament 2017). I have organized 12 international conference in Switzerland, Germany, Italy and Spain.

Besides my activity as researchers, I have strong teaching experience, having taught general courses on the visual arts and architecture and developed thematic seminars, at BA and MA levels, at John Cabot University (2014), at the Universities of Zurich (2014-19) and Geneva (2019-20), and as Visiting professor at the University of Milan (2022).

My researches and publications have been awarded several competitive grants, including by the SNSF (2012, 2016, 2020), Swiss Institute in Rome (2008-11), Universities of Neuchâtel (2010, 2016) and Zurich (2018), Bibliotheca Hertziana (2020-21), INHA-Paris (2021), Fondation Gandur pour l'art (2020). In 2020, I obtained the Italian academic qualification (ASN) as Associate Professor in History of Architecture from the MIUR. I am associated researcher to the EPHE-Sorbonne Paris (HISTARA) and to the Institute of Art History at the UZH (Swiss habilitation candidate) and member of the Latin American Center (UZH).

I strongly believe in the need to communicate my research results outside academia, and maintain a dialogue with the broader cultural environment, which I do through the organization of exhibitions, book launches or lectures for the wider public, on the visual arts and architecture of the 19th century to contemporary.

I serve as external expert for the SNSF. In 2021, I was Swiss Management Committee Substitute in the Cost Action CA18129). I am member of the Italian Association for the History of Architecture (Aistarch), College of Art Association (CAA), Swiss Association for Art History (VKKS), Swiss Platform for the study of visual arts, architecture and heritage in the MENA region (Manazir). I co-founded the Swiss Network for Historicism and the International Network for research on marble and decorative stones.

Área Temática:	Derecho
Nombre:	VALVERDE CANO, ANA BELÉN
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Título:	Más allá de la trata: regulación penal de las formas contemporáneas de esclavitud

Resumen de la Memoria:

Mi línea de investigación más importante ha sido el estudio del régimen jurídico de las formas contemporáneas de esclavitud, tema que inicié con un trabajo premiado por la Fundación Aequitas del Consejo General del Notariado y publicado como monografía en 2017. Esto constituye también el germen de mi tesis doctoral, defendida en 2020 y premiada como mejor tesis de Derecho Público por la Real Academia de la Legislación y la Jurisprudencia de Granada. Durante mi etapa predoctoral, el estudio de cuestiones relacionadas con el tema de la tesis dio lugar a 12 publicaciones (una de ellas premiada por el Premio Susana Huerta de Derecho Penal) que tratan, entre otras cosas, aspectos conceptuales y filosóficos del régimen contra la explotación laboral, la utilización del principio de proporcionalidad como marco para evaluar propuestas de incriminación, o las obligaciones positivas de protección de los Estados.

En la etapa postdoctoral terminé de consolidar esta línea de investigación. El haber sido contratada por el Rights Lab de la Universidad de Nottingham me permitió participar en 7 proyectos de investigación relacionados con esta línea (siendo IP y co-IP de cuatro de ellos). Estos proyectos tenían un marcado enfoque empírico e interdisciplinar: aprendí, entre otras cosas, a utilizar métodos de análisis cualitativo y cuantitativo con entrevistas, grupos focales y encuestas. En total, la producción científica (25 publicaciones) se materializó principalmente en informes u otras herramientas —por ejemplo, páginas web—orientadas a organismos públicos para prevenir prácticas relacionadas con la explotación laboral extrema.

Mi incorporación a la Universidad Autónoma de Madrid con un contrato Juan de la Cierva complementa esta formación con una "vuelta" a las cuestiones más fundamentales de la parte general del Derecho Penal. Todos estos enfoques enriquecen la monografía final, publicada en 2023 por Tirant lo Blanc, con la que concluyo mi línea de investigación principal (Más allá de la trata: el Derecho Penal frente a la esclavitud, la servidumbre y los trabajos forzados, 598 pp.). El principal impacto de esta línea ha sido de índole de política criminal: en concreto, puede apreciarse una coincidencia casi exacta en mi propuesta de delitos de esclavitud, servidumbre y trabajos forzosos (pública desde 2021 y en la monografía de la tesis), con la que ahora se propone en el Anteproyecto de Ley Integral contra la Trata, publicado en diciembre de 2022 (artículo 177 ter CP). Además, mis trabajos recibido 71 citas y han servido para elaborar estudios del Parlamento Europeo sobre impacto de la política exterior de la UE en el trabajo forzoso.

A pesar del lugar preeminente de la esclavitud en mi actividad investigadora, en la UAM consolidé otra línea sobre investigación policial de delitos de odio por razón de género con un equipo internacional (gracias a un proyecto que obtuve como IP), que dieron lugar a dos publicaciones 2022, entre ellas una en la revista Criminology & Criminal Justice. También consolidé otra línea sobre deberes positivos de protección (en prensa), comparando estructuras de imputación de responsabilidad de la Administración por daños y por incumplimiento del Convenio Europeo de Derechos Humanos; y, recientemente, abrí otra sobre responsabilidad penal de las personas jurídicas (2023, en coautoría con Juan Antonio Lascuraín Sánchez).

Resumen del Currículum Vitae:

Además de las aportaciones científico-técnicas mencionadas en el resumen de la trayectoria de investigación, otra parte importante de mi actividad ha estado orientada a la internacionalización, la captación de fondos para investigar (liderazgo), la divulgación científica orientada a distintos públicos (académicos y no académicos) y la formación de redes de investigación.

INTERNACIONALIZACIÓN: de los 7 años que han transcurrido desde que obtuve mi contrato predoctoral (enero 2016), casi 4 han sido fuera de mi Universidad de origen. Como doctoranda realicé cuatro estancias de investigación en el extranjero (13 meses en total), en la Queen's University Belfast, Instituto Max Planck de Derecho Penal Extranjero e Internacional (ahora conocido como Instituto para el estudio del Crimen, Seguridad y Derecho), en el Alto Comisionado de Derechos Humanos de Naciones Unidas y la Universidad de Oslo. Por otro lado, en la etapa postdoctoral, he trabajado en la Universidad de Nottingham 1 año y 7 meses a tiempo completo (y 5 meses más a capacidad 0.1 por ser IP de un proyecto); he sido beneficiaria de un contrato Juan de la Cierva (2 años en una universidad distinta a la de la tesis doctoral) y he realizado una estancia en la Universidad Diego Portales de Chile (2 meses). En todos los casos, la movilidad tuvo un fuerte impacto formativo y me permitió crear redes de colaboración de larga duración, como muestran los artículos de los que soy co-autora, el hecho de coordinar la Antislavery Early Research Association, organizar varias conferencias internacionales y seminarios, ser guest editor de un volumen de la Journal of Modern Slavery en 2022, o formar parte del Consejo de Redacción de la Revista Jurídica de la Universidad Autónoma de Madrid.

DIVULGACIÓN Y FORMACIÓN: he difundido mi producción científica en 26 congresos académicos, 13 como ponente invitada y 13 como comunicante, destacando especialmente mi participación en tres congresos internacionales, dos organizados por la Organización Internacional del Trabajo, como conferenciante invitada, y uno por la Law and Society Association, como comunicante. También he participado en actividades de divulgación científica orientada a público no especializado, mediante la elaboración o participación en podcasts, blogs, o con monólogos científicos, en algunos casos con reconocimiento (fui la ganadora de la edición de 2018 del concurso de la UGR de 3 Minute Thesis). También he sido formadora en cursos de capacitación de la OIT dirigidos a jueces y fiscales sobre normas relacionadas con el trabajo forzoso en Perú y Paraguay, en cuatro ocasiones (2021 y 2022); y para los Defensores Públicos Interamericanos en 2022.

LIDERAZGO: he sido IP de dos proyectos de investigación y co-IP de otros dos. Estos dieron lugar a publicaciones académicas, elaboración de informes (publicitados International Network for Hate Studies y el UCD Geary Institute for Public Policy); y una serie de podcasts con entrevistas a expertos

sobre cuestiones prácticas relacionadas con la trata de seres humanos. Además, soy IP de un proyecto de innovación docente, similar al concurso "Three Minutes Thesis", orientado principalmente a estudiantes de grado y máster, con un énfasis mayor en el aspecto formativo (aprender a comunicar una idea jurídica). También gestiono la Red Iberoamericana de Investigación sobre Formas Contemporáneas de Esclavitud.

Área Temática:	Derecho
Nombre:	MATAIX FERRANDIZ, EMILIA
Referencia:	RYC2022-035159-I
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Título:	Trade, Multilegalism and Technological Transfers in the Roman Mediterranean

Resumen de la Memoria:

My research follows different converging lines: Roman Law, legal history and theory, classical archaeology, epigraphy, international law, criminal law, and legal hermeneutics. I intersect these research lines, using methodologies and approaches that belong to the fields of archaeology, Roman law, legal history and classics. My Master thesis focused on the debate held between the Roman legal scholar Emilio Betti and the philosopher Hans-Georg Gadamer on hermeneutics and legal historical sources. I was awarded my first Ph.D. in 2014. My thesis explored the criminal liability for shipwrecking in the light of a Republican edict and its posterior repression during the Empire. The resulting book moved me to develop the research line: 2) Roman Mediterranean Maritime legal and spatial identities. I employed an interdisciplinary method by combining the exegetic analysis of Roman legal sources with the archaeological evidence of shipwrecks and the theoretical framework labelled as "maritime cultural landscape" within which maritime history and ethnography are integrated with the physical residue of past maritime systems. I was awarded my second PhD in Roman Archaeology. The manuscript resulting from this PhD (Ports, Law and Material Culture: Negotiating Commercial Practice in the Roman Empire), has passed the first round of peer review in the series Oxford studied for roman society and law. This monograph has been the starting point of my third research line: Trade, Multilegalism and Technological Transfers in the Roman Mediterranean, which studies how did merchant practices adapt to plural legal orders, who was responsible for that multinormativity in trade, and how did changes in commercial practices affect legal plurality. I got the very competitive grant for the Helsinki Collegium for advanced studies, where my project studied legal procedures from an anthropological point of view and o think what do the parties in trade aimed to achieve by using certain legal mechanisms or practices. There I developed the research line: The Legal and Material Transformation of the Commercial Mediterranean, which seeks to understand the changes in sea trade law and the material record associated with it in the period from 2nd cent BC until the 3rd cent. AD. I combined this research project at HCAS with a collaboration with the ERC project "Spaces of Roman Republicanism". My contribution to that project is based on my expertise on the methodology known as "juridical archaeology" that aims to understand places, material objects that had a role in implementing norms, legal symbols and practices. I continued my research path at the Helsinki centre of excellence in Law, identity and the European narratives, and associated with subproject 1, Law and the Uses of the Past. One of the interests that I developed in my own project for the centre concerns the history of the international law of the sea, first by placing the focus on the Roman world, to later question its developments in the legal thought of early modern scholars. For the past two years and the current. I have been working on my second book, focusing in legal pluralism when studying trade, what invites to consider the ways in which encounters in the Mediterranean Sea have not only shaped our conceptions of trade and travel but our very ideas of law, order, sovereignty, and power.

Resumen del Currículum Vitae:

I obtained my law degree at the University of Valencia, including an Erasmus year at the Université Paris 2-Panthéon-Assas. I combined my degree with Latin courses at the Institute of Biblical Language Studies (Faculty of Theology) in Valencia, and also with the career of philosophy at the UNED. During and after my undergraduate years, I have done several research stays at the Leopold-Wenger-Institut für Rechtsgeschichte in Munich (Germany). I also specialized in Roman Law with a master's degree in Research in Legal and Humanistic Sciences, at the Pontifical University of Madrid. I obtained my first international doctorate in Roman law in 2014 at the University of Alicante, with a long stay at the department of ancient law at the University of Palermo, Italy. I obtained my second doctorate in Roman Archaeology, obtained through joint tutelage between the University of Southampton and the University of Lyon 2-la Lumière, and carried out as part of the ERC-funded Portus Limen project (portuslimen.eu). I got a very competitive two-year scholarship to the Helsinki Collegium for advanced studies. After that, I got a four-year fellowship to continue my personal research project at the Centre for European Studies at the University of Helsinki until 2024. I combined this contract with a research stay at the University of Ghent in Belgium. Apart from that, I have obtained a one-year scholarship to focus on writing my second book at the Käte Hamburger kolleg of the University of Münster (September 2021-September 2022), so I have had to take a year off from Helsinki, where I hoped to return in September 2022. I obtained the María Zambrano scholarship to start a contract at the University of the Basque Country on May 1, 2022, so I had to settle my contractual commitments with both the University of Münster and the University of Helsinki. In 2023, I have also obtained the Spanish I3 certificate for excellence on research, provided by the Spanish ministry of universities. Apart from my current monograph and my other monograph in progress, I have published numerous peer-reviewed articles in various publications. I am the editor of four volumes, Roman law and Maritime Commerce (Edinburgh University Press 2022), Seafaring and Mobility in the Late Antique Mediterranean (Bloomsbury 2022), Down by the Water: Interdisciplinary Studies in Human-Environment Interactions in watery Spaces (British archaeological reports, 2022) and 'Mediterranean Flows: People, Ideas and Objects in Motion' (Brill 2023). I have been teaching topics related to Roman law, cultural history, classical and maritime archaeology, epigraphy, or ancient economic and Mediterranean history for more than 10 years. I also have a demonstrated track record in project leadership and international grant applications. I have been granted high scores in applications for ERC, Marie Curie and the Academy of Finland. I have organised several international conferences and participated as an invited speaker in many academic fora. I have organised the 'Down by the water' webinars, , I am also one of the organisers of the network 'engendering ancient economies', as well as edited and produced the eurostorie podcast. I am also a reviewer for journals such as Latomus and the Classical Review, Bryn Mawr classical review, latomus, Journal of Roman studies, or the polish national academy of sciences.

Área Temática:	**Derecho**
Nombre:	ÁLVAREZ ARMAS, EDUARDO
Referencia:	RYC2022-035503-I
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Título:	Derecho Internacional Privado y Globalización (partes débiles y medioambiente)

Resumen de la Memoria:

"Global (in)equality in conflict of laws: non-discrimination of victims of corporate transgressions"

This project is a long-running project, of a "fundamental" and theoretical nature, which will certainly lead to a monograph and possibly several articles. It intends to explore whether certain "classic" rules of private international law, relevant to the liability of global businesses, produce discriminatory outcomes towards victims in the Global South, when compared with victims in similar situations in the Global North.

This project, while closely connected to my PhD research on environmental damage in private international law is significantly distinct from my prior work, in at least two senses: first, this project shifts the focus to a much broader pehenomenon, as is liability for human rights violations; and secondly, this project goes beyond private international law to connect with fundamental rights and with core notions of legal theory, such as "discrimination", to hopefully deliver results that may legitimate drafing new, more inclsuive rules of private international law.

Methodologically, this project follows the same line of work as the majority of my prior research, which corresponds with traditional doctrinal/dogmatic legal scholarship. Nevertheless, I frequently engage with the economic analysis of law (especially in tort-related themes), and I often incorporate elements from other approaches such as empirical analysis, and law in context.

The pertinence of this project is growning: there are several legislative processes in place which will make it topical in coming years. In 2017 France enacted a law on corporte due diligence that has triggered a legislative tendency: Germany approved a law in a similar sense in 2020; Spain, Belgium, Brazil, Chile and Peru currently have legislative proposals going in the same sense; the European Union is working on a draft directive on corporate due diligence; and the United Nations is working on a binding instrument "on transnational corporations and other business enterprises with respect to human rights". As international jurisdiction and applicable law stakes via-à-vis human rights violations will be at the heart and soul of these "due diligence" projects, the time will be ripe to study the question suggested above, and contribute to the debate thereon.

Resumen del Currículum Vitae:

I am currently a Senior Lecturer in Commercial Law at Brunel University London, and guest professor at the Université catholique de Louvain. My research focuses on comparative and private international law, primarily on the challenges faced by "weak parties" in the global scene: environmental or climate victims, e-consumers, air-transport passengers, data subjects, victims of human rights violations, etc. The common thread running right through the private-law issues faced by these subjects (be it in contract or tort) is that they frequently find themselves litigating against transnational corporate opponents and enduring difficulties derived from their asymmetric position in the economics and politics of globalization. My work demonstrates the existence of various shortcomings in the international legal protection of weak parties (especially environmental and climate victims) and suggests solutions thereto, either via legislative amendments or via judicial interpretation. These results, oftentimes obtained in collaborations with international colleagues, have been disseminated at prestigious conferences and institutions across the globe; and transmitted through knowledge-transfer initiatives to institutions, NGOs, etc.

As regards the first aspect, I currently count a body of 18 research outputs (peer-reviewed articles and book chapters), several of which are co-authored, and published in high-quality, SCOPUS-indexed journals or prestigious publishing houses, and have been presented at Harvard, McGill, Georgetown, etc. As regards the second aspect, my PhD (Summa cum laude, double degree from the Universities of Louvain and Granada; Granada's 2016-2017 extraordinary award for the best dissertation in social and legal sciences) is currently being put into practice through knowledge transfer: I am currently providing pro-bono advice to a Belgian NGO with the view to conducting climate litigation against a transnational corporation for damage derived from climate change. I have moreover advised the EU Commission three times in 3 years (authoring and co-authoring reports for it, and being appointed a member of one its expert groups); this has entailed that my research has contributed, on the one hand, to the analysis for the upcoming reform of two EU Regulations on aspects of private international law; and, on the other hand, to the drafting of a proposal for an EU Directive.

My research has, moreover, contributed to several international and national projects and networks, in recent years: for instance, between 2019 and 2021 I was one of 18 academics selected worldwide (amongst 130 candidates) to participate in a research project led by the Max Planck Institute Hamburg on the "Private side" of the UN's Sustainable Development Goals. Within this project I was the researcher in charge of Sustainable Development Goal 13: "Climate Action". This allowed me, on the one hand, to analyse the ways in which climate litigation against "carbon majors" (90 corporations responsible for two thirds of all carbon dioxide emitted since the 1750s) can, if successful, impose the implementation of mitigation strategies. On the other hand, it allowed to explore ways to foster or facilitate this practice, as an alternative to the deadlock of diplomatic processes within the framework of the UNFCCC (United Nations Framework Convention on Climate Change).

Área Temática: Derecho
Nombre: JIMENEZ GONZALEZ, AITOR
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Título: Colonial lives of data: Algorithmic discrimination from a sociolegal perspective

Resumen de la Memoria:

Data-driven technologies increasingly mediate public administration across health, security, welfare, administration, and education. As we begin to understand how these sociotechnical systems operate and reshape our societies, algorithmic discrimination – the systematic production of unfair or biased outcomes by automated systems – has emerged as a complex issue that resists simple solutions. As automated and semi-automated decision systems proliferate, failure to remedy algorithmic discrimination means persisting social harm and unfair outcomes for millions of marginalised people. This project aims to address the continuation of algorithmic discrimination by developing novel theoretical and methodological tools for interrogating the colonial, political and ideological heritages of the algorithmic systems deployed in the EU public sector. To date, the primary approaches to algorithmic discrimination interrogated by academics and industry have been highly technical, paying little attention to the ideological stakes of the algorithmic tools being optimised for 'fairer' outcomes. This project will address the lack of political awareness by a) producing a theoretical and methodological toolbox to empirically analyse the historical use of data-intensive technologies for the purposes of racial segregation; b) constructing a transhistorical cartography of racializing data-centric sociotechnical systems; and c) developing new strategies for analysis of potentially discriminatory sociotechnical systems proposed for use in the EU public sector. This landmark study will therefore bring novel empirical and interdisciplinary approaches to the analysis of EU public sector algorithmic systems in order to limit or prevent continuing harmful outcomes.

The enormous challenge to empirically trace a genealogy of algorithmic discrimination lies in its method, scope, and reach, both in chronological, spatially, and disciplinary terms. Planning and designing the reactivation of neglected, marginalised, and even forgotten colonial archives sparred in three continents pointing at the early datafication of racialized communities, requires an uncommon diverse, although precise expertise and mindset. Genealogy means for this project desubjugating historical knowledges (Foucault, 2003) in order to unveil, unpack and even crack ongoing algorithmic phenomena of oppression (Noble, 2018). I have been enormously privileged to pursue two PhD's and to hold a postdoctoral research position that have equipped me with the theoretical and methodological tools as well as with the networks necessary for an endeavour encompassing, centennial archives and automated decision systems.

Resumen del Currículum Vitae:

My first PhD was conducted in Mexico, there I conducted a genealogical transhistorical project that looked at the interrelation of racism, law, and knowledge(s) in the Iberian Colonial Atlantic. In my second PhD conducted in Aotearoa/New Zealand, I studied what I coined as the Silicon Doctrine, that is the sociolegal ideology of digital capitalism. In my current position as a postdoctoral researcher, I have been studying the development of automated decision systems in Catalonia, with particular attention to the racialized datafication of Islamic communities and subjects.

Under the umbrella of the postdoctoral position, I have published four papers, submitted another four and written a book chapter (Cambridge University Press). Perhaps more importantly my first book will be published in 2024 (New York University Press, under contract). I have given 16 presentations in universities of two continents including Melbourne University, Universidad del País Vasco, RMIT, Monash University and the Universidad de Zaragoza. I have conducted several collaborations with academics, journalists, and stakeholders of which I wish to highlight two. My 2019-2022 collaboration with Ismael Cortés (Spanish MP) to submit several non-binding proposals on Algorithmic Discrimination, Mass Surveillance, and Fake News & Disinformation to the Spanish Parliament, which includes my participation in a congressional hearing; And the 2021-2022 collaboration with Journalist Ekaitz Cancela to write a report for Transform Europe (European Left Think Tank) on Europe´s Technological Sovereignty.I am also an active member of the ARC Centre of Excellence for Automated Decision-Making and Society where I hold the following institutional responsibilities: 2022. ADM+S Automation, Wellbeing and Harms in a COVID Age, Symposium. Prep. Committee. 2022. ADM+S. Summer School Committee. 2021. ADM+S Research Infrastructure Committee; Member, RMIT/ Australia. These, in appearance, divergent research projects, were nonetheless connected by common objectives: 1) studying how power operates producing longstanding structures of oppression and subjects of domination; 2) looking at the breaches, the cracks, the fractures, the potential lines of flights on such schemas. Standing in these transdisciplinary grounds has enhanced me to produce innovative theories and concepts intersecting the decolonial spirit of my PhD and the technological savvy of both, my second PhD and the Postdoctoral position I'm currently holding. In published (2021) and upcoming works (2023, 2024) I have started hypothesizing the colonial roots of ongoing data-intensive trends. The Ramon y Cajal grant will allow to build a ground-breaking theoretical framework from where to unpack, think, and perhaps to tackle the ways algorithmic discrimination operates in the EU´s public sector.

Área Temática:	**Derecho**
Nombre:	CASTILLO ORTIZ, PABLO JOSÉ
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Título:	Constitutionalism and Euroscepticism

Resumen de la Memoria:

I research in three main interrelated areas: constitutional institutions, European integration, and empirical legal research.

i)   Constitutional institutions such as constitutional courts and judicial councils, which I analyse from both theoretical, comparative and empirical angles. My main focus in this area has been the political origins of these institutions and their relationship with democratic quality and democratic resilience. My work in this area is mostly interdisciplinary, bridging the fields of law, politics, sociology and philosophy (as shown by my publications in outlets like, inter alia, Journal of Law & Society, Comparative European Politics, Law & Philosophy). My research in this area has allowed me to build an international reputation as a specialist in these institutions, as shown by invitations to advise the European Network of Councils of the Judiciary on their survey to judges, as well as the participation by invitation in scientific events together with leading academics such as Tom Ginsburg or Rosalind Dixon (Masaryk University, 2021).

ii)   Processes of regional integration, especially the process of European Integration, with a particular focus to the role of courts within it. In this regard, my monograph (Routledge, 2016) was praised as the "first book-length treatment of the judicial politics of EU treaty-making" (Hodson and Maher, 2018: 173). I recently have expanded my research on processes of regional integration to the global South, especially to regional integration in Latin America. My work in the area of regional integration also combines law and political science, and has a clear policy-oriented dimension: I have published work in this field with leading think tanks like Elcano Royal Institute, or the EU-LAC foundation. My current research in this area focuses on the political exploitation of European judicial dialogues by Eurosceptic actors and the dangers of national courts' activism for the process of European Integration.

iii)   Empirical research in law, an area in which I develop a pioneering application of Qualitative Comparative Analysis (QCA) to legal objects of study. QCA is an empirical methodology with the capacity to bridge the quantitative-qualitative divide. I have been co-author of the first textbook on this methodology in the Spanish language, and author of applications of this method to legal objects of study in outlets such as European Political Science Review and Journal of Law & Society. I also have a book chapter on the application of this method to Public International Law (Ed. Deplano and Tsagourias, 2021), as part of my efforts of dissemination of the method. My empirical research with QCA is complemented with empirical legal research using other methods, especially quantitative/statistical. In this regard, my research is making a contribution to expand the range of empirical methods in a field traditionally dominated by doctrinal and theoretical approaches.

My Ramón y Cajal contract would allow me to develop a research project combining these three research lines. In particular, I would study the use of constitutional institutions and ideas by Eurosceptic actors, from empirical, doctrinal and theoretical angles.

Resumen del Currículum Vitae:

I am a Senior Lecturer at the University of Sheffield (UK) where I have worked since 2013.

Reagarding my research, I published my first monograph with the international publisher Routledge. I then published a co-authored book with Centro de Investigaciones Sociológicas (CIS), and I have a third single authored short book forthcoming with Springer later this year. My co-authored book published with CIS was the first about Qualitative Comparative Analysis in Spanish, described as "mandatory reading for all those that want to apply qualitative comparative analysis" (Revista de Estudios Políticos). My sole-authored book on EU Treaties and the Judicial Politics of National Courts (Routledge, 2016) has received international praise, being described as "an excellent piece of scholarship based on sound research and rigorous methodology" (Prof G. Martininco, Scuola Superiore Sant'Anna, Pisa).

I also have published 16 journal articles in journals indexed in Journal Citation Reports. These include high impact journals in Law and Politics, including in the first and second quartiles of Journal Citation Reports, such as International Journal of Constitutional Law, European Political Science Review, Social & Legal Studies. Additionally, I have published a large number of book chapters, policy papers and book reviews. My research, with more than 260 citations in Google, examines the contribution of judicial institutions to democracy, the rule of law, and European integration.

My work has been impactful beyond academia. For instance, my work has been cited in proceedings before the European Court of Human Rights in three occasions: This includes an amicus curiae briefing by the UN Special Rapporteur on the Independence of Judges and Laweyrs in a case about judicial independence in Poland. My work has also informed discussions about the reform of the Israeli Supreme Court at the important think tank Israel Democracy Institute.

My impact work relates to the protection of democracy. In this area I published a 31-pp paper with a leading think tank (Elcano Royal Institute) on EU-UK post-brexit cooperation. The paper was disseminated in European media (EUObserver). I also do impact work about the protection of the rule of law. In this area, I have collaborated with the European Network of Councils of the Judiciary ("ENCJ"). In 2018, I advised the ENCJ on the methodology of their annual survey of European judges. In 2020 I led a project (Juri-Policy) which aims to use evidence-based policy-making to improve the design and working of judicial councils in Europe (i.e. the bodies that regulate the internal working of judiciaries). This project has attracted attention from

key stakeholders: in 2021 I presented my findings at a training workshop for European judges, where attendees included the current and former Presidents of the ENCJ.

I have developed an excellent international standing as a leading legal researcher who uses distinctive empirical methods. This is evidenced, inter alia, by the invitation to join the Advisory Board of Compasss (2016+), the most prestigious network for development of configurational empirical methods of research. Other board members are from leading global universities (e.g. KCL, Notre Dame, EUI and Kyushu University).

Área Temática: **Derecho**
Nombre: SORIA RODRÍGUEZ, CARLOS
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Título: International and European marine and environmental governance

Resumen de la Memoria:

My scientific trajectory strongly reflects my expertise in two specific areas of international and EU law: environmental law and law of the sea. My work on these two areas and the intersection between them are reflected in publications on different topics and especially on the environmental regulation of marine renewable (MRE) technologies.

After completing a LLM in Environmental Law at Vermont Law School (ranked #1 Environmental Law program in the USA), I pursued a PhD in Law at the Free University of Brussels (VUB, Belgium). The PhD focused on "The international and European environmental regulation of MRE in the EU". The main results of the PhD (3 single peer-reviewed articles and 2 book chapters) include two articles in Review of European, Comparative and International Environmental Law (Q1). These articles constitute the international reference in the field. My PhD work has been disseminated through the organisation of 4 colloquiums, 1 policy forum and the participation in 9 international conferences (3 as invited speaker). After the completion of my PhD project, I obtained two consecutive postdoctoral scholarships from the VUB which allowed me to expand my research line on MRE regulation, where I developed various project proposals and presented my work on the regulation of MRE technologies in areas beyond national jurisdiction (ABNJ) in various leading international conferences, where it was specifically significant for opening debates on the regulatory and governing challenges associated with the development of the MRE industry in ABNJ. As a result of the project proposals, I was awarded the 'Seal of Excellence' from the European Commission

Subsequently, I secured funding to continue my research on the sustainable and secure development of the MRE industry at the University of Jaén (Spain) through a Marie Curie Individual Fellowship, which started in 2021 and has resulted so far in 6 presentations in leading international conferences, 2 peer-reviewed journal articles in open access at the Cambridge International Law Journal (Q2) and the Colombian Yearbook of International Law (Q2) as well as invitation to participate at the Centre for Research and Studies of The Hague Academy of International Law for the 2022 session on "Climate Change and the Testing of International Law" and a contribution prepared for the celebration of the centenary of the Academy (2023). Additionally, I have also worked on other topics related to marine and environmental law and policy as well as on innovation and teaching.

As visible from my extended international experience and outstanding trajectory, I have reached professional maturity and thus am able to become an independent researcher making impactful contributions to my field.

Resumen del Currículum Vitae:

My research interest and expertise focus on the areas of public international law, EU law, and specifically on environmental law and law of the sea. My PhD in Law (2018) at the Free University of Brussels (VUB, Belgium) identified and analysed the international and European framework to provide environmental protection in the development of marine renewable energy (MRE) technologies in the EU, which yielded in 4 book chapters and 3 single peer-reviewed articles. The latter of which are notably considered as a basic reference in the field. My current work as Principal Investigator of a Marie Skłodowska-Curie postdoctoral project (RENEWABLE-HIGH-SEAS) at the University of Jaén (Spain) continues the work on the sustainable development of the MRE industry by focusing on questions related to the secure and sustainable regulation and governance of MRE technologies in areas beyond national jurisdiction. Additionally, I have also worked on other topics related to marine and environmental law and policy as well as on innovation and teaching. I am also currently senior associate researcher to the Centre for Environment, Economy and Energy of the Brussels School of Governance as well as senior associate researcher of the section of public international law and EU law of the VUB.

My scientific career was fully supported by a number of doctoral and postdoctoral contracts and grants which consolidated my research activity, skills and leadership as well as contributed to study and work in 4 countries (Spain, Scotland, USA and Belgium). Notably, I have raised over €500.000, while I would like to highlight particularly the grant to support my "LLM in Environmental Law" in the USA ($46,345), the PhD fellowship at the VUB (4 years fully funded) and my current "Marie Curie Individual Fellowship" (€172,932).

My work has been disseminated in 28 international conferences (7 as invited speaker) in several countries in Europe and America, and resulted in 22 publications: 2 books, 5 single peer-reviewed articles in international scientific journals listed in Q1 and Q2, 10 book chapters (7 as single author), 4 policy reports and 1 media publication.

My management and leadership skills can be exemplified by the organization of 2 international conferences, 4 colloquiums and 1 policy forum as well as the acquisition and/or participation in 5 research projects (2 as PI and 3 as researcher) and 3 networks. I have also provided policy advice at governmental level on topics related to environmental law and law of the sea and have taught (almost 400h) and developed master and undergraduate courses in Belgium and Spain. In addition, I have worked as academic manager of the "LLM in international and European law" of the VUB and supervised 3 master theses and 3 final degree projects. I am also an accredited professor of public international law and my research has been disseminated in several national and international media outlets. Finally I would like to highlight that my research capacity has also been recognized internationally through the invitation as 1 of the 12 researchers worldwide to the English Section of the 2022 session on "Climate Change and the Testing of International Law" at the Centre for Studies and Research of The Hague Academy of International Law.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Derecho**
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Referencia:	RYC2022-036600-I
Correo Electrónico:	cjavierdura@gmail.com
Título:	Environmental law. A necessary tool to fight against climate change and the loss of biodiversity

Resumen de la Memoria:

I' d like to emphasize my continuous link with research activity, even before starting my bachelor studies. The multiple national and international collaborations, consolidated over more than 20 years of active scientific activity, show my excellent ability to both integrate and lead new research teams and lines to address complex research problems. Moreover, I have carried out an important part of the fieldwork alone, from which I have acquired the capability to solve problems independently, and which has taught me how to be productive under changing and challenging field conditions. Also, I would like to emphasize my excellent aptitude for working hard and my great enthusiasm for science and law even during the periods when funding for research was limited, as firmly shown by the combination of highly scientific works and active professional activity as a wildlife conservation lawyer for many years.

During my period as a biodiversity and climate change lawyer, I successfully managed large budgets and working teams, and I was decisively involved in writing projects to fund conservation schemes for endangered species. My growing teaching experience at the university level has provided me the opportunity to advise and tutor young academics in their first research steps. I have already been a member of one Ph.D. thesis committee, and also I am the director of two final master' s works (TFM). I have experience in teaching (both theory and practice) at the university level (both degree and master' s). I would like to emphasize that my supervising and teaching activity has been developed in a diverse array of institutions, which attests to my leadership as well as my independence skills. I have been appointed as a Research Collaborator at the University of Murcia (CEBES. 2015-2019), UNESCO Chair (2003-2016), University of Alcalá (Group "Friends of Thoreau" Instituto Franklin (2014-2019)) and Honorable collaborator of the Miguel Hernández University (Elche, 2016-2019). At the moment I work as a scientist for the Spanish Ministry of Science and Innovation, at the International Environmental Center (CIEDA-Ciemat).

During the last few years, my line of research has been fundamentally related to matters related to my thesis topic: land stewardship, management of the Natura 2000 Network, and endangered species. However, in my latest scientific collaborations, I have been able to verify the importance of other highly topical and necessary topics, such as the necessary energy transition, the legal situation of the invasive exotics species, the application of different environmental principles such as the precautionary principle, and the principle of non-regression of the regulations environmental. The application of the Environmental Assessment Law.

Likewise, in recent investigations, we have applied a particularly innovative methodology to analyze the effectiveness of the application of environmental law. This is through the analysis of the sentences related to the different environmental crimes: fires, CITES, use of poisoned baits, poaching, application of certain norms of interest such as the Environmental Responsibility Law, electrocution of birds, etc.

I hope to be able to make legislative proposals to improve the existing regulations and facilitate the prosecution of these crimes. In fact, in recent years, we have already been able to influence t

Resumen del Currículum Vitae:

I studied Law at Alicante¿s University and got to work as a lawyer in the private sector (https://arocaseiquer.com/Judicial-Services) 1997-2017 taking part in around 600 cases. This professional background endow adds a first-hand experience in law applications. In 2007, I decided to redirect my professional career in the research of environmental law and initiated a Ph.D. in UAL under the dual cosupervision of one environmental Law researcher and Zoology researcher aiming at an interdisciplinary approach to biodiversity conservation and climate change. My PhD. was defended in 2013 and obtained the extraordinary Ph.D. prize. In 2017 I become a professional Environmental Law researcher, first during a year at Murcia University, and then in CIEDA in Soria, where I have been working since 2018.

My research production includes 5 SCI publications (the first SCI in 2019) as well as a large indexed production, including my contribution to Actualidad Jurídica Ambiental publication (Dialnet, Web of Science, Academic Search Premier, and others quality index) with 131 comments on environmental sentences, 146 legislation notes and 112 actuality environmental law news (starting in 2019). I have published 2 monographs, 10 book chapters, and 19 research articles in other indexed scientific journals.

I organized in the University of Alicante 3 National Congresses for Environmental Law students. And in 2004, just after graduating, I organized the first National Congress of Land Stewardship I organized seven editions (2004, 2006, 2008, 2012, 2014, 2016, 2018). For the first three editions I got funding from Caja del Mediterráneo-CENACAM, and, the last four were sponsored by Biodiversity Foundation. Personally, one of the most relevant consequences of these conferences was the inclusion of Land Stewardship as a conservation tool in the Spanish legislation: Law 42/2007 on Conservation of Biodiversity and Natural Heritage.

I have participated as a researcher in 13 projects with public and private institutions with total funding above 800.000 € I have been the principal investigator in 5 projects and Action Coordination in two European projects (LIFE19 GIE/BG/000846, coordinating 12 researchers, and LIFE 18 GIE/RU/0003). In these projects, I have worked closely with researchers and NGO to approach legal topics related to custody of the territory, bird electrocution, or environmental crime prosecution in Europe. I have been able to coordinate research groups of up to 12 researchers. This research has produced not only scientific publications but also has served to make suggestions for the improvement of European Directives and national rules (RD. 1432 de 2008 about electrocutions of birds and European Directive-DOUE-L-2008-82440 about environmental crime in Europe).

I have done international research stays at Environmental Centers: RSPB (Scotland-2009), CONAFOR (Mexico-2014), and Brazil (2018). During 2021, I was granted a 3-months foreign stay, which was moved online due to Covid restrictions, at the International Environmental Law Center (the University of Upssala-Sweden, with Yaffa Epstein). I have given more than 80 conferences in masters and congresses, including COP 25 UN summit (Madrid 2019), the International Congress of Payments for Environmental Services (México 2014), the National Congress of the Environment (CONAMA 2014, 2016) the European Con

Área Temática:	**Economía**
Nombre:	ARKHANGELSKIY , DMITRY
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Título:	Robust Econometric Methods for Policy Evaluation and Causal Inference

Resumen de la Memoria:

My research focuses on developing econometric tools for various applied problems. In my work, I start with algorithms commonly used by applied researchers and design extensions that make them applicable to a much wider range of problems.

In the project titled "Synthetic Difference In Difference," we demonstrate how to combine the two most widely used methods for policy evaluation -- Synthetic Control and Difference-in-Differences -- into a single tool that keeps the advantages of both methods while compensating for their shortcomings. We call this algorithm the Synthetic Difference-in-Difference (SDID) and demonstrate its validity and superiority in applications and theoretically.

In another project, "Fixed Effects and the Generalized Mundlak Estimator," we focus on a setting with grouped data (e.g., households, schools, local markets) and demonstrate how to expand a standard tool used in this setting -- regression with fixed effects -- to make it valid under much weaker assumptions. We show that one can interpret this regression as controlling linearly for cluster-level characteristics (e.g., the share of treated units) and provide a natural extension that allows applied researchers to use the whole arsenal of double machine learning tools from cross-sectional literature in this different setting.

Another paper, titled "On Policy Evaluation with Aggregate Time-Series Shocks," focuses on a setting where aggregate shocks are used to instrument endogenous local-level variables. This strategy is commonly used in the development, finance, and macroeconomics. Specifically, researchers combine aggregate shocks with local-level exposures to estimate treatment effects using Two-Stage Least Squares (TSLS) with two-way fixed effects. This approach relies on strong assumptions that are often refuted by the data. We provide a new algorithm that shares the simplicity and interpretation of TSLS but is valid under much weaker assumptions.

In "Double-Robust Two-Way-Fixed-Effects Regression For Panel Data," we study the properties of the regression with two-way fixed effects (TWFE) in a setting with panel data and a general treatment design. TWFE regression has been a subject of a lot of research recently, which emphasized its properties in the presence of substantial heterogeneity in treatment effects. Our paper takes a more positive view and demonstrates that a simple improvement -- appropriate reweighting -- makes this algorithm robust to major misspecification. In particular, we explain how to make TWFE regression doubly robust, meaning consistent if either the outcome model (two-way regression) or the assignment model (which generates the weights) is correctly specified.

In a related paper, "Double-Robust Identification for Causal Panel Data Models," we study the two general paths to identification in panel data models with strict exogeneity. We show that in addition to the conventional outcome-based path, which involves specifying a regression function, one can use a design-based path. The latter is much more common in cross-sectional literature and is often equated with the ''credibility revolution'' in applied work. We demonstrate how to take the best of both approaches and use a doubly-robust identification strategy. We also provide a simple algorithm that implements this strategy and demonstrate its appealing theoretical properties.

Resumen del Currículum Vitae:

I work on developing econometric methods that applied researchers can use to answer economic questions and create better policies. I mainly focus on causal inference with panel and grouped data, an area where I currently have six completed projects. In this work, I design estimators, which are helpful for anyone working on policy evaluation and causal inference. These results have been presented at academic conferences and various invited seminars, including Harvard, MIT, Princeton, Chicago, Northwestern, UCLA, UCL, USC, UCSD, UCI, Sciences Po, and Online Chamberlain seminar. The proposed algorithms are being used in applied work in academia and public policy.

Out of the six projects mentioned above, one ("Synthetic Difference In Difference", joint with Susan Athey, David Hirshberg, Guido Imbens, and Stefan Wager) is published in American Economic Review. Another is forthcoming in The Review of Economic Studies ("Fixed Effects and the Generalized Mundlak Estimator," joint with Guido Imbens), and the third is published in The Econometrics Journal ("Double-Robust Identification for Causal Panel Data Models," joint with Guido Imbens). All this work has benefited greatly from Juan de la Cierva-Formacion 2018 grant. Another project is resubmitted to American Economic Review ("On Policy Evaluation with Aggregate Time-Series Shocks," joint with Vasily Korovkin), and one is currently being revised for resubmission to Quantitative Economics ("Double-Robust Two-Way-Fixed-Effects Regression For Panel Data," joint with Guido Imbens, Lihua Lei, and Xiaoman Luo).

In addition to the academic environment, I presented my research at various tech companies, including Microsoft, Google, and Facebook. Methods developed in my work are routinely used to evaluate various interventions at these and other companies. We develop free and publicly available packages for the Synthetic Difference in Differences estimator and Double-Robust Two-Way-Fixed-Effects regression to speed up adoption.

I also have a body of work in progress. In four of these projects -- "On Policy Evaluation under Sequential Exogeneity," joint with Yahu Cong, "Randomization-Based Inference for Synthetic Control Estimators," joint with David Hirshberg, "Sequential Synthetic Difference in Differences," joint with Alexey Samkov, and "Heterogeneous Child Penalties," joint with Kazuharu Yanagimoto and Tom Zohar -- I continue my work on causal panel data

models, focusing on sequential exogeneity, more general models for baseline outcomes, and estimation of individual-level treatment effects. These projects have already been presented at invited conferences and seminars. Another project -- "Robust Estimation of Large Scale Dynamic Games," joint with Evgeni Drynkin and Lanier Benkard, focuses on estimating large-scale econometric models with equilibrium (fixed point) constraints. It has been presented at various invited seminars, including those at Yale, Princeton, and Stanford GSB, and currently, we are finalizing the first draft.

I was a visiting scholar at Stanford Graduate School of Business in April 2019, the Spring quarter of 2022, and at the Becker-Friedman Institute at the University of Chicago in March 2020. Since January 2022, I am also a Research Affiliate of CEPR (The Industrial Organization Programme).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: Economía
Nombre: KUVSHINOV , DMITRY
Referencia: RYC2022-038033-I
Correo Electrónico: dmitry.kuvshinov@upf.edu
Título: Macro-finance with long-run data

Resumen de la Memoria:

The goal of my research is to better understand the connections between macroeconomics and finance, in particular when it comes to severe events such as financial bubbles and crises. Throughout my career I have taken different approaches to tackling these questions, involving theory and different types of data.

Most of my work is empirical, and uses long-run data. During my PhD in Bonn, I started working with a new long-run dataset of returns on different asset classes. The first paper in this line of work ("The rate of return on everything") was published in the Quarterly Journal of Economics, and showed that the rate of return to investing in real estate was high, similar to that on equities. My other projects at Bonn dealt with theory, and with shorter-run data for emerging markets. In the first of these projects, we developed a New Keynesian model to study the effects of a deleveraging shock in a currency union. In the second, we applied a novel statistical technique to estimate the cost of sovereign default and study its drivers. Both of these papers were published in the European Economic Review.

After moving to UPF, I continued to work with long-run data on risky asset returns. The first of these projects studied trends in the size of the stock market relative to GDP, documenting a structural break in the rate and sources of stock market growth in the 1980s. This paper was published in the Journal of Financial Economics. The second project studied co-movement in risk premia on different asset classes, and the third project studied long-run trends in the expected rate of return on risky assets. I also started to work on a new research direction studying the connections between banks and the macroeconomy, with one project on long-run trends in bank asset risk and another on the link between the path of monetary policy and financial stability.

In the future, I plan to continue studying the drivers and consequences of changes in asset prices, but shift the focus towards the joint evolution of asset prices and quantities, and towards safe rather than risky assets. I have one work-in-progress project studying the performance of a stock market valuation metric that combines prices and quantities (the "Buffett indicator", ratio of market cap to GDP), and another early-stage project applying demand-based asset pricing methods to longer-run international data. My third work-in-progress project studies the demand and supply of safe assets by different economic sectors in cross-country data, and their links to macroeconomic outcomes.

Throughout my research career, I have developed international collaborations with co-authors based in 7 different countries, and presented my work at conferences and seminars in 14 different countries. I have also demonstrated leadership qualities by obtaining a number of grants, and using the grant money to recruit and train research assistants, many of whom went on to have successful research careers of their own.

Resumen del Currículum Vitae:

I have been working as an Assistant Professor at Universitat Pompeu Fabra since September 2019. I received my PhD from Bonn in 2019, and before the PhD I worked at the Bank of England.

My research uses long-run data to study the connections between finance and the macroeconomy. I have published 4 papers in international peer-reviewed journals, including the top journals in economics (Quarterly Journal of Economics) and finance (Journal of Financial Economics). Together, my papers have 682 Google Scholar citations, including 1 paper with over 500 citations, and 2 more papers with more than 50 citations. I have presented my research at 25 conferences, and given 18 invited seminars. My work has also attracted interest from policymakers and the media, with coverage in the Financial Times, the Economist, and other financial commentary pieces.

The first strand of my research studies the drivers and trends in risky asset prices, and how they are connected to the macroeconomy. This includes papers which estimate the rate of return to real estate investments (QJE, 2019), study the co-movement of risk premia on different asset classes (best paper prize at the 2021 Paris December Finance Meeting), study long-run trends in stock market capitalization (JFE, 2022), and long-run trends in expected risky returns. The second strand of my research studies the links between banks and macroeconomic instability, with papers on long-run trends in bank asset risk (awarded the 2020 ECB Lamfalussy Fellowship), and the link between monetary policy and financial instability.

Since joining UPF, I have received 5 grants and fellowships to support my work (4 of these as PI), totalling 131,000 euros (81,000 euros as PI). As part of this research agenda, I have developed international collaborations with 9 different co-authors from 7 different research and policy institutions. I have also been co-organising seminars and conferences at UPF and BSE, and served as referee for 11 different journals, including two of the "top-5" journals in Economics.

Área Temática: **Economía**
Nombre: DENTER , PHILIPP
Referencia: RYC2022-036590-I
Correo Electrónico: pdenter@eco.uc3m.es
Título: The Poltical Economy of Public Good Provision under Uncertainty and Learning in the Digital Age
Resumen de la Memoria:

Evidence has been mounting for years that climate change will have severe consequences
for our future wellbeing. Nevertheless, until very recently, there has been hardly any political action
to contain these consequences, despite a significant body of research pointing to the
necessity of such action. Hence, it appears that governments have faced incentives to
disregard such kind of information. The first pillar of my research agenda revolves around the
political economy of ignoring such information, and how these political economy hurdles can
be overcome. A first project of this research line, titled "Motivated Beliefs and The Political
Economy of Ignoring Climate Change" studies how motivated reasoning by voters can create political incentives to ignore climate change policies. A second project from this pillar of my research, titled "The Political
Economy of Dynamic Public Good Provision under Uncertainty" (with Martin Dumav), starts
with the observation that any action against climate change is, in economic terms, a
contribution to a public good. Moreover, it is a public good that can be provided only if there
is international political cooperation. We plan to develop a game theoretical model that first helps us to understand how electoral incentives may prevent politicians to cooperate, and then to use the model to find ways to facilitate collaboration.

In January 2023, it was estimated that close to 60
percent of the world population use digital social media platforms. These platforms have had
a significant impact on multiple important aspects of our lives, ranging from news media
markets to simple human interaction between peers. In particular, they have opened up new
ways for persuasion, both corporate and political. I plan to further develop my research
agenda in this field, based on earlier work with martin Dumav and Boris Ginzburg. Currently, the following projects are planned. In "Troll Farms and
Voter Disinformation" (with Boris Ginsburg), we develop a model of constrained information design, in which the biased sender cannot condition her
action on the state of the world, unlike in the extant literature on Bayesian persuasion pioneered by Kamenica and Gentzkow (2011). We
show that in such a framework the sender's power to influence beliefs increases in the
quality of non-biased information sources. In "Social Learning with Correlation Neglect" (with
Martin Dumav and Boris Ginzburg), we develop a model in which voters receive both
information from a news outlet and from own observation, and then share the information
they received with their peer on a social network. Voters have correlation neglect.
Preliminary results show that increasing social connectivity through digital social networks is
detrimental even in the absence of biased information providers, if there are media sources
with significant market power. In "Information Sharing with Social Image Concerns" (with Dana
Sisak) is motivated by recent empirical research that has shown that in digital social media
networks, unlike in traditional social networks, the main reason to share information with
peers is to gain status. We built a game theoretic model of information sharing between
peers where the sender aims at getting status. We study the implications for learning and welfare.

Resumen del Currículum Vitae:

I have obtained an undergraduate degree in economics from the University of Mainz in 2006. I started my PhD studies in 2007 at the University of St. Gallen. In 2011 I was granted a Swiss National Science
Foundation grant that allowed me to stay a year at University of California, Irvine, hosted by Prof. Stergios
Skaperdas, where I finished writing my PhD thesis in 11/2011. After defending my thesis in 2012 I was hired as a Postdoctoral researcher by the University of St. Gallen. In 2014 I moved to Madrid and started a position as an assistant professor at University Carlos III de Madrid. During the second half of 2020, I spent six months as a visiting researcher at Erasmus University Rotterdam. In 2021 I was granted tenure at Universidad Carlos III de Madrid. I serve as a member of the editorial boards of the Journal of Politics and of Frontiers in Behavioral Economics. My work has been published in general interest and leading field journal in economics such as the Economic Journal, the American Economic Journal: Microeconomics, and the Journal of Public Economics.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Economía**
Nombre:	YURDAGUL , EMIRCAN
Referencia:	RYC2022-035751-I
Correo Electrónico:	eyurdagu@eco.uc3m.es
Título:	Firms, households and governments

Resumen de la Memoria:

I am a macroeconomist with research interests in firm dynamics, labor economics, and international finance. I can broadly split my research agenda into two separate lines.

In the first line, I tackle the interaction between heterogeneous firms, heterogeneous households, and the aggregate outcomes across economies such as output and growth. This agenda touches on (i) determinants of self-selection into entrepreneurship, (ii) effects of individuals' characteristics on their business start-up rates and the success of their firms, (iii) the role of firm heterogeneity on workers' labor supply, wages, and income, as well as the (iv) aggregate growth in the context of heterogeneous workers and/or firms. Below I provide the list of my published papers within this group in reverse chronological order.

"AIDS, Human Capital and Development", with R. E. Manuelli, Review of Economic Dynamics, Vol. 42, October 2021, 178-193.

"Endogenous Hours and the Wealth of Entrepreneurs", with F. Wellschmied, Review of Economic Dynamics, Vol. 39, Jan. 2021, 79-99.

"Who Quits Next? Firm Growth in Growing Economies", with J. Caunedo, Economic Inquiry, 57(1), Jan. 2019, 33-49.

"Production Complementarities and Flexibility in a Model of Entrepreneurship", Journal of Monetary Economics, Vol. 86, Apr. 2017, 36–51.

In the second line, I study debt crises in emerging economies. This includes a stream of work on sovereign default crises and a project on the sudden stops and exchange rate crises. I provide the information on these papers below.

"Improving Sovereign Debt Restructurings", with M. Dvorkin, J.M. Sanchez, H. Sapriza, Journal of Economic Dynamics and Control, Vol. 139, June 2022, 104435

"Sovereign Debt Restructurings", with M. Dvorkin, J.M. Sanchez, H. Sapriza, American Economic Journal: Macroeconomics, 13(2), Apr. 2021, 26-77

"News, Sovereign Debt Maturity, and Default Risk", with M. Dvorkin, J. M. Sanchez, H. Sapriza, Journal of International Economics, Vol. 126, Sep. 2020, 103352.

"Trend Shocks and Sudden Stops", with H. Seoane, Journal of International Economics, Vol. 121, Nov. 2019, 103252.

"Sovereign Default and Maturity Choice", with J. M. Sanchez and H. Sapriza, Journal of Monetary Economics, Vol. 95, May 2018, 72-85.

In the ongoing research, I continue along these lines and I plan to do so in the near future. Within the first line, there are many unanswered interesting questions that I can tackle by building on the output of my earlier research. In particular, currently, I am working on the interaction between the working hours distribution within firms and the wage distribution within firms.

In parallel, and in coherence with my second line of research, a significant portion of my trajectory in the near future will focus on the debt crises in emerging markets. For the details on these initial steps of my short- to medium-run research agenda, please see Section 5 of the Scientific and Technical Report attached to this application.

Resumen del Currículum Vitae:

Positions:

Associate Professor, Dept. of Economics, Universidad Carlos III (since 2021)
Research Affiliate, CEPR (since 2021)
Assistant Professor, Dept. of Economics, Universidad Carlos III (2015-2021)

Education:

Ph.D. in Economics from Washington University in St. Louis (2015)
Master in Economics and Finance from CEMFI (2010)
Bachelor's Degree in Economics (with Math Minor) from Sabanci University (2008)

Publications: (Please see the above box or the attached documents.)

Awards, grants:

UC3M Excellence Prize, 2021
Juan de la Cierva - Incorporacion Grant, 2019-2022
Juan de la Cierva Formacion Grant, 2017-2019

Conferences and workshops in the last 5 years:

Spanish Economics Association Simposio, Valencia, May 15-17, 2022
V MadMac Annual Conference: Governments and the Macroeconomy, CEMFI & F. Ramon Areces, Madrid, June 23-24, 2022
CRC TR 224 Workshop on Labor Markets, U. Bonn and U. Mannheim, Jul. 8-9, 2021
SMU Online Macro Workshop, Singapore Management U., May 6-7, 2021
SED Meetings, Society of Economic Dynamics, St. Louis, June 27-29, 2019
Barcelona GSE Summer Forum, Barcelona GSE, June 17-18, 2019
Spanish Economics Association Simposio, Madrid, Dec. 13-15, 2018
N. American Summer Meetings, Econometric Society, St. Louis, June 15-18, 2018
Conference of the Canadian Economics Assn., Antigonish, June 2-4, 2018

Invited seminars in the last 5 years:

(2022) U. Konstanz, U. Helsinki, U. Alicante, Trinity College Dublin, U. Houston, (2021) U. Catolica de Uruguay, (2019) Sabanci U., Tilburg U., U. Edinburgh, U. Melbourne, Monash U., Australian National U., Banco de España, U. Manchester, (2018) U. Mannheim, U. Barcelona, U. Exeter

Professional services:

New Faces in Macro: Madrid Workshop on Quantitative Macroeconomics, Co-organizer, May 2017
N. American Econometric Society Summer Meetings, Session Organizer, June 2017
Departmental Macro Seminar, U. Carlos III, Co-organizer, since 2016
Madrid Macro Workshop (MadMac), CEMFI - U. Carlos III, Co-organizer, 2017-2019

Refereeing:

Quarterly Journal of Economics, Review of Economic Studies, Journal of European Economics Association, Economic Journal, Journal of International Economics, Review of Economic Dynamics, Journal of Economic Dynamics and Control, International Economic Review, Journal of Banking and Finance, Journal of Money, Credit, and Banking, Macroeconomic Dynamics, Journal of Macroeconomics, SERIEs, FinanzArchiv, Spanish Ministry of Science and Innovation grants, U.S. National Science Foundation Grant.

Research projects:

"The heterogeneous impact of financial frictions, government policies and international trade on firms and workers" Funded by Agencia Estatal de Investigacion, grant 2020/00369/001. PI: Andres Erosa. (Universidad Carlos III de Madrid). (01/06/2020-01/06/2024). 40.051 €

"Family risk, diversification, and social security" funded by Ministerio de Ciencia e Innovacion, grant ECO2015-68615-P. PI: A. Erosa. (01/01/2016-31/12/2018). Total amount: 30.371 €

Master thesis supervised (TFM for Master in Economic Analysis at UC3M):

Danilo Aristizabal (2017), Alvaro Salazar (2018), Carlos Rojas (2021), Camila Figueroa (2022)

Teaching (at UC3M):

Topics in Sovereign Default (Ph.D., 2019, 2020), Macro III (Ph.D., 2016-2019), Int. Econ. (Master in Economic Development, 2018, 2019), and Macro. I (undergraduate, 2015 to present)

Área Temática:	**Economía**
Nombre:	MINALE , LUIGI
Referencia:	RYC2022-037523-I
Correo Electrónico:	lminale@eco.uc3m.es
Título:	Migration, integration, diversity and social capital

Resumen de la Memoria:

I am an applied economist interested in Labour Economics, Development and Political Economy.

In my research activity, I combine economic theory with micro-econometric methods, and I have so far focused on addressing questions in three major topic areas:

The first examines the economics of refugee migration and the determinants of integration into host societies. In this research line, I answer questions such as: what can explain the differences in integration profiles between refugees and other migrants? What can explain the observed refugee-migrant gaps in labour market outcomes? What is the impact of asylum policies and initial conditions at arrival on refugees' integration trajectories?

The second relates to internal and international migrations and their linkages to development. In this second line of research, I study the micro-determinants of migration (mostly rural-urban) and labour supply decisions in developing countries. I combine theoretical modelling of individual and household migration decisions with empirical analysis based on household surveys.

The third focuses on the economic and social impacts of the media. In this research line, I study the role of the internet and the media in shaping society, and I answer questions such as: What is the effect of the internet on social capital? How do news media affect crime perceptions and voting?

The research I plan to undertake during the years of the Ramon y Cajal is aimed at expanding on the research line described above in different directions.

Firstly, I plan to keep working on migration and its impact on society. In particular, I plan to develop two projects on the short and long-run effects of immigration-driven diversity. The projects would cover different countries and employ both recent and historical data. Second I will build on my previous work on the integration of refugees, by looking at the impact of naturalization policies on immigrant integration, as well as at the impact of initial conditions on refugees' labour market success. Third, I will keep working on political economy/culture topics by developing two projects related to social capital and its relation with the Internet and social media.

Resumen del Currículum Vitae:

Luigi Minale works at Universidad Carlos III de Madrid since 2015, where he is currently Associate Professor (Juan de la Cierva Researcher) since 2021. He is also Research Fellow of the Centre for Research and Analysis of Migration (CReAM) at University College London, Research Fellow of Institute for the Study of Labor (IZA) in Bonn, and affiliated with the Centro Studi Luca D' Agliano in Milan. Between August and November 2018, he has been Visiting Scholar at University of California Berkeley (Economics Department). Since May 2021 Luigi Minale is recipient of the Juan de la Cierva-Incorporación Fellowship (95,000€, 2021-2024).

Luigi obtained his PhD in Economics in September 2015 from the University College London under the supervision of Prof. Christian Dustmann and Prof. Uta Schoenberg, with a thesis titled "Essays in Applied Microeconomics and Development". The thesis committee was formed by Prof. Orazio Attanasio (UCL) and Prof. Kaivan Munshi (Yale).

Luigi is an applied economist with interests in Labour Economics, Development, and Political Economy. Luigi's research has been published in journals such as the Journal of Human Resources, the Journal of the European Economic Association, and the Journal of Public Economics. So far, his work has had a relevant impact within the academic community (receiving a total of 689 citations on Google Scholar since 2018) and a good outreach to the general public. Luigi ranks n.103 as of December 2022 among the authors in Spain in Economics and top 6% worldwide according to Ideas/Repec (Last 10 years publications). In year 2022 he has been awarded with the UC3M Social Council Excellence Award (prize amount: 15,000€).

In the last years he has won two research grants for which he is the Principal Investigator and has presented his work in over 20 between invited seminars (among them prestigious universities such as Berkeley, Stanford, and UC Davis) and conferences/workshops. Since 2018 he has done refereeing activity for over 50 papers for many prestigious journals such as: Journal of Political Economy; Quarterly Journal of Economics; Review of Economic Studies; Economic Journal; Journal of the European Economic Association; Journal of Public Economics; Review of Economics and Statistics, etc.

He collaborated in different roles to the organization of various International Conferences. In the summer of 2019, he co-organized the 12th International Conference on Migration and Development together with the French Development Agency and the World Bank at Universidad Carlos III de Madrid, the most relevant international conference in his area of study. Finally, he has been the organizer of the Applied Seminar Series for the years 2017-18 and 2018-19 at UC3M.

As regards teaching and PhD supervision. He has been teaching Labour Economics since 2021 and Econometrics from 2015 to 2020, both at UC3M. He is currently co-organizing the Applied Reading Group in the PhD Program and supervising 3 PhD students at UC3M.

Área Temática: **Economía**
Nombre: DUMAV , MARTIN
Referencia: RYC2022-038279-I
Correo Electrónico: mdumav@gmail.com
Título: Learning Dynamics, Long-term Public Projects, and Democratic Institutions
Resumen de la Memoria:

Since my PhD I have published 5 papers in peer-reviewed journals plus two other papers that have been revised and resubmitted. In the recent years I have won two competitive and prestigious research grants individually and have presented my work in many invited seminars and conference participations. I have been acting as a referee on a regular basis and contributed as a session organizer in various international conferences. Upon invitation I have acted as a peer-reviewer for the evaluations of internationally competitive research grants.

The broad themes of my research deal with economic analysis of uncertainty that resolves over time, and information that arrives with time, with particular applications to decision making, and designing contractual arrangements and institutions that can better cope with these phenomena. My research projects are designed around the substantive questions that motivate them, and as a result I draw from a variety of toolboxes, including microeconomic theory which is my primary field of expertise, but also empirical methods. My research interests have led me to pursue collaboration across diverse fields in economics. My work can be broadly distinguished along three lines of research themes
• The first studies self-enforcing contracts
• The second studies the design of contracts that are robust to informational imprecisions
• The third focuses on decision-making under uncertainty, and applications in behavioral economics.

Publications

1. Self-enforcing Contracts with Persistence, Journal of Monetary Economics, Vol. 128, May 2022, Pages 72-87 with William Fuchs and Jangwoo Lee
• JCR impact factor 2021: 4.630, Q1, rank 61/381 in " Economics" .
• H-Index 2021: 135

2. Social Connectivity, Media Bias, and Correlation Neglect The Economic Journal, Vol. 131, July 2021, Pages 2033–2057 with Philipp Denter and Boris Ginzburg
• JCR impact factor 2020: 3.178, Q1, rank 88/376 in " Economics" .
• H-Index 2021: 170

3. The Multiple Priors of the Open-minded Decision Maker Economic Theory, Vol. 71, March 2021, Pages 663–692 with Maxwell Stinchcombe
• JCR impact factor 2021: 1.432, Q2, rank 239/693 in " Economics" .
• H-Index 2021: 61

4. Moral Hazard with Non-additive Uncertainty: When are Actions Implementable? Economic Letters, Volume 171, October 2018, Pages 110-115 with Urmee Khan
• JCR impact factor 2019: 1.745, Q2, rank 134/373 in " Economics" .
• H-Index 2021: 107

5. Skorohod' s Representation Theorem for Sets of Probabilities Proceedings of the American Mathematical Society, Vol. 144, July 2016, Pages 123-33 with Maxwell Stinchcombe
• JCR impact factor 2016: 0.707, Q2, rank 143/311 in " Mathematics" .
• H-Index 2021: 81

6. Moral Hazard, Dynamic Incentives, and Ambiguous Perceptions Revised and Resubmitted: Journal of Economic Theory
• JCR impact factor 2021: 1.790, Q2, rank 258/381 in " Economics" .
• H-Index 2021: 103

Peer Reviewer for ERC Starting Grants, 2021, 2022

European Commission - Marie-Curie Global Fellowship (2021-2023) Amount: 163,000€
Title: Behaviour, perceptions, cognition, knowledge, organizations. Relational contracting approach (RelImprecision - 896463)
Participation: Principal Investigator.

Resumen del Currículum Vitae:

I completed my PhD in economics at the University of Texas at Austin in May 2012. My dissertation, ' Essays in Economic Dynamics and Uncertainty' , was supervised by Prof. Maxwell Stinchcombe and Prof. Dean Corbae. After my PhD I spent a year as a postdoctoral research fellow at the Center for Mathematical Economics at Bielefeld University. I then joined in September of 2013 the European University Institute (Florence) for the following two years as a Max Weber Postdoctoral Fellow, an internationally competitive multidisciplinary postdoctoral programme. From September 2015 to June

2022 I was an Assistant Professor (tenure track) at the Economics Department of the Universidad Carlos III de Madrid (UC3M). In June 2022 at the same department I was promoted as an Associate Professor with tenure. Since June September 2022 I have been an Associate Professor (with tenure) at the Economics Department of UC3M.

Between September and December 2020, I have been a visiting scholar at European University Institute as a Fernand Braudel Fellow for the Department of Economics. In 2021 and 2022 I was awarded a prestigious Marie-Curie Global Fellowship and visited virtually (due to pandemic related travel restrictions) various universities including University of California Berkeley, University California at Riverside, University of Pittsburgh, and the Chinese University of Hong Kong.

The broad themes of my research deal with economic analysis of uncertainty that resolves over time, and information that arrives with time, with particular applications to decision making, and designing contractual arrangements and institutions that can better cope with these phenomena. My research projects are designed around the substantive questions that motivate them, and as a result I draw from a variety of toolboxes, including microeconomic theory which is my primary field of expertise, but also employ empirical methods.

Since my PhD I have published 5 papers in peer-reviewed journals plus another paper that have been revised and resubmitted. My work has recently been published at Journal of Monetary Economics, Economic Journal, Economic Theory, Economics Letters, and Proceedings of American Mathematical Society. Four out of five of my publications came out in the last three years, and over half of my citations were received in the last 12 months. My work include two working papers that have been cited by researchers publishing at high ranked journals such as Econometrica and Journal of Economic Theory.

My work has been funded by several national and prestigious international competitive projects. In the recent years I have won two competitive and prestigious research grants individually and have presented my work in over 20 between invited seminars and conference participations.

I have been acting as a referee on a regular basis and contributed as a session organizer in various international conferences. I have been invited to act as a peer-reviewer for the evaluations of internationally competitive and prestigious research grants. Finally, I have been a co-organizer of the Microeconomics Seminar Series at UC3M for the years 2015-17 and Microeconomics Reading group in the PhD programme for the years 2018-20. I'm currently again co-organizing the micro seminar series.

Área Temática:	**Economía**
Nombre:	SOHL , TIMO
Referencia:	RYC2022-036434-I
Correo Electrónico:	timosohl1@gmail.com
Título:	Estrategia empresarial

Resumen de la Memoria:

In the field of strategic management, I develop my research projects uniformly around topics in the area of corporate strategy. Relying on a variety of quantitative methods such as survival analysis and difference-in-differences, I explore the organizational and environmental conditions that facilitate the use of internal (as opposed to external) resource markets, improving the understanding of the key sources of a corporate advantage. By illuminating the role played by market frictions, a firm's resources, and environmental changes in affecting firm boundary decisions, my research contributes to the development of an organizational economics approach to strategic management. It provides frameworks and guidance for managers and government agencies by pointing out important mechanisms for value creation via corporate scope and restructuring decisions.

My work targets both academic and practitioner audiences. Specifically, my published work includes (1) academic articles in journals such as Strategic Management Journal, Strategic Entrepreneurship Journal, Strategic Management Review, Academy of Management Discoveries, Long Range Planning, and Journal of International Management; (2) practitioner articles in Harvard Deusto Business Review and Marketing Review St. Gallen; and (3) books, chapters, and policy reports including "FDI in Barcelona: A city focused on growth" developed in collaboration with the Barcelona City Council. Several of my current working papers received invitations to revise and resubmit (R&R) at top management journals, including a 2nd round R&R at Management Science, a 1st round R&R at Organization Science, and a 2nd round R&R at Strategic Management Journal. I am lead author in almost all of my articles, demonstrating my skills in leading international research teams and providing significant input into the theoretical development and empirical analyses of the research papers.

My research received several prizes and awards from the international research community, including twice the Corporate Strategy Interest Group Best Paper Award from the Strategic Management Society (in 2020 and 2018) and the Distinguished Paper Award (top 1% of papers submitted to the Strategic Management Division) from the Academy of Management (in 2014). I also received the Best Reviewer Award from the Strategic Management Division at the 2019 Academy of Management conference. Moreover, my work was nominated three times for the overall Best Conference Paper Award and once for the Best Paper Prize for Practice Implications at Strategic Management Society annual conferences.

To develop a cohesive research identity, the line of research to be developed during the potential grant focuses on examining new topics in the research area of corporate strategy and resource allocation. For example, in the short-term future, I am developing and resubmitting three working papers that received R&R
decisions at top management journals (i.e., Management Science, Organization Science, and Strategic Management Journal). For the longer-term future, I plan to obtain on-site proprietary data on non-financial firms from the Bundesbank and Banco de España, which will allow me to provide novel insights on decisions around firm-internal capital reallocation by multinational firms in response to natural and human-induced disasters.

Resumen del Currículum Vitae:

Timo Sohl received his Ph.D. in Management from the University of St. Gallen in Switzerland and graduated in Economics from the University of Heidelberg in Germany. He is currently an Assistant Professor of Strategic Management at Pompeu Fabra University (UPF) and an Affiliated Professor at Barcelona School of Economics and UPF Barcelona School of Management, where he will join the core faculty in September 2023. Before joining UPF, he was a Postdoctoral Fellow in Strategic Management at IESE Business School and a Visiting Fellow at Mays Business School at Texas A&M University.

His research interests include decisions around firm boundaries and resource allocation, exploring how market frictions, a firm's resources, and the emergence of digital business models can impact corporate scope decisions. His research has been published in leading management journals such as Strategic Management Journal, Strategic Entrepreneurship Journal, Academy of Management Discoveries, Long Range Planning, and Journal of International Management. His work also appeared in practitioner outlets such as Harvard Deusto Business Review and includes policy reports and book chapters. The results of his academic research have been featured in the international press, including 4State News, The Business Daily, Forbes India, EurekAlert, PhysOrg, and ScienMag, among others.

Timo's research received funding from the Swiss National Science Foundation (two grants as principal investigator) and from the Spanish Ministry of Economy and Competitiveness (three grants as a member of the research team). He regularly presents his work at leading international academic conferences (e.g., Academy of Management and Strategic Management Society) and at seminars and workshops at prestigious universities and business schools (e.g., Cambridge Judge Business School, Columbia Business School, CUNEF, ESADE, ETH Zurich, Frankfurt School of Finance & Management, University of Groningen, IE Business School, IESE, LMU Munich, and the Wharton School).

In 2018, he was a scientific evaluation committee member ("comisionado") at the Spanish State Research Agency (AEI), Ministry of Science, Innovation, and Universities, where he also reviews research proposals for AEI grants. He also serves as ad-hoc reviewer for academic journals such as Strategic Management Journal, Organization Science, Academy of Management Discoveries, Global Strategy Journal, Industrial and Corporate Change, Journal of International Management, Journal of Management Studies, Long Range Planning, and Strategic Organization. Moreover, he regularly serves as reviewer for the Best Paper Award and the Research Methods Paper Prize at the Strategic Management Society, chaired seven sessions at SMS and AOM conferences, and co-organized a panel symposium at the 2022 AOM conference.

He also serves as the academic director of the Entrepreneurship track of the M.Sc. in Management program at the UPF Barcelona School of Management (UPF-BSM) and co-organized the UPF Management Seminar series. Since 2018, he supervised 18 Master thesis students at UPF-BSM, out of which two students won the overall best Master thesis award in the MSc in Management program.

Prior to his academic career, he gained practical experience at multinationals such as SAP and Robert Bosch in China (Hong Kong and Hangzhou) and Germany (headquarters).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Economía**
Nombre:	CASAS , AGUSTIN
Referencia:	RYC2022-037418-I
Correo Electrónico:	agustincasas@gmail.com
Título:	Institutions, Identity and Polarization with Big Data

Resumen de la Memoria:

As the first in my family to obtain a university degree, everything was new when I was at Northwestern University pursuing my Ph.D., where I decided to study political economy. While I was at the economics department, most political economy professors were at Kellogg School of Management with a strong theoretical bias. Hence, I came out seen as a micro-theorist doing political economy. Soon after graduation, while I was a post-doc at the European University Institute, I began my switch to more applied topics. That is how I began to look for empirical applications of my theoretical papers (for instance, the papers published in APSR and WD can be seen as being part of the same project, as one is the "estimation" of the other one).
My next mobility experience was when I moved out of Italy (to UC3M) where I deepened my understanding of the game: i.e, the editorial process, how to sell a paper, how to submit it, etc, with an especial focus on empirics. These were very formative years as well.

Years later, I moved to CUNEF, where I obtained tenured and I was not promoted to the following category, internally called as TITULAR. The next and last step would be similar to full professor or Catedrático.

Resumen del Currículum Vitae:

Since, I finished my doctorate, I published 10 papers, and I have 1 conditionally accepted, and other 3 in the editorial process (resubmitted or to be resubmitted). This is the case even though I have accumulated around 252 ECTS in teaching, which is around 2500 hours in front of the students, only in the last 10 years (since 2012). Nonetheless, this large teaching load and my publications allowed me to get the accreditation of titular two years ago, and a sexenio.

Summarizing, I have 2 JPubE, an APSR, a WD, an ET, an ECONOMIC INQUIRY, ECOLET, EJPE, JEPOP and AEL. Additionally, a conditional acceptance in JoP and an R&R in IER.

Here I want to highlight the variety and complexity of the papers I have published, in context with the Declaration of Research Assessment (DORA). In first place, I want to signal that I have a balanced combination between single-authored papers and coauthored papers, both empirical and theoretical. Among the theoretical papers, some are relatively "simple", like my conditionally accepted one in Journal of Politics, while others are quite complex technically, like my Reject&R in International Economic Review. Similarly, among the empirical ones, where there is a more structural estimation in "Surprise me if you can", while the identification follows from the institutional change in "The electoral benefits of unemployment". Among other things, also highlighted in my CV, "Catch me if you can" is in the 99% percentile compared to papers published in the same journal and led to interviews in BBC and CNN among others. Also, "Who monitors the monitors", for which I was interviewed in the Argentine media (where our results were discussed also by pundits and some politicians, indirectly).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Economía**
Nombre:	FAWAZ , YARINE
Referencia:	RYC2022-038512-I
Correo Electrónico:	fawazyarine@gmail.com
Título:	Vaccine hesitancy, social capital, education and mental health.

Resumen de la Memoria:

After graduating from Paris School of Economics, Yarine spent one year as a Max Weber Fellow at the European University Institute in Florence, then became Assistant Professor at the Autonomous University of Barcelona for three years before joining CEMFI, where she has been a researcher associated to the SHARE project since 2015.

Yarine is an applied microeconomist mostly interested in the fields of health, education, aging, and gender economics. She has published in high-impact journals such as The Economic Journal, Journal of Population Economics (cond.accepted), Social Science and Medicine, Economics and Human Biology, Economic Inquiry, Review of Income and Wealth, etc.

She has currently a broad research agenda, which includes three studies on the topic of the determinants of vaccination against Covid-19, two on the so-called motherhood effect on labor market outcomes, and another one on the impact of non-spousal bereavement on health. Most of these projects have in common that they use the SHARE data for research questions that were rarely looked at with such high-quality cross-national and individual data.

Finally, Yarine has an internationally and nationally widespread network of coauthors, which has been growing over the years: top institutions in Madrid (CEMFI, UC3M, UAM, CUNEF) and Barcelona (IPEG, UPF and UB), Paris (Paris School of Economics and Paris-Dauphine), Milan (Bocconi), and Argentina (CAF, Universidad de la Plata).

Vaccination rates against (more recently against COVID-19) vary considerably among older European populations, with a pronounced gap between Eastern and Western European countries. A glance at the stylized facts of vaccination in Eastern and Western Europe points at education being one force driving vaccine hesitancy in Eastern Europe, with no such gradient in Western Europe. I aim at investigating the causal role of educational attainment in the uptake of COVID-19 vaccines, in Eastern Europe. Using novel micro-level data on vaccine uptake from the Survey of Health, Ageing and Retirement in Europe (SHARE) and an instrumental variable strategy based on compulsory schooling reforms, I will try to uncover the impact of additional years of schooling in the Eastern European context, on vaccine hesitancy. Two channels that will particularly be studied are social capital and individuals' propensity to "buy" anti-vaccination fake news. We will also consider Mental Health correlations (pre and post).

Resumen del Currículum Vitae:

Yarine's research has been highly disseminated in the academic community as well as in newspapers and online media all over the world, particularly in the case of two of her coauthored papers. Recently, she has written a study together with Lidia Farré, Jennifer Graves and Libertad González, on how the first Covid 19 lockdown has impacted gender inequalities at work and at home in Spain. This work is forthcoming in Review of Income and Wealth, and has already collected 477 citations!

The other study that received most attention was dedicated to the role of newspapers endorsements in the US Presidential elections, coauthored with Agustín Casas and André Trindade. "Surprise me if you can" was referred to by renowned media in many languages around the world, including the BBC and CNN, where the authors were interviewed.

She expects her work on Covid-19 vaccination, which makes use of novel and still confidential data from SHARE, will be relayed in the academic and non-academic community as well.

Área Temática:	**Economía**
Nombre:	GAESSLER GAESSLER, FABIAN
Referencia:	RYC2022-038012-I
Correo Electrónico:	fabian.gaessler@upf.edu
Título:	Prof. Dr.

Resumen de la Memoria:

My scientific contributions center around the creation of new ideas and processes towards their successful commercialization. More specifically, I am interested in examining the effectiveness of firm strategies, market-based instruments, and government policies in stimulating innovation.

Which strategies enable firms to enforce their patents most effectively? Why do firms invest into automation innovation? What does it take for scientists and inventors to produce knowledge? I address these and related questions in three distinct research lines. I thereby contribute to the literature on innovation, knowledge production, technology transfer, and intellectual property (IP) rights. Research topics with societal impact, such as life science innovation, artificial intelligence, and automation, are especially important to me.

My research portfolio has evolved over time. Whereas my earlier contributions focus on research questions related to IP rights and firm innovation, my more recent contributions concern the determinants of knowledge production at the individual level.

Line 1: Intellectual Property Strategies.
In our knowledge-based economy, the enforcement of IP rights has become an important aspect of a firm's strategy. As high-profile patent disputes, such as the one between Apple and Samsung, exemplify: firms increasingly compete with each not only in the product market, but also at court. In this line of research, I explore how firms seek to enforce their patents and how their litigation behavior depends on the design of the respective institutional system.

Line 2: Firm Innovation – Incentives and Strategies.
In my second line of research, I am interested in the factors that shape a firm's innovation strategy. In each study, I look at a different aspect of how firms may gain competitive advantage from innovation (e.g., licensing, market exclusivity, cost reductions) and identify boundary conditions related to firm and market characteristics.

Line 3: Inputs in Knowledge Production.
In my third line of research, I investigate to what extent the availability of particular research inputs (e.g., scientific knowledge, physical capital, and social capital) influences the productivity of inventors and scientists.

In my work, I conduct large-sample econometric analyses and take, where possible, advantage of natural experiments to establish causal relationships. I typically rely on a combination of firm, patent and publication data, but often complement these with hand-collected (e.g., archival data) or administrative data (e.g., social security information). I make use of new methods for data aggregation and classification, such as machine learning and natural language processing. I also create primary data through surveys and conduct interviews in order to explore and validate mechanisms.

As presented above, my current research pipeline consists of three lines of research: IP strategies, firm innovation, and knowledge production. I look forward to extending and deepening these lines of research as my career continues. After all, solving the "grand challenges" of our time demands the development of new ideas and technological solutions, and I would like to provide new insights into how this can be achieved.

Resumen del Currículum Vitae:

Since 2022, I am an Assistant Professor in the Department of Economics and Business at Universitat Pompeu Fabra (UPF), an Affiliated Professor of the Barcelona School of Economics, and an Affiliated Research Fellow of the Max Planck Institute for Innovation and Competition (MPI). Before joining UPF, I worked as a Senior Research Fellow at the MPI and served as an interim Professor of Technology Management at the Technical University of Munich. I obtained my Bachelor Degree at the Ludwig Maximilian University of Munich and my Master Degree at the London School of Economics and Political Science. During my PhD, I visited Stanford University for a research stay. In 2015, I completed my PhD in Management from the Ludwig Maximilian University of Munich.

I have been successful in securing grants to carry out independent research projects. As principal investigator, I obtained two research grants exceeding 130,000 EUR in total.
My scientific contributions have received several awards of excellence. For my thesis entitled 'Enforcing and Trading Patents: Evidence for Europe', I was given the Otto Hahn Medal from the Max Planck Society (7,500 EUR). My research was further nominated twice for the TIM Division Best Paper Award, and was four times selected as a Best Paper Proceeding at the AOM Conference.

I have published my work in leading academic journals at the intersection of management and economics, such as Journal of Economic Behavior and Organization, Journal of Economics and Management Strategy, Research Policy, Science Advances, and The Review of Economics and Statistics. Moreover, I currently hold invitations to revise and resubmit my work at American Economic Journal: Applied Economics, Journal of Public Economics, Management Science (2x), and Strategic Management Journal.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

According to Google Scholar, as of February 1, 2023, my papers have received 455 citations and my H-index is 10. I presented my research at leading international conferences and workshops in innovation (e.g., BGSE Summer Forum, NBER Productivity Seminar, REER Conference, and SEI Faculty Workshop). The results of my research have been featured in blogs, podcasts, and television.

My goal is to have impact with my research beyond the academic sphere. I have co-authored a report for the European Commission and accepted invitations to speak at events held by international organizations, such as the European Patent Office and the OECD. I further organized workshops with practitioners on new technologies. Recently, I became a member of the advisory board of a funding initiative of the German Federal Ministry of Education and Research with the goal to promote technology transfer in underdeveloped regions.

I have contributed to the training of students and young researchers. I have taught classes in microeconomics and innovation management at UPF and the Technical University of Munich at undergraduate and graduate level. I further organized and lectured at a PhD Workshop. During my time at the Technical University of Munich, I served as academic advisor to a start-up founded by students.

I have engaged in various kinds of academic and departmental service, showcasing my leadership skills. I co-organized workshops, and served as a referee for conferences, research grant initiatives, and leading journals in management and economics. I further served several years as Ombudsperson at the MPI, and as Mediator in the Human Sciences Section of the Max Planck Soci

Área Temática:	**Energía y transporte**
Nombre:	ASSELINEAU , CHARLES-ALEXIS
Referencia:	RYC2022-038071-I
Correo Electrónico:	charlesalexis.asselineau@imdea.org
Título:	Optimisation of high-temperature energy systems.

Resumen de la Memoria:

High-temperature heat generation for industrial manufacturing processes and electricity production accounts for more than 54% of the global CO_2 emissions. These two sectors will undergo significant transformations worldwide including a broad shift from fossil fuels to CO_2-free energy sources to reach the 2030 Paris agreement targets. In industrial processes using high-temperature heat, fossil fuels will progressively be replaced by alternative fuels (hydrogen, biomass, ammonia, synthetic fuels, etc.) when economically feasible, or directly by renewable heat or electric heating from renewable electricity.

My research contributes to the decarbonisation of the energy, industry and transport sectors by focusing on the development of CO_2-free high-temperature technologies. I design technologies for solar energy, both photovoltaics (PV) and Concentrated Solar Thermal (CST), and for the production and storage of high-temperature heat, electricity, fuels and hydrogen. This research is multidisciplinary by design and involves typically mechanical and thermal engineering, optics, numerical optimisation, material science and thermodynamics. Scientifically my research interest is on the optimisation of the geometrical design radiant systems for energy and the understanding of the interplay between system geometry and thermodynamic work. In practice, this work involves significant numerical multi-physics modelling and complex experimental thermo-optical measurements.

In my PhD I developed novel methods to optimise the geometry of complex radiant systems. These techniques were used to design the original geometry of the SG4 receiver, the most efficient solar superheated steam generator in the world with experimentally demonstrated efficiency of 97.1%. The design specifications of the SG4 receiver are protected and under exclusive license to Sunrise CSP pty.

I have studied the design of solar reactors for the production of liquid fuels from solar energy and wet biomass via supercritical water gasification and the efficient design and operation of heliostat fields for the Australian Solar Thermal Research Initiative. I supervised and contributed to the design of the full solar subsystem of the large USA-Australia CSP Gen3 Liquids pathway project. In parallel, I have developed methods based on computer vision and image processing to accurately measure the soiling and shape deformation of heliostats and PV modules for a project funded by the Australian Renewable Energy Agency. I continue to develop this work as a member of the USA-Australia Heliocon consortium. I have ongoing collaborations with researchers in PV to understand the complex optics of tracking bi-facial solar arrays. Beyond solar energy, I have initiated research in heat and electricity storage.

In my current position as a H2020 MSCA IF grantee, I conduct research on the modification of the radiative properties of high-temperature materials in the framework of the HEASeRS project. This work is at the crossroad between material science, heat-transfers and optics and involves advanced use of Monte-Carlo ray-tracing and experimental characterisation of the optical properties of industrially relevant materials. I develop new methods to design surfaces useful as emitters, reflectors or absorbers of radiation, with prescribed directional properties and functional above 650 °C.

Resumen del Currículum Vitae:

I have two Masters degree (IMT Albi, France and Tsinghua University, n°1 in China), and a Mastere Specialise from Mines ParisTech (top 2 in France). I completed my PhD at the Australian National University (ANU, n°1 in Australia), in 2017. I was then offered two successive Research Fellow positions at ANU (2017 and 2019). In 2021, I received a highly competitive H2020 Marie Sklodowska-Curie Actions Individual Fellowship and moved to Spain to start a Post-Doctoral Researcher position at IMDEA Energy. I am in parallel an Adjunct Research Fellow at the ANU where I have maintained a continuous affiliation since the start of my PhD in 2013.

I have initiated and/or participated to international research contracts and projects with 7 companies (3 as PI), and participated to 9 government-funded research projects (2 as PI), 6 of which international. I have personally attracted more than 270k € in funding, without counting in-kind contributions.

As of the 28th of January 2023, my h-index on Google scholar is 12, I have published 11 journal articles (3 as first author), 16 peer-reviewed conference papers (5 as first author), and two influential technical reports (one for the USA Department of Energy, and one for the IEA SolarPACES research task III). I have given 15 oral presentations and 4 poster presentations in national and international conferences; and 1 invited plenary talk at the international SolarPACES conference. I have been invited for academic visits and delivered seminars to internationally relevant institutions: in 2016 by Dr. Clifford Ho at SNL and in 2018 by Prof. M. Blanco, ERA chair, at the Cyprus Institute. I regularly review articles for Applied Energy, Applied Thermal Engineering, Solar Energy, Solar Energy materials and Solar Cells, ASME Journal of Solar Energy Engineering, Renewable and Sustainable Energy Reviews, as well as other journals occasionally. I am a reviewer for the major conferences in my field: IEA FP7 SolarPACES and ASME Energy and Sustainability. I have reviewed a research proposal for NWO, the Dutch national applied research funding agency.

I conduct all my research according to the principles of open science, all my software is open-source (on GitHub) and I publish my datasets in publicly available repositories (Zenodo). I have worked in R&D in companies and research centres before my PhD and developed a solid understanding of technology transfer challenges. I am co-author on an Australian patent "Solar receiver module" and for a set of protected drawings for a solar receiver currently licensed by Sunrise CSP pty.

While studying for my PhD and being later employed on 100% research contracts, I maintained a teaching activity. Between 2015 and 2019, I completed supervision of 12 honours and bachelor theses and 1 master thesis. 5 of these students subsequently enrolled for a PhD at ANU on related topics (Y. Guo,, G. Conechado, H. Wu, Z. Kee, M. Zheng). My first PhD student, Dr. S. Wang, completed his PhD in 2022. I am currently supervising the PhD of A. Fontalvo, due to finish S1 2023. I was part of the international PhD grant selection committee at ANU in 2018-2019. I have taught in the large 1st year university course "Introduction to thermodynamics" of the ANU (170+ students, two tutors, 2015) and was a guest lecturer for the Vice-Chancellor course "Unraveling complexity" (2018).

Área Temática:	**Energía y transporte**
Nombre:	BAILERA MARTÍN, MANUEL
Referencia:	RYC2022-038283-I
Correo Electrónico:	manuelbailera@gmail.com
Título:	Methanation, carbon recycling and decarbonization of industry

Resumen de la Memoria:

The applicant proposed and leaded one line of research focused on the decarbonization of ironmaking processes. He has wide experience also in two other lines of research.

• Decarbonization of ironmaking through oxy-fuel combustion and carbon recycling:
The applicant proposed this line of research because of the impossibility of directly electrifying the ironmaking processes. Recycling carbon emissions through synthetic fuels is a potential solution for this industry which, combined with oxy-fuel combustion, provides additional benefits. This line was originated in 2018, after 4 years of experience in the topics of methanation, oxy-fuel combustion and industry. The line of research was progressively established; first with the award of the CIRA contract in 2020 (based on the ideas and proposal of the applicant) and later with the award of the DISIPO project in 2021 in which the applicant was Principal Investigator. Nowadays, the applicant has strengthen international collaborations with top-leading industries in the sector (JFE Steel, Voestalpine) and reputed institutions (Waseda University, K1-MET GmbH). Such is the case that, the applicant acted as the delegate of the Iron and Steel Institute of Japan at the Open Forum 2022 of the World Steel Association. A novel methodology for the simulation of blast furnaces was elaborated by the applicant, and adopted by Waseda University and JFE Steel, what clearly shows the value of the applicant. It should be noted that the applicant achieved more impact and technology transfer in the last 2 years (since he started being PI and leading his own line of research) than during the past 6 years in which he was limited by the tasks he received. Recently, a new collaboration was establish with the University of Bío-Bío (Chile) in the topic of biomass and syngas utilization in blast furnaces (expected 6-month research stay starting in March 2023). Lastly, the applicant is mentoring a PhD student in the topic of this research line (to be defended by 2023).

• Methanation processes:
The applicant has extensively work in methanation since 2014. He participated in 5 research projects, leading different tasks and collaborating in the proposals to raise the corresponding funds. He design, commissioned, simulated and operated a methanation lab facility at the University of Zaragoza, which is still under operation to date. Currently, sulfur-resistant catalysts for the methanation of blast furnace gas are under development in collaboration with the Catalonia Institute for Energy Research. This collaboration arose from conversations between the applicant and J. Guilera, at a conference in 2021. In addition, the lab facility was upgraded to include a second reactor designed by the applicant. Different exchange students participated in the experiments of the plant during these years. The applicant is the responsible of the experiments and collaborations, so he is well capable of leading this line of research in the near future.

• Solar Calcium-Looping:
The applicant also worked on solar calcination within the SOCRATCES project. In this short period, he was capable of collaborating with Calix Europe Ltd. to develop a carbonator model and scaling it up.

Resumen del Currículum Vitae:

I published 30 peer-reviewed papers, (24 in Q1 journals), 4 chapters (elsevier), and 1 book (springer). I am first author in 22 of the 30 papers, and all of them are accessible in open access (either in the journal or in a public repository). According to SCOPUS, the total number of citations received is 837 and my h-index is 13 (180 cites/year in the last 3 years). According to GoogleScholar, the total number of citations received is 1165 and my h-index is 15 (252 cites/year in the last 3 years). I have 31 contributions in international conferences and workshops. I acted as the delegate of the Iron and Steel Institute of Japan at the Open Forum 2022 of the World Steel Association. I was invited to chair the "Alternative fuels" session of the 12th SDEWES conference. I was invited also to present my work in an international workshop and to give several lectures to graduate students. I supervised 4 B.Eng. thesis and 3 M.Eng. thesis. I currently supervise 1 PhD student (expected defense by the end of 2023).

I participated in 13 competitive research projects and 2 private contracts. I currently lead as principal investigator 3 of these projects (1 European GA 887077, 2 local PIIDUZ_21_125, PIIDUZ_22_763). I am currently member of the Working Group 2 of the COST action CA21127 for co-operation networks. I also evaluated grant proposals at the National Science Centre Poland by invitation (Evaluation n1352992). In the European project I lead, I keep close collaborations with Waseda University (one of the best private universities in Japan) and JFE Steel (the second largest Japanese steel manufacturer), which adopted for their simulations the new model I developed during my 15-months research stay in Waseda. I have also close collaborations with K1-MET GmbH (leading metallurgical competence centre in Austria), and Voestalpine Stahl GmbH (the steel division of Voestalpine AG), where I did a 3-months research stay, and managed to arrange another 3-month research stay for my PhD student paid by K1-MET (modeling the amine scrubbing pilot plant at the Linz site of Voestalpine steel manufacturer). I recently started new collaborations with the University of Bío-Bío (Chile) in the topic of biomass and syngas utilization in blast furnaces (expected 6-month research stay starting in March 2023).

Área Temática:	**Energía y transporte**
Nombre:	ESPINET GONZÁLEZ, PILAR
Referencia:	RYC2022-038413-I
Correo Electrónico:	pilar.espinet@gmail.com
Título:	Photovoltaic systems for terrestrial and space applications

Resumen de la Memoria:

I earned my PhD from the Instituto de Energia Solar at the Universidad Politecnica de Madrid. My PhD was focused on a deep understanding of the challenges presented in III-V multijunction solar cells when working at ultra-high concentrations (1,000 suns or higher) in order to achieve high efficiency and a long lifetime. For that, during my PhD I developed new modeling tools and characterization techniques and I also implemented novel accelerated lifetime tests.

During my postdoc and later on as a senior research scientist in Caltech I have been mainly working on the development of novel ultra-light solar arrays for space-based solar power. The first three years of my post-doc within the "Space Solar Power Initiative" were spent developing ultra-light concentrator photovoltaic systems for space. This project was sponsored by Northrop Grumman and was one of the largest recent corporate sponsored research projects at Caltech ($17.5 million). I participated in all phases of this project from its inception contributing to the optimization of the overall design of the concentrator photovoltaic system to the final phase of prototyping efforts which culminated with the demonstration of the lightest prototype (1kg/m2) which integrates solar collection, DC to RF power conversion and wireless transmission. In particular, I have been responsible on the design and fabrication of the multijunction solar cells which has been carried out in collaboration with the National Renewable Energy Laboratory (NREL). In order to increase the efficiency and radiation tolerance of the inverted metamorphic (IMM) multijunction solar cells used, I invented and patented a structure which integrates a Bragg reflector in the graded buffer used in the IMM architecture. A record conversion efficiency of 32.4 % has been obtained in a triple-junction IMM solar cell with the graded buffer Bragg reflector under the extraterrestrial solar spectrum (AM0). I have also been leading the search for new solar cell materials and device architectures with outstanding radiation hardness. In collaboration with NREL, radiation hard phosphide-based multijunction solar cells have been developed for the first time which revealed a novel promising path towards high efficiency rad hard solar cells. Irradiation studies were also carried out on perovskite solar cells, revealing for the first time their extraordinary radiation resistance and therefore their potential for space. Finally, in the ensuing years after the original SSPI project our group continued to develop this concept and prepare for space launch. During this time, I independently researched and initiated a collaboration between Caltech and Lund University in Sweden on the discovery of the unique radiation performance of nanowire solar cells. Through my leadership in this project, it culminated in the demonstration of the enhanced radiation hardness of the nanowire solar cells. Lund University subsequently awarded this line of investigation in the Innovation Award 2020 providing SEK 50,000. The results obtained in the NW solar cells initiated a new research line in the group (Space Solar Power Project) in Caltech and are part of the space demonstration which was satisfactory launched in January 2023.

Resumen del Currículum Vitae:

1)   7 years as a post-doctoral researcher and senior research scientist at the California Institute of Technology, (ranked #2 on the Times Higher Education World University Rankings) working as part of the ground breaking team studying Space based Solar power. This multiyear, collaborative effort was funded by the SSPP (https://www.caltech.edu/about/news/caltech-announces-breakthrough-100-million-gift-to-fund-space-based-solar-power-project) and SSPI (https://www.caltech.edu/about/news/space-based-solar-power-project-funded-46644).

2)   Establishment of a new radiation hard solar cell technology concept. I have demonstrated for the first time that nanowire solar cells have an enhanced radiation harness versus the planar counterparts (P. Espinet-Gonzalez,et al. ACS Nano 2019, 13, 11, 12860-12869). An interview about the research has been gathered in Chemical & Engineering News ISSN 0009-2347 (https://cen.acs.org/energy/solar-power/Nanowire-solar-cells-withstand-radiation/97/web/2019/11)

3)   Invention and development of the Graded buffer Bragg reflector. The patented (US 2019 / 0259897 A1) semiconductor component combines the functionality of two structures, a graded buffer and a Bragg reflector into just one with the consequent reduction in semiconductor growth and cost (R. M. France et al. IEEE Journal of Photovoltaics Volume 8, Issue: 6, 2018). An interview about the novel semiconductor structure has been published in semiconductorTODAY Compounds & Advanced Silicon, Vol. 13, Issue 8, October 2018 (http://www.semiconductor-today.com/features/PDF/semiconductor-today-october-2018-Bragg-reflector.pdf)

4)   Development of the lightest multifunctional prototype (1 kg/m2) which integrates the solar collection, conversion of the DC power generated into RF and transmission of the RF power in a steerable beam for space-based solar power. https://www.spacesolar.caltech.edu/

5)   Book chapter with international renowned experts on the photovoltaic community. Handbook of Concentrator Photovoltaic Technology. 2016 John Wiley and Sons. Chapter 9: Reliability, Authors: Carlos Algora, Pilar Espinet-Gonzalez, Manuel Vázquez, Nick Bosco, David Miller, Sarah Kurtz, Francisca Rubio, and Robert McConnell pp. 574-640

6)   Mentoring and training multiple graduate students at Caltech. Co-advisor of Master-thesis.

7)   Initiator of multiple international collaborations: National Renewable Energy Laboratory (USA), Spectrolab (USA), SolAero (USA), The Aerospace Corporation (USA), Boeing Radiation Effects Laboratory (USA), Jet Propulsion Laboratory (USA), Northrop Grumman (USA), Fraunhofer (Germany), Lund University (Sweden), SARP (Japan), CNEA-CONICET (Argentina)

8)   Program Committee and Area chair in the IEEE Photovoltaic Specialist Conference (2014, 2021 and 2022)

9)   Editorial board member of the journal Energies. Section: Solar Energy and Photovoltaic Systems. May 2020 – now

10)   Awarded by Lund University with SEK 50,000 in the Innovation Award 2020 for the idea of nanowire solar cells for space applications. This award is oriented to researchers with a novel idea that can be commercialized. (https://www.innovation.lu.se/en/futureinnovations/previous-prize-winners)

Área Temática:	**Energía y transporte**
Nombre:	GUC , MAXIM
Referencia:	RYC2022-035588-I
Correo Electrónico:	mguc@irec.cat
Título:	Advanced characterization of semiconductor materials and quality control methodologies for monitoring of the manufacturing of high-tech photovoltaic devices

Resumen de la Memoria:

The principal research interests of Maxim Guc are centered on two key topics. The first one is devoted to the fundamental characterization of semiconductor materials and optoelectronic devices, mainly in photovoltaics (PV). His involvement in this research topic continues since the preparation of his Master thesis, and is based on the deep analysis of fundamental properties of a wide variety of inorganic complex materials, and of the optoelectronic properties of the devices based on these materials, with a special attention given to the PV materials and devices. In this research field Maxim has obtained significant results that contributed to the understanding of the main physicochemical properties of the studied PV materials, which allowed, apart from the identification of the main limitations of the devices based on these materials, to propose the further required steps for improvement of the device performance. The hallmark of Maxim in the frame of this research topic is the implementation of a combinatorial approach integrated with statistical and artificial intelligence algorithms for big data analysis, which allows accelerating the process of new knowledge acquisition required for understanding the main limitations, advantages and optimization strategies of different technologies. The results obtained in the framework of this research line favored Maxim to publish scientific articles in high-impacting journals, to present his results in the most relevant international scientific conference, and led to him becoming an expert in the materials science field.

The second research topic is related to the development of new methodologies for the materials and devices quality monitoring, and is based on the strong background and knowledge of Maxim on combination of different advanced physicochemical characterization methods of semiconductor materials and devices. This has allowed Maxim to develop new methodologies for the in-line monitoring of the novel materials and devices based on them at laboratory level, and to design and demonstrate their transfer to the in-line monitoring of the quality of industrial PV processes. In the recent years, this second research line has been greatly strengthened by the implementation of novel machine learning methodologies and high statistical based algorithms for data analysis. The combination of the strong fundamental characterization background and of these novel methodological approaches in the data analysis has allowed Maxim to become a leading researcher in this field in the group, and, based on these methodologies, to design two optical systems for the in-line monitoring of industrial processes for the production of high efficiency photovoltaic modules. The mentioned systems were installed in the frame of the pilot industrial line of the SUNPLUGGED Company in Austria (in the frame of the Solar-WIN H2020 project) and of the pre-industrial pilot line of ZSW in Germany (in the frame of the In4CIS Solar-Era.Net project).

Since 2020, the two described research topics are integrated in a new research line that Maxim has initiated and is currently coordinating in the SEMS group from IREC, devoted to the Advanced Characterization of PV Materials and Devices and Development of Process Monitoring Methodologies. This research line is currently formed by 2 postdoc researchers, 4 PhD students and 2 engineers.

Resumen del Currículum Vitae:

Dr Maxim Guc (PhD, 2014) has had a prosperous research career, occupying along the years various positions including laboratory assistant at the Moldovan State University, Leading Researcher at the Institute of Applied Physics (Moldova), and scientific expert in the "SunGa" Ltd. Company (Moldova). Currently, he is employed as a Consolidated (Senior) Postdoc Researcher at the Solar Energy Materials and Systems group in IREC (Spain) where he coordinates the Advanced Characterization of PV Materials and Devices and Development of Process Monitoring Methodologies research line. The main research interests of Maxim are centered on two topics: fundamental characterization of semiconductor materials and optoelectronic devices, and development of new methodologies for the monitoring of the production processes at laboratory and industrial levels.

During his research career Maxim Guc has participated in more than 30 national and international research projects, and during the last 5 years he has been/is actively participating in the coordination of different projects. This includes: i) General Coordination of the INFINITE-CELL H2020 project, of the TransEL national (AEI) project, of the MONICIS TECNIOspring+ project (co-funded by Marie Sklodowska-Curie Actions), and of two National research projects in Moldova; ii) Coordination as Principal Investigator of the IREC team in the SUNRISE H2020 project; iii) Coordination of several WPs in finished and on-going H2020, Solar-ERA.Net EU and industrial projects. The strong involvement in international collaborative projects has allowed Dr Guc to consolidate a wide network of scientific contacts with world leading institutions related mainly to semiconductors and thin film PV technologies (e.g. EMPA (Switzerland), HZB (Germany), ZSW (Germany), UAM (Spain), TNO (Netherlands), etc.), with PV companies (SUNPLUGGED AG (Austria), Flisom (Switzerland), METSOLAR (Lithuania) and Saule (Poland)), as well as relevant instrumentation companies (Manz AG (Germany), LENZ Instruments (Spain)). The collaboration network of Maxim was also strengthened during his stays as visiting researcher in leading R&D centers and universities like UAM (Spain), HZB (Germany), LUT (Finland), IPVF (France), Sunplugged (Austria), ZSW (Germany), Lurederra (Spain).

Since 2012, Dr Guc has co-authored 87 papers in ISI journals, with 59 published in Q1 and 23 in first decile (D1) journals (including journals as Energy Environ. Sci., Adv. Energy Mater., Adv. Funct. Mater., J. Mater. Chem. A, etc.). Maxim's publications have gained >1340{>1760} total citations and his h-index is 22{25} (according to Scopus{Google Scholar}, Jan 2023). In addition, he has reviewed over 30 articles and is currently serving as Guest Editor for a Special Issue in Applied Sciences journal. In 2021, Maxim was included as an expert in the EVALUA database of the Spanish "Agencia Estatal de Investigación".

In the last years Maxim has supervised 1 PhD thesis (in IAP, Moldova), 4 Master thesis and 2 Bachelor thesis (all in Moldova State University). Currently, he is supervising 5 more PhD thesis (4 in IREC and 1 in IAP).

Finally, the quality of the scientific work of Dr Guc has allowed him to achieve various awards and highly competitive scholarships, including Juan de la Cierva-Incorporación, and TECNIOspring+/Marie Sklodowska-Curie Action.

Área Temática:	**Energía y transporte**
Nombre:	ADÁNEZ RUBIO, IÑAKI
Referencia:	RYC2022-035841-I
Correo Electrónico:	iadanez@icb.csic.es
Título:	Desarrollo del proceso Chemical Looping para la combustión con captura de CO2

Resumen de la Memoria:

Tesis doctoral

Realicé mi tesis doctoral en el Grupo de Combustión y Gasificación (GyC) del I. Carboquímica (ICB-CSIC). En ella llevé a cabo el desarrollo del proceso Chemical Looping with Oxygen Uncopling (CLOU). Desarrollé un transportador de oxígeno TO y en una planta piloto de 1.5 kWt llevé a cabo la demonstración (proof of the concept) del proceso CLOU con carbón y biomasa. En este periodo realicé una estancia de investigación de 3 meses en Chalmers Univ. of Tecnol.(Chalmers), Suecia.

Mi tesis doctoral recibió los siguientes premios: Premio extraordinario de Doctorado 2014-2015. UNIZAR; Premio Mejor Tesis Doctoral en Tecnologías de captura de CO2. PTECO2. 2015; Premio Medio Ambiente Aragón 2015. Ámbito Innovación e Investigación. Gob. de Aragón. 2015.

Post doctoral

Continué investigando en el grupo GyC en la mejora del TO para el proceso CLOU y reducir su coste. Desarrollé un TO basado en un óxido mixto Cu-Mn adecuado para el proceso con coste reducido. La fabricación y obtención de este nuevo TO esta patentado a nivel nacional (P201730355).

Realicé una estancia postdoctoral de 2 años en el Grupo de Procesos Termoquímicos (GPT) de UNIZAR como Juan de la Cierva Formación. Investigué el desarrollo de metodologías de cuantificación simultánea de hidrocarburos aromáticos policíclicos (PAH, oxy-PAH y S-PAH) formados en la pirolisis de etileno en presencia de SO2/H2S, por GC gases-masas. Fui IP de un proyecto Unizar-CUD y realicé una estancia de 3 meses en el Instituto Superior Técnico, Portugal con financiación de la Cost Action CM1404.

Regresé al Grupo GyC del ICB-CSIC como Juan de la Cierva Incorporación, donde me he centrado en desarrollo de TOs basados en Cu magnéticos. Estos TOs permiten el proceso CLOU, junto a la separación magnética del TO de las cenizas para su reuso. Además, he demostrado la producción de syngas por el proceso Chemical Looping Reforming (CLR) a partir de líquidos en planta piloto de 1 kWt.

He realizado una estancia de 6 meses en Chalmers, Suecia, con financiación del programa José Castillejos. He abierto una línea de investigación con perspectivas de futuro para el desarrollo y uso de TOs de alta entropía, que dará lugar a futuros proyectos en común.

He publicado 35 artículos en revistas científicas, de los cuales 28 están en revistas Q1, y un artículo bajo revisión en revista Q1. Primer autor en 25. H=20. Citas: 1484 (Scopus, Febrero 2023).

Línea de investigación: Emisiones negativas de CO2 usando residuos biomasicos

Se plantea el aprovechamiento de residuos biomásicos con emisiones negativas de CO2 a la atmosfera usando procesos Chemical Looping, para la producción de energía o syngas/H2. Para reducir costes del proceso, se van a desarrollar TO de CuO magnéticos utilizando minerales de bajo coste-óxidos Fe, Mn y Cu. Además, se desarrollarán nuevos TO basados en óxidos de alta entropía (HEOC), una opción avanzada para la obtención de TOs para el proceso CLOU ,que no cambian de estructura durante la reacción, evitando la atrición química. Esta investigación se inició en una colaboración con Chalmers, con financiación José Castillejos. En esta línea de investigación desarrollaré TOs HEOC y escalar el proceso hasta TRL5-6 en una planta piloto de 50 kWt utilizando combustibles residuales como micro-algas y residuos agroforestales para conseguir emisiones negativas de CO2.

Resumen del Currículum Vitae:

Publicaciones en revistas científicas: 35, 34 artículos publicados, 28 en Revistas Q1, y un artículo bajo revisión en revista Q1. Primer autor: 25. H=20. Citas: 1484 (Scopus, Febrero 2023)

Principales logros de investigación:

Desarrollo de un transportador de oxígeno (TO) basado en Cu adecuado para el proceso de CLOU. Este TO es el primero que permite el proceso CLOU en una instalación en continuo con combustibles sólidos

Demostración (proof of the concept) del Proceso CLOU con carbón y biomasa

Desarrollo de un TO basado en el óxido mixto Cu-Mn adecuado para el proceso CLOU de coste reducido. Este TO permite el proceso con una larga vida media

Desarrollo de un TO basado en Cu con un soporte inerte magnético, empleando para ello un óxido mixto de Mn-Fe. Este TO permite el proceso CLOU, junto a la separación magnética del TO de las cenizas para su reuso.

Premios

Premio extraordinario de Doctorado Curso 2014-2015. Univ. Zaragoza

Premio Mejor Tesis Doctoral en Tecnologías de captura de CO2. PTECO2. 2015

Premio Medio Ambiente de Aragón 2015. Ámbito de la Innovación e Investigación. Gobierno de Aragón. 2015

Finalista del 8º Premio Jóvenes Investigadores del GEC. Grupo Español del Carbón. 2017

Proyectos

Proyecto como Investigador Principal (IP)

Proyecto: Estudio experimental del efecto del tipo de reactor en la distribución de hidrocarburos policíclicos en los productos de pirólisis (UZCUD2017-TEC-01)

Entidad financiadora: UNIZAR y Centro Universitario de la Defensa (CUD)

Otros proyectos:

Participación en 6 proyectos del Plan Nacional de Investigación Español (Área de Energía; COAL-CLC ENE2010-19550; LIQBIO CLC ENE2011-26354; ADV COAL-CLC ENE2013-45454-R, CTQ2015-65226-R, PID2019-106441RB-I00 y PDC2021-121190-I00). Proyectos Europeos (ECLAIR y ACCLAIM). Contrato con ISI-SENAI/Petrobras (Brasil).

Estancia de movilidad en el extranjero José Castillejo para jóvenes doctores CAS21/00200.

Enseñanza:

160 horas de docencia en el Dep. de Ing. Química y Tec. del Medio Ambiente, EINA, UNIZAR.

Actividades internacionales:

Estancia de investigación: 3 meses en Chalmers Univ. Technol. Suecia, durante la realización del doctorado. 1 artículo publicado en Q1.

Estancia de investigación: 3 meses en el Instituto Superior Tecnico, Portugal, durante el contrato post-doctoral Juan de la Cierva-Formación. 1 artículo publicado Q1.

Estancia de investigación: 6 meses en Chalmers Univ. Technol. Suecia, durante el contrato post-doctoral Juan de la Cierva-Incorporación. Se esperan la publicación de 3 artículos. Se ha abierto una línea de investigación con muy buenas perspectivas de futuro respecto al uso del TO de alta entropía.

Supervisor del Trabajo Fin de Master de Amanda Nilsson en el ICB-CSIC, estudiante de Chalmers Univ. Technol. 01/10/2019-03/03/2020. 1 artículo publicado Q1.

Director de Tesis Doctoral de Amirhossein Filsouf, Teherán (Irán) en el ICB-CSIC. Desde 15/11/2020

Supervisor de estudiantes de PhD internacionales e investigadores en estancias de investigación:

Francisco J. Velasco, estudiante de doctorado de la Universidad del Valle, Cali (Colombia). 1 artículo publicado Q1.

S. Toufigh Bararpour, estudiante de doctorado de la Universidad de Calgary, Calgary (Canada). 1 artículo publicado.

Juan Chavez, investigador del ISI-SENAI, Natal (Brasil). 1 artículo publicado Q1.

Área Temática:	**Energía y transporte**
Nombre:	JIMÉNEZ DIVINS, NÚRIA
Referencia:	RYC2022-038296-I
Correo Electrónico:	nuria.divins@gmail.com
Título:	Developing catalysts for biogas dry reforming (Cat4Dry)

Resumen de la Memoria:

I am a Marie Sklodowska Curie postdoctoral fellow at the Catalysis and Energy Laboratory and the Department of Chemical Engineering of Universitat Politècnica de Catalunya (UPC) (Sept. 2021-Aug. 2023) and I am the principal investigator of it. I also obtained a Beatriu de Pinós (Marie Curie COFUND program) postdoctoral grant, which I developed at UPC from January 2020 to August 2021. Before that, I was hired as a senior postdoc researcher at the Nanoengineering of Materials Applied to Energy group from UPC. I have 3.5 years of international postdoctoral experience at the Department of Experimental Physics IV of the Ruhr-University Bochum (RUB, Germany).

I obtained my Ph.D. at the Institute of Energy Technologies (UPC) (Excellent Cum Laude) (2015) and I obtained the Special Doctoral Award for the thesis submitted in the 2014-15 academic year in the Industrial Engineering field (UPC). My Ph.D. thesis also received a prize to the best thesis based on the use of synchrotron radiation and defended in a Spanish university in 2015 and 2016 by the Asociación de Usuarios de Sincrotrón de España. I hold a degree in Physics from Universitat de Barcelona (2008).

My research focuses on heterogeneous Catalysis and, in particular, on the synthesis, catalytic performance evaluation, and characterization of catalysts for environmental and energy applications with low carbon impact. During my career, I have given special emphasis to the investigation of catalysts under real working conditions, i.e., under reaction conditions used in industry (and not only before reaction or post-mortem) by using operando synchrotron techniques. This is a hot topic in Catalysis and at the forefront of science, since in recent years, the use of in situ and operando techniques in Catalysis has become crucial to derive structure-activity relationships. This is mandatory for the development of practical solutions for the energy sector, which requires efficient and robust catalysts. In particular, I have focused on the sustainable production of hydrogen and its purification to feed fuel cells, including the development of microreactors and catalytic membrane reactors. I have worked in the development of catalysts to revalorize CO_2 and produce methanol (power-to-liquid strategy). My h-index is 20 and I have received 1565 citations (Scopus).

In Cat4Dry, I will investigate the production of hydrogen from a renewable source, such as biogas from its reforming. This process allows obtaining H_2 from a renewable source and decarbonizes the energy sector. I will develop catalysts and evaluate their catalytic performance under relevant industrial conditions, studying the effect of variable $CH_4:CO_2:H_2O$ ratios and start/stop cycles. I will carry out advanced operando measurements to identify the electronic and crystalline structure of the catalysts at work under the same reaction conditions used for the performance experiments. By correlating the effect of the reaction parameters on the catalysts' performance and their structure, I will derive structure-activity relationships and identify the active species.

Resumen del Currículum Vitae:

I have published 40 papers in peer-review journals and two book chapters. I am the first author of a paper published in the prestigious journals Science (predoctoral stage) and two Nature Communications during my postdoctoral stages at RUB and UPC, among others. My h-index is 20 and I have received 1565 citations (Scopus).

I have participated in 8 competitive research projects, four of them funded by the European Union's Horizon 2020 program, including a Marie Curie postdoctoral Individual Fellowship (of which I am the principal investigator), a Beatriu de Pinós grant, an Innovative Training Network (ITN, project BIKE) and an ERC Consolidator grant. I have also participated in two projects with companies (Técnicas Reunidas, S.A., Diseño y Gestión Ambiental, S.L.) and also in a contract with BASF.

I have presented my work at 12 international and national conferences and I have been awarded on three occasions for my contributions. I organized the 2nd Annual Network Symposium of the BIKE ITN and the workshop Catalysis and design of advanced reactors at UPC (Dec. 2021).

I am part of the Review Panel of synchrotron proposals at the National Synchrotron Light Source II (Brookhaven National Laboratory, U.S.A.). I am responsible for the Near-Ambient Pressure X-ray Photoelectron Spectroscopy (AP-XPS) instrument of the UPC.

I was responsible for the procurement of a transmission electron microscope and a liquid sample holder to perform operando electrochemical measurements for the Cluster of Excellence RESOLV, established at RUB. The total allocated budget was 1.5 million euros (through a European-wide tender).

I have co-supervised one bachelor, 3 master, and 5 Ph.D. theses at RUB and UPC.

I am the coordinator of the subject Fuel Cells of the Master in Interdisciplinary and Innovative Engineering of UPC. I am also teaching the subject Hydrogen and Fuel Cells of the Master in Energy Engineering from UPC and Physics Engineering Projects 2 of the bachelor Physics Engineering from UPC.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: **Energía y transporte**
Nombre: PETERS , JENS
Referencia: RYC2022-037773-I
Correo Electrónico: jens.peters@uah.es
Título: Resources, Recycling and Sustainability of Energy Systems (RRySES)

Resumen de la Memoria:

JP es un investigador multidisciplinar en el campo de la ecología industrial. Su investigación se centra en el análisis de sistemas de energía, y más específicamente la evaluación de la sostenibilidad de sistemas de producción y almacenamiento de energía bajo aspectos de análisis de ciclo de vida. Durante su doctorado en el instituto Imdea Energía, Madrid, ha estado trabajando en la simulación y el análisis de sistemas de bioenergía y de biocombustibles de segunda generación, usando la simulación de procesos para su análisis tecno-económico y medioambiental. Durante su posición postdoctoral en KIT, Alemania, cambió en enfoque hacia sistemas de almacenamiento de energía, sobre todo baterías, aplicando métodos de análisis de ciclo de vida para evaluar su sostenibilidad en cuanto a impactos medioambientales, sociales y en cuanto a su contribución al agotamiento de recursos. Con su retorno a España con una beca Marie-Curie (en la Universidad de Alcalá) se dedicó al análisis de grandes cantidades de datos abiertos para evaluar políticas de descarbonización y de vehículos eléctricos. Esto le permitió adquirir experiencia en el campo de análisis de datos, combinándolo con su experiencia en el análisis de ciclo de vida. En paralelo, siguió trabajando en el tema de baterías, lo cual le llevó a ser llamado por el JRC de la Comisión Europea para apoyar en el desarrollo de la metodología de la huella de carbono de las baterías. Desde entonces, JP trabaja la mitad de su tiempo para el JRC, en un campo cercano a la política, contribuyendo con su experiencia en el análisis de ciclo vida de baterías al desarrollo de la legislación Europea. Desde 2023 trabaja en paralelo como profesor ayudante en la Universidad de Alcalá, con una plaza dentro del programa de retención de talento de la Universidad.

Hasta la fecha, Jens cuenta con 38 publicaciones en revistas revisadas por pares y un índice h de 18 (Scopus). Ha publicado en revistas de alto impacto como Energy and Environmental Science (IF 39) y Nature Sustainability (IF 28). Con 399 citas en 2021 y una puntuación compuesta ('c-score') de 2,627, aparece por segunda vez consecutiva en la lista de Elsevier del 2% de los mejores científicos en sus campos por impacto en un solo año en 2021 por puntuación ' c' . JP es miembro del Nature Sustainability Expert Panel on Batteries, vicepresidente de la AScUS Society , miembro de la International Society for Industrial Ecology y forma parte del comité organizador de la conferencia bianual de AScUS sobre Sostenibilidad Urbana.

Resumen del Currículum Vitae:

JP cuenta con un grado de ingeniería eléctrica de la TU Munich, un Máster en Energías Renovables por el CSIC y la UIMP, Madrid, y un PhD en Ingeniería Química y Ambiental por la URJC, Madrid. Ha desarrollado su tesis doctoral en el Instituto Imdea Energía, trabajando en la simulación y evaluación de procesos de bioenergía y biocombustibles y defendió su tesis con ' suma cum laude' en 2015. Después del doctorado, se trasladó a Alemania para un puesto postdoctoral, donde formó parte del grupo de investigación "Recursos, reciclaje, medio ambiente y sostenibilidad" en el Helmholtz Institute Ulm (HIU) y el Karlsruhe Institute of Technology (KIT), trabajando en el modelado y la evaluación de tecnologías de almacenamiento de energía emergentes, con un enfoque en la demanda de recursos naturales, la sostenibilidad y el reciclaje de nuevos sistemas de baterías. Además de un excelente historial de publicaciones que impulsó el impacto y la visibilidad internacional de su grupo de investigación, supervisó varias tesis de Máster, estableció una fructífera cooperación con otros grupos dentro de la institución y asesoró la Agencia Sueca de Medio Ambiente en la elaboración de un report sobre impactos medioambientales de baterías y a la Comisión Europea para un ' Science for Policy Brief' sobre baterías. Regresó a España en 2019 con una beca Marie-Curie con la Universidad de Alcalá (UAH), departamento de economía. Allí, trabajaba en la evaluación ambiental de la política regional en términos de descarbonización de la flota de vehículos y adopción de vehículos eléctricos, basado en al análisis de datos abiertos. En paralelo, contribuyó a la cartera docente de la UAH, participando en el Máster "Química para la Sostenibilidad y la Energía" con un módulo sobre ecología industrial, sostenibilidad y análisis de ciclo de vida. En 2021 fue solicitado por el Joint Research Centre (JRC) de la Comisión Europea para el desarrollo de la normativa sobre la huella de carbono de baterías, un requerimiento en la nueva Directiva Europea sobre baterías. Desde entonces trabaja como experto interno en el JRC, apoyando y asesorando en el desarrollo de la metodología de la huella de carbono para las baterías de vehículos eléctricos y baterías industriales. Desde 2023, ocupa en paralelo un puesto de profesor ayudante que se le ofreció dentro del programa de retención de talentos de la UAH.

Área Temática:	**Energía y transporte**
Nombre:	MOHAMED HASSAN , SALAH MOHAMED KAMEL
Referencia:	RYC2022-037153-I
Correo Electrónico:	skamel@aswu.edu.eg
Título:	Developing Software Tools for Smart Home Energy Management Systems (SHEM Software)

Resumen de la Memoria:

Developing efficient energy management system with the aim of achieving a normalized trend of power consumption, is considered the best economical and environmental solution instead of setting up new electricity generation power plants. The smart grid has evolved as a solution to improve the efficiency, sustainability, economics, and resiliency of the electric grids, where the Demand Response (DR) strategy is used to modify the consumer's nature of demand. Recently, the huge advancement in electronic devices and making them available to all consumers has led to an increase in the demand for energy, the formation of a peak, and an increase in the electricity bill of the consumer. Buildings are considered one of the main sectors of energy consumption. Improving the energy efficiency of these buildings will achieve economic and environmental goals.

This research project aims to develop effective software tools for scheduling electrical appliances in a smart home to reduce electricity bill, optimize network, increase customer convenience and reduce peak formation.The coordination among appliances will be achieved with the help of the big data generated from home appliances with the joint work of optimization techniques. Effective optimization algorithms will be developed and applied in home appliances scheduling. These algorithms will reduce the electricity bill, improve the network, maximize customer comfort and reduce peak formation. Furthermore, different price strategies such as time of use (TOU), Critical Peak Price (CPP), and Real-Time Price (RTP) will be used, to ensure the efficiency of the proposed system.

The methodologies adopted to conduct the proposed research activities are based on the state-of-the-art methods and emerging techniques published papers in periodicals. Developed algorithms will be implemented using the state-of-the-art object-oriented approaches suitable for industry-wide application programming interfaces. The developed tools could be used /integrated with other software tools. The testing methodology adopted to validate the proposed software tools will be based on standard test systems and moreover different areas in Spain. The developed software tools will be validated and benchmarked using available commercial and public similar engines to emphasize the innovation aspects in the developed methods. The dissemination of the results will be in many forms such as workshops, international conferences, and journals.

Objectives
This research aims to achieve the following main objectives:
- Developing commercial and educational software tools for smart home energy management systems;
- The application of the smart home energy management systems aims to achieve multiple goals such as reducing the electricity bill, improving the network, maximizing customer comfort, and reducing peak formation.
- Development of efficient optimization techniques to perform the scheduling of household appliances in Spain;
- Single and multi-objective functions will be developed to reduce the electricity bill, improve the network, maximize customer comfort, and reduce peak formation;
- The developed software tools can be utilized by electricity power companies and integrated with any existing commercial software package.

Resumen del Currículum Vitae:

Salah has demonstrated a strong track record of dissemination with 313 articles in journals of the Journal Citation Reports of the Science Citation Index in the areas of Energy & Fuels and Engineering, Electrical & Electronic. According to Web of Science by Clarivate Analytics: 3,321 total citations, 90 publications in the first quartile (Q1), 70 publications in the second quartile (Q2), h index: 28. According to Scopus by Elsevier: 4,398 total citations, h index: 31. According to Google Scholar: 5572 total citations, h index: 35. More than 190 papers in international conferences, more than 160 are listed in the ISI Proceedings of the Web of Science. 20 book chapters in Elsevier, IET, and Springer. 2 granted patents. 10 PhD theses and 25 master's theses have been completed under his supervision.

Salah Kamel received the B.Sc. degree with First Class Honours and M.Sc. degree (Excellent) from South Valley University, Aswan, Egypt in 2006 and 2010 respectively. He received a Postgraduate Certificate (Excellent with the first rank) from Wonkwang University, South Korea in 2011. In January 2014, he received his international PhD degree from University of Jaen, Spain (Main) and Aalborg University, Denmark (Host). The all mentioned degrees are in Electrical Engineering.

He joined South Valley University as an Assistant Lecturer from Feb. 2007 to Nov. 2010. He worked as a Research Engineer at APEARC research center, Egypt from Feb. 2008 to Nov. 2010. He worked as a Research Engineer in Department of Electronics and Control Engineering, Wonkwang University, South Korea from March to July 2011. He joined the Department of Energy Technology, Aalborg University, Denmark, as an International PhD Researcher from May to August 2013.

He joined the Power System Unit of INESC TEC, Portugal as a Postdoctoral Visitor for two months beginning from February 2, 2014. From April 2, 2014, he was a Postdoctoral Visitor for two months in Department of Power System and Devices, Faculty of Electrical Engineering, University of Ljubljana, Slovenia. Then, he was working with the TEP-152 INYTE Research Group, University of Jaen, Spain, as a Postdoctoral Visitor for two months beginning from June 01, 2014.

Salah Kamel returned back to Aswan University to be an Assistant Professor in Electrical Engineering Department from august 2014. From Oct. 2019, he was promoted to be Associate Professor in the same department.

From Dec. 2017 to Oct. 2019 (Two years), he was a Senior Research Fellow in State Key Laboratory of Power Transmission Equipment and System Security and New Technology, School of Electrical Engineering, Chongqing University, Chongqing, China (TYSP-Talented Young Scientist Program). He worked as investigator/PI in many research projects in different countries such as Spain, Portugal, Slovenia, South Korea, Chile, Denmark, China, Saudi Arabia, with total amount granted ≈ 30 million € In 2021, Salah won the TecnioSpring Industry fellowship and joined the Catalonia Institute for Energy Research (IREC) in 2022.

He has almost 17 years of diverse academic experiences. He has taught many undergraduate and graduate courses as well as training sessions including public and private institutions in Egypt, Spain, China, India.

His name has been listed in the "World Ranking of Top 2% Scientists" in 2020 and 2021 database created by experts at Stanford University, USA. In 2020, he has been awarded the prestigious Egyptian State Encourage

Área Temática:	**Energía y transporte**
Nombre:	ZORNOZA ENCABO, BEATRIZ
Referencia:	RYC2022-038139-I
Correo Electrónico:	bzornoza@unizar.es
Título:	Green energy generation by efficient and environmentally friendly technologies

Resumen de la Memoria:

One of the most important challenges for our society nowadays is the development of a new generation of sustainable technologies based on renewable energy sources that reduce dependence on fossil fuels and help reduce GHG emissions. Dr. Zornoza has focused her research on membrane and chemical looping processes for energy generation through the development of advanced materials, in an attempt to contribute to the H2020 Societal Challenge "Secure, clean and efficient energy". Her research has resulted in 64 publications with more than 4700 citations (H-index: 33).

During her PhD (the University of Zaragoza, FPU Program 2007-2011) she developed mixed matrix membranes (MMM) comprising nanostructured materials and polymers for gas separation. She successfully carried out her first research project as PI at Georgia Institute of Technology (USA) during a 4-month stay, contributing to her PhD (recognized with the extraordinary award). To use more sophisticated materials for film preparation with improved molecular separation properties she was visiting researcher at TUDelft, where she implemented a new research line based on Metal-organic frameworks (MOF) for MMMs that resulted in 3 Highly Cited Papers. In her early postdoctoral stage, she came back TUDelft to consolidate her research line, which gave place to a funded EU Project ENERGY-FP7 in 2014 in which she actively participated during her Postdoc at UZ (2014-17). Main achievements were the development of thin films for gas-phase separations (pre- and post-combustion CO2 capture, hydrogen purification, biogas upgrading) and the application of new MOF and core-shell nanoparticles to other energy-efficient processes (nanofiltration, pervaporation, membrane reactor, biorefinery or catalysis). Working on an additional Project in collaboration with two companies (2012-14) produced interesting transfer results in the textile industry.

During her JdC-I at Instituto de Carboquímica (ICB)-CSIC (2018-2020) she worked with a different technology for CCS, Chemical-Looping Combustion (CLC), for clean energy generation. She also delved into molecular simulation through a short research stay at ICGM Montpellier.

In addition to her 5 stays abroad, taking part in three EU Projects for more than 6 years as Postdoc (M4CO2, 2014-17 and MEMBER e INNOMEM, 2021-22) has helped her build a strong international network collaborating with 31 research groups from 12 countries (110 co-authors in her publications). The global funding for the Projects she participated in (x26) amounts to 3.6 M€ (3 of them as IP, 103 k€). She has supervised 10 Graduate and MEng students and 2 PhD students, (defended in 2019 and 2021).

The expertise gained during the different research periods participating in several projects has enabled her to develop a broad set of competencies, not limited to scientific skills, but also to research management, communication, teamwork and decision-making capabilities, promoting her independent thinking and leadership qualities. This program will help Dr. Zornoza reinforce these competencies, being the key step toward the consolidation of her independent research career. Her next line of action will focus on green energy generation through the development of high-performance membranes.

Resumen del Currículum Vitae:

Dr. B. Zornoza holds a Chemical Engineering (BEng 2002-05, recognized with the extraordinary award, and MEng 2005-07) at the University of Zaragoza (UZ). She was awarded FPU fellow to develop her PhD (2008-11) receiving also the PhD extraordinary award, European doctorate mention, and the best thesis award in Environmental Eng. (MLN cathedra). For more than 15 years she has been working on Membrane technology for CO2 capture, hydrogen purification, biogas upgrading and biorefinery processes at UZ and on Chemical looping processes for clean energy generation, with a JdC-I contract (1st ranked 99/100), at Instituto de Carboquímica (CSIC).

She is a co-author of 64 publications, 53 are JCR papers, 5 conference papers, 2 book chapters and 4 journal covers. Of them 40 are Q1 (80%), 20 appear in top-10 journals in multidisciplinary areas like Chemical Engineering (J. Membr.Sci., J. Catal.), Nanoscience & Nanotechnology (Adv. Funct. Mater.), Physical Chemistry (Chem. Mater.), Inorganic Chemistry (Dalton Trans.), Applied Chemistry (Fuel Process. Technol.), Polymer Science (J. Membr.Sci.), Green & Sustainable Science (Renewable Energy, ChemSusChem) or Energy & Fuels (J. Materials Chem. A), and 3 are Highly Cited Papers (top-1, WoS). She has an H-index of 33 and 4700 citations (>500 citations/year in the last 5 years). She is the first author in 12 of her papers and the corresponding author in 13. She has 78 communications (65 % international) in specialized conferences (38 of them oral) and has given 8 invited talks in universities and industry.

She has participated in 26 R&D Projects from competitive national (18) and international (8) calls. Of them, 6 are in collaboration with industry, giving rise to technology transfer results, and in 3 she acts as the research coordinator (PI). She has built a strong international network based on 5 research stays (1.5 years) in leading worldwide institutions: Georgia Institute of Technology (USA), Technical University of Denmark (DK), Delft University of Technology (NL, x2), and ICGM Montpellier (FR), her participation in 2 integrated actions, and her Postdocs contracts in the frame of 3 EU Projects for 6 years leading research tasks.

She is active in outreach activities; a member of the Scientific Outreach Commission, in the Organizing Team of Seminars and responsible for Researchers' Night at Nanoscience and Materials Institute of Aragon (INMA, UZ-CSIC), promoting also a scientific vocation to school students and the general public through TV or newspaper interviews.

Regarding the training of young investigators, she has supervised 2 PhD Thesis defended in 2019 (with the extraordinary and the best dissertation on CCS technologies awards) and in 2021; and 10 Graduate and Master thesis projects. She has been teaching at the U. Zaragoza for five years with outstanding evaluation and has participated in 3 Innovative Projects. She serves on the Reviewer Board of Polymers (Q1) and on the Editorial Board and Topical Advisory Panel of Membranes (Q1), where she is currently Guest Editor of a special issue. She is also a regular referee in scientific and specialized journals, has been an evaluator in Doctoral Sessions and an examiner of 4 PhD theses, and is on the organizing committee of several conferences. She was accredited by ANECA as PCD in 2012, and obtained Certificate I3 in 2020.

Área Temática:	**Estudios del pasado: historia y arqueología**
Nombre:	CASTRORAO BARBA , ANGELO
Referencia:	RYC2022-035404-I
Correo Electrónico:	castroraobarba@gmail.com
Título:	Modelos de cambio en los asentamientos y paisajes rurales y suburbanos en el Mediterráneo tardoantiguo, bizantino e islámico

Resumen de la Memoria:

El Dr. Angelo Castrorao Barba es especialista en las dinámicas de cambio de los modelos de asentamiento en paisajes rurales entre la Antigüedad tardía y la Alta Edad Media. Tras doctorarse en Arqueología Medieval por la Universidad de Siena (2013), ha obtenido distintas becas de investigación en instituciones holandesas, italianas, alemanas y españolas. Ha sido también investigador principal y director de trabajos de campo de diversos proyectos arqueológicos en Sicilia, marcos que demuestran su capacidad de liderazgo y gestión. Su investigación se ha centrado principalmente en el fenómeno del fin de las villas romanas y sus transformaciones entre los siglos III y VIII en Italia (Península, Sicilia y Cerdeña), estableciendo comparaciones con los territorios de Hispania y Galia. Su investigación sobre la formación de paisajes postrromanos en el Mediterráneo se ha desarrollado en los últimos años en un área geográfica particular, Sicilia. De hecho, la sucesión de dominaciones de vándalos, ostrogodos, bizantinos y árabes que caracterizaron a Sicilia entre los siglos V y XI constituyen un caso de estudio muy interesante, capaz de introducir nuevos paradigmas interpretativos en el debate sobre el fin de los paisajes romanos y la formación de un nuevo Mediterráneo en los contextos medievales tempranos. En particular, esta perspectiva se ha abordado prestando especial atención al impacto que las sociedades islámicas (Sicilia y al-Andalus) produjeron en la dinámica de asentamiento rural y suburbano de la antigüedad romana y tardía. En el caso de Sicilia, a esto se añade la compleja relación entre la estructura de la población bizantina y los cambios que experimentó durante el período islámico. Esta línea de investigación se combina con un profundo interés metodológico por la interdisciplinariedad y la intención de ir más allá de las tradicionales "fronteras" temporales de la Antigüedad tardía / Alta Edad Media en el estudio de los paisajes rurales. Durante su investigación, Angelo Castrorao Barba ha adquirido experiencia y habilidades en el uso de herramientas SIG y de Teledetección para el análisis espacial y ha desarrollado, en colaboración con investigadores en el campo de las Ciencias, investigaciones en ecología histórica para comprender las interacciones humano-medio ambiente en la longue durée y poder así abordar el estudio de los paisajes rurales en una perspectiva holística, que pretende constituirse como soporte para plantear estrategias de desarrollo sostenible.

Resumen del Currículum Vitae:

Licenciado (2007) y Master (2009) en Arqueología y doctor (2013) en Arqueología Medieval por la Universidad de Siena (tesis doctoral sobre el final de las villas romanas en Italia entre la Antigüedad tardía y la Alta Edad Media (siglos III-VIII d.C.). La investigación se centra principalmente en los cambios en los patrones de asentamiento rural y suburbano entre la Antigüedad tardía y la Alta Edad Media en el Mediterráneo occidental, y recientemente en el campo y los suburbios sicilianos en los períodos antiguo tardío, bizantino e islámico. La interpretación de los datos arqueológicos e históricos está dirigido a la colaboración e interacciones interdisciplinarias, en particular con las ciencias ambientales y geográficas (Diploma de Maestría de posgrado en SIG y Teledetección por el Centro de Geotecnologías/Universidad de Siena). Ha sido investigador postdoctoral en varias instituciones. En 2014-2015, investigador invitado en VU Amsterdam y becario postdoctoral en el Instituto Real de los Países Bajos en Roma (KNIR). De 2016 a marzo de 2019, investigador del proyecto "Harvesting Memories" (Universidad de Palermo) dedicado al estudio de la ecología y arqueología de los paisajes rurales en Sicilia. En verano de 2018, becario postdoctoral en el DFG-Centro de Estudios Avanzados con un Proyecto sobre "Migración y Movilidad en la Antigüedad Tardía y la Alta Edad Media" de la Universidad de Tübingen. En 2018-2021, becario postdoctoral en la serie de talleres patrocinados por Getty "Palimpsestos mediterráneos: conectando el arte y las historias arquitectónicas de las ciudades medievales y modernas". Desde marzo de 2019 hasta agosto de 2021, contratado postdoctoral de dos años y cinco meses (Juan de la Cierva-Incorporación 2017 IJCI-2017-31494) en la Escuela de Estudios Árabes (EEA-CSIC) de Granada. En noviembre-diciembre de 2021, investigador visitante en la Escuela Española de Historia y Arqueología en Roma (EEHA-CSIC) y becario postdoctoral en el Departamento de Historia de la Universidad de Tübingen de enero a abril de 2022. De abril de 2022 a abril de 2023, ACB es investigador postdoctoral en el Instituto de Arqueología y Etnología de la Academia de Ciencias de Polonia dentro de una MSCA COFUND con el proyecto "IS_LANDAS Paisajes islámicos en el sur de Andalucía y Sicilia occidental: patrones de cambio en los asentamientos y comunidades rurales entre la Antigüedad tardía y la era islámica". Actualmente (febrero-marzo 2023), también ACB es Postdoc Fellow en el centro "RomanIslam – Center for Comparative Empire and Transcultural Studies" de la Universidad de Hamburg. Es IP de 4 proyectos de excavación y estudio (financiados por CSIC, The Barakat Trust, MSCA COFUND, GerdaHenkel) destinados a investigar la transición entre el período islámico y normando en los suburbios de Palermo (conjunto monumental de San Giovanni dei Lebbrosi), el período bizantino e islámico en el sitio rural de Contrada Castro (Corleone, Palermo) y los paisajes tardoantiguos, bizantinos e islámicos en el sur de Andalucía (Cortijo de Las Mezquitas, Málaga) y el oeste de Sicilia (Contrada Muratore, Palermo). Acreditado como profesor universitario en Italia por ASN (Sector–ARQUEOLOGÍA), tiene un contrato anual de docencia (2022-2023) por la asignatura "Metodología de la investigación arqueológica" (grado de Humanidades) en la Universida Kore de Enna (Sicilia, Italia).

Resumen de la Memoria:

My main line of research has combined epigraphy and landscape archaeology. My PhD (awarded in 2017) was focused on the territorial administration of the Roman province of Baetica by studying the inscriptions, cadastral information, roads and Classical sources.

During my postdoctoral period I was awarded with several prestigious postdoctoral positions that has allowed me to enlarge this topic in different regions. During my first postdoctoral contract at Rome at EEHAR-CSIC (2018-19), I dealt with boundary inscriptions in the Italian peninsula with a personal project (Corpus Terminorum Italiae Antiquae (CoTIA)). The main aim of this project was the compilation and investigation of the all epigraphical evidences about public territorial limits in ancient Italy. This corpus is the first integrated study of this topic and its outputs provide useful information about the understanding of territorial limits from the Early Republic to the Late Antiquity.

During my period in France (2019-21) with an IdEx contract, I had the opportunity to research the road inscriptions in Roman Africa with another funded project (RoMAfrica: Roads and Milestones in Roman Africa: interconnectivity and epigraphy of rural landscapes in the Roman province of Mauretania Caesariensis). The aim of this research was to renovate the vision of the interconnectivity in North African provinces. The first purpose was to create an updated and critical reviewed corpus of Roman milestones from the province of Mauretania Caesariensis in order to compare it with other regions. This type of epigraphy provides a huge amount of information concerning the organisation of roads and policies, as well as clues about provincial administration of the Empire. The pandemic forced me to change the fieldwork and center my research in the colonial epigraphic archives in Paris and Berlin. I continued with this line of research during my period as Juan de la Cierva Incorporación (2021-22) and Atracción de Talento (2022) in Madrid (UCM).

Back in Rome with a MSC-IF contract (2022-24), I direct the ambitious project (IMPACTVM. Mapping the impact of the Augustan colonies on the Early Roman Empire) about the change of the epigraphic landscapes in the Augustan colonies. The Latin epigraphy that spread across the Roman Empire between 1st c. BC and 1st c. AD represents a valuable resource for understanding the process of colonisation and its impact. The EU-funded IMPACTVM project evaluate the socio-political impact of Augustan veteran colonies in the making of the Roman Empire, studying the role of Latin epigraphy. The Roman conquest and colonisation implied the penetration of Latin language in the daily life of local societies. The arrival and introduction of this distinctive scripts transformed the cognitive basis of understanding the world in a society with multiple languages and started a new process called as Latinisation.

Resumen del Currículum Vitae:

I hold a degree in History from the UCM (2009). After completing my Master in Archaeology (UCM, 2011), I was awarded a 4-year national competitive grant FPU-MED for my PhD "Límites y territorios de la Bética romana" (2017) with the Jury Honorable Mention (Cum Laude Award) and the Extraordinary PhD Award (UCM, 2018) as the best thesis in Archaeology. My international career started with two funded stays at the University of Southampton (UK), the Corpus Inscriptionum Latinarum at Berlin (GE) and a Erasmus+ Traineeship" at Museo del Fori Imperiali – Mercati di Traiano (ITA).

Prior to become "Marie Skłodowska Curie" Fellow with the project IMPACTVM (GA 101025799) at Sapienza Università di Roma (Italy) for the period 2022-4, I was " Atracción de Talento de la Comunidad de Madrid (2020-T2/HUM-19810)" 2022, "Juan de la Cierva Incorporación (MINECO, IJC2019-040323-I)" 2021-2 postdoctoral fellow at UCM (Madrid), "Initiative of Excellence of the University of Bordeaux - IdEx postdoctoral fellow" 2019-21 at Institut Ausonius (U. Bordeaux-Montaigne) at the Escuela Española de Historia y Arqueología at Rome 2018-9 (EEHAR-CSIC, Spanish National Research Council). All these positions are completed with other funded research stays at Sevilla (I.3C – Plan Propio US), Paris (Université Paris-Sorbonne - Orient et Méditerranée UMR 8167) and Marie Curie secondments at Athens (National Hellenic Research Foundation) and Oxford (University of Oxford).

To sum up, my internationalization can be tracked since my bachelor's degree and my PhD (16 months) until my postdoctoral period (47.5 from 2018 to February 2023 and ongoing for other 18). During these 63.5 months (5,3 years) abroad from 2012 to 2023 I became a very international researcher with a consolidated network of collaborators along Europe and abroad.

My scientific production consist in 2 monographs as solely author, editor of 1 book in press, other 6 as co-editor (of which 2 in press), author (nº 28) and co-author (nº 9) of journal articles in international scientific journals as The Annual of the British School at Athens, Latomus, Pallas, Revue des Etudes Anciennes, Archeologia Classica, Libyan Studies, Epigraphica, ZPE and so on; also in Spanish journals like Pyrenae, Lucentum or Syllogue Epigraphica Barcinonensis; book chapters (nº 18 as author and nº 12 co-author) with some of the most important editors as Brill, Routledge, Brepols, Carroci. Circa 40 % of my papers have been published in languages other than Spanish (Eng. [nº 19], It. [nº 6], Fr. [nº 2]).

The strongness of my CV is based on the award of highly competitive scholarships with a total amount of 549k €in funding attraction. My leadership is tangible not only through the organization of research activities such as International seminars (in Spain, Italy and Tunisia), but also their publication

and the coordination of different multidisciplinary projects. I have a large and solid academic network based in my international posdoctoral training (3 years in Italy and 2 in France with stays at Germany, UK, Spain and Greece) and congress in EU, the US, New Zealand and Tunisia.

Resumen de la Memoria:

After finishing my PhD in 2016 at Pompeu Fabra University, I have had three consecutive postdoctoral contracts (GAIN I2B-A; GAIN I2B-B; Juan de la Cierva-Incorporacíon) to develop my research lines at the Institute of Heritage Sciences (INCIPIT) of the Spanish National Research Council (CSIC), in Santiago de Compostela.

I have built an ascending academic career devoted to the archaeological investigation of Western Mediterranean islanders' prehistory and ancient metallurgy. My research investigates the relations established by societies with their surrounding isolated environments, comprising physical and cultural traits. I envision islands archaeology as a scientific programme, comprising interdisciplinary methods and theories, that rigorously analyses the long-term processes of landscape and socioeconomic dynamics. This approach integrates archaeological, paleoenvironmental, and archaeometric datasets to produce socially relevant knowledge about human behaviour and experiences, delving into the social, productive and symbolic aspects of ancient societies. My research career has grown towards the understanding of cultural and social processes in Central/Western Mediterranean societies during the Chalcolithic/Bronze Age periods, focusing upon (1) island archaeology (particularly of the Balearics in their Mediterranean context), (2) technology transfer processes, (3) mining landscapes and copper production, and (4) long-distance metal circulation. Through fieldwork and archaeometallurgical studies, I have contributed to the understanding of island colonization processes, the interaction of these societies with their environment, prehistoric mobility, ancient technology and the social significance of metals during Mediterranean prehistory.

My research career correlates with a solid international trajectory in academic archaeology, and it is now ready to move into a definitive consolidation phase within the Spanish public system of science thanks to a RyC fellowship. My evolving and highly mobile career among reputed institutions, including two years as postdoctoral researcher in Cambridge, has been sustained by several grants, fellowships and contracts, which I obtained after open national and international-level competitions. My success at these public calls emphasises the strengths of my CV in international contributions, networks and collaborations, which has been positively assessed several times in comparison to colleagues with the same level of seniority.

Since 2004, I have been trained, acquired valuable experiences, developed technical skills, and, from 2011 onwards, I have built an independent research trajectory that is now ready to move towards a more stable scenario. I have led my own projects, including fieldwork, laboratory and museum-based investigations. I have coordinated international teams to develop interdisciplinary research, collaborations and publications. Obtaining a RyC fellowship will not only consolidate my career but will also enhance a relevant research line. Indeed, my trajectory is coherent with the priorities established by public bodies regarding scientific research and Sustainable Development Goals. I also have a strong commitment to open science as most of my publications are published open access and accessible through Digital.CSIC repositories.

Resumen del Currículum Vitae:

I am an archaeologist and my work can be situated in the fields of prehistoric archaeology, archaeometallurgy and material culture studies. Within these fields, my research has grown towards the understanding of cultural and social processes in Central/Western Mediterranean societies during the Chalcolithic/Bronze Age periods, focusing upon (1) island archaeology (particularly of the Balearics in their Mediterranean context), (2) technology transfer processes, (3) mining landscapes and copper production, and (4) long-distance metal circulation. Through fieldwork and archaeometallurgical studies, I have contributed to the understanding of island colonization processes, the interaction of these societies with their environment, prehistoric mobility, ancient technology and social significance of metals during Mediterranean prehistory. After obtaining my PhD (2016) at the UPF, I have developed an ascending scientific trajectory through three consecutive postdoctoral positions at the University of Cambridge and the Incipit-CSIC (2017, Xunta Galicia I2B-A; 2021, Xunta Galicia I2B-B; 2022, JdC-Incorporació n). I have a solid leadership background in field archaeology (director of 26 projects), leading my own archaeological investigations in the Balearics, in addition to collaborating as a team member on other projects in Spain, the UK, Portugal, France and Italy. I am also co-PI of the MedAtMetals project (PID2021-123001NB-100). This project has consolidated my line of work on metal exchanges in the Atlantic–Mediterranean circuits during the Bronze Age potentiating my role as an independent PI.

I have secured funding from diverse institutions (+€656,000), comprising open calls to cover my PhD/postdoc positions and research (+€413,000), and transfer contracts with the public and private sector (+€243,000). This has allowed me to set up an emerging research team with professional archaeologists, MA and PhD students, gain research capacities for my lines of research and strengthen collaborations. I have authored most of my publications in first/last place, as PI or main contributor to the research. My solid contribution and international profile in the field are shown by my active role as an invited peer reviewer for international journals or other editorial experience. I have organised/participated in several public outreach events (lectures, roundtables, high school activities, guided tours or open days at sites) and curated 4 exhibitions in Balearic public museums. International research visits in the UK (2 years in Cambridge) in addition to 2 years in Madrid (IH-CSIC) and other short visits in Italy (Sassari) and Spain (UC, UIB) strengthened my awareness of global debates in archaeology. I have a strong teaching background in higher education, also being supervisor of 2 PhD and 3 MA dissertations and participating of different panels (MA, PhD, ANECA). These achievements demonstrate that I am ready to consolidate my research trajectory with a RyC Fellowship, which will help me to strengthen my team and deepen the archaeological readings of Western Mediterranean islands societies and ancient metals during late prehistory.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	GONZÁLEZ GUTIÉRREZ, CARMEN
Referencia:	RYC2022-036783-I
Correo Electrónico:	carmengonz28@gmail.com
Título:	Religious spaces in al-Andalus and the Mediterranean: configuring historical cities

Resumen de la Memoria:

Since the beginning of my career, I have developed an innovative research line to build a comprehensive and multidisciplinary archaeological analysis on the role of mosques in the (re)configuration of urban areas in al-Andalus during the Umayyad period. My Master Thesis (University of Córdoba-UCO, 2011) identified that material studies on Islamic religious spaces other than big Friday mosques had been deeply neglected, and suggested to overcome this lack through a fresh archaeological approach of Córdoba as paramount study case. Thus, my PhD (UCO, 2016) concentrated on exploring the concept, typologies and urban function of mosques in Córdoba as platform to more widely address their role in the origin and configuration of cities in al-Andalus. I adopted a unique urbanistic and diachronic focus to achieve an evolutive vision of the Umayyad capital, overcoming the Caliphal stage. I was also pioneer in combining formal and functional analyses of mosques within complex urban environments. It all resulted in a theoretical and archaeological in-depth study of the urban phenomenon and its agents which revealed that these buildings answered to political and social motivations, far beyond their religious function.

Since then, my postdoctoral projects The Islam and the city have allowed me to expand this research along 3 main axes: 1) the analysis of the urban and architectural connections between al-Andalus, the Bilad al-Sham and North Africa 2) the transition between religious spaces in Late Antiquity and in the Early Middle Ages from the viewpoint of Islamization 3) the elaboration of new theoretical and methodological tools to increase our understanding of urban transformation in al-Andalus from Archaeology. This is all being achieved also thanks to my international actions and cooperation with other researchers and institutions, including the private sector, with which I collaborate in the transfer of archaeological data and their interpretation. This is leading to face new scientific issues such as: transversal approaches that relate mosques with other facilities -e.g., baths or cemeteries-, infrastructures -hydraulics-; agencies -that of women, for instance-; and contemporary societal challenges -rethinking Islamic heritage and its legacy in our cities, and the formation of stakeholders responsible for their reception and presentation.

My ground-breaking findings contribute with new insights to the understanding of urban flows in the Iberian Peninsula under the Islam through its most distinctive creation: the mosque. They connect the dynamics recorded in al-Andalus with those developed in other areas in the Medieval Mediterranean, overcoming local perspectives. They also update the current state-of-the art and are being widely recognized by the scientific community through high impact publications highly cited. They are materialized in a significant number of conference presentations and organisation of scientific events of international scope and, more importantly, they grow thanks to discussing them in wide scientific circles. This research track and my strong interdisciplinary international profile enables me to achieve a more complete picture of my research questions, contributes to my credit as an international renowned specialist on the field, with assets that will contribute to the improvement of the Spanish RD system.

Resumen del Currículum Vitae:

I have built consolidated research trajectory in Islamic archaeology with a strong international projection and leadership capacity, built upon a successful record of grants, contracts and projects, and research stays in leading institutions. All this is combined with the constant organisation of research events and transfer of knowledge activities, and with the development of international scientific networks.
My research has focused on the role of religious spaces, particularly mosques, in the origin and configuration of cities in al-Andalus, and more recently on urban and architectural transregional connections between religioscapes in the Medieval Mediterranean, and on transversal approaches. My work has received the Leocadio Martín Mingorance Award (University of Córdoba-UCO, 2020).
I completed my doctoral studies with a FPU Grant (2009-2013) at the UCO, where I defended my PhD Thesis in 2016. It addressed the concept, typologies and urban function of secondary mosques in Córdoba in the Middle Ages and resulted in an archaeological in-depth study of the urban phenomenon and its relationship with the Islamization and proselitysm developed by the Umayyads. It also made strong methodological contribution to the Andalusi archaeology field. Since then, I have expanded this research line being the Principal Investigator of the series of projects The Islam and the city, all developed thanks to postdoctoral grants awarded in competitive calls: a Contrato Puente (UCO, 2016), a DAAD grant at the Orientalistik Department, University of Bamberg, Germany (03-07/2018), two MSCA-COFUND fellowships at the Max-Weber-Kolleg, University of Erfurt, Germany (09/2018-08/2020) and an invitation research stay at the same institution (09/2020-12/2020). I have currently returned to Spain (Archaeology Area, UCO) thanks to a PAIDI postdoctoral contract at UCO (02/2021-ongoing).
Since the beginning of my research career, I have contributed actively as researcher in more than 10 national and international research projects, I belong to the Sísifo Archaeology Research Group (UCO), and the Kolleg-Forschungsgruppe Religion and Urbanity: Reciprocal Formations (University of Erfurt, Germany), and I am a full and active member the multi-disciplinary research teams Mediterranean Palimpsests (University of Illinois, USA; The Cyprus institute) and IS-LE Cost Action. Through short research stays and visiting scholar programs at different research centres I have completed my expertise, and also by teaching in a number of international universities. It testifies to the international and interdisciplinary dimension of my career.
My work has been published by prestigious academic editors and in international high-impact journals, including 2 books, 1 edited special issue, 8 journal articles, 10 book chapters and 5 public engagement documents. I have presented my work in more than 30 national and international conferences, 7 of them as invited lecturer, I have organised several international conferences and conference sessions, funded by different entities.
My teaching experience acquired in universities in Spain, Germany, Italy, France, Turkey, Brazil and Egypt further strengthen my achievements. For the next years, I will expand my research line exploring wider Muslim religioscapes beyond (but from) mosques, for which I will apply for National Plan and EU-funded projects

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	FERNANDEZ GALEANO, JAVIER
Referencia:	RYC2022-035273-I
Correo Electrónico:	javier.fernandez.galeano@gmail.com
Título:	Historia de la sexualidad

Resumen de la Memoria:

My academic career has made significant contributions to the history of sexuality in twentieth-century Spain and Argentina, foregrounding common people's experiences through previously untapped archival sources. Cultural, archival, and gender and sexuality studies in Modern Latin America and Iberia are at a crossroads as scholars engage in public discussions on minoritized experiences; political, police, and racial violence; knowledge-production, and the intonations of visual, literary, and embodied languages that build resistance and community. My research traces a multiplicity of experiences and self-expression languages that foreground the intimacy of archival embodiments, power relations, and cultural formations. From my initial research on Argentine soldiers forced to narrate their sexual encounters in response to officers' salacious interrogations, my work has emphasized the potential of using official documents to trace subcultural rituals of same-sex seduction, state violence exercised through pathologization and sexual abuse, and the (in)commensurabilities between our present relationship with archived voices and material culture and their context of production. From courts-martial records, I expanded my interests to incorporate sexual liberation activist literature, paying particular attention to the interaction among vernacular languages, Freudo-Marxism, international solidarity networks, and activists' personal trajectories and exile experiences. Hence, I incorporated a unique transnational and comparative lens to my dissertation research, which focuses on Modern Iberia and the Southern Cone and reveals juxtapositions, overlaps, and interpenetrations in the formation of (homo)sexual cultures and state discourses in Argentina and Spain. From the circulation of "social danger" theory in both countries—the policing of subjects' potential criminality—to the asymmetrical developments of psychoanalysis (hegemonic in Argentina, banned in Spain) and urbanization; this comparative approach puts discourses on sexuality in perspective to question global teleologies. This research converses with and shifts multiple fields of inquiry in cultural studies (medical humanities, archival theory, gender history, among others) by foregrounding a vocabulary of sexual stigma and self-affirmation in Spanish (puto, mariquita, marica, maricón), whose meaning was disputed by historical actors in different positions of power (self-identifying maricas, their relatives and neighbors, police officers, forensic doctors, judges, homophile intellectuals). I treat police files, judicial records, medical reports, novels, fandom letters, clothing items, memoirs, and erotica as integral parts of a "rebel archive", which requires modes of analysis that are attentive to sources' specific nature and their interwovenness.

Transferring knowledge beyond academia is among my foremost priorities, as demonstrated by my publications and role in the editorial collective and digital platform Moleculas Malucas, dedicated to sharing LGBTQ stories and archival repositories, and my presentations for organizations such as the Foundation for International Democracy or Archivists without borders. I have taken courses in Digital Humanities at the University of Victoria (Canada) and Harvard University (USA), to familiarize myself with digital visualization tools.

Resumen del Currículum Vitae:

The articles I have published based on my research speak to my capacity to intervene in academic debates in high-impact journals. I have published in flagship journals for Iberian cultural studies (Journal of Spanish Cultural Studies, Bulletin of Spanish Studies, and Kamchatka) Latin American studies (Latin American Research Review) and critical interdisciplinary history (Radical History Review and Journal of the History of Sexuality). My interdisciplinary research methods share tracing –often through archives produced by state violence– subjects' agency in crafting their own sexual cultures. This approach connects my work on flamenco and forensic taxonomies; on sexual narrativization in the military; on gay Catholicism and mariquita subjectivity as adaptation strategies under the Franco regime; on trans visual archives; on lesbianism and the language of friendship; on oral history and material culture; on tourism and sex work; and on international solidarity networks and forced exile. These interventions together sustain the argument that mechanisms of discipline and surveillance do not eradicate the potentiality of erotic fulfillment and cultural self-expression at the interstices of repressive apparatuses and in the points of friction between different institutional frameworks. Together, my contributions and publishing initiatives open new ways to explore the intimate workings of state policies and the intertwined dynamics of global and local change around gender and sexuality.

In 2020-21 I was an Andrew W. Mellon Fellow/ ACLS postdoctoral fellow at Weslyean University's Center for the Humanities (USA). In 2019-20, I was a Visiting Assistant Professor at Brown University (USA). I taught my own advanced seminars at both universities, focusing on LGBTQ history and archival theories and methodologies, and tutoring students on their thesis projects. Students' feedback demonstrates my capacity to engage them based on innovative pedagogical approaches. Currently, I am a Juan de la Cierva fellow at the Institute for the History of Medicine of the University of Valencia.

My academic training took place in highly ranked international institutions and through the support of competitive fellowships. As a Fulbright fellow, I received my MA in History at The New School for Social Research (USA), where I was awarded the outstanding MA award for my research on Argentine military records on same- sex relationships. I obtained my PhD in History from Brown University (USA), defending a dissertation that traces the tensions between transnational queer cultures and anti- homosexual policies in twentieth-century Argentina and Spain. My project was recognized and funded by the American Council of Learned Societies, University of Texas Austin, the Center for LGBTQ Studies, and the Mellon, Janey, Zwickler, Mcloughlin, Skidmore, and Tinker foundations. The book based on this research is under contract with the University of Nebraska Press.

I co-edit a special issue of Journal of Latin American Cultural Studies and a collective volume titled Las locas en el archivo: Disidencia sexual bajo el franquismo (Marcial Pons). This situates me as a leading scholar at the intersection of peninsular, Latin American, and gender and sexuality studies.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	DIAZ CEBALLOS, JORGE
Referencia:	RYC2022-037696-I
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Título:	Culturas políticas y legales de la Monarquía Hispánica siglos XVI-XVIII

Resumen de la Memoria:

Mi investigación se ha centrado en la formación política y social de la Monarquía Hispánica en América durante los siglos XVI y XVII. Soy autor de 1 libro, 6 artículos en revistas de impacto, 8 capítulos de libro, 4 reseñas y 1 ensayo bibliográfico. Mi libro, titulado Poder Compartido. Repúblicas urbanas, Monarquía y Conversación en Castilla del Oro, 1508-1573, publicado por Marcial Pons (Q1 SPI) es una novedosa exploración de la importancia de las ciudades en la construcción del poder político en el imperio español, incluyendo elementos como el mestizaje y la interculturalidad en el análisis. Este libro ha sido reseñado en 9 ocasiones por expertos internacionales en revistas de prestigio. He publicado artículos en Colonial Latin American Review (Q2 SJR 2020), Investigaciones Históricas (Q1 SJR 2020), Anuario de Estudios Americanos (Q1 SJR 2019), Nuevo Mundo, Mundos Nuevos and Mundo Agrario (Q2 SJR 2021) y capítulos de libros en Pickering and Chatto (Q1 SPI). En 2021 publiqué por encargo de Oxford University Press (Q1 SPI) el ensayo bibliográfico "Spanish American Port Cities". Mi investigación en general se ha centrado en la América colonial y la historia Atlántica, con una variedad de temas desde transferencias culturales entre Europa y el Nuevo Mundo, narrativas de la conquista, comercio intercultural, cimarronaje, mestizaje y violencia interpersonal. Mi trabajo ha contribuido a cuestionar narrativas tradicionales sobre el imperio español y su supuesta tendencia a la centralización y el peso de las instituciones de gobierno. A su vez, mi trabajo ha mostrado el tránsito del imperio español desde una perspectiva atlántica hacia una perspectiva global con la incorporación paulatina de los espacios del Pacífico en la América española. Hasta el momento mi trabajo ha sido citado más de 50 veces en artículos, libros y capítulos de libro. A lo largo de mi carrera he cultivado la colaboración interdisciplinar, con participación en proyectos de diversas disciplinas y un artículo junto con un bioarqueólogo sobre violencia interpersonal. Esta publicación, con la incorporación de las fuentes arqueológicas ha cuestionado de manera notable la comprensión historiográfica tradicional de las sociedades urbanas coloniales, probando que la violencia interpersonal en esos espacios era mucho más horizontal y multicultural de lo que hasta ahora las fuentes históricas habían mostrado.

En el futuro, mi investigación se va a centrar en la violencia y en la cultura legal del imperio español y de los imperios ibéricos en perspectiva comparada. Mi primer proyecto es una monografía siguiendo el método de la microhistoria global del imperio español con base en el Istmo de Panamá a través de un pleito criminal a comienzos del siglo XVII, con el objetivo de mostrar la complejidad de las sociedades urbanas coloniales, los altos índices de integración y destacar el papel jugado por las mujeres de diversos orígenes en esos espacios. Mi segundo proyecto es un estudio comparado a gran escala de las ciudades de Sao Paulo y Panamá entre 1580 y 1750 a través de la violencia interpersonal conservada en los archivos de las cortes de justicia. Este proyecto aspira a repensar la capacidad de maniobra de los pueblos indígenas y de origen africano en los imperios ibéricos en América más allá del paradigma de la resistencia política, social o económica.

Resumen del Currículum Vitae:

En la actualidad soy investigador contratado postdoctoral en el Departamento de Geografía, Historia y Filosofía en la Universidad Pablo de Olavide. Anteriormente, mi carrera ha estado marcada por la movilidad internacional e institucional. En el año 2007 completé la licenciatura en historia en la Universidad de Cantabria tras haber disfrutado de una beca de iniciación a la investigación en los dos últimos cursos. Tras completar la licenciatura me incorporé al programa de coctorado del departamento de historia moderna y contemporánea de la UC y entre el 2008 y el 2010 cursé un Master en Latin American and Caribbean Studies en la New York University (EE.UU) gracias a la concesión de una beca Fulbright para estudios en el extranjero. Tras volver de Nueva York continué mi doctorado en la Universidad de Cantabria gracias a una beca predoctoral de la propia universidad. En el año 2011 obtuve el Diploma de Estudios Avanzados. Durante el disfrute de esa beca realicé estancias de investigación en la Universidad de Cambridge (Reino Unido), en el 2011, en la Universitá degli Studi Roma Tre (Italia) en 2012 y en la Universidad Autónoma de Madrid en 2013 durante las cuales pude avanzar en la temática de mi investigación en importantes repositorios documentales, además de iniciarme en la participación en congresos y seminarios internacionales en Canadá, Italia, Portugal o República Checa. En el año 2016 me incorporé como early stage researcher en el proyecto ArtEmpire, financiado por el European Research Council dentro del programa Consolidator en la Universidad Pablo de Olavide de Sevilla. En el seno del proyecto ArtEmpire pude terminar mi tesis doctoral en diciembre de 2017, en un contexto de colaboración interdisciplinar que me permitió elaborar una investigación innovadora que el tribunal compuesto por reconocidos especialistas valoró muy positivamente. Tras completar mi doctorado en la UPO, en 2019 me incorporé como investigador postdoctoral al European University Institute gracias a una prestigiosa Max Weber Postdoctoral Fellowship, como uno de los 50 seleccionados entre más de 1000 candidatos. En el año 2020 retorné como investigador postdoctoral en el proyecto ArtEmpire, donde retomé mis actividades, además de incorporarme como docente en el Departamento de Geografía, Historia y Filosofía. En el año 2021, además de obtener mi actual contrato postdoctoral de tres años de duración de la Junta de Andalucía, conseguí un contrato Juan de la Cierva incorporación (rechazada) y un contrato de la FCT portuguesa (rechazada).

A lo largo de mi carrera, desde mi formación predoctoral he sido profesor en cuatro instituciones diferentes, en cursos dictados en inglés y en español. También cursé y recibí el Max Weber Teaching Certificate y he participado también en proyectos de innovación docente. He tutorizado 4 trabajos de fin de grado y 6 trabajos de fin de master en temáticas variadas y también he participado como mentor en el "Microinternship Scheme" de la Universidad de Oxford autorizando estudiantes de grado en la elección de una temática de posible investigación.

Tengo experiencia en organización de actividades académicas y también como creador y participante en actividades de difusión pública de la investigación como plataformas digitales y participación en documentales históricos internacionales.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	CUENCA SOLANA, DAVID
Referencia:	RYC2022-036585-I
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Título:	La aportación de la Bioarqueología, el Paleoclima y la traceología al análisis de las estructuras sociales y económicas de los grupos humanos prehistóricos de la vertiente atlántica y mediterránea de Europa.

Resumen de la Memoria:

Tras licenciarme en Historia en la Universidad de Cantabria en 2006, trabajé como arqueólogo profesional hasta 2008. Ese mismo año inicie el doctorado gracias a la obtención de un contrato predoctoral de la Universidad de Cantabria. En 2012 obtuve el Doctorado con mención internacional. La tesis posteriormente fue galardonada con el Premio Extraordinario de Doctorado de la Universidad de Cantabria. En noviembre de 2013 me incorporé como investigador posdoctoral al CReAAH de la Université de Rennes gracias a un contrato financiado por Foundation Fyssen (Francia). Posteriormente, en 2016 me reincorporé a la Universidad de Cantabria gracias a un contrato Juan de la Cierva-Incorporación 2014 (IJCI-2014-20590). Este contrato generó la plaza de Profesor Ayudante Doctor que actualmente ocupo en la Universidad de Cantabria. La investigación que he desarrollado durante mi carrera se ha centrado en el estudio de elementos bioarqueológicos como un medio de aproximación a las estructuras sociales y económicas de los grupos humanos prehistóricos desde el Paleolítico superior hasta el Neolítico final. De esta forma uno de los principales aportaciones de mi investigación ha sido el desarrollo de una metodología específica para analizar diferentes soportes de concha dentro de este ámbito cronológico y geográfico tan amplio, tanto instrumentos de trabajo, como también ornamentos (por ejemplo: Cuenca-Solana, 2009, 2013, Cuenca-Solana et al., 2010, 2013a, 2016a, 2017, en prensa. A partir de este desarrollo metodológico mi trabajo ha sido aplicado a la investigación de cuestiones de gran alcance como:

A.	El estudio de los ornamentos personales durante el Paleolítico superior, Mesolítico y Neolítico (Cuenca Solana et al, 2014; Dupont et al. 2014, Dupont y Cuenca Solana, 2014; Gutiérrez Zugasti et al. 2013; Gutiérrez Zugasti y Cuenca Solana, 2015, entre otros).
B.	La caracterización del equipamiento tecnológico de los grupos de cazadores-recolectores y de los primeros agricultores ganaderos (Clemente Conte y Cuenca Solana, 2011; Cuenca Solana, 2013, 2015; Cuenca Solana et al, 2013, 2021, en preparación; Gómez-Calvo et al., 2021; Marchand et al, 2019, entre otros).
C.	La búsqueda de una aproximación etnoarqueológica para el estudio del utillaje de las poblaciones prehistóricas (Cuenca Solana et al., 2010, 2011; Cuenca Solana y Huidobro, en prepraración).

Por otra parte, las intervenciones arqueológicas que vengo codirigiendo desde el año 2012 en el yacimiento mesolítico de El Mazo (Asturias) y desde 2021 en La Cueva de El Mirón (Cantabria) constituyen otra parte importante de mi aportación a la investigación prehistórica. En este caso, el trabajo que realizado en estos contextos está resultando fundamental para:

A.	Establecer el efecto reservorio para calibrar las dataciones de radiocarbono de muestras marinas desde finales del Pleistoceno hasta principios del Holoceno en la región cantábrica (Monge Soares et al., 2016).
B.	Caracterizar las ocupaciones humanas (estructuras de ocupación, estacionalidad, movilidad) durante el Mesolítico en la costa atlántica de Europa (Allentof et al., 2022; Gutiérrez Zugasti et al., 2020; Cuenca-Solana et al., 2018, entre otros).
C.	Analizar el impacto del Paleoclima sobre el comportamiento de los grupos de cazadores-recolectores mesolíticos en el área del cantábrico (García-Escárzaga, et al., 2019; 2022).

Resumen del Currículum Vitae:

En diciembre de 2012 obtuve el Doctorado con mención internacional con la calificación de Extraordinaria Cum Laude, posteriormente galardonada con el Premio Extraordinario de Doctorado de la Universidad de Cantabria. En noviembre de 2013 me incorporé como investigador postdoctoral al CReAAH UMR 6566 gracias a la financiación de Foundation Fyssen (Francia). Posteriormente, en 2016 me reincorporé a la Universidad de Cantabria gracias a un contrato Juan de la Cierva-Incorporación 2014 (IJCI-2014-20590). Este contrato de investigación generó la plaza de Profesor Ayudante Doctor que actualmente ocupo en la Universidad de Cantabria. Durante mi etapa predoctoral y postdoctoral he realizado 42 semanas de estancia en centros de investigación de Países Bajos (University of Leiden), España (IMF-CSISC, UAM), Francia (CEPAM), Rusia (Russian Academy of Science) o Chile (UAH). Mi producción científica hasta este momento está conformada por 94 publicaciones, habiendo sido evaluadas mediante peer review el 70% de ellas. En concreto, he publicado 1 libro como autor, 1 libro como editor, 2 números especiales en revistas de alto impacto como editor invitado (QI y JASR), 36 artículos (26 de ellos en revistas JCR), 34 capítulos de libros. Además, durante estos años he realizado 88 comunicaciones en congresos y reuniones científicas, la mayor parte de ellas como primer o segundo autor (60). Durante mi carrera científica he participado en 42 proyectos de I+D+i financiados en convocatorias competitivas de Administraciones o entidades públicas y privadas, tanto internacionales (6), proyectos nacionales financiados por el Gobierno español (16), financiados por otros organismos (5) y proyectos regionales (15). De entre estos he sido IP en 11 proyectos, tanto internacionales (5), nacionales (2) como regionales (4). También he sido invitado a hablar en seminarios especializados y congresos (2) y he participado en actividades de difusión (16), incluyendo entrevistas de Tv, radio o participación en documentales y Podcast. Tengo experiencia en la organización de actividades de I+D+I como congresos internacionales (1), sesiones en congresos internacionales (4), workshops y seminarios (2) o en la participación en el comité científico de congresos internacionales (5) y nacionales (1), y como revisor de artículos para revistas de mi área de especialización (16). Tengo experiencia en la docencia universitaria a nivel de grado, senior y posgrado (697 horas) y en la organización de Cursos de Verano Universitarios (1). Por otro lado, hasta el momento he dirigido Tesis Doctorales (1 y otra en curso desde 2022) y TFM (5 y otro más en curso desde 2022) y TFG (en curso desde 2022). He participado en tribunales de máster (5), TFG (7) y de tesis doctorales (2). Actualmente soy responsable de la estancia postdoctoral de dos investigadores extranjeros con financiación competitiva (Foundation Fyssen, Francia) y Juan de La Cierva Formación y de la dirección de una tesis doctoral en curso financiada mediante el Programa Concepción Arenal de la UC. Desde 2012 hasta 2017 he dirigido la intervención arqueológica en el yacimiento mesolítico de El Mazo (Asturias) y desde 2023 me codirector de la intervención arqueológica en La Cueva

de El Mirón (Cantabria). Desde 2021 pertenezco al Steering Committee de la Red Internacional de Investigación en Tafonomía (IRN-Taphen) y desde 2023 evaluador de la Agencia Estatal de Investigación (AEI).

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	QUEVEDO SÁNCHEZ, ALEJANDRO
Referencia:	RYC2022-037150-I
Correo Electrónico:	aquevedosanchez@gmail.com
Título:	Hispania and central Maghreb: revealing connectivities through Roman Material Culture

Resumen de la Memoria:

Following 17 years of research experience, Dr Alejandro Quevedo presents a consolidated trajectory based on his extensive experience at prestige institutions abroad (CNRS, Escuela Española de Historia y Arqueología, University of California Berkeley) and fruitful international collaborations. His capacity for work and leadership in research and teaching (+600 hours) is reflected in his multiple publications (+70) and awards (Extraordinary Doctorate Prize, Major Degree Prize). Under a multi- and interdisciplinary focus, with Roman material culture as the central object of his studies, the candidate is able to approach such historical aspects as the urban and commercial dynamics of Mauritania Caesariensis (Algeria), a province of the Roman empire that is barely known by researchers. The candidate aspires to offer a new focus on the study of Roman pottery that will complement the traditional chrono-typological view and allow it to be interpreted as a historical source for understanding complex social and economic relationships between central Maghreb and the Iberian Peninsula in Antiquity.

Despite its proximity to the Iberian Peninsula, the archaeology of Algeria, our neighbour and southern border, is the great unknown of the western Mediterranean. Its ancient past, latent in numerous sites recognised as World Heritage Sites, has had an almost non-existent scientific projection in recent decades. Historically, this information gap has generated a biased view in which central Maghreb was considered by colonial historiography as a passive actor. However, the region boasted some of the main ports of the western Mediterranean. Alejandro Quevedo proposes an original and innovative investigation into the exchanges and territorial development of the two shores of the western Mediterranean. The aim is to define a series of models that will make it possible to identify the connections and coastal occupation in Antiquity and their evolution over time.

The choice of this theme is fully in line with the work and methodology developed by the candidate in recent years as shown by several projects obtained in competitive calls for proposals in which he is the principal investigator (PI). The candidate is the PI of the overseas excavation project financed by the Ministry of Culture: TIPASA. Ocupación, producción e interconexiones en el territorio de una ciudad africana durante la Antigüedad (Argelia). Dr. Quevedo is also the PI of the archaeological excavation and research project of the Isla del Fraile (Águilas). The settlement site has been declared an Asset of Cultural Interest key to our understanding of the late-Roman-period occupation of southeastern Iberia and the trading relations with North Africa. As a result, the candidate proposed and obtained a new international project as PI in collaboration with the CNRS and financed by Casa de Velázquez: CERAFRICS. Consumption and Exchange of Roman African Ceramics in Southeastern Spain.

The candidate's proposal is based on a double premise: the existence of a historical problem common to all the areas addressed, as well as a previous international collaboration established and supported by a network of scientific institutions that guarantee the viability of the project. Through his research Alejandro Quevedo, aims to make a new contribution to the shared history of Europe and the Maghreb.

Resumen del Currículum Vitae:

Alejandro Quevedo is an I3 Researcher specialist in Roman pottery (European Ph.D., University of Murcia, 2013; monograph published in Oxford, 2015) at Complutense University of Madrid. In the last decade Dr. Quevedo has been awarded five postdoctoral contracts in international competitive public calls that have allowed him to accumulate more than 4 years of research experience abroad. He undertook research at the CNRS Laboratoire d'Excellence LabexMed (2013-2015) and at the Escuela Española de Historia y Arqueología en Roma (EEHAR-CSIC, 2015-2017). In 2018, having obtained contracts from the Agencia de Ciencia y Tecnología of the Region of Murcia and the École des Hautes Études Hispaniques et Ibériques (declined), he joined the University of Murcia with an exterior talent attraction contract (Sistema Español de Cientica, Tecnología e Innovación). Among his research sojourns, of particular note is that undertaken at the Berkeley Roman Material Culture Laboratory at the University of California Berkeley (United States, 2019).

The 8-years postdoctoral experience (2013-2021) led A. Quevedo a radical change in his way of working. The implementation of new methodological focuses and the expansion of his international contact network during this period are reflected in more than 70 scientific contributions including monographs, book chapters and articles. Among his publications, as single author or with colleagues from other institutions, stand out several high impact journals such as the European Journal of Archaeology, ArcheoSciences, Journal of Archaeological Science: Reports, The International Journal of Nautical Archaeology and international collections in Open Access such as Archaeology of the Maghreb. Alejandro Quevedo has participated in more than 30 national and international congresses and he has organised and published 2 international congresses (Spain 2013, Italy 2017). He has also directed various international seminars and excavations in several countries. The candidate has taught more than 600 hours of classes at diverse universities in Europe and the Maghreb and has participated in several Erasmus+ teaching exchanges (Switzerland, Italy, Algeria). He has supervised and continues to supervise 15 Final Degree and Final Master's Degree projects and is co-directing 3 doctoral theses on Roman pottery at the University of Cádiz, the UNED and the University of Murcia.

Recent years (2020-2023) saw a qualitative boost to the candidate's line of research on North Africa as Principal Researcher (PI) of several international projects: the TIPASA Project (Algeria) financed by the Ministry of Culture; Isla del Fraile Archaeological Project (Águilas), promoted in collaboration with Águilas town council and CERAFRICS. Consumption and Exchange of Roman African Ceramics in Southeastern Spain, in collaboration with the CNRS and financed by Casa de Velázquez. A fundamental part of the candidate's research activity is the transfer of his results to the general public through conferences, participation in events for Science popularization and collaborations in quality science magazines, short films and podcasts. As a

result of the maturity of his career the candidate has submitted a national project to the Ministry of Science and Innovation "Generation of Knowledge" call 2022. In the 2020 Ramón y Cajal call he was ranked 10th on the reserve list.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	BARGALLÓ FERRERONS, AMÈLIA
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Título:	LEARN making STONE age (LEARNSTONE)

Resumen de la Memoria:

After graduating with a degree in History from the University Rovira i Virgili in 2005 I started a Master's degree Erasmus Mundus Archaeology of Quaternary and Human Evolution (2007) between University Rovira I Virgili and Universty degli di Ferrara and in 2007 I defended my Thesis Master and a European PhD in 2014. I was selected in Rovira i Virgili postdoctoral contract as a research in Cognitive Archaeology (2015). I was awarded Marie Curie Actions at the University College London in 2016 until 2019. In 2021 was opened a new stage in my Postdoctoral career. Back in Catalonia, thanks to a Beatriu de Pinós Agaur grant and Juan de la Cierva Incoporación, I will start a new research line in the Cognition area. I will establish a systematic methodology for studying how we learn to knap stone tools and knowledge transmission mechanisms. Pioneering has strongly characterized my investigations, where I have often opened new research fronts, generating new knowledge about often forgotten individuals. The base of my research has been lithic technology, spatial patterns, refits, ethnography and gender applied to my field.

In order to bring my scientific area forward, I constantly work on different topics to develop the methodology and answer important questions for my discipline, such as identifying the mechanics of intergenerational information transmission (learning mechanisms) within Pleistocene communities and providing new ideas for the investigation of social learning.

In our case, social learning will be analyzed by means of detecting patterns in anthropic processing in the knapping of stone tools; the best-preserved materials from ancient human cultural activities.

In addition, some common elements between the experimental program and the archaeological remains helped me apply the concept of Cultural Convergence to archaeology, which serves to define the simultaneous emergence of certain technological elements in different territories without any apparent links between them.

The expected impact of this new line of research is to give visibility to invisible individuals (women, children, the elderly and people with disabilities) who were part of prehistoric communities and who are currently not considered unless we find their bone remains. These individuals probably participated in all the tasks of hunter-gatherers, including stone knapping and tool production. It is from the cognitive study of these remains that we will be able to identify them and, at the same time, trace the mechanisms behind the transmission and socialization of technological knowledge.

Resumen del Currículum Vitae:

I am Amelia Bargallo (ORCID 0000-0003-4175-7600) in 2014, I finished my PhD in Quaternary and Prehistory at Universitat Rovira i Virgili (URV) with research prize International doctorate. During my PhD I had a break in my career research for maternity leave. I have supervised one Master thesis and one doctoral thesis at URV , which has been already produced three paper in an international journal (J Archeo Scie: Report, PLOSOne, Archeo & Anthro Scie) . I am currently supervising an ongoing Master thesis at URV.

I was the principal investigator in a funding research MSCA-IF-2015-EF, Project ID:702584. During this postdoctoral fellowship, I had 12 months break in my career research for maternity leave. In 2020 born my little son (12 months maternity leave). 2021 I started JCD-Incorporacion at IPHES.

I have organized a number of international scientific congress: Scientific committee and vice-secretary: a) Workshop "Neanderthals Home. Spatial and social behavior" yielded at Tarragona in 2009. b) XVII International Union of the Prehistoric and Protohistoric Sciences (UISPP) in Burgos in 2014 and scientific committee and member of the organization team in the Vth International Congress of Experimental Archaeology in Tarragona in 2017. Nowadays I am participating in scientific-team to organize Virtual Conference for Women Archaeo and Paleo (AWAP).

As a part of my reputation in the field, I am Editorial Board Member journal with external pre-reviewers in five Open Access journals (Frontiers in Environmental Archaeology-Landscape and Geological Processes, Geoscience, Archaeology and Culture, Open Access Journal of Archaeology and Anthropology (OAJAA) and Anthropology and Ethnology Open Access Journal (AEOAJ)) and I am collaborating as reviewed two papers for one international journal with impact factor (Journal of Archaeological Method and Theory), several papers for six international journal with pre-reviewers (Springer, Behavioral Science-Open Acces Journal, Quaternary, Social Sciences-Open Acces Journal, Archaeology and Culture, OAJAA) and one national journal (Sapiens Publicacions).

To date, my research can be summarized by: Total number of citation: 780 citations in 506 documents, Average number of citations during the last five years: 148 citations

Total number of publications: 60 publications (included in my CV): 29 have been published in international journals with IF, 22 book chapters, 2 Data Set, 1 book and 8 journals without IF with peer review process. I am the corresponding author (nº16), demonstrating my leadership as well as my team working qualities.

Total number of publications in the first quartile (Q1) 15 journals and in the second quartile (Q2) 14 journals.

h-index, 15 (Scopus). Thesis supervised: 1.

Other relevant indicators: I have published a book as Assistant Editor and in 2016 I published my PhD in book format.

Most of the main results of my research (47 participations) have been presented in major international conferences such as the WAC (Work Archaeology Congres), UISPP (Union Internatinale des Sciences Prehistoriques et Protohistoriques) or ESHE (European Society of Human Evolution), as well as other meetings and seminars in which I was invited to talk about my research.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	LÓPEZ GARCÍA, ANTONIO
Referencia:	RYC2022-037730-I
Correo Electrónico:	antonio-lopez-garcia@hotmail.com
Título:	Transformation and urban adaptation of the Trans Tiberim (Rome) from Late Antiquity to the Middle Ages

Resumen de la Memoria:

This project focuses on the Trastevere district, one of the main quarters of Rome, which symbolises the residential essence of the city in the late antique period, and which was one of the areas most affected by the transformation of the cityscape during the Middle Ages. Trastevere is a 2 km2 area located between the west bank of the Tiber and the city walls that have been inhabited for more than two millennia. This makes it a unique space inside the city well suited to investigating urban adaptation and social development on the boundary between the city and the countryside. The ground-breaking nature of this project, setting it apart from previous work, is that this research proposes a diachronic analysis of urban transformation with an innovative holistic approach, exploiting the full potential of new theoretical and methodological tools for an integrated approach to Trastevere's urban history. The extraordinary concentration of historical and archaeological information from the Roman era to the Middle Ages will make the Trastevere district the perfect environment for the development of such a research approach. The main goal of the project is to assess the dialogue between humans and cityscape within the context of urban collapse by examining the transformation of the space over time.

I will examine urban networks and study their economic, social and environmental elements to reconstruct and reassess the urban complexity of the district and challenge previous theories about the urban collapse and transformation of Rome. I understand urban collapse as a multi-causal degradation of the urban form triggered by multiple factors that can be political, social, cultural, martial or environmental in form. Urban collapse leads to a contraction of the urban fabric due to abandonment and a subsequent process of natural adaptation and artificial transformation of the environment that results in the re-equilibration of the ecosystem. The essence of collapse is a marked reduction in complexity. It is the interplay between the limits of nature and the trends and dynamics of social, political and economic relations that ultimately defines the historical tendencies of transformation in societal systems. Changes in subsistence and the social, political and economic spheres altered the complexity of the cityscape.

The project has three intermediate objectives:
(Obj. 1) to determine how economic, social and environmental processes led to the urban collapse and subsequent transformation of Trastevere, observing especially the patterns of continuity and change;
(Obj. 2) to recreate the urban environment with the support of a dataset of archaeological and environmental information; and
(Obj. 3) to provide a profound interdisciplinary reinterpretation of the process of transformation of the cityscape, challenging previous theories about the urban collapse of Rome and producing a new understanding of the adaptation of ancient societies and urban spaces to the fluctuating circumstances of an economy in crisis.

Resumen del Currículum Vitae:

Actualmente trabajo en la Universidad de Granada con un contrato de atracción de talento internacional María Zambrano, con el proyecto "Nexos comerciales y límites provinciales en torno al territorio accitano en época romana" (2022-2024), donde además soy docente de Arqueología General y de Protohistoria de Andalucía. Además, dirijo un proyecto internacional sobre la ciudad de Roma "Beyond the Tiber: Socio-Cultural Transformation and Urban Adaptation of the Trans Tiberim Area in Rome from Late Antiquity to the Middle Ages", financiado por la Kone Fondation (2022-2025, 85.000 euros), afiliado con la Universidad de Helsinki. Desde 2018 hasta 2022 trabajé como investigador postdoctoral en la Universidad de Helsinki en el proyecto ERC SpaceLaw, dirigido por Kaius Tuori, al que aún sigo afiliado y donde soy co-tutor de dos tesis doctorales y dirijo un proyecto sobre los espacios públicos de la administración romana. Desde 2019 hasta 2022 he sido codirector del seminario mensual sobre la Antigüedad (HelRAW). Durante mi etapa postdoctoral he realizado estancias en las universidades de Berkeley (EEUU), Auckland (Nueva Zelanda), en la Escuela Francesa de Roma, la Academia Americana de Roma y el Instituto Finlandés de Roma.

En 2020 obtuve una beca de investigación de la Univ. Macquarie (Australia) para la realización de un estudio sobre Roma. Además, he organizado varios congresos y workshops internacionales desde 2015, siendo el más reciente un congreso de topografía romana en colaboración con la Real Academia de España en Roma en 2021. En la Universidad de Helsinki, he participado en el comité científico de varios congresos, y he publicado artículos en revistas de impacto mundial como KLIO, Cohent Art & Humanities, Mélanges de l'École Française de Rome o Journal of Eastern Mediterranean Archaeology and Heritage Studies. Recientemente, he editado el libro "Running the Empire: The Places of Roman Governance" paral Routledge, que saldrá publicado antes de mediados de 2023 y también he coeditado un libro para la editorial Brill. He sido revisor en revistas como Journal of Community Archaeology & Heritage, Land, Heritage, Latomus, o Antesteria, entre otras. He participado en varios congresos internacionales de primer nivel, como el de la Asociación Europea de Arqueólogos, el del Instituto Arqueológico de América, o el de la Sociedad de Estudios Clásicos de Australasia. En los últimos años he sido invitado a dar conferencias en la Real Academia de Bellas Artes de San Fernando, la Universidad de Concepción (Chile), la Universidad de Granada, la Universidad de Tampere (Finlandia) y la Universidad de Padova (Italia). En 2020 fui acreditado como Profesor Contratado Doctor por la ANECA.

Me licencié en Historia en la Univ. de Granada en 2009 e hice un Erasmus en la Univ. de Florencia. En 2010 realicé un Máster en Arquitectura en la Univ. de Roma La Sapienza. Me doctoré en la Univ. de Florencia bajo la supervisión de Paolo Liverani, donde recibí el premio extraordinario a la mejor tesis en Humanidades de 2014. En 2015 publiqué mi primera monografía en la editorial Firenze University Press. Durante el doctorado enseñé Topografía Antigua, realicé estancias en el DAI de Roma y la Escuela Italiana de Atenas, y participé en varios proyectos como el Lateran Project (Roma) con la Univ. de Newcastle y los Museos Vaticanos, y en Ostia Antica con la Univ. de Colonia y el DAI.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	TORRES TRIMÁLLEZ, MARINA
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Título:	Cristiandad en China y movilidades en el sudeste asiático

Resumen de la Memoria:

The project UNSILENCE in which I am currently working on examines the purchase of abandoned Chinese children by Catholic missionaries in their inland missions, Canton, and Macau and their transportation to the Philippines to be raised as Christians, from the 18th century to the mid-19th century. For the Ramon y Cajal programme, I plan to: 1) provide a new understanding of slavery and dependencies within the religious and secular sphere of the Asian missions; 2) incorporate a qualitative perspective by studying the life trajectories of this little girls including the relationships with masters and caregivers, treatment, and agency; 3) to broaden the geographical scope with recently discovered archival materials including Japan, Vietnam and Goa; 4) To analyse the consequences of this phenomenon at two different levels: individuals (missionaries, children and their foster families) and receiving societies: colonial settlements that took in these children and Europe itself. By doing so, this project will make three crucial contributions to the field. First, it will lead to an entirely new history of early modern Christianity in China by shedding light on a poorly studied missional network; it will incorporate completely unknown "small slaveries" in cross-Pacific networks; and will add new elements to ongoing debates on the construction of identity, agency and intercultural encounters in the big South China Sea.

Resumen del Currículum Vitae:

I am doctor in Early Modern History from the University of Cantabria and the Autonomous University of Madrid (2019) having received the Prize Juan María Parés to the best doctoral thesis in Humanities at the University of Cantabria (2020), the Prize for the Best Doctoral Thesis on Asian Studies by the Spanish Association of East Asian Studies (2021) and the Doctorate Extraordinary Award in Humanities (2021). My research interests includes Christianity in China, gender in Iberian early modern empires and cultural encounters. I graduated in History in 2013 having received the academic award for the most outstanding graduate. A year later I received a Master's degree in Early Modern History specifically focus on Hispanic Monarchy from Autonomous University of Madrid and University of Cantabria (2014). In 2015 I obtained a national predoctoral fellowship for the completion of my doctoral thesis supervised by Dr. Tomás A. Mantecón Movellán (University of Cantabria) and Dr. Anna Busquets Alemany (Open University of Catalonia). I am currently member of the Early Modern Research Unit at KU Leuven after achieving the prestigious Marie Sklodowska Curie Individual Fellowship funded by the European Commission. My research has funded by several important organizations such as the European Association of Chinese Studies, the Ministry of Education, Culture and Sports of Spain, the N.W.Posthumus, the Chinese embassy in Spain, the Ministry of Science and Technology of Taiwan (MOST) or the European Research Council. I have undertaken 8 research stays in important international institutions including the Academia Sínica in Taipei (2015), the Università Roma Trè in Rome (2016 and 2017), the Institute of Social Sciences of the University of Lisbon (2018), the Department of Portuguese and Brazilian Studies of the University of Brown in Providence (2019), the Open University of Catalonia and the University Pablo de Olavide in Spain (2021-2022) and the University of Asia &the Pacific in the Manila (2023). I have participated in more than thirty national and international conferences and have been invited to participate in several international conferences held in Manila (2016 &2023), Providence (2019), Paris or Lisbon (2021). The result of my investigation has produced 1 book, 6 articles published in prestigious international scientific journals, 4 book chapters and 2 reviews written in Spanish, English, and Portuguese languages, and published in open access. My contribution "Con un catecismo salvaré un reino: la empresa franciscana en China en la Edad Moderna" is included in Quartile 1 and I have already been accepted two book chapters for De Gruyter and Palgrave Macmillan regarding the topic of dependencies and slavery in Southeast Asia in the 18th century.

I have been member of 5 national and international research projects contributing consistently with new scientific materials and participating in their workshops. My internationalization and solid background are applied to both research and teaching, also accredited Profesor Ayudante Doctor by the Research Executive Agency of Spain. I have regularly taught Early Modern European and Asian History in four different programmes (Undergraduate; SENIOR programme; Master, and the Programme of Spanish History and Culture for foreign students) both in English and Spanish in three different universities in Cantabria, Barcelona, and Belgium.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	ARROYO UREÑA, ADRIÁN
Referencia:	RYC2022-037569-I
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Título:	Bridging archaeology and primatology to study the origins of technology

Resumen de la Memoria:

My primary research interest lies in understanding the earliest stages of culture and technological behaviours during the Plio-Pleistocene. I approach this research objective from an interdisciplinary perspective. On one side, I have focused on the study of Early Stone Age assemblages, particularly stone tools from African archaeological sites dated between 2.3 and 1.5 million years, whose function was poorly known but were believed to be utilized in pounding activities (i.e., to process nuts or break bones to access the marrow). On the other side, as percussive activities are a common behaviour shared by extant primates (e.g., chimpanzees) and early hominins, I have centred part of my research on the development of comparative models between hominin and primate technology as an instrument that could help palaeoanthropologists to understand the role of pounding activities in human evolution and to develop theoretical models to explain the origins of stone flaking.

My research has had a substantial impact, with 762 citations on Scopus, an h-index of 12, and a total of 22 scientific articles published in indexed international journals and regularly contributing as a reviewer of scientific papers and project proposals. Moreover, I have had an intense contribution to international projects collaborating on both archaeological and primate archaeological research projects, as well as developing research networks with academics from different European institutions.

I have been progressively obtaining leadership and independence throughout my scientific career, acting as PI during the research project developed as Juan de la Cierva-Incorporación, and currently, as a Postdoctoral research fellow. This record is additionally proving my ability to obtain competitive funding. My current research plan is to create and consolidate a primate archaeology research group in Spain and develop systematic studies of chimpanzee technological behaviours in West Africa.

Resumen del Currículum Vitae:

I have dedicated my research to exploring the connections between early human and extant primate technology and developing comparative models to reconstruct the emergence of technology in human evolution.

I strengthened my scientific training through various academic positions. In 2014, I was employed as a pre-doctoral Research Assistant at the Université Paris Nanterre (France) on a major international research project funded by ANR and led by Prof. Sonia Harmand. Since successfully defending my PhD thesis (on December 18th, 2015), I developed my postdoctoral experience and publication portfolio as a Postdoctoral Research Associate at UCL (UK, 2016). Between 2017 and 2018 I did not hold any academic position. This break was caused by my personal decision to return to my home country (Spain) after nearly 6 years of residing in the UK. During this time, I focused on building up research networks, submitted grant proposals and presented at international conferences. In 2019 I joined IPHES as Juan de la Cierva-Incorporación fellow (2019-2021), an institute that was recently recognised as "Unit of Excellence Maria de Maeztu".

A key accomplishment of my research is the contribution to our understanding of early hominin activities (particularly percussive activities) and the growing field of primate archaeology. More precisely, the methodology I apply combines the spatial analysis of utilisation traces, 3D scanning and recording techniques (including confocal optical microscopy and 3D models of surfaces), as well as the functional analysis of surface damage patterns, to increase our knowledge about the technological attributes of the tools used by extant primates, and their comparison to artefacts used by early hominins. Currently, I have a postdoctoral fellowship at IPHES (2022-2023) that aims to develop this research line and the project "The impact of seasonality on savanna chimpanzee technology: a primate archaeology approach". For this project, I have obtained funding from Fundación Palarq and The Leakey Foundation to do fieldwork at Dindefelo (Senegal)

In sum, the research I have been developing is characterized by its interdisciplinarity and transversality. It requires combining methodologies from two different research disciplines: primatology and archaeology. The transverse nature of my research comes from its impact beyond archaeology. It can be applied to increase our knowledge about primate technology, build models to understand the origins of stone flaking, explore the cognitive underpinnings of tool use, and can also be used to contribute to the preservation of primates and their culture.

Relative to my career stage, I have a notable track record, leading and contributing to 22 indexed papers (928 citations, h-index of 12) published in top-tier interdisciplinary journals such as Nature (1), Nature Ecology & Evolution (1) and PLoS One (2), as well as in Q1 ecology, anthropology and archaeology journals, for instance, Journal of Human Evolution (5) and Journal of Archaeological Science (3). The recognition of my knowledge and expertise is manifested in my role as a reviewer for international journals and funding bodies, including Nature, International Journal of Primatology, The Leakey Foundation, and the Israel Science Foundation.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	CECILIA CONESA, FRANCESC
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Título:	Endangered archaeology in fragile cultural landscapes

Resumen de la Memoria:

I am currently working as a Beatriu de Pinós postdoctoral researcher at the Landscape Archaeology Research Group (GIAP), Institut Català d'Arqueologia Clàssica (ICAC). Prior to this, I held a Juan de la Cierva-Incorporación fellowship at GIAP-ICAC (2020-2022). I am also affiliated to the Archaeological Micromorphology and Biomarkers Laboratory (AMBI Lab), University of La Laguna; and the Department of Archaeology, University of Kerala in Kerala. My primary focus on South Asian archaeology and the Indus Civilisation throughout my PhD (University of Barcelona, 2016) laid the ground for obtaining a Marie Marie Skłodowska-Curie Action at the McDonald Institute for Archaeological Research, University of Cambridge (2018-2020).

My line of research is entitled "Endangered archaeology in fragile cultural landscapes". My academic pathway attests to my scientific interests in understanding past human settlements and revealing the long-term human ecological footprint in landscapes while incorporating novel bird's-eye perspectives. My career contributions have evolved and merged into a prospective research line that foresees the integration of computational approaches and mapping technologies that can help identify heritage at risk.

Within the general research topic of Endangered Archaeology, I address and integrate two key subthemes in archaeological remote sensing: 1) the accurate detection of archaeological features and 2) the diachronic mapping of land use trends and landscape change. Most often, these subthemes are investigated separately and lack standardised procedures. The proposed research line identifies a third key subtheme to the joint equation: the continuous monitoring and assessment, in almost-real time, of threats affecting heritage site conditions (such as desertification, abrupt flooding, urbanisation and looting, to name just a few) using Big Earth Data. Overall, the general objective revolves around improving efficiency during our field survey campaigns while facilitating a common research ground for archaeologists and heritage practitioners.

Resumen del Currículum Vitae:

My research outputs are summarised in >20 publications (CVN), including 13 peer-review research articles (with six first-author and corresponding ones in leading journals such as PNAS, Remote Sensing, Archaeological Prospection, and Q2 such as Quaternary International). As first author, I have also published scientific articles in peer-review conference proceedings, book chapters in edited volumes, and contributed to scientific and technical reports. My past and ongoing research projects and academic positions have totalled >600.000€ of combined income.

I was among the first researchers that explored the potential archaeological use of multi-temporal satellite radar imagery in monsoonal environments (Conesa et al.2014). This approach was combined with identifying recent landscape change and its impact on the preservation of archaeological sites dating back to the Indus Civilisation, while incorporating historical declassified spy satellite photographs (Conesa et al. 2015).

I have promoted automated geostatistical approaches coupled with machine learning solutions in geoarchaeological studies (Conesa et al.2017). A significant output of my MSCA at the University of Cambridge was the novel application of a reproducible machine learning workflow to detect archaeological mounds at large-scale (Orengo et al. 2020, as corresponding author). I have recently presented an innovative and reproducible approach that detects and monitors heritage at risk by expanding agricultural practices (Conesa et al.2022). My other co-authored publications attest to my involvement in international research projects within and beyond South Asia's geographical scope.

I am co-PI of a Palarq Foundation project that investigates Indus settlements in north-western India, in collaboration with the University of Kerala and the IMF-CSIC. I supervise a postdoctoral researcher at GIAP-ICAC under the Proyectos de Colaboración Internacional, Agencia Estatal de Investigación. I have participated in I+D+I research teams at GIAP-ICAC, CSIC and the University of Barcelona. Through the latter, I have implemented drone-based methodologies for site detection in Mediterranean contexts such as the Balearic Islands. I collaborate with the AMBI Lab research group at the University of La Laguna, where I am team member of a Palarq Foundation project investigating Bronze Age landscapes in Mongolia.

My research has also been transferred to public organisations and governmental end-users. I recently directed a research contract for the Government of the Canary Islands to develop a methodology that helped in the remote and ground assessment of cultural heritage at risk during the volcano eruption in La Palma in 2021. Furthermore, I have presented my main research outputs in >40 communications, including invited talks and oral presentations in leading national and international conferences, seminars and outreach events. Since 2019, I taught an invited lecture on archaeological remote sensing in a master module at the University of Barcelona. I am fully aware of the importance of disseminating research to the broad audiences, as attested, for example, with my contributions to outreach talks and articles at National Geographic Spain through the Palarq Foundation.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	GARCÍA FERNÁNDEZ, MÓNICA
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Título:	History of Sexuality, Medicine and Religion in 20th Century Spain

Resumen de la Memoria:

My academic career began at the University of Oviedo thanks to two predoctoral fellowships (2013-2018), after which I worked at the University of the Basque Country as a postdoctoral fellow (2020-2022) and now at the University of Leeds (UK) as a postdoctoral fellow (2022-2023). I have also been a visiting scholar at Rutgers University (6 months), the University of Glasgow (3 months), the University of Barcelona (2 months), and the University of Lisbon (5 months). I have been a researcher in 5 projects (1 finished, 1 ongoing, 3 pending evaluation), and the Principal Investigator of a project funded in a regional and a national call. My work has focused on analysing the ideals and experiences of sexuality and love in Franco's dictatorship. In addition to articles in top-tier journals such as Contemporary European History, Social History of Medicine, Ayer, Cultural History or Hispania Nova, this research has resulted in a recent book, Dos en una sola carne. Matrimonio, amor y sexualidad en la España franquista (1939-1975), Comares, 2022. One of the most innovative aspects of my work is its diachronic approach that covers a broad chronology, making it possible to trace the often unexpected mechanisms through which historical change occurs and to overcome reductionist and stereotypical explanations. It frames sexuality and love as drivers of historical change that resonate with broader cultural, religious, and political developments. My influences are interdisciplinary, ranging from cultural studies to the history of religion and medicine. Very relevant to my research has been the approach to sexuality from the history of medicine, mainly applied to sexology and sexual knowledge. My publications have also dealt with the relations between the history of sexuality, emotions, and religion. They explore the role of sexuality and love in the context of Catholic dissent in late Franco's Spain, thus contributing to the academic literature on secularisation and religious, cultural, and intellectual dissidence at the end of the dictatorship, providing evidence from the history of sexuality, a dimension often ignored in intellectual and religious history. Moreover, it transcends the most well-researched post-war period, exploring the transitions between early, mid, and late Francoism. My contributions have situated these debates in their European setting, contextualising them in the religious, sexual, and cultural changes of the 20th Century. As a postdoctoral fellow at the University of Leeds, I am working on a new project that builds on this trajectory. From a post-secular approach, it addresses the complex relationships between Catholicism and the global developments of the sexual revolution, understood as a long process spanning the entire 20th Century. It represents an original intersection between the history of sexuality and the cultural history and sociology of religions and secularisation, traditions that often remain separate. This research line explores the encounters and tensions of Spanish Catholicism with 20th-Century sexual transformations up to the present day, taking into account that conflicts between religion and sexuality continue today, which challenges linear narratives of secularisation. I intend to explore this timely subject from the perspective of History as a socially valuable discipline that helps us understand the present.

Resumen del Currículum Vitae:

I am a cultural historian specialised in the history of sexuality, emotions, and gender in 20th-Century Spain. I graduated with a BA in History from the University of Oviedo (2011), followed by an Erasmus Mundus MA in Gender and Women's Studies (University of Oviedo/University of Hull, 2013). In November 2019, I defended my PhD thesis at the University of Oviedo (sobresaliente cum laude, international mention, extraordinary doctorate award). The thesis was awarded the X Premio AEIHM a tesis doctorales and the Association for Spanish and Portuguese Historical Studies Best Dissertation Prize 2017-2019. It led to the publication of the book Dos en una sola carne. Matrimonio, amor y sexualidad en la España franquista (1939-1975) (Granada: Comares, 2022). Between 2013 and 2018, I was a predoctoral fellow at the University of Oviedo. In 2020, I joined the UPV/EHU as a postdoctoral fellow, thanks to a competitive postdoctoral contract for the specialisation of PhD research staff (2 years). I was also selected for the Juan de la Cierva-Formación 2020 fellowship. I have participated in 2 funded projects, and I am part of the working team of 3 projects under evaluation. In 2019-2021, I was the Principal Investigator of a project with regional and national funding: "Silenciadas, pero no olvidadas. Mujeres y represión franquista en Asturias". The project was conducted in collaboration with FAMYR and led to the publication of a book with the same title and to several public and media outreach activities and invited presentations. I am the author of 2 books, 11 journal articles (2 forthcoming) and 6 book chapters (1 co-authored, 3 forthcoming). I have published in leading journals such as Contemporary European History (Q1), Social History of Medicine (Q1), Ayer (Q2), Hispania Nova (Q2), Bulletin of Spanish Studies (Q2), Cultural History (Q3), among others. My work has received the 2020 Contemporary European History Prize and the International Society for Cultural History Prize Competition 2016. I have organised 1 international workshop (University of Leeds, sponsored by the Past & Present Society), participated in the organising committee of 3 seminars and co-chaired 3 conference panels and 1 seminar session. In addition to presenting papers at conferences in Spain, Italy, Norway, and the UK, I have been invited to present at Spanish, French, English, Czech and Portuguese Universities. I have also given workshops and lectures aimed at a general audience, secondary school students, and secondary school teachers' training. I have reviewed articles for European History Quarterly, Historia Contemporánea, Rúbrica Contemporánea, Historia Social, among others, and I am a member of the Advisory Board of Hastapenak. Revista de Historia Contemporánea y Tiempo Presente. I have over 2 years of international experience, having been a visiting predoctoral scholar at Rutgers University (6 months) and the University of Glasgow (3 months), and a postdoctoral visiting scholar at the University of Lisbon (5 months). In February 2022, I joined the Centre for the History of Ibero-America (University of Leeds) as a Margarita Salas 2-year postdoctoral fellow. I have also received a grant from the Past & Present Society (UK) and the Edith and Richard French Fellowship from the Beinecke Rare Book and Manuscript Library (Yale University, USA).

Área Temática:	**Estudios del pasado: historia y arqueología**
Nombre:	SCUTARU , BEATRICE ANDREEA
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Título:	Ayudas para contratos Ramón y Cajal (RYC) 2022

Resumen de la Memoria:

I am an established historian of Twentieth Century Europe. Doing research at the intersection of Migration Studies, Cold War History, and Childhood Studies, my scientific work has brought innovative understandings of the history of transnationalism, migration, and childhood in post-1945 Europe. I have published extensively on these topics with top-ranked publishers (Routledge, De Gruyter, Berghahn Books) and top-ranked international journals (Childhood, Relations internationales, Journal of European Integration History). I am the leading editor of a book on the history of child migrations on the European continent since the beginning of the 20th century (Routledge, 2020), and co-author of the first synthetic overview of the history of child institutionalisation in France since 1945, published by the leading French publisher Presses Universitaires de Rennes (2023). I have a total of 28 publications in four languages (English, French, Romanian and Spanish): 2 books, 9 peer-reviewed articles, 17 book chapters. Most publications are as sole author, but I have also collaborated with co-authors across countries, languages and disciplines (i.e., literature, political science, sociology, education studies).

As leading PI, the excellence and innovation of my research is demonstrated through my multiple grants from leading funding programmes (more than 250,000 euros to date). My PhD in History (2013) was funded by the French Research Excellence Grant and I was awarded an externally funded postdoctoral fellowship to join a world-leading group of experts in child protection and social regulation (2014/15). I was the PI of a project on national belonging among Romanian migrants, funded by the leading Marie Skłodowska-Curie actions (success rate: 10%) (2015/17). I have written successful grant applications with colleagues to fund my own research position, including the collaborative €1.5 million project with colleagues from the University of Angers, funded by a French regional Scientific Excellence Programme, and as leading partner in a new interdisciplinary COST Action (€ 538,000) on the history of identity documents and migration, funded by Horizon Europe. Throughout my career, I have been very prolific in disseminating my research within and outside academia. I have presented my research over 30 times across multiple scientific events (international congresses, workshops, seminars). I gave keynotes, invited talks and presentations at the most prestigious conferences in History and at top interdisciplinary conferences on migration and childhood (e.g., European Social Science History Conference, International Migration Research Network, Society for the History of Childhood and Youth). Many of these have been delivered in a foreign language (French, English, Romanian and Italian). I actively engage as panel organiser, chair and discussant within these leading conferences and networks. I have also served as external evaluator for top funding bodies, historical societies, publishers and journals.

Resumen del Currículum Vitae:

I am a historian of Twentieth Century Europe, with a specialisation in the fields of Migration Studies, Cold War History, and Childhood Studies. My leadership in these research fields is well reflected through my scientific excellence at all relevant levels of interest, including scientific publications, projects as leading PI, public and scientific dissemination, innovations in teaching and supervision, and international collaborations. This scientific excellence in my research is particularly strong across three key topics to which I have contributed over the last decade: (1) Romanian migration to Western European countries; (2) Transnational relations and exchanges across in the Cold War context; and (3) Child mobility, protection and institutionalisation. By using various pioneering methodologies, drawing on oral sources and archival research, my scientific innovations in my research fields have contributed to readdressing our understanding of the history of transnationalism, migration, and childhood in Europe since the Second World War until today. My career path is strongly international and has enabled me to acquire rich and varied experiences and skills as well as build an excellent research network encompassing Europe and the United States. After having started my BA in history in Romania, at the University Al.I.Cuza from Iasi, I moved to France with an Erasmus-Socrates EU fellowship. It is at the university of Angers that I finalised my BA (2006), MA (2008) and later my PhD in contemporary history (2013). After my PhD, I worked at 3 universities in Ireland (Trinity College Dublin, Dublin City University, Maynooth University), one in Italy (Padua) for a total of 8 years. During my career I have shown great leadership capabilities as well as independence in my research, developing new ideas and leading lines of research funded through highly competitive grants (more than 250,000 euros to date). During the next five years (2024-2029) I will focus on a research project titled Transnational Histories of Child Migration and care in Post-1945 Europe. This project builds on my previous experience and expertise and moves beyond. It will bring together the three research I have been developing until now, the Cold War, Migration and Childhood.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	RODRÍGUEZ HIDALGO, ANTONIO JOSÉ
Referencia:	RYC2022-037802-I
Correo Electrónico:	ajrh78@gmail.com
Título:	Bones, diet, and sociability: The evolution of paleolithic subsistence through archaeological taphonomy.

Resumen de la Memoria:

As a well-respected researcher in the field of human evolution, I have garnered international recognition for my innovative interdisciplinary approach to understanding the complex interactions between prehistoric populations and the animal world. My expertise in archaeology, zoology, taphonomy, and palaeontology has led to pioneering advancements in our understanding of European prehistory, including breakthrough insights into Palaeolithic subsistence, human cannibalism, taphonomic frameworks, and the origin of symbolic behaviour. For 15 years I have dedicated my career to the study of Paleolithic subsistence, consolidating a coherent path to reach my status in the discipline, based on my reputation as an excellent researcher. Proof of this is my regular work as a reviewer for top-level international journals (Sci. Rep.; Quat. Sci. Rev.; Paleo3; J. Archaeol. Sci.; J. Archaeol. Method Theory; among others), and my requirement to being part of thesis committee on this specialty in Spain (6 in the last 5 years). In the field of hunter-gatherer subsistence, I have contributed more than 20 indexed articles (JCR) focused on early hominins in Africa (Olduvai) and Iberia, Lower Palaeolithic hominins (Homo antecessor and pre-Neanderthals), Middle Palaeolithic (Neanderthals) and Anatomically Modern Humans. My proposal is to lead a large-scale project that will explore the roots of modern behaviours from a subsistential perspective. I am currently hired temporarily through a María de Maeztu contract based on this project. For this, I will implement new approaches, based on third generation taphonomy to the Palaeolithic record from Europe and Africa. I will also lead, explorations outside my field of expertise, such as the application of molecular analysis (stable isotopes, paleo proteomics and aDNA) to subsistential problems, strengthening my international collaboration network, which will undoubtedly benefit the projects and institutions of which I am enrolled.

My interdisciplinary approach to research has given me a distinct advantage in my field, enabling me to gain a comprehensive understanding of my research questions. This has allowed me to tackle large-scale, innovative scientific challenges. I aim to use my unique skills and experiences to make a positive impact on the Spanish RD system by transferring my knowledge and expertise through advising and training PhD and PDR students at Spanish RD centers.

Resumen del Currículum Vitae:

My expertise in archaeology, zoology, taphonomy, and palaeontology has led to pioneering advancements in our understanding of European prehistory, including breakthrough insights into Palaeolithic subsistence, human cannibalism, taphonomic frameworks, and the origin of symbolic behaviour.

Throughout my career, I have reached funding opportunities, including 3 of the most competitive research fellowships from the Spanish Science and Technology System, one postdoctoral contract of excellence María de Maeztu, international mobility grants, and 2 international awards, totalling 308.878 €

I have made substantial contributions to the academic community through my 52 conference presentations (16 as leader), co-organization of 3 international workshops, and publication of 119 academic works, including 68 peer-reviewed articles in scientific journals (26 without PhD supervision), 60 of which are indexed (JCR-SJR) and 45% are Open Access.I have also published 45 book chapters (11 as first author), co-authored 1 book and several popular science articles. I have been invited to present my research at prestigious international academic and cultural institutions, including Institut für Naturwissenschaftliche Archäologie/ Uni. of Tübingen (DE), Muséum National d'Histoire Naturelle (FR), and McDonald Institute for Archaeol. Research/Uni. of Cambridge (UK).

With 8 years of postdoctoral experience, I have accumulated 1361 citations, an h-index of 22, and a normalized impact of 2.26 (111% more cited than peers in my field) (source: Sco. Jan. 2023).Throughout my career, I have been involved in 35 R&D projects across Europe, America, and Africa, holding various leadership positions such as principal investigator, research lead, and research line coordinator. These projects were funded by a diverse range of sources, including national agencies (7 National Plan projects and 18 Autonomic Plan projects), European institutions (ERC-StG and European Commission Synthesis Grant), and private foundations, with a total budget of 4,609.065 € As a dedicated advocate of open science, I am honoured to be a member of the Open Science Working Group at IPHES, which aims to facilitate the transition of the centre towards the Open Science paradigm. Finally, as a tenure-track candidate for the Ramón y Cajal Program, I bring expertise in academia: accreditation as Assistant Prof/Lecturer by ANECA, supervision of 1 degree thesis, 5 M.Sc. theses & 3 PhD dissertations. Relevant teaching exp. at UCM & official master's programs (UAB, UAM, UOC-URV), and strong commitment to mentoring young researchers.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	ÉGÜEZ , NATALIA
Referencia:	RYC2022-036901-I
Correo Electrónico:	neguezgo@ull.edu.es
Título:	Adaptation strategies in animal-based subsistence communities

Resumen de la Memoria:

Since 2022 I am a postdoctoral Marie Sklodowska-Curie global fellow - with two years out of Europe and one in return - at the Department of Anthropology at the University of California Davis (USA) (partner institution) and the Archaeological Micromorphology and Biomarkers Laboratory (AMBI Lab), University of La Laguna (host institution), where I am currently carrying out my research project IBERHUNT: Palaeolithic ungulate hunting strategies in the eastern Iberian Peninsula through advanced proteomic profiling (MSCA-IF-2020 101032608). Prior, I was a postdoctoral fellow hired within the ERC Starting Grant DEADSEA_ECO: Modelling Anthropocene Trophic Cascades of the Judean Desert Ecosystem: A Hidden Dimension in the History of Human-Environment Interactions (ERC-2018-STG 802752) at the Department of Maritime Civilizations, University of Haifa (Israel). Earlier, I was employed at the Archaeological Micromorphology and Biomarkers Laboratory (AMBI Lab), University of La Laguna (May 2019-March 2021) within the ERC Consolidator Grant PALEOCHAR: Insights into the Neanderthals and their demise from the study of microscopic and molecular charred matter in Middle Palaeolithic sediments (ERC-CoG-2014 648871). In 2019, I was an invited visiting scholar at the McDonald Institute for Archaeological Research, University of Cambridge, UK. I graduated with a Bachelor in Geography and a Master in Archaeology at the University of Barcelona, and I hold a PhD in Natural Sciences from the University of Kiel (Germany) (2018).

My line of research is entitled "Adaptation strategies in animal-based subsistence communities".
I am a recognised researcher with broad experience in applying and promoting multi-proxy geoarchaeological approaches in a range of Palaeolithic to ethnoarchaeological contexts to study the interactions between human societies and their environment. I have not only built a significant reference collection of contemporary pastoral soils and sediments – essential for understanding present-day societies, climate change, resilience development and migration against climate change, but also I am producing new proteomic research data for ungulate species. My innovative geoarchaeological approach integrates 1) soil micromorphology, 2) lipid compound analysis and compound-specific stable isotope analysis in sediments, 3) proteomic analysis in tooth enamel from ungulates and 4) geostatistics. At present, only very few researchers have the capability to combine these methods together in a holistic, contextualised way. Within this line, I seek to to re-examine the herd composition variation of domestic ungulates to gain information about human adaptation strategies in different environmental settings.

Resumen del Currículum Vitae:

I have developed an expertise in mobile societies (hunter-gatherer and pastoralists) through the application of high-resolution geoarchaeological techniques. I have a solid experience in micromorphology, lipid biomarkers, stable isotope analysis and proteomics to characterise, at a micro- and molecular-scale level, 1) carnivore and herbivore coprolites, 2) animal dental enamel, and 3) archaeological sedimentary records. My publications are among the first research works that illustrate the potential of a multi-proxy microscopic and molecular approach with precise microcontextual control.

I provided significant contributions to archaeological research, with relevant advances in the interpretation of anthropic rich-organic deposits in various archaeological contexts (e.g. Middle and Upper Palaeolithic, Neolithic, Bronze Age and modern sedimentary records) at different locations and geographical settings. Scientific outputs are 16 high-impact peer-review publications, a book chapter and various conference proceedings. I have organised 6 theoretical and hands-on workshops/conferences, and 4 conference sessions. I sought to generate and participate in scientific events to increase my research impact and visibility, partaking in prestigious national and international venues with a total of 18 oral communications (as presenter), and have been invited at 11 more.

My capacity to apply new techniques to archaeological research has led to several on-going collaborations. I have participated in more than 16 projects as a team member. Currently, I am the principal investigator of 4, the latter devoted to investigating the Bronze Age in Mongolia (3000-700 BC), as this was a period of great social interaction and important transformations in Central Asia. In this regard, I am the only Spanish archaeologist leading excavations in Mongolia, with stable long-term collaborations with other teams working in the area, such as the Western University of Kentucky - being the geoarchaeologist in charge of sedimentary analysis within the Western Mongolia Archaeology Project, and Yale University.

Currently, I am developing my Global MSCA IBERHUNT (MSCA-IF-2020 101032608) at the University of California, Davis (partner institution) and the University of La Laguna (host). I hold a PhD in Natural Sciences (University of Kiel, 2018), and throughout my postdoctoral career, I have contributed to three ERC research projects: 1) PALEOCHAR: (ERC-CoG-2014 648871) (principal investigator Dr Carolina Mallol). 2) DEADSEA_ECO (ERC-2018-STG 802752) (principal investigator Dr Nimrod Marom) at the Department of Maritime Civilizations, University of Haifa (Israel); and Domestication in Action (ERC-2017-STG 756431) (principal investigator Dr Anna-Kaisa Salmi), University of Oulu (Finland).

I regularly participate in educational teaching at the faculty level (University of La Laguna, totalling 80 hours). At present, I am the co-director of one ongoing doctoral tesis.

I am fully aware of the importance of outreach activities within the scientific community, and also within the general public

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	SÁNCHEZ CASADO, RAÚL
Referencia:	RYC2022-038232-I
Correo Electrónico:	rscasado@ugr.es
Título:	Ancient Egyptian social strategies for the mortuary cult

Resumen de la Memoria:

My main line of research focuses on the study of religion and cultic practice in the Ancient Egyptian Old Kingdom, especially focusing on its priests and other officiants, from an approach that seeks to cover not only the religious aspects, but also the administrative, social and economic ones. More specifically, I am interested in the study of the interdependence of networks present in Egyptian kinship groups in relation to the mortuary cult of the deceased members. The emergence of foundations aimed at supporting the costs of maintaining the cultural activities of high dignitaries during the Old Kingdom is not only a strategy to maintain the well-being of the deceased in the afterlife, but also constitutes a way of generating and maintaining links of interdependence and patronage networks that survive the death of the employer and last for generations. This process depends on the creation of generously paid positions in the funeral entourage of a given lord, whose memory (and that of his family) will live on within his community.

My research activity is also linked with the archaeological works of the Middle Kingdom Theban Project and the publication of the outcomes of each season (one international paper in English in the German Journal Studien zur Ältagyptische Kultur and one in Spanish in the Boletín de la Asociación Española de Egiptología after each archaeological season). The site of the project is located in the West Bank of ancient Thebes (modern Luxor), between the plain of Asasif and the northern side of Deir el-Bahari, in the area where, at the end of the Eleventh Dynasty, king Nebhepetre Mentuhotep II established one of the most astonishing cemeteries ever known in Egypt. He initiated the development of this area with the construction of his own funerary complex in the heart of the necropolis and the organization of a cemetery for his own high officials and other important individuals from following generations. The tombs of the royal treasurer Henenu (TT 313), the vizier Ipi (TT 315), the royal seal-bearer Harhotep (TT 314), and the bowmen Neferhotep (TT 316) constitute some of the most important targets of study by the project in the upper section of the necropolis, as well as the monuments of Dagi (TT 103) and Djari (TT 366) in the plain of Asasif. Although our main interest is the early Middle Kingdom, due to the continued use of the necropolis, materials from later times also appear. I have already published on ushebtis found in Ipi's complex (Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo 73 (2017), pp. 175-186). On the same topic, I am collaborating with Sergio Alarcón (Harvard University) on the publication of the excavation of the tomb E1, which we expect to finish during the next archaeological season.

Resumen del Currículum Vitae:

My research activity focuses on the study of cultic practice in Old Kingdom Egypt, with a particular emphasis on its social, administrative, and economic aspects. I am particularly interested in the interdependency networks that operated in the management of the mortuary cult and the relationships within ancient Egyptian households. My monograph El servidor del ka en el Reino Antiguo (Oxford 2020) represents a turning point in the understanding of the Old Kingdom mortuary cult, being the first comprehensive work on this key figure. Additionally, I have a line of research based on the analyses of Egyptian mortuary complexes from a diachronic perspective following the concept "re-use" in order to better understand the use and reuse of the necropolis through the time. My research activity is also linked with the archaeological works of the Middle Kingdom Theban Project and the publication of the

outcomes of the archaeological works. Among my scientific-technical contributions I have 12 paper in peer reviewed indexed journals [Antiguo Oriente (SJR Q2), Panta Rei (SJR Q2, CIRC B, MIAR CDS 9.9); MDAIK (SJR Q3, MIAR ICDS 6.5); Habis (CIRC B, MIAR ICDS 10.0); PES (ICDS 5.0); Polis (CIRC D, ICDS 4.5); SAK (CIRQ C, MIAR ICDS 6.5)], one monograph (BAR) and 6 book chapters. I am also the editor of one book (University of Alcalá 2022) and one proceedings (Archaeopress 2021). I have participated in several international (CRE, ICYE, CIE) and national conferences, and I have organized relevant scientific meetings such as the 2019 edition of the Current Research in Egyptology (CRE) and the seminar "The cursed discipline?" both a good proof of my important next of scientific collaborators. I have made a posdoctoral research stay (Paris 2022) and several predoctoral ones in International centres of recognized prestige (U. Oxford 2014, 2015, 2017, 2018 and Freie U. Berlin 2016) where I worked with researchers of recognized prestige such us Juan Carlos Moreno, Richard Parkinson and Joachim Kahl. I am deputy director of the Archaeological mission Middle Kingdom Theban Project (43 members of international institutions more info). The project is funded by various public and private institutions (I+D Project PID2020-114188GB-100; PDC-2021-121406-I00; I+D HAR2017/84505-P; I+D Community of Madrid CM/JIN/2019-006; I+D Community of Castilla- La Mancha SBPLY/19/180501/000267; Gaselec Fundation; Palarq Fundation; Fritz Thyssen Stiftung). Aside from the funding, our project is also active in promoting research by opening positions for researchers. Currently there are 5 researchers working with contracts linked with the project (Funding by the Community of Madrid, Community of Castilla-La Mancha and

"Garantía Juvenil" plans). Also, the project gives grants for UAH students and for members of the Spanish Association of Egyptology for joining one of the archaeological seasons. As deputy director I take part of the selection, coordination and training of the work of these researchers. My international dimension is also highlighted by my role as Chair of the Permanent Committee of the Current Research in Egyptology conference series (2019-2022). This conference series has a high international impact in Egyptology (more info). Also, my edition of the book Priestly officiants in the Old Kingdom mortuary cult (University of Alcalá, 2022), is a proof of my international dimension and relevant scientific collaborators.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	VINCI , MARIA SERENA
Referencia:	RYC2022-037661-I
Correo Electrónico:	serenavnc@gmail.com
Título:	Arqueología de la Construcción. Los procesos constructivos de época romana

Resumen de la Memoria:

Mi trayectoria investigadora se enmarca en el ámbito de las disciplinas de Arqueología de la Arquitectura y Arqueología de la Construcción. Tanto en mi etapa predoctoral, marcada por mi integración en los equipos de investigación del ICAC de Tarragona y por mi colaboración internacional con el ENS de París, como postdoctoral (en Ginebra, Berlín, Burdeos y Madrid) he ido adquiriendo formación específica sobre temas relacionados con el análisis de procesos de construcción y del proyecto arquitectónico en la arquitectura antigua. Mi trayectoria me ha permitido también adquirir conocimientos en el marco de la documentación gráfica en la arquitectura antigua, integrando el utilizo de nuevas tecnologías. Quiero destacar también mi colaboración con grupos de investigación que se dedican a una aproximación arqueométrica de los materiales; concretamente la colaboración con la Unidad de Estudios Arqueométricos (UEA) del ICAC sobre todo en mi etapa postdoctoral en el marco de mi participación como investigadora en varios proyectos I+D+i (véase CV), así como con Laboratorio de Luminiscencia de la Unidad de Geocronología del Instituto Universitario de Geología de la Universidade da Coruña, en el marco del proyecto financiado por la Fundación Palarq.

El estudio de los procesos de construcción en el mundo antiguo me ha llevado a profundizar en dos ramas específicas de investigación: el estudio de las marcas epigráficas, sobre todo sobre materiales de menor prestigio, es decir prevalentemente no ornamentales; el estudio de trazados de proyecto/ ejecución en arquitectura y sobre materiales lapídeos con la finalidad de reconstruir procesos de trabajos y la trasmisión de los conocimientos en época antigua.

Mi línea de investigación seguirá profundizando en temas que se vinculan a estas disciplinas y en particular quiero ampliar el estudio sobre las dinámicas de diseño y organización del proyecto arquitectónico, así como el papel de los talleres encargados de la construcción en las provincias romanas tanto del Mediterráneo occidental como oriental. El punto de partida es considerar el proyecto arquitectónico como una obra en continua evolución, que se adapta o modifica durante la construcción. Sólo el examen de este aspecto del proceso arquitectónico, y por tanto de todos aquellos conocimientos y de la experiencia que formaba parte del bagaje cultural y del savoir faire de los arquitectos y de los talleres, puede ofrecer una percepción global de la arquitectura. Sin embargo, las evidencias relacionadas con el diseño y la organización de un proyecto de construcción sólo se han estudiado en pocos casos y necesitan más conocimientos gracias a un enfoque interdisciplinario. Mediante el estudio combinado de marcas epigráficas y trazados de proyecto/ejecución, adoptaré un enfoque sin precedentes, que utiliza el análisis crítico interdisciplinar para aproximarnos a la concepción de los edificios antiguos. Mi investigación representará un avance en los estudios sobre la construcción romana antigua, al proporcionar un instrumento de conocimiento sobre una etapa de la industria de la construcción y de la organización del trabajo que todavía se aborda con poca frecuencia.

Resumen del Currículum Vitae:

Egresada en Beni Archeologici (Uni. Salerno 2006), 2 máster en Arqueología Clásica (UAB-URV-ICAC 2009 y Uni. Salento 2010) y doctora en Arqueología Clásica (URV 2014), mi trayectoria académica está guiada por la adquisición de formación específica en cuestiones vinculadas a la Arqueología de la Construcción. Mi primer trabajo de investigación (2009) supuso la generación de conocimiento de un área hasta entonces inédita del Foro Provincial de Tarraco (Vinci et al 2014) con importante repercusión internacional (Vinci-Macias 2013). Este primer trabajo sentó las bases de la tesis doctoral realizada en el marco de un contrato de investigación en concurrencia competitiva financiado por GENCAT (2010-2013), sobre el Foro Provincial de Tarraco a partir del análisis pormenorizado de sus técnicas y procesos de construcción, fruto del cual es una monografía (Vinci 2020), varios artículos (Vinci 2012; 2020; 2022), capítulos de libros (Vinci-Ottati 2018) y presentaciones en congresos nacionales e internacionales (Vinci 2013; 2014). A lo largo de esta fase de mi carrera pude establecer una colaboración internacional con la ENS de París (2012), internacionalización afianzada en el período postdoctoral con una estancia en la Fondation Hardt (2015), en Technische Universität y en el DAINST de Berlín (2016). En 2017 obtuve un contrato postdoctoral de excelencia en el Instituto AUSONIUS de Burdeos, financiado por IdEx Univ. Bordeaux (2 años), para el desarrollo de un proyecto propio en el marco del cual estudié un conjunto de marcas de cantera de El Mèdol (JRA Vinci 2019) y de piezas de decoración arquitectónica procedentes de Tarraco (Arq. de la Arquit. Ottati-Vinci 2019). En este contexto se enmarca la co-edición de una monografía (Vinci-Ottati-Gorostidi 2020) y organización de un panel en el congreso AIAC (2018) (Vinci-Ottati 2021), labores que refuerzan mi capacidad de liderazgo. En junio de 2021 me incorporé al Depart. de Prehistoria y Arqueología de la UNED mediante un contrato postdoctoral obtenido en concurrencia competitiva (2021-2023) para el desarrollo del proyecto propio en el que estudio marcas epigráficas sobre materiales de construcción modestos, tema nunca abordado de manera global (Vinci 2022, Vinci e.p.). A la organización, técnicas y tecnología en la arquitectura antigua he dedicado 2 volúmenes del que soy co-editora (Ottati-Vinci 2022), un congreso internacional del que soy co-organizadora y co-editora de actas. De mi período en la UNED quiero destacar también mi papel como co-IP de 2 proyectos de investigación en concurrencia competitiva financiados por la JCCM y la Fundación Palarq, de un proyecto Innov. Docente y la dirección de un curso de Formación Permanente y de una actividad de "Humanidades a Corta Distancia" financiada por la UNED. Estas actividades me han permitido transferir mis conocimientos sobre Arqueología de la Construcción al ámbito docente de Grado y Postgrado. En este mismo sentido quiero destacar mi participación en un programa de Radio para RNE y la creación de contenidos para el ciclo de documentales para TVE creado en el marco del proyecto MarmoRED del que he sido investigadora. En el ámbito docente, imparto docencia de Arqueología Clásica en el Grado en Geografía e Historia y en el Máster de la Facultad de Filología (UNED), habiendo, dirigido 5 TFG y 2 TFM.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	TORREGROSA HETLAND, SARA
Referencia:	RYC2022-037917-I
Correo Electrónico:	sara.torregrosa@unavarra.es
Título:	Historia de los sistemas fiscales y el estado del bienestar

Resumen de la Memoria:

My first research project, the PhD dissertation, analysed the tax reform undertaken during the transition to democracy in Spain, studying the years between 1960 and 1990. I used household surveys, tax statistics, and national accounts to provide an overview of how progressivity, redistribution and inequality changed through the period. The study was an application of modern public economic tecniques to historical data, with results showing an incomplete convergence to European levels and strong persistences in regressivity and inequality. I published this work as articles in international journals, a couple of book chapters in edited collections, and a monograph which came out in 2021.

During my postdoc period (2016-18) I was involved in two projects with international networks. My main dedication was in the Swinno 2.0 - UDIT projects, where I collaborated with Swedish and Finnish colleagues for a comparative study on the public implication in innovation activity between the years 1970 and 2013. This project involved frequent communication of results to Vinnova, the Swedish innovation agency, which was the main funder on the Swedish side.

I have also been part of an international network project on Natural Resources and Development in Andean and Nordic countries, funded by the Swedish Research Council (2017-21). This was a broad consortium of scholars based in Bolivia, Perú, Sweden, and Spain. It has resulted in several publications, including a book in Palgrave in 2021. The project studied the development paths of these two regions, which had similar levels of GDP per capita in the late 19th century, and were also both rich in natural resources – but which diverged dramatically during the 20th century.

In 2018, I won two research projects in open competition as Principal Researcher (one from a foundation related to the Swedish Bank Handelsbanken, and the other from the Swedish Research Council). These provided me with funding for the project "Taxing for the welfare state: progressivity in the rise of social spending (1910-1970)". The aim of this project is to analyse the relation between the tax structure and early welfare state development. While the literature agrees that current extensive welfare states have regressive tax bases, most of it has dealt with quite recent times. We still do not know if the "regressive taxation – welfare state" paradigm applies to the past. The study covers five countries representing different models of welfare state, and will apply modern micro-simulation techniques to study the joint distributive effects of taxes and public transfers.

In 2020, and following the publication of my article on the case of Spain (see publication list), I was contacted by two institutions for conducting studies on tax evasion in personal income taxation. As a result, I wrote a report on tax evasion and inequality in present-day Spain for the Observatorio Social La Caixa, and I initiated collaboration with the Inter-American Development Bank and the Brazilian Tax Administration to conduct a similar study about the case of Brazil. Both studies are yet to be published. The Brazilian Tax Administration has received the results with lots of interest: they have been disseminated internally and will become a part of their regular strategy in the future. I intend to continue developing this line of work in the future.

Resumen del Currículum Vitae:

I am an economic historian with a main interest in taxation and inequality topics. I graduated in History from the University of Alicante in 2009, with a National Academic Excellence Award (Premio Extraordinario a la Excelencia Universitaria) by Spain's Ministry of Education in 2011, and the regional equivalent by the Generalitat Valenciana in 2010.

I then went on to study a master's degree in Economic History jointly conducted by the University of Barcelona, the Autonomous University of Barcelona, and the University of Zaragoza. I joined the University of Barcelona in the autumn of 2011 as a pre-doctoral scholar with an FPU scholarship, and completed my PhD in January 2016. My dissertation analysed the tax reforms undertaken during the Spanish transition to democracy. It was awarded as best thesis in Economic History at the University of Barcelona in 2018 (Premio Extraordinario de Doctorado). During my PhD, I conducted three research stays, two of which abroad.

After the PhD I obtained a postdoc position in the Department of Economic History at Lund University, which is recognized as one of the best in the world. I first worked within a comparative project on innovations in Finland and Sweden, led by Astrid Kander, where I investigated on the public promotion of innovative activity. In 2018, I won two competitive research projects as a principal investigator for further studying taxation and welfare state development. These projects cover the trajectories of five Western countries between 1910 and 1970, and are conducted with a fellow researcher currently employed at the University of Barcelona.

I won an Assistant Professorship position at Lund University in February 2022 (currently on leave), and I joined the Universidad Pública de Navarra in January 2023 as a Profesor Ayudante Doctor. I am accredited by ANECA as Profesor Ayudante Doctor (February 2023), and by Lund University as "Docent" (which is equivalent to Associate Professor; December 2021).

My professional career has been interrupted by two extended periods of parental leave, in 2017 and 2019.

My work has been published in prestigious journals and publishing houses, with a total of 8 peer-reviewed journal articles, 6 book chapters, and one book, as well as further publications. Some of the journals I have published in are European Review of Economic History, Research Policy, and Revista

de Historia Económica / Journal of Iberian and Latin American Economic History. The impact my publications can be assessed through an increasing number of citations, currently totalling 178 in Google scholar (h-index: 7; i10 index: 6). I have written articles both as a solo author and with several different co-authors.

Despite my young academic age, I have obtained an international recognition as a scholar. This is shown by requests for refereeing articles and reviewing books in top journals, my election to the board of the Spanish Economic History Association in 2018 and to the Editorial Board of the journal Investigaciones de Historia Económica / Economic History Research in 2019, as well as several invitations to present at seminars, discuss my research in podcasts, and participate in dissemination initiatives. I have also collaborated with the Inter-American Development Bank as a consultant since 2021, and I am Senior Fellow at Future Policy Lab since its creation in 2022.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	JIMÉNEZ HIGUERAS, ÁNGELES
Referencia:	RYC2022-037397-I
Correo Electrónico:	ajimenezhigueras@ugr.es
Título:	Arqueología del Paisaje en la necrópolis Tebana (Luxor, Egipto)

Resumen de la Memoria:

Obtuve mi Licenciatura en Historia en la Universidad de Granada en 2003. Después me trasladé a Reino Unido para estudiar Egiptología en la Universidad de Liverpool, donde obtuve el Máster con la tesis titulada "Soil funerary architecture at the Theban necropolis of Dra Abu el-Naga, 18th-20th Dynasties" (2008). En 2016 obtuve el doctorado en Egiptología con la tesis titulada "Development and Landscape of the Sacred Space at Dra Abu el-Naga: A case study within the Theban Necropolis" (supervisada por Dr Ian Shaw y Dr Violaine Chauvet).

A lo largo de mi carrera académica he realizado numerosas estancias en las bibliotecas Bodleian y Sackler y en el Griffith Institute de la Universidad de Oxford (un total de 28 meses, contando 14 estancias desde 2009 hasta 2022). Estas estancias de investigación han sido transcendentales para mi carrera predoctoral y postdoctoral, especialmente porque he podido consultar materiales de archivo sin publicar que han sido cruciales para mi investigación.

Mi extensa experiencia en Egipto ha sido esencial para mi carrera académica. He trabajado durante 13 campañas en la necrópolis tebana, en el cementerio de Dra Abu el-Naga como miembro del "Proyecto Djehuty" (2010-2022). También fui la directora de un proyecto de investigación "The Sacred Landscape of Dra Abu el-Naga" en 2013 (financiado por la Asociación Djehuty mientras estaba haciendo el doctorado en la Universidad de Liverpool). Desde 2022 soy la co-directora del proyecto "Escribas del Reino Nuevo" junto con Lucía Díaz (CSIC), en cuyas campañas arqueológicas de campo en 2021 y 2022 he participado.

En lo que se refiere a mi historial de publicaciones, me gustaría destacar dos monografías: "The Sacred Landscape of Dra Abu el-Naga during the New Kingdom: People making Landscape making People" (Brill 2020) y "A Prosopographic Study of the New Kingdom Tomb Owners of Dra Abu el-Naga" (Archaeopress 2022).

Actualmente estoy trabajando en el Departamento de Prehistoria y Arqueología de la Universidad de Granada como investigadora "Juan de la Cierva Incorporación".

Con respecto a mi línea de investigación, esta abarca dos temas:

1. Estudio de la distribución del territorio de Sheikh Abd el-Qurna (Luxor, Egipto). Esta investigación contribuirá al estudio de la reconstrucción del paisaje de Sheikh Abd el-Qurna durante el Reino Nuevo, específicamente durante la dinastía XVIII. Esta necrópolis ha sido ampliamente investigada, pero hay ciertos aspectos relacionados con la organización de su territorio, urbanismo y paisaje sagrado que pueden ser mejorados mediante el uso herramientas digitales y nuevas metodologías que he empleado a lo largo de mi carrera. Al llevar a cabo este estudio, trataré de complementar las aproximaciones tradicionales empleadas en el estudio de la necrópolis tebana en las que la investigación arqueológica del paisaje antiguo ha sido frecuentemente olvidada o vagamente considerada.

2. Creación de un sistema topográfico unificado consistente en coordenadas UTM que podrá ser utilizado por todas las misiones que trabajan en la necrópolis tebana. Actualmente estoy colaborando con varias misiones arqueológicas internacionales para poder aplicar el modelo de investigación y la cartografía digital que creé para mi tesis a sus áreas de estudio y para producir un sistema topográfico unificado en coordenadas UTM que pueda ser usado por todas las misiones.

Resumen del Currículum Vitae:

Obtuve mi Licenciatura en Historia en la Universidad de Granada (2003), y en la Universidad de Liverpool obtuve mi Máster en Egiptología (2008) y me doctoré en esa misma disciplina (2016). Actualmente estoy trabajando como investigadora "Juan de la Cierva-Incorporación" en el Departamento de Prehistoria y Arqueología de la Universidad de Granada (2022-hasta la fecha). Esta carrera académica se ha visto enriquecida por una serie de trabajos en excavaciones arqueológicas, colaboraciones con museos e investigaciones en instituciones reconocidas internacionalmente. He trabajado en el Museo Histórico de Priego de Córdoba y colaborado con el Museo de Manchester y el Griffith Institute (Universidad de Oxford). Como arqueóloga, he llevado a cabo numerosas actividades en Andalucía como directora, técnico y como empleada en empresas de arqueología, así como autónoma. He colaborado con varios equipos internacionales de excavación, por ejemplo en Lattes (CNRS, Francia 2022) y en el cementerio de los constructores de las pirámides en Giza (Egipto 2003). Pero ha sido en el "Proyecto Djehuty" (CSIC) donde he desarrollado mi carrera como egiptóloga como miembro activo del equipo desde 2010 hasta 2022. También he dirigido un proyecto de investigación en Tebas (Egipto): "The Sacred Landscape of Dra Abu el-Naga" (Universidad de Liverpool 2013). Desde 2022, soy la co-directora del proyecto de investigación "Escribas del reino Nuevo" con Lucía Díaz (CSIC) en el cementerio tebano de Sheikh Abd el-Qurna.

Mi formación se ha visto beneficiada por estancias de investigación en la biblioteca Sackler y en el instituto Griffith. Estas estancias me han dado acceso a materiales relevantes para el desarrollo de mi investigación. Me gustaría resaltar mi participación en congresos nacionales e internacionales: varias ediciones del "Congreso Ibérico de Egiptología" (4º-Lisboa 2010, 5º-Cuenca 2015, 6º-Madrid 2018, 7º-Buenos Aires 2022), el seminario "Profane Landscapes, Sacred Spaces" (Praga, 2014), el "12º Congreso Internacional de Egiptología" (El Cairo 2019), y el "Congreso Internacional de Arqueología del Paisaje-LAC2020" (Madrid 2021).

Me gustaría mencionar mis dos monografías: "The sacred Landscape of Dra Abu el-Naga during the New Kingdom: People making Landscape making People", Brill (2020); "A Prosopographic Study of the New Kingdom Tomb Owners of Dra Abu el-Naga", Archaeopress (2022). Estos libros son el resultado de mi línea de investigación sobre la arquitectura funeraria y la arqueología del paisaje de Dra Abu el-Naga.

La consecución de los objetivos de mi investigación ha requerido de una aproximación multidisciplinar, como reflejan varias publicaciones con colegas de diferentes disciplinas, como geología, topografía, cartografía, arqueología y Egiptología. Me gustaría destacar mi participación en varios proyectos de investigación financiados por instituciones nacionales e internacionales.

Desde que empecé en la Universidad de Granada he impartido varias asignaturas de arqueología y Egiptología. Mi experiencia docente incluye también mi colaboración con dos proyectos de innovación docente y la supervisión de tesinas de grado y de máster. Tengo dos líneas principales para mi

investigación futura: completar los análisis de visibilidad llevados a cabo en Dra Abu el-Naga y el estudio de la distribución territorial del área de Sheikh Abd el-Qurna.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Estudios del pasado: historia y arqueología
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Correo Electrónico:	tejedor.cristina@gmail.com
Título:	MEGA-LIFES: Biografías y osteobiografías de los monumentos megalíticos y sus poblaciones usuarias en el valle del Duero (IV y III milenio a.C.)

Resumen de la Memoria:

I am a prehistorian and archaeologist. My trajectory as a researcher are characterised by interdisciplinarity, internationalisation, innovation, coherence of research lines and commitment to the dissemination and transfer of knowledge. These features are the result of my individual research, teamwork in R&D projects, as well as different research stays and other partnerships with different scientific groups.

My research stands out in the area of megalithic studies. My main working tools are the sistematic study of the stratigraphy-materiality-context association and the chronometric and chrono-stratigraphic analyses, with special interest in the implementation of Bayesian statistics.

In my PhD, I explored the biographical approach to the interpretation of megalithic monuments, implementing a chronometric methodology and a cross-border perspective (Spain/Portugal). In this work I applied, for the first time, Bayesian modelling to the Megalithic monuments of the Spanish Northern Plateau and the Portuguese Douro. Thus, I was able to demonstrate the existence of different phases of activity in these megalithic monuments (N=180), through the chrono-metric analysis of the available radiocarbon dates (N=120). At the same time, I worked on my own biographical theoretical-interpretative approach, which I have further developed during my career, thanks to the chrono-stratigraphic analysis of the architectures, contexts, material culture and ossuaries of more than 200 megalithic monuments in cross-border territory.

In the project "MEGA-LIFES: Biographies and osteobiographies of megalithic monuments and their user populations in the Douro Valley (4th and 3rd millennium BC)", I intend to achieve the most comprehensive understanding possible of megalithic biographies, both at the individual and of monument scale. MEGA-LIFES pursues three main challenges: (1) proposing an interpretative model on the diachronic variability of funerary-ritual practices and of the politics of death, in regard to geographical and chronological context; (2) assessing if there is indeed a diachrony of inequality, identifying possible selective and differentiated patterns of access to these burials; (3) developing and disseminating appropriate and renewed methodological protocols for the excavation, documentation and post-processing of the archaeological record from the megalithic contexts.

To achieve these goals it is necessary to re-evaluate all the information recovered from the megaliths and their ossuaries, with innovative methodologies and a diachronic, interdisciplinary and transversal approach. Only in this way, to identify patterns of continuity and change in funerary-ritual behaviour during the use of this megaliths as burials and ritual sites will be possible. So, is it possible to distinguish different generalised cycles of use in the Megalithism? Was there a selective and differentiated pattern of access to the megalithic ossuaries? Did this pattern change over time due to the new socio-ideological and political strategies of the user populations? These are some of the research questions I will try to answer, proposing new interpretative hypothesis that challenge the not so innocent traditional discourses on the continuity and the equality in megalithic societies, assuming some theoretical premises of the Archaeology of Identity and Gender.

Resumen del Currículum Vitae:

Currently, I am a postdoctoral researcher Juan de la Cierva-Incorporation in the Department of Prehistory at the University of Valladolid (UVa), where I also teach. Since my BA in History by UVa, I started a research career with more than fifteen years of experience. The Extraordinary BA and PhD Awards allowed me to get pre- and post-doctoral fellowships, which have led me to work in renowned research centres such as the Institute of Heritage Sciences (Incipit) of the National Research Council (CSIC), and to carry out several research stays abroad.

Since 2006, I am part of the research team Arcadia-FUNGE, led by Professor Manuel Rojo-Guerra (UVa). The intensive scientific activity of my team has allowed me to achieve a solid leadership background in field archaeology and team management, assuming the scientific-technical co-direction of 31 archaeological interventions in 6 regional, 6 peninsular and 2 extra-peninsular sites.

As PI and co-IP, I have led 23 projects, with a total amount of €624.857,14, including 13 competitive research projects, grants and fellowships, as well as 10 agreements and contracts with the Administration and other public-private bodies. It is also remarkable my participation in 19 (2 regional, 12 national and 5 international) projects, funded by renowned national and international programmes (€4.583.174,57). This experience has enabled me to build and consolidate a broad network of national and international partners.

The result of this research experience are the 67 scientific publications of which I am co-author, main author or single author: 13 in indexed journals with a high impact factor, 25 articles in other scientific journals, 8 books (2 as coordinator) and 26 book chapters. I have also authored 26 technical reports. Most of these publications are open access and the data used are available as supplementary information. Furthermore, I am the author of 60 conference papers (44 international and 16 national) and invited speaker at 14 sepecialized meetings on Neolithic and Megalithism. I have also organised several sessions at 5 international and 3 national conferences and I have been part of the organising committees of 3 scientific meetings. The impact of my scientific production is quite high (02/07/23 WOS H-index 7 Cit. 182, GSc H-index 18, Cit. 879). The success and impact of my scientific production is also supported as expert reviewer for the Spanish State Research Agency (AEI), as well as external reviewer for 5 national and 3 international journals. Since 2021, I am the editorial secretary of the journal BSAA Arqueología.

My academic experience includes 270 hours of oficial teaching and the supervision of several Bachelor's Degree Final Projects (TFG).

My background in the area of scientific transfer and outreach has always been linked to a concern for the management, dissemination and enhancement of our historical and cultural heritage, coordinating and collaborating in nearly fifty knowledge transfer and outreach activities.

Therefore, these achievements show that I am a strong candidate to consolidate my research trajectory with a RyC Fellowship, which will help me to continue my research lines, strengthen and increase my team and my partners network and give me new opportunities to undertake new research projects.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	FLORENSA RODRÍGUEZ, CLARA
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Título:	Science under Francoism

Resumen de la Memoria:

I am a leading expert in the history of science during Francoism. Through different case studies, I have analyzed the role of science in the making of ideologies, the political aspects embedded in the production of scientific knowledge, and the role that science plays in the construction of ignorance in the public sphere. I have contributed to create new research agendas, such as the study of popular science in dictatorships(Special Issue, History of Science, 2022).

My publishing record is strong (1 book (forthcoming), 3 Special Issues, 10 papers in indexed journals, 4 papers in conference proceedings and 3 chapters in edited collections). I have published in Q1 indexed journals with high impact and recognition in my field of expertise, such as History of Science. My work has been cited in works published by prestigious houses such as the Cambridge University Press, and Q1 journals such as the British Journal for the History of Science. My number of citations is 72, my h-index is 4 and my i10-Index is 1 (Google Scholar).

My PhD research (2012-2017, FI fellowship, Cum Laude, International Mention) at the Autonomous University of Barcelona (UAB) analyzed the use of evolutionary theories in the writings of Francoist ideologists and their circulation in the public sphere. My thesis challenged traditional histories of Francoism. During my PhD, I was Visiting Student at the Hist. and Phil. Department, Cambridge Univ. In 2019 my dissertation was awarded two prizes: the Outstanding Doctorate Award (UAB) and the Vicens Vives Award on Contemporary History 2019 (IEC) (4.200€). The book based on my thesis is published by CSIC (2022, forthcoming).

After my PhD, I won a Tenured Lecturer position (Profesora Titular) at the Private University Escoles Universitàries Gimbernat (Spain) (Sept. 2017-Jan. 2020). There, I started studying the narratives on nuclear risk in Franco's Spain through new sources about the Palomares nuclear accident (1966). With the science-diplomacy aspect of my case study I participated in a two stage workshop Japan 2018 / Greece 2019 funded by the H2020 InsSciDE project WP6. Since then, I have supervised 4 MA and 2 PhD theses at the UAB. I have successfully obtained research funds for my own research projects from different sources.

Since January 2021 I am Principal Investigator of the project "Broken Arrow 29 (Spain, 1966): Radioactive contamination and science diplomacy during the Cold War" as Scientific Researcher at the CIUHCT, University of Lisbon. My current research approaches the diplomatic role of science and scientists in nuclear accidents and sheds light into the political and social aspects involved in the negotiation of radiological protection standards. With this research, I have started collaboration with the H2020 ERC Living With Radiation (Erlangen Univ.).

I have disseminated my research at more than 45 conferences and workshops in 12 countries. I have been invited as keynote speaker at an international and at a national conference (2020 ESHS conference; 2020 SCHCT Conference). I am deeply committed to make my research available to the general public. I have given numerous popular talks and written popularization pieces and my research has featured in the general media (e.g. Catalunya Radio, Betevé, El Periódico, DMAX documentaries).

Resumen del Currículum Vitae:

After 10 years of research experience, I am a leading expert in the history of science during Francoism. My research has challenged current historiographies of Francoism (Florensa, C. Franco vs Darwin. CSIC, forthcoming). I have also contributed to create new research agendas, such as the study of popular science in dictatorships, situating the case study of Francoism in the international historiography (Special Issue, History of Science, 2022). My ground-breaking idea of studying Francoism with the methodological framework of Agnotology (de study of ignorance) earned me a keynote invitation (ESHS Bologna 2020), which will be published as a paper in Centaurus (forthcoming).

I have coedited 3 Special Issues, published 10 papers in indexed journals, 4 papers in conference proceedings and 3 chapters in edited collections (CSIC, Icaria, Catarata). The quality of my research is validated by the excellence of the publishing houses and journals in which it has appeared: I have published in indexed journals with high impact and recognition in my field, such as History of Science, Culture and History Digital Journal, Centaurus, and Dynamis.

The interest and circulation of my research work shows in its citations. My work has been cited in reputed journals such as the British Journal for the History of Science (Q1), Historical Studies in the Natural Sciences (Q2), and Science in Context (Q2), and in books published by prestigious houses such as the Cambridge University Press. My number of citations is 72, my h-index is 4 and my i10-Index is 1 (Google Scholar).

I have secured funding for my own research projects and to attend highly selective courses and schools from different sources in Spain, Portugal, Italy, UK, Denmark, Germany and the US (e.g. Welcome Trust, the National Science Foundation). I have leaded two research lines in a MINECO project and I am currently PI of my own project "Broken Arrow 29 (Spain, 1966): Radioactive contamination and science diplomacy during the Cold War" as Scientific Researcher at CIUHCT, with funding of the National Foundation for Science and Technology in Portugal.

I have co-supervised 4 MA thesis (one awarded the Catalan Society for the History for Science prize to the best MA thesis) and I am currently co-supervising 2 PhD thesis, at the Autonomous University of Barcelona (UAB). My research work has attracted visiting students to the CIUHCT, Univ. of Lisbon. There, I have supervised two PhD candidate visiting students.

I have disseminated my research in several ways. I have presented papers in numerous conferences, workshops and seminars (over 45), both international and national. Since 2018, I am a member of the "Red de científicas colaboradoras de El Periódico". I have written 18 popularization papers in media such as Saberes (an iniciative of high-quality popularization of history of Science for teachers and the general public). I have given 10 popularization talks in different spaces such as Civic Centres (e.g. Vil·la Urània) and the radio (Catalunya Ràdio) and DMAX documentaries. I have also managed knowledge transfer initiatives to make academic knowledge in my field available to society by using new technologies such as QR codes and virtual maps, with funding of the Barcelona City Council and the British Society for the History of Science.

Resumen de la Memoria:

Since the very beginning, I have developed an independent and innovative research line devoted to build a comprehensive and multidisciplinary archaeological approach to human-animal interactions. Line that I continued during my postdoctoral career, in which I have been successful in obtaining different fellowships (National and Regional calls). During these contracts, I have provided new insights about the characteristics and nature of ancient livestock practices and animal translocations in the Ancient Mediterranean World. I have directed different zooarchaeological and field projects and collaborated as specialist with several international projects.

My research line has focused in three main aspects: 1) Zooarchaeology of Ancient Mediterranean World; 2) Island archaeology as analytical units for the study of socio-cultural transformations and cross-cultural interaction; and 3) Applied (Zoo)archaeology addressed to develop new ways to use archaeological and historical data to improve management and restoration of threatened habitats like islands.

Related to these lines of research, I have already obtained interesting results that have been published in the most important journals of the field of archaeology and bioarchaeology, such as J. Archaeol. Sci. and also in multidisciplinary journals such as Radiocarbon. The main results in this line are:

-To demonstrate that humans played a key role in the extinction of the endemic mammals of the islands of the Western Mediterranean (Bover et al. 2016; Valenzuela et al. 2021), occurring asynchronously and in a punctuated way. This opens an interesting line of research on establishing when these extinctions occurred and their ties with the historical contingency of each area.

- I have documented the earliest human-mediated introduction of several species, defining their sociocultural significance (e.g., identity and status) and, in some cases, their catastrophic ecological consequences (Valenzuela & Alcover, 2013, 2015; Valenzuela et al. 2016; 2021).

-To demonstrate new methodological approaches for the identification of fishing techniques of seashells (Muricidae) that in the Ancient Mediterranean world played a key role for the important industry of the purple dye production (Valenzuela, 2015).

- To demonstrate the early technological transfer of innovative agricultural tools in the Roman times such as the bone anvils for the confection of serrated sickles, closing a classic debate about their pre-medieval arrival to this part of the Mediterranean (Valenzuela et al. 2016).

Overall, my research has contributed to shed light into usually neglected topics in Classical and Late Antique archaeology such as human-animal interactions. My research is innovative with projects and publications that involve the highest quality of scientific research and provides new perspectives and opportunities for expanding the use of traditional archaeological and other historical data to generate more informed baselines for contemporary global challenges such as ecological restoration and loss of biodiversity. Such research track is almost unique, and my high interdisciplinary profile has enabled me to achieve a position of leadership in my field.

Resumen del Currículum Vitae:

I finished my PhD dissertation in 2015 at the Universitat de Barcelona (Spain) under the coverage of the JAE-Predoc program and developed at the Mediterranean Institute for Advanced Studies (CSIC). During my postdoctoral stage, I have concatenated two highly-competitive postdoctoral contracts: first a Juan de la Cierva-Formación in the Universitat de Barcelona (2017-2019) and then a senior postdoc Vicenç Mut in the Universitat de les Illes Balears (2020-2022). Along with this, I have made several international research stays in various institutions across Europe (e.g., UK and Portugal).

To date my scientific production has resulted in the publication of 15 peer-reviewed journal articles (+2 under revision), 10 book chapters (+1 under revision), 1 book, and 35 technical reports. My capacity to lead most of this research is seen, for example, in the rate of papers signed as first author (84%), and alone (J. Archaeol. Science). I have also been invited as peer-reviewer for several leading journals and publishers in my field and edited special issues.

This research activity has been disseminated in a total of 25 international conferences and seminars, 5 of which by invitation (Sheffield, Porto, Granada, etc.). I have co-organized 2 international events and I will co-organize another in 2022. I have also participated in knowledge extension and dissemination activities related to Zooarchaeology, creating public awareness and enhancing the visibility of this research field.

To date I have directed and co-directed 12 competitively-funded research projects, raising a total of about 336.000€ and involved as a research member in 15 (national and international teams). I have directed and coordinated 12 archaeological field excavations in the Balearic Islands, managing international (UK, Italy, and Switzerland) and national teams of graduate and undergraduate students. I have also leaded, as coordinator of the bioarchaeological research, the sampling and analyses of zooarchaeological remains in field campaigns for several national and international teams (e.g., U. Sheffield and Nottingham in the UK and CIBIO in Portugal). This background attests my team work and leadership skills in international and interdisciplinary projects.

At the same time, this international exposure has allowed me to establish a solid and extensive network of collaborations. This is supported by several on-going collaborations with leading researchers in stable isotopes (CSIC-IMF), ancient DNA (U. Oxford & ARAID), geometric morphometrics (MNHN), and dental microwear (U. Poitiers), and with the participation in different international research groups, such as BIOARCH and the Conservation Paleobiology Network. I am also close collaborator of the Zooarchaeology Laboratory (U. Sheffield, UK) and associate member of the Institute of Archaeology and ERAAUB of the University of Barcelona (Spain).

My teaching experience includes pre-doctoral and MA courses in the U. de Barcelona and in the U. de les Illes Balears as well as several masterful lectures, courses and seminars. I have directed 4 Master dissertations (2 in UK and 1 in Portugal), and I am directing 1 PhD Thesis. I have taken part in PhD juries and participated as supervisor for international graduate and master students.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	SERVERA VIVES, GABRIEL
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Título:	Beyond the "Balearic Paradox". New tools and approaches to detect human colonization in island environments

Resumen de la Memoria:

My research line has mainly been centred on 4 complementary research topics, described extensively: 1) island archaeology, island colonization and islandscapes; 2) high spatial and temporal resolution paleoenvironmental studies and interdisciplinary profile, 3) integrated archaeobotanical approach; 4) actualistic palynological approaches to generate new research tools and strategies. My research during the past 5 years has specially been focused on detecting human activities on sedimentary sequences through pollen analysis in island environments and how they produce Mediterranean landscape mosaics.

The research line I would like to develop in the near future is focused on the study of Mediterranean islands colonization and how we can use renewed methodological and theoretical approaches to understand the discovery, frequentation, and colonization processes in islands. Our paper on the Addaia sequence (Servera-Vives et al., 2018) showed how palynological research point out the possible colonization of the Balearics at least 700 to 1000 yr prior to the accepted date proposed by archaeological literature (ca. 2500-2200 BC), suggesting that further research needs to be placed on this topic to finally overcome the "Balearic Paradox" issue that highlights the relatively late human arrival compared to the Mediterranean context.

Huge efforts are going to be made to develop innovative and comprehensive approaches integrating palaeo- and archaeological research in the perspective of island archaeology. In doing so, we will use a holistic approach combining pollen, NPP, fire-history, sedimentology, geochemistry, high-resolution radiocarbon dating and sedimentary DNA to decipher a potential Neolithic settlement in the Balearic archipelago. Low-impact or mobile practices are hard to detect in palaeoenvironemental sequences, this is why a high-analytical resolution is essential to stablish the "from influence to impact" sequence. We plan to apply this approach in different Balearic sequences but also compare the results with other Mediterranean island research. In this sense, we also envisage to perform at least one coring in Sardinia, where human occupation is clearly detected during the whole Holocene, therefore allowing us to calibrate our approach based on different archaeological and ecological realities.

I also plan to further develop our study on modern pollen and NPP analogues to establish specific anthropogenic pollen indicators (API) for the study area that may help us to further understand prehistoric human practices and landscape transformation through time in relation to agropastoral activities. This approach is essential to better detect early colonisation in island environments where generalist and classical approaches fail. As an extension of the modern analogues work in the Balearic Islands, I will also study non-pollen palynomorphs (NPP). This work pretends to propose ecological conditions for the NPP encountered in the different locations and stablish the link with human activities and ecological conditions. Furthermore, I am planning the study of specific fire-NPP indicators. Fire is a key element to modify environments and highly related to agropastoral practices. An integrated fire history and NPP research may shed light on early agricultural practices in islands.

Resumen del Currículum Vitae:

My research is focused on long-term human-nature interactions in Mediterranean island ecosystems and mainland mountains environments and integrated archaeobotanical studies, using archaeology and palynology. I have also carried out a part of my research career working on archaeological social processes, household archaeology and palynological actualistic research (modern pollen and non-pollen palynomorphs analogues). I developed my PhD thesis in the University of Limoges with an international co-direction. In 2015 I won the Jean Claude Cassaing PhD Awards (Unilim), proving the quality of my work during my doctoral phase. I co-directed 6 research projects since 2006, supported by a range of small and medium sized grants, totaling 255,729€ I co-directed four archaeological campaigns in Balearic prehistoric sites. I have co-authored 15 articles in international and national scientific journals, 18 book chapters and 20 scientific/technical reports. I have delivered 34 oral communications (15 as first author), presented 5 posters, and gave 6 talks as invited speaker. During my postdoctoral career, I had four long-term contracts (Juan de la Cierva Formación/Incorporación, Vicenç Mut programs, and MSCA-IF) and a six-month international research stay (Castillejo Program/MECD) at the Laboratorio di Palinologia e Paleobotanica —UNIMORE- in Italy (hereafter LPP). My current accumulated research experience abroad is 30 months as postdoc (Italy) and 36 months as PhD student (France).

I co-directed 3 open-days journeys at Closos de ca'n Gaià; I co-designed and developed a workshop for families to explain prehistoric agriculture and one about plant uses during prehistory using printed 3D pollen models; co-organized 5 international congresses and 1 virtual seminar on Open Access publishing with the Marie Curie Alumni Association; participated different outreach activities carried out at local Museums and Local Studies journeys.. I also participated to technological innovation processes by being co-developer of an open-source ImageJ macro (OLEAtool), a new tool for morpho-palynological studies; and contributed to other knowledge transfer activities by using atmospheric pollen to create allergenic pollen calendars in the frame of a Climate Change Insular Direction (CAIB)-UIB collaboration.

I see teaching activities as a way of science communication and to promote scientific vocation. In this sense I taught 265h to undergraduate, master and PhD students in Spain, Italy, and France (degree of History. This allowed me to receive the accreditation as Profesor Contratado Doctor (2019) by the AQUIB. I supervised 40h of training on palynology of an Erasmus student (UIB), a Bachelor and a Master Thesis (University of Modena); currently supervisor of 3 Bacherlo thesis and 1 PhD thesis. I'm reviewer of the Spanish Research Agency (AEI), and I was reviewer for The Holocene, Sustainability, Palynology and Journal of Island Studies, and Guest Editor to the Journal of Coastal and Island Archaeology, Sustainability and Quaternary. I was founding member and supervisor of a Working Group on Bioarchaeology of the Archaeological Section of the CDLIB. I am also part of the Editorial Board of Frontiers Ecology and Evolution as Review Editor.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	TEJERIZO GARCÍA, CARLOS
Referencia:	RYC2022-036226-I
Correo Electrónico:	carlosteje@gmail.com
Título:	Early medieval peasant-based societies in Western Europe

Resumen de la Memoria:

My main research line focuses on the history of pre-industrial peasant-based societies in Western Europe and the anthropological analyses of their capacity of resilience, resistance, and transformation in long duration processes, specially focusing on the post-Roman and early medieval times. I have developed this line of research through a multidisciplinary approach entailing a critical dialogue between documentary and archaeological sources that has contributed to advance the knowledge of early medieval peasantries. For that purpose, I have centred my research in the analysis of topics related to pre-industrial peasant-based societies such as settlement patterns, economy, social inequalities, or rural domestic architecture while building new strands of theoretical frameworks within the sphere of Critical Social Theory. I completed my doctoral studies with a FPU Grant at the University of the Basque Country in 2016. This research focused on the history and archaeology of early medieval peasantries in the Duero valley, which was published in 2017 with great reception within the academia. One of the key elements of the research was to carry out a theoretically informed, comparative approach, with a particular focus on the northern European contexts. This was achieved by means of two research stays, one at the University of Oxford under the supervision of Helena Hamerow (2012), and another at Université Paris 1-Sorbonne, under the supervision of Anne Nissen Jaubert (2013), both leading figures in the field of early medieval history. Since I finished my PhD, I have carried out my main research line regarding the history of pre-industrial peasant societies through three different strategies: 1) making comparative studies with other territories within the Mediterranean basin; 2) expanding the chronological scope to understand the history of peasant-based societies in the long duration, which allowed me to engage with current societal concerns such as sustainability or rural depopulation; 3) elaborating new theoretical and methodological tools to further our understanding of peasant-based societies, mainly considering the role of the state and peasant agency in the construction of early medieval polities. To purchase these aims, I have expanded my career through a series of postdoctoral grants awarded in competitive calls. First, a postdoctoral fellowship (2017-2019) funded by the Xunta de Galicia at the Institute of Heritage Sciences (Incipit, CSIC) under the supervision of Alfredo González Ruibal. This fellowship included two one-year stays at Binghamton University (USA; 2017) under the supervision of Randall Mcguire and the Universidad Nacional de Catamarca (Argentina; 2018) supervised by Alejandro Haber. Once completed, I successfully obtained a post-doctoral contract (2020) at the University of the Basque Country within the Grupo de Investigación en Patrimonio y Paisajes Culturales led by Juan Antonio Quirós Castillo, through which I could expand my research by introducing new comparative case studies. In 2021 I obtained a position as Profesor Asociado at the Universidad Carlos III de Madrid in the Department of Humanities. Finally, I successfully applied for a Marie Sklodowska-Curie Individual Fellowship, which I am currently developing at the Università degli Studi di Genova (Italy) under the supervision of Anna Maria Stagno.

Resumen del Currículum Vitae:

My CV demonstrates a consolidated research position in peasant studies with a strong international projection and leadership capacity, built upon a successful record of grants and projects, a track of contracts and stays in leading research centres worldwide, a sustained effort in the organisation of research events as well as outreach and dissemination activities, and the development of international scientific networks. I have directed three research projects, including a European funded Marie Sklodowska-Curie Individual Fellowship, and actively contributed as researcher in six national and international projects all of them related to medieval history. My work has appeared in books and articles in high-impact journals of international scope. This includes 3 authored books, 3 edited books, 47 articles in peer-reviewed journals -including 7 papers in Q1 journals and 6 in Q2 journals such as Early Medieval Europe, Journal of Historical Sociology, Journal of Medieval Iberian Studies or Studia Historica. Historia Medieval- and 18 book chapters in books edited by prestigious editorial houses such as Amsterdam University Press, Cambridge University Press or Brepols. I have committed a lot of effort in discussing my research in national and international forums by participating in more than 60 congresses worldwide, and also as an invited speaker in 35 events, including talks in international universities including Universität Tübingen, University of Dublin, Universidade Nova de Lisboa or the Université Paris 1 Panthéon-Sorbonne. Regarding my experience in editorial committees, I was a founder of Revista Arkeogazte, participating in its Editorial Board from 2010 to 2018, and member of the Evaluation Committee of the Journal Madrygal, edited in the Universidad Complutense de Madrid. I am also founder and current president of the Asociación Cultural Sputnik Labrego, which aims at the research and dissemination of the history of peasant societies in northwestern Iberia. Within this project I have carried out an intensive dissemination activity which includes the co-organization of three exhibitions, more over 50 public talks and the production of three documentaries, including Ciudad de la Selva: fuxidos e guerrilleiros nos montes de Casaio, that has received several prizes. As evaluator, I have collaborated as peer reviewer for more than 15 journals, including high impact international journals such as World Archaeology, Nature Communications, Public Archaeology or Journal of Medieval Iberian Studies. As an archaeologist, I have participated in more than 40 excavations, most of them directly related to early medieval peasantries. I am currently directing excavations at the early medieval sites of Valencia do Sil and Casaio, in Galicia, and La Coba and El Palomar, in Ávila. Regarding my teaching experience, I have been main teacher in six different courses on medieval history and archaeology at three different universities. I have also supervised three Master Degree's at the Universities of Vigo and Santiago de Compostela, and I am currently co-supervising a PhD Thesis on the fortified settlements of the Sierra de Barbanza, Galicia, at the University of Santiago de Compostela. Finally, I have participated in two thesis examination boards at the University of Santiago de Compostela and the University Federal Fluminense (Brazil).

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	REIXACH SALA, ALBERT
Referencia:	RYC2022-036326-I
Correo Electrónico:	reixachsala.albert@gmail.com
Título:	Fiscalidad y finanzas públicas, movilidad social y gobernanza urbana en la Corona de Aragón bajomedieval

Resumen de la Memoria:

My career began in the framework of the so-called New Fiscal History. The initial focus on taxation and specially their social dimension and economic and political effects led to my current objects of study: social mobility and inequalities (both newly incorporated subjects of analysis in Spanish medievalism) and urban governance. All these phenomena are observed in the same context: the Late Medieval Crown of Aragon, always in the comparative framework of Western Europe. The resulting research has been pioneering in several respects. It combines methodologies and approaches at the crossroads of several disciplines.

I have published 3 monographs, 1 co-edited book, 18 articles in peer-reviewed journals and 24 book chapters. As the most recent publications attest, I am internationally recognised in the study of taxation and urban governance in the Crown of Aragon by consolidating the analysis of the social dimension of the phenomenon. I have pioneering work and I am leading collective initiatives in the study of social mobility and economic inequality in Late Medieval Catalonia. I have also broaden the scope of study to multiple aspects of the municipalities from an European perspective. I am currently working on the impact of epidemics in the fifteenth-century Crown of Aragon.

All the contributions have been made in a career developed in three different Spanish centres alternating with presence in foreign universities of recognised prestige. This demonstrates research independence and the ability to adapt in different academic environments.

As for the international dimension of my career, it must be stressed the successive stays in international centres with some of which I have managed to establish solid links, mainly at the University of Ghent in 2013 and at the Laboratoire de Médiévistique Occidentale de Paris (LaMOP)of the Université Paris 1 Panthéon-Sorbonne in 2019. I have been also accepted for a stay at the the University of Utrecht in the spring of 2023.

I have participated in several international projects and initiatives: an international cooperation project on the origins of public debt which will result in a chapter in a collective work in Brepols; the Critical Glossary of Medieval Taxation; Regidel, a French initiative devoted to a comparative analysis of the records produced by the municipal councils; and Diplurbaine, an Italo-French project dedicated to the diplomacy of urban governments. I am currently contributing, from the project EPIDEMED (PID2020-117839GB-I00), to the articulation of an international network, EPIFAME, on the study of epidemics and famines in the Western Mediterranean.

The scientific events I have oraganised have also had a notable international dimension.

I have been working in national and international collective projects in which I have played an increasingly important role, combined with several individual projects. I am currently leading a research line of the project EPIDEMED and a work package of the research group ARQHISTEC (SGR 01607). The aim of the research to be carried out will focus on urban governance and social mobility in periods of crisis (famines, epidemics and wars) in the Late Medieval Crown of Aragon. Apart from new primary research and innovative points of view, it will take into account applications to national and international funding calls to build an own group.

Resumen del Currículum Vitae:

Albert Reixach is Juan de la Cierva-Incorporación postdoctoral researcher at the Department of History of the University of Lleida. He has been postdoctoral researcher and assistant lecturer at the University of Girona and associate member of the Laboratoire de Médiévistique Occidentale de Paris (LaMOP) of the U. Paris 1. He has completed research stays in prestigious centres in Medieval Studies: University of Ghent (2013) and Université Paris 1 (2019), thanks to the award of the Bourse Robert de Sorbon 2018. He has also been approved for a stay at the Economic and Social History research group of Utrecht University in spring 2023.

His academic career as historian of the Medieval Crown of Aragon within the European context began with a PhD on finances and urban elites defended in 2015 and that obtained the Raimon Noguera Foundation grant-prize. He has developed his research in the framework of highly competitive contracts (predoctoral grant FPU and postdoc Juan de la Cierva-I, among others), as well as 13 successive Spanish and French collective projects along with two different consolidated research groups (SGRs). In the last three projects he has assumed an increasing role coordinating specific work packages and mentoring younger researchers. He has also obtained individual funding.

The main fruits of Reixach's research consist of the publication of three books. A book at the collection Anejos del Anuario de Estudios Medievales (CSIC Publishing) and another one in the Fundació Noguera stand out and they have received glowing reviews. Another monograph derives from an individual project on the study of water management in a pre-industrial city. His articles have appeared in high impact journals such as Hispania, Research in Economic History, Espacio, Tiempo y Forma. Serie III, Historia Medieval, Studia Historica. Historia Medieval or Histoire Urbaine. Many book chapters have been published in prestigious international and national publishers such as Routledge, Palgrave, Firenze University Press, Presses Universitaires de Provence, Sílex or Publicacions de la Universitat de Valencia. He has also an article accepted for publication in Anuario de Estudios Medievales and two special issues: one on tax revolts in the journal Histoire Urbaine and another one on social mobility in Western Mediterranean towns in the Late Middle Ages in the journal En la España Medieval.

He regularly participates to international congresses, such as the Settimana di Studi di Prato of the Fondazione "F. Datini" (2019 and accepted for 2024), the International Medieval Congress of Leeds (2013 and 2021), the European Social Science History Conference (2021 and accepted for 2023), the European Conference on Social Networks (2014) or the Rural History Conference (2015 and accepted for 2023). He has presented a seminar at the U. Paris 1 Panthéon-Sorbonne and a paper at the U. of Cambridge.

He has shown leadership by organising international colloquia, seminars and graduate workshops.He has also organised several sessions at international conferences, mainly a panel at the European Association for Urban History Conference 2022. He teaches undergraduate and postgraduate courses at the Faculty of Arts at the University of Lleida.

His level of scientific maturity and consolidation earned him second place (0.65 points behind the first one) in a competition for a position as a Senior Scientist at CSIC in 2022.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	MOLINA PÉREZ, ALBERTO
Referencia:	RYC2022-037867-I
Correo Electrónico:	amolina@iesa.csic.es
Título:	Ética y epistemología del final de la vida

Resumen de la Memoria:

Hice una tesis de filosofía de la biología sobre el concepto de función y las explicaciones teleofuncionales. En paralelo, trabajé sobre cuestiones de ética de la investigación clínica y sobre el debate bioético en torno a la muerte cerebral. Como investigador posdoctoral, me he dedicado principalmente a la ética de la donación de órganos y, en particular, a la cuestión del consentimiento y de la participación familiar en la toma de decisiones. He estudiado estas cuestiones tanto desde una perspectiva conceptual como de bioética empírica. Me estoy centrando ahora más en la determinación de la muerte desde una perspectiva epistemológica o de filosofía de la ciencia. En particular, analizo el uso del concepto de función en los criterios médicos y legales de determinación de la muerte.

Resumen del Currículum Vitae:

I began doctoral studies at the Institute of history and philosophy of science and techniques (IHPST), University of Paris 1 – Panthéon-Sorbonne. At the same time, I was hired as an assistant project manager at the French National Institute for Health and Medical Research (INSERM), in Paris, to work in European projects on the ethical regulation of clinical research. Later, I was hired by the University of Granada as part of a project on the ethics of organ donation. Finally, I resumed my doctorate at the Autonomous University of Madrid and defended my thesis in December 2017 on teleology and functions in biology.

In 2018, I obtained a Juan de la Cierva-Formación postdoctoral fellowship at the University of Granada (UGR). In 2021, I obtained a Junta de Andalucía postdoctoral fellowship at the IESA-CSIC in Cordoba.
My research belongs to the field of applied philosophy and is situated at the crossroads of medical ethics and philosophy of science. So far, I have focussed on end-of-life and health policy issues, with particular emphasis on consent and family intervention in deceased organ donation, and also on death determination criteria. I study these issues from both empirical bioethics and conceptual analysis.

Since 2019, I have published 17 articles (1 in press) and 2 book chapters. (Total: 23 articles and 7 chapters).
A majority (61%, 14/23) are published in the first quartile (Q1) of journals indexed by the Web of Science (JCR, JCI) and/or Scopus (CiteScore, SJR) databases. This proportion rises to 87% (6/7) of the articles for which I am the first author since 2019. My H-index is: 5 (WoS), 6 (Scopus), 6 (Google Scholar). In total, I am the 1st author of 11 articles, 2nd author of 5 and senior author of 2. My 43 co-authors (19 women/24 men) belong to 15 countries: Argentina, Austria, Belgium, Brazil, Chile, Denmark, France, Germany, Mexico, Netherlands, Romania, Spain, Switzerland, UK and USA.

Currently, I am the Principal Investigator (PI) of a research project on death determination funded by the Ministry of Science (Plan nacional de I+D+i) with a a team of 18 researchers, with world-renowned authors in the field, and 4 doctoral students. Previously, I obtained two competitive projects as co-PI and I participated in writing the proposals for two successful EU H2020 projects.

Other activities and achievements. I co-organised several international conferences and an annual spring break bioethics course for postgraduate students from Case Western Reserve University, USA. I am an active member of the Public Issues Working Group of ELPAT (Ethical, Legal and Psychosocial Aspects of Transplantation), a division of ESOT (European Society for Organ Transplantation). I have also published on the ethics of human embryo research, the ethics of automated vehicles, and the ontology of disease. I was guest co-editor of a special issue of Dilemata (num. 23, 2017) on the ethics of organ donation and transplantation. I am an academic editor for PLoS One.

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	QUIÑONES GONZÁLEZ, ILIANA
Referencia:	RYC2022-035533-I
Correo Electrónico:	i.quinones@bcbl.eu
Título:	Bridging neurolinguistics and neurosurgery: mapping eloquent areas in brain tumor patients.

Resumen de la Memoria:

My research work follows two primary lines: (1) defining the architectonical configuration of the language network stressing the distinction between syntactic and semantic combinatorial processes, and (2) investigating neuroplasticity in a pathological situation where the brain is forced to find adaptive solutions to a major change in the architecture of the language connectome: the surgical resection of a language hub.

My expertise in advanced neuroimaging techniques and multivariate statistical methods allowed me to answer these questions through the combination of different non-invasive approaches. For this endeavor, I independently lead and supervise multiple research projects – which have been nationally and internationally funded – using several techniques and experimental populations. I disseminate my research outcomes through peer-reviewed publications, book chapters, teaching courses, and outreach activities. My research is built on national and international collaborations with research institutions, healthcare technology companies, and healthcare services. This makes my work extremely interdisciplinary, building a bridge between neurolinguistics, cognitive neuroscience, and neurosurgery.

Postsurgical language recovery of brain tumor patients dramatically affects both their quality of life and their family environment. Although there is evidence demonstrating that the brain is a plastic organ with an almost unlimited capacity for adaptation, we do not know why some patients show a nearly complete recovery while others are left with permanent cognitive sequelae that prevent them from recovering their professional and personal lives.

My future research plan, which lies at the nexus of neurolinguistics, neurorehabilitation, cognitive neuroscience, biomedical imaging, and statistics, will aim to understand the mechanisms of structural and functional neuroplasticity that allow us to cope with a brain tumor, determine whether there are factors predisposing our resilience, investigate whether these factors mediate the individual differences observed during post-surgical recovery, and explore whether it is possible to change the time course of such recovery with cognitive rehabilitation techniques. This approach includes going beyond language. This approach includes going beyond language by exploring how language interacts with other cognitive domains such as social cognition, memory, and attention. The knowledge derived from this project will allow us to define scientifically-based rehabilitation programs, which are aimed at boosting brain neuroplasticity underlying recovery.

Resumen del Currículum Vitae:

I carried out a Ph.D. in Linguistics at the BCBL, as part of the doctoral program of the University of the Basque Country (UPV). My Ph.D. thesis disentangled the neuro-cognitive mechanisms underlying agreement comprehension in Spanish and provided the first neuro-anatomical model of agreement processing.

My pre-BCBL experience includes five years of Biology at Havana University, where I graduated with honors. For four of those five years, I was a student assistant in the Department of Neurophysiology. Subsequently, I started working as a research assistant at the prestigious Cuban Neuroscience Centre, where I was the top Ph.D. student during the three years I was enrolled in their doctoral program. As part of this program, I won two fellowships funded by the Royal Society and British Council, respectively. These two grants allowed me to join the Voice Neurocognition Lab in the Department of Psychology at Glasgow University, as a visiting researcher, where I had the opportunity to collaborate with Prof. Belin. Our project focused on the integration of multimodal information during complex cognitive processes such as language comprehension. This first contact with the neurobiology of language changed my understanding of the brain: I discovered a connectionist view of the brain where synchronization and integration are key to understanding how our brain processes linguistic information.

When I graduated in 2016, I became independent from the main director of my thesis. Since then I have been part of the Neurobiology of Language Group at the BCBL where I currently have a position as a staff scientist. As a fundamental part of this group, I have opened a new line of research: a project aimed at characterizing the plastic changes in the functional and anatomical architecture of the language connectome associated with the appearance of a brain lesion. In close collaboration with the rest of the team, I have designed and tested a new protocol for presurgical mapping. The novelty of this protocol resides in the combination of different behavioral and neuroimaging tasks that, in combination with direct electrical stimulation during surgery, help to identify the functional boundaries of language-relevant tissue and thereby spare language functionality.

I have promoted the international character of research by visiting prestigious research centers that enabled me to create a network of collaborators and participate in multi-center collaborative initiatives. In addition, I have maintained a commitment to the training of new generations of scientists: I have supervised 10 master theses, 3 Ph.D. theses, and more than 12 undergraduate students. I belong to the permanent staff of the master's in Cognitive Neuroscience of Language at UPV. I am strongly committed to the concept of open science. In this sense, all the articles I have published in the last four years have been published in open-access repositories. Recently, I joined the editorial board of Frontiers in Neuroimaging. I have participated in open talks, radio interviews, and interviews with local newspapers where scientific topics are explained in an accessible way for the general public. I am also part of a group of scientists who offer vocational training to high school students promoting scientific careers but especially the role of women in science.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	BELLERI , DELIA
Referencia:	RYC2022-035705-I
Correo Electrónico:	deliabelleri@gmail.com
Título:	Analytic philosophy: language, ontology, conceptual engineering

Resumen de la Memoria:

My research is articulated into three streams.

[1] The first and most recent stream concerns metaphilosophy, with special focus on philosophical methods. In this context, I study the method of conceptual engineering, which purports to assess and improve conceptual representations, and is typically deemed to be in contrast with conceptual analysis. My research on this topic concerns the following questions: is conceptual engineering too disruptive, in that it alters the subject matter of inquiry or communication? Are there any reasonable hopes for conceptual engineering projects? Does conceptual engineering excessively distrust our conceptual representations? My research outputs so far have appeared on Inquiry, and are forthcoming on a Synthese Library collected volume.

[2] The second, so far most substantive stream of research focusses on metaontology, and especially on questions that concern the status of ontological disputes. A number of metaontologists today criticize ontological debates by resuming and updating some old, Logical-Empiricism critiques or by articulating new challenges to this practice. My work takes these criticisms as its starting point, and strives to provide a semantic and epistemic defense of ontology, while at the same time not subscribing to robust forms of realism. My proposal may be described as a "minimalist" defense of ontology. I have published papers on these topics in journals such as Philosophical Studies, Philosophy Compass, Metaphilosophy, Theoria, as well as in collections for Oxford University Press, and Routledge. I have a monograph under contract with Oxford University Press, with delivery date December 2024.

[3] The third research stream concerns the semantics-pragmatics distinction, and particularly the nature of certain processes by means of which speakers complete the content of sentences in contexts. I have championed a view that describes such processes as purely semantic and not pragmatic, or syntactic. I have also defended an original position on the effability of thoughts, arguing that thought is often non-propositional and hence effable. Publications on these topics have appeared in Synthese, dialectica, Thought, Journal of Pragmatics (among others). I also published two monographs in this area (Palgrave MacMillan 2014, CLUEB 2021).

Resumen del Currículum Vitae:

(1) Academic Positions and Education: I am currently a Marie Sklodowska-Curie fellow at Uppsala University. In 2021-22, I was a FCT Junior Researcher at the University of Lisbon. From 2015 to 2021, I was a Wissenschaftliche Mitarebeiterin at the University of Vienna. In 2016-17, I held a Humboldt Fellowship at the University of Hamburg. Prior to that, I was a PERSP post-doc at the University of Barcelona (1-11/2015) and a post-doctoral fellow at UNAM, Mexico City (3-12/2014). I received my Ph.D from the University of Bologna in 2012, where I also collaborated with the COGITO research group after obtaining my doctorate (9/2012-2/2014).

(2) Publications: My research deals with topics in philosophy of language, metaphilosophy and metaontology. I am currently pursuing a project on conceptual engineering. Prior to that, I researched topics in metaontology and on the semantics-pragmatics distinction. I have published in Philosophical Studies, Inquiry, Philosophy Compass, Synthese, dialectica, Thought, Metaphilosophy, Journal of Pragmatics, as well as in collections for Oxford University Press, Cambridge University Press, Palgrave MacMillan, and Routledge. I published two monographs (Palgrave MacMillan 2014, CLUEB 2021). I have a monograph under contract with Oxford University Press, with delivery date December 2024.

(3) Third Party funding: My track-record proves my recurring success in attracting funding. In 2021, I was awarded both a fellowship from the Fundação para a Ciência e a Tecnologia (FCT) and a Marie Sklodowska-Curie Individual Fellowship, to be held at Uppsala University (2022-24). In 2016, I secured the prestigious Humboldt fellowship; in 2015, I won a Juan de la Cierva Incorporación fellowship (later declined) as well as a PERSP fellowship at the University of Barcelona; in 2014, I was awarded a post-doctoral fellowship at UNAM.

(4) International visits and collaborations: I have visited the universities of San Raffaele (Italy) (2022), of Insubria (Italy) (2020-21), California-Irvine (2017), Aberdeen (2013), Barcelona (2011) and St. Andrews (2006-7). I have been a member of various international research centres (e.g. the LOGOS group in Barcelona, PHLOX in Hamburg, LanCog in Lisbon).

(5) Teaching: I have taught 22 courses since 2012, in Italian, Spanish and English, both at bachelor and master level. I have experience in the supervision of bachelor, master and Ph.D dissertations (supervising 2 doctoral students at the moment). I mainly taught courses at the University of Vienna (2015-2021), with experiences also in Mexico and Italy.

(6) Talks: I have given more than 120 talks since 2009, at conferences, workshops, colloquia, or research seminars around the world (e.g. in Hong Kong, Cambridge, Zurich, Trinity College Dublin, Leeds, California-Irvine, Texas-Austin, St. Andrews, Oslo).

(7) Organization of events: I have organized several academic events, ranging from major international conferences (e.g. European Epistemology Network in Bologna 2012), to small workshops (on conceptual engineering in Lisbon in 2021; on metaontology in Vienna in 2017), graduate conferences and summer schools (e.g. the I.U.C. Summer School on Relativism in 2017-18).

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	LIZARAZU UGALDE, MIKEL
Referencia:	RYC2022-035497-I
Correo Electrónico:	m.lizarazu@bcbl.eu
Título:	Neural basis underlying speech processing and dyslexia

Resumen de la Memoria:

Speech is a critical component of human communication, and understanding the neural mechanisms underlying speech processing is essential for advancing our knowledge in this field. Magnetoencephalography (MEG) and intracranial electroencephalography (iEEG) have provided valuable insights into the neural processes involved in speech processing. However, these methods have traditionally been used separately and there has been limited investigation of the integration of these techniques. The first aim of my research is to fill this research gap by combining MEG and iEEG to better characterize speech processing in the brain. Deeper understanding of the neural substrates involved in speech perception is crucial to shed light on and treat the neurological basis of language learning disabilities, including dyslexia. My previous studies have shown that deficits in developmental dyslexia are associated with impaired neural processing of speech. The second aim of my research is to explore the potential of brain-computer interfaces (BCI)-neurofeedback training together with machine learning methods as intervention tools to improve speech processing and reading abilities in dyslexia. I am confident that the results of my research activity will have significant implications for our understanding of the neural mechanisms underlying speech processing and will provide valuable insights into the use of BCI-neurofeedback and machine learning methods as intervention tools for dyslexia.

Resumen del Currículum Vitae:

I received my degree in Telecommunications Engineering from the University of Navarra (Tecnun). After graduation, my attention was captured by the possibility that my background in telecommunications could be applied to better understand the human brain. I completed the Final Degree Project at the Biomedical Image Laboratory at the University of Houston where I developed an algorithm that, using resting-state MEG data, could determine the language dominance in humans. After this initial experience in language research, I then attended the Master in Cognitive Neuroscience at the University of the Basque Country (UPV/EHU), where I received an extensive training on the multimodal nature of language processing. I identified speech perception as the field in which my contributions could impact the most and thus developed a research project on the electrophysiological correlates of speech processing. Under the supervision of Dr. Molinaro and Dr. Lallier, I pursued my PhD at the Basque Center on Cognition Brain and Language (BCBL), where I applied some of his ideas to investigate whether the phonological difficulties typically observed in dyslexia could be identified at the neural level during speech perception. I spent my postdoc period at the École Normale Supérieure in Paris. Under the supervision of Prof. Ramus, a leading researcher in the study of dyslexia, I had the possibility to study developmental aspects involved in speech processing within both healthy and dyslexic populations. During this period, I learned new methods of analysis of both functional (with Prof. Van Wassenhove, Neurospin Center) and structural brain data (with Dr. Altarelli, Cité University).

In October 2019, I was granted a Postdoc position at BCBL. I am a member of the Brain Rhythms and Cognition group, and works on very innovative and groundbreaking research projects. All my projects and collaborations are focused on better understanding the neural mechanisms involved in speech processing. I study the connectivity between speech, gestures and brain signals. For this, I use complex data acquisition systems (markerless motion capture, MEG and iEEG and analytical methods. To acquire the iEEG data, Dr. Lizarazu actively collaborates with the Epilepsy Unit at the Cruces Hospital in Bilbao. Together with neurosurgeon Dr. Iñigo Pomposo and neurophysiologists Dr. Miriam Sánchez and Dr. Carlos Santos, I am in charge of evaluating the cognitive abilities of epileptic patients, and recording and analyzing speech-related iEEG data. I also collaborate with Prof. Javier Díez from Tecnun in developing a BCI system to measure in real-time and enhance the cortical tracking of speech. This system could be used as a therapeutic tool to improve cortical tracking of speech in dyslexic readers. I also collaborate with the head of the Faculty of Informatics at the UPV/EHU Prof. Eneko Agirre and his group. Together we work on applying machine learning algorithms to decode neuroimaging data with the goal of automating dyslexia diagnosis.

My activity involves the supervision of three PhD students. In addition, I have supervised numerous master and final degree projects. I recently obtained the Juan de la Cierva postdoctoral fellowship and the PIBA-PUE2022 fellowship of the Basque Government.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	PÁEZ CONESA, JOSÉ EZEQUIEL
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Correo Electrónico:	joseezequiel.paez@upf.edu
Título:	The moral, political, and legal status of nonhuman animals

Resumen de la Memoria:

I am interested the moral, political, and legal consideration of nonpersons, as opposed to cognitively typical humans. My PhD dissertation addressed the ethics of abortion (excellent cum laude). It was the first on this topic written in English by a Spanish PhD candidate in analytic philosophy. I offered novel arguments against standard views both contrary and favourable to abortion. I advanced that emergency contraceptives cannot be considered abortifacient even when they prevent the implantation of the embryo (Bioethics 2016).

In my postdoctoral period my focus shifted to nonhuman animals. I have contributed to three main debates. First, the problem of the moral considerability of animals —that is, to what extent their interests should be taken into account in our practical deliberation. My most impactful paper in this regard deals with conceptual and normative issues surrounding speciesism and anthropocentrism (Faria & Paez 2014, 59 citations). Another major contribution is my article in Utilitas (2019), where I develop a version of rule-consequentialism on which animals are protected by agent-relative constraints against maximization. In a paper published in Futures I defend that moral circle expansion is an optimal strategy to promote the consideration of animals (Anthis & Paez 2021, 18 citations). It is now part of the reading material for the 'Ethics and the (Very Far) Future' course of the Global Priorities Institute (University of Oxford).

Second, there are more than 1 quintillion wild animals, with lives of suffering due to natural events. I am an early contributor to the literature on our duties to mitigate this sort of harm. I co-edited the first journal volume on this topic (Faria & Paez 2015, 36 citations). I have argued that animal protection and traditional ecosystemic conservation are not compatible (Faria & Paez 2019, 28 citations; Kianpour & Paez 2020), since natural entities and processes are the most important source of suffering for wild animals. I was the first to advance a Kantian foundation for our duty to reengineer nature to ensure that animals' lives are worth living (Analysis 2020). I have also introduced the problem of wild animal suffering in the ethics of climate change, arguing that mainstream environmentalist approaches fail to consider the harms it may inflict on individual animals (Faria & Paez 2021).

My third area of research covers the political status of animals. Most authors in the 'political turn' in animal ethics work from a liberal perspective. I have embarked on the first thorough attempt to ground animal citizenship on a neo-republican view. I have published one paper on this topic (out of a projected four) arguing that possession of sophisticated psychological capacities is not necessary for vulnerability to domination, and that therefore republican freedom can be a good for nonautonomous agents as well, including animals (Pacific Philosophical Quarterly 2022).

My goals for the next 5 years are further developing a neo-republican view of animals' political status and defending a duty to help wild animals from different non-consequentialist theories.

My project lies at the intersection of animal ethics, environmental ethics and political philosophy. It has the capacity to inform, and be informed by, several other disciplines, such as biology, environmental science and environmental manag

Resumen del Currículum Vitae:

I am a Beatriu de Pinós (Marie-Sklodowska-Curie Actions) Fellow at the Law & Philosophy Group at Pompeu Fabra University (Barcelona), where I obtained my PhD in Moral Philosophy (2008-2014), as well as my Bachelor's and Master's in Law. I was a Postdoctoral Fellow for the Foundation for Science and Technology at the Centre for Ethics, Politics and Society, University of Minho (2016-2020). I enjoyed a Visiting Fellowship at the Centre the recherche en éthique, Université de Montréal (2020-2021). I have also been a visiting student at the Uehiro Centre for Practical Ethics, University of Oxford (2011).

I have always been interested in practical philosophy, particularly the question of what we owe to individuals who, unlike typical human adults, do not qualify as cognitively sophisticated moral agents. During my PhD I addressed the problem of abortion. In my postdoctoral years my research focused on animal ethics. I have contributed to three main debates in this field. First, the problem of the moral considerability of animals —that is, to what extent their interests matter ethically. Second, the problem of naturogenic wild animal suffering, or the question whether we have reasons to help wild animals who suffer from natural causes, as opposed to human action. Third, the problem of the political status of animals, or whether animals (or a subset of them) should be granted citizenship or whether they merit some different political standing, as well as the contents of our political duties (if any) towards them.

My overall output consists in: 21 articles in peer-reviewed journals; 6 book chapters; the co-edition of 1 journal volume and 1 conference proceedings; and 50 scientific presentations. My research has appeared in first decile (Analysis, Pacific Philosophical Quarterly, Bioethics, Utilitas, Environmental Values), first quartile (American Behavioral Scientist, Futures), and second quartile journals (Journal of Evaluation in Clinical Practice), as well as in edited volumes by prestigious publishers (Routledge). My work has been cited 194 times, with an h-index of 7 and an i10-index of 5 (Google Scholar).

As to knowledge transfer, I have extensive teaching experience in legal, moral and political philosophy. I am a founding member of the UPF-Centre for Animal Ethics, a think-tank advocating for policy reform in favour of animals. I was invited by the Chilean Constitutional Convention to advise on the inclusion of animals in the new constitution. I have disseminated my research through book contributions (1), talks for the general public (19), newspaper articles (23), as well as radio and podcast interviews (6).

Because of the relevance of the problems addressed, my training in Law and Philosophy, and its interdisciplinary character, my research has potential for further impact in academia, animal advocacy and public policy.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	SENTÍ PONS, ANDREU
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Título:	Cambio gramatical y variación en diacronía: teoría, análisis empíricos y aplicaciones

Resumen de la Memoria:

Cambio gramatical y variación en diacronía: teoría, análisis empíricos y aplicaciones.

La línea de investigación a desarrollar durante la ejecución de la ayuda es el estudio de construcciones en vías de gramaticalización en catalán en su entorno románico y en contacto con lenguas vecinas como el occitano, el aragonés y el castellano. El estudio de construcciones de Tiempo, Aspecto, Modo y Evidencialidad (TAME) y los procesos de cambio gramatical y variación que se han sucedido en diacronía serán analizados tanto desde un punto de vista teórico (gramática cognitivofuncional, gramática de construcciones diacrónica), como descriptivo con datos empíricos discursivos (lingüística de corpus). En este sentido será sustancial el avance en la elaboración del corpus Parlars, para el estudio de la variación dialectal oral en la conversación coloquial. Asimismo, se realizarán aplicaciones específicas de las propuestas teóricas de transferencia de conocimiento para la mejora de las metodologías y enfoques en la enseñanza de la gramática en la educación secundaria y superior.

Objetivos generales
1.   Consolidar el corpus Parlars como un corpus representativo de la variación dialectal del catalán valenciano en textos conversacionales y monologales orales y coloquiales.
2.   Planificar una nueva fase para el corpus Parlars para la incorporación de otros dialectos del catalán y nuevos grupos de hablantes (mediana edad, jóvenes, neohablantes).
3.   Mejorar las herramientas tecnológicas que permiten la anotación de textos orales dialectales.
4.   Estudiar construcciones (semi)gramaticalizadas de TAME con una perspectiva diacrónica que incluya el análisis de la lengua catalana oral y su interacción discursiva, así como también la variación dialectal actual.
5.   En este sentido, analizar los valores pragmáticos de las diversas construcciones en relación a la subjetividad, intersubjetividad, miratividad y su evolución en diacronía.
6.   Arrojar luz sobre las definiciones, clasificaciones y rasgos de los valores modales y evidenciales a la vista del análisis empírico de corpus diacrónico y dialectal.
7.   Profundizar en el estudio de las construcciones TAME en el s. XIX e inicios del XX en el catalán contemporáneo previo a la codificación lingüística moderna, así como también en el momento posterior a la codificación hasta la lengua oral actual, incluyendo la variación interdialectal.
8.   Realizar el estudio del contacto lingüístico catalán-castellano en los siglos XIX, XX y XXI en la expresión del TAME.
9.   Analizar los clíticos pronominales y el orden de palabras del catalán medieval, cuantitativa y cualitativamente, así como la interacción con la gramaticalización del futuro y condicional en la edad media y la anteposición estilística.
10.   Contrastar el comportamiento sintáctico de los clíticos pronominales del catalán con el de las lenguas romances vecinas, iberorromances y galorromances, con el fin de observar si se produce contacto lingüístico y establecer en qué grado y en qué dirección.
11.   Llevar a cabo i) actividades de transferencia de conocimiento con la concreción en materiales docentes de los resultados de la investigación en teoría lingüística y ii) aplicaciones didácticas basadas en la lingüística cognitiva, la lingüística de corpus y la gramática de construcciones.

Resumen del Currículum Vitae:

El Dr. Andreu Sentí es profesor titular en la U. de València (UV) y director del grupo de investigación Variación lingüística en catalán (2017-2022). Licenciado en Filología Catalana (2008) y doctorado en Estudios filológicos interdisciplinarios (2013), con sendos premios extraordinarios, desarrolló el doctorado con una ayuda FPU en la U. d' Alacant. Cuenta con un sexenio de investigación (2017) y ha realizado múltiples estancias de investigación (Cambridge, Birmingham, Lovaina, Gante, Basilea, Barcelona).

El Dr. Sentí ha demostrado su liderazgo como IP de un proyecto interuniversitario e interdisciplinario entre la lingüística y las tecnologías del lenguaje para la elaboración y estudio de un corpus del catalán oral coloquial y dialectal. Ha dirigido la campaña de recogida de datos, transcripción y anotación del Corpus Parlars, del cual publicará la primera versión próximamente. Además, en este ámbito el Dr. Sentí ha contribuido a crear el equipo de investigación CorValC, ha editado un volumen con colaboraciones internacionales en Caplletra y ha sido organizador principal de los dos primeros workshops internacionales sobre corpus orales (LingCor2018, LingCor2019).

En el estudio de la semántica-pragmática diacrónica, sus aportaciones han tenido un impacto determinante en el conocimiento de las perífrasis modales del catalán con una perspectiva cognitiva y de pragmática histórica. Además, ha realizado propuestas teóricas sustentadas con datos empíricos para el conocimiento de la modalidad y la evidencialidad. Cabe destacar la colaboración con el prof. Dr. Cornillie (KULeuven) y la participación como autor del estudio de las perífrasis modales en la Gramática del catalán antiguo. Además, se ha interesado por la evidencialidad en la lengua catalana oral y el estudio de construcciones que no habían recibido atención hasta ahora, analizadas en su trabajo "Evidentiality in Catalan" (2022). En este sentido, ha editado el special issue en Anuari de Filologia. Estudis de Lingüística, con la participación de importantes investigadores como el Dr. Dendale (U. de Antwerpen).

En el estudio de la sintaxis histórica, destacan sus aportaciones para el estudio de la gramaticalización del futuro y condicional y la posición de los clíticos en catalán y en relación a las distintas lenguas iberorromances, con importantes resultados para entender la gramática medieval y el contacto lingüístico en la península ibérica (colab. con la Dra. Bouzouita, U. Humboldt de Berlín).

Finalmente, el Dr. Sentí también se ha dedicado a la aplicación de nuevos modelos gramaticales teóricos a la enseñanza de la lengua catalana. Ha realizado una labor de constituir un equipo de trabajo lingüistas-profesores de secundaria para llevar a cabo mejoras en las prácticas docentes y transferir el conocimiento.

Todos estos resultados de investigación han sido difundidos en numerosas presentaciones en congresos internacionales de prestigio y con revisión externa. Ha publicado más de 30 trabajos en revistas internacionales indexadas en bases de datos como Scopus, Web of Science, así como també en forma de capítulos de libro en editoriales de prestigio internacional como John Benjamins, De Gruyter, Oxford University Press o Peter Lang. Actualmente lleva a cabo un proyecto de investigación de 2 años en el grupo Gradia, dirigido por la Dra. Garachana en la U. de Barcelona.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	HERAS ESCRIBANO, MANUEL
Referencia:	RYC2022-036688-I
Correo Electrónico:	herasescribano@gmail.com
Título:	FILOSOFÍA DE LA CIENCIA COGNITIVA CORPORIZADA Y SITUADA: AFFORDANCES Y PSICOLOGÍA ECOLÓGICA

Resumen de la Memoria:

My work focuses on the philosophy of mind and cognitive science, with a special interest in embodied and situated theories of cognition. My research life goal is to offer a general theory of the nature of experience from a non-representational, situated and embodied perspective. To do this, up to now I have explored three different lines: first, I have analyzed theoretical aspects (methodological, ontological and epistemic) of ecological psychology and enactivism, with special attention to the notion of affordance or possibility for action. Second, I have worked together with Manuel de Pinedo on a proposal to understand pre-reflexive behavior in a normative way. A third line of research focuses on the biological origins of cognition, combining ecological psychology and niche construction theory in order to analyze the evolutionary role of affordances.

My current project (for hich I have applied to a Proyecto de Consolidación Investigadora) is called TOWARD AN ECOLOGICAL APPROACH TO THE NATURAL ORIGINS OF CONTENT: FROM DIRECT PERCEPTION TO SOCIAL NORMS (ECOCONTENT). In that project I aim to to explain how content emerges (this is, it aims to explain the natural origins of content) through a radical redefinition of the notion of content that makes it suitable to be naturalized through a combination of ecological psychology and the non-descriptive approach to social norms recently developed by the PI. The result will outcompete other theories that aim to naturalize content (mainly radical enactivism) by solving the problems and filling in the gaps that these theories cannot face, while offering more explanatory power than them as this approach is supported by empirical data gathered from ecological psychology and developmental studies.

This project plays a key role in my main goal for offering a non-representational, situated, and embodied approach to experience. The project focuses on the notion of content to offer the first full-blown non-representational approach to perceptual content that will outcompete both enactivism's ideas and cognitivism's ideas regarding content.

Resumen del Currículum Vitae:

I am a philosopher of cognitive science with a multidisciplinary background in philosophy and neuroscience. My PhD had an international mention, cum laude and an Extraordinary Doctorate Award. I have published my results in prestigious international journals and publishing houses, some of which are pioneering works in their fields. I have 30 publications, of which 19 are in Q1, Q2, and Q3 (SJR/JCR) journals in the areas of philosophy and cognitive science. 14 of them are Q1 (SJR/JCR). I also have 5 book chapters in international publishing houses within the SPI ranking: MIT Press (SPI Philosophy 13/23) and Routledge (SPI Philosophy 3/23), one in one of the best philosophy of psychology handbooks (The Routledge Companion to Philosophy of Psychology), along with several of the leading international experts in the area. I am the sole author of the first monograph fully devoted to analyze the philosophical aspects of affordances, published by Palgrave Macmillan (SPI Philosophy 4/23) in the New Directions in Philosophy and Cognitive Science series. Leading authors in the area such as Shaun Gallagher, Richard Menary or Matthew Ratcliffe have published in the same series. This book has received reviews in Philosophical Psychology (Q1 SJR, Philosophy) and Teorema (Q3 Philosophy, SJR). I have also co-edited and co-authored the first book on affordances in Spanish, and I am currently co-editor and co-author of a book in Routledge on Heft's legacy. 40% of my co-authors are from foreign institutions. My publications have 733 citations in Google Scholar, with H-Index of 12 and i10-index of 16. I was part of the working team of 5 National Plan projects (PID2019-109764RB-I00, FFI2013-44836, FFI2010-19455, FFI2016-80088-P, FFI2014-57258P), 2 from CCAA (HUM-4099 in Andalusia and IT-590/13 in Euskadi), 1 international (SSHRC, Canada), and member of 4 networks: EPISOC (international), Phenomenology and Naturalism Network (international), APPLY (national) and RETECOG (national). I am co-organizer of the Utrecht-Granada Philosophy Hub. I am part of the FiloLab Excellence Unit (UGR), Filosofía y Análisis (UGR), MYRTOS (UMU) and EMRG Lab (Canada). I was PI of two projects in competitive concurrence, a Fondecyt Postdoctorado (Chile) and a Beca Leonardo (BBVA Foundation). My internationalization as a predoc was through funded visits at the U. Southampton (UK) with J. Noble and at the U. Pittsburgh (USA) with J. McDowell. As a postdoctoral fellow, I was Fondecyt Postdoctoral researcher at the UAH (Chile) sponsored by G. Satne and also visiting researcher at the Embodied Cognitive Science Unit at OIST (Japan) with T. Froese. In Spain, I was visiting researcher at the UAM (with J. Vega) and at the UNED (with C. Saborido). I have presented 43 communications (25 by invitation and 18 with evaluation committee). I have been a keynote speaker at the 9 PBCS Workshop (Donostia, 2019). Also at the Exploring Consciousness Conference (Valparaíso, 2019), where the previous keynotes were Joelle Proust and Tim Bayne. I have been invited in 2021 to the ENSO Seminar, the most important online seminar on the philosophy of 4E cognition. I have organized several international conferences, like the ESPP 2013 (I also co-edited the Proceedings) and two different workshops on 4E cognition with some of the most important philosophers in the area.

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	POLYANSKAYA ., LEONA
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Título:	Effect of linguistic experience on metacognition in language tasks and transfer to non-linguistic behaviour

Resumen de la Memoria:

I will explore the ability of individuals to track decisions, cognitive states, and behavior (metacognition). In earlier studies, I showed that bilinguals outperform monolinguals in metacognitive efficiency in language tasks. Bilinguals are better when they need to report if they have learned a new set of words in a foreign language well, if their performance in oral tasks is good, if they are good (or bad) at learning and using grammar of a novel language. It is important to emphasize here that I am not talking about bilingual advantage in doing the task: there are good and bad learners both among bilinguals and monolinguals. However, bilinguals are more aware of how good or bad they are at a particular language task. I now hypothesize that the typological distance between languages in bilinguals' inventory (as measured as a number of typological properties shared by two bilingual's languages) can influence this metacognitive ability. Typologically different languages require different processing strategies, which have to be monitored, and this creates natural conditions for training metacognitive ability in daily life. If bilinguals' languages are typologically similar and can be processed by the same cognitive strategies, metacognition is not enhanced. I will test this theory on language tasks in bilingual populations across the world (a collaboration network for this is already established). I will also explore whether this metacognitive enhancement will be transferred from phonological to syntactic tasks, even if bilinguals' languages have typologically different phonology but similar syntax. Then I will explore bilingual metacognition on non-language tasks. This will show whether metacognition is transferred across domains. Then I will experimentally manipulate metacognition (in regard to sensitivity to the likelihood of an error) in particular tasks, and will analyze whether experimentally-induced enhancement in some tasks and operational domains also leads to enhancement in other tasks and operational domains, in which metacognition is not trained. Finally, I will explore if metacognitive enhancement in language tasks is transferred to non-linguistic behavior and decision-making strategies. This will show whether/how typological differences between languages influence decision-making processes and explain why people in different linguistic populations sometimes come to different conclusions and make different decisions even if they have the same information. In contemporary society, where multilingualism is a norm rather than an exception, it is important to be aware of to what extent metacognitive enhancement due to individual linguistic experience is transferred to non-language behavior and influences decision-making both at individual and group levels.

Resumen del Currículum Vitae:

I received my degree in Education and gained several years of practical experience as a school teacher. I worked as a primary school teacher, and as an English teacher at the secondary and high school levels. I made a decision to become a researcher because I noticed a gap between common practices in the classroom, the needs and expectations of the students and society, and academic work. I wanted to combine practical experience and science to facilitate language learning and reduce accentedness in foreign language speech. I enrolled at Universität Bielefeld (Germany) as a PhD student. My PhD project focused on how non-native rhythmic patterns in speech contribute to perceived foreign accent, and how to reduce accentedness by focusing on speech rhythm. As I had a clear vision of a project I wanted to pursue, I took a non-conventional way that allowed me to develop a research line that was novel to the department, but at the same time, I had no financial support because my research line was independent and not attached to any funded project. I was responsible for securing funding both for salary and for research and travel expenses. I received a few grants and fellowships to support my doctoral research. I defended (magna cum laude) in 01/2015, and after that my research career developed in Germany (Universität Bielefeld, 1 year after PhD), then in Italy, Padova (1 year), in Spain (BCBL and then Universidad de Zaragoza, 6 years). I received a research grant of 30.000€ from Universität Bielefeld for a 1-year transfer project to hone the approach I developed during doctoral training in classroom, and a research stay (2 months) at the Centre for Research on Bilingualism at Bangor, UK. During a year in Italy, I worked with Prof. Maria Grazia Busa on the project "interaction between gestures and prosody in L2 speech". Then I applied for the Juan de la Cierva fellowship and BCBL, where I was mentored by Prof. Samuel (Research Professor in Spain and Distinguished Professor of Cognitive Science in the USA). I got expertise in cognitive neuroscience, EEG, MRI, and eye-tracking techniques. I successfully applied for Marie Sklodowska-Curie individual fellowship, contributed to writing the RETOS grant (RTI2018-098317-B-I00; PI – Dr. M. Ordin), which I joined as a team member and co-authored many papers, and also I+D GENERACIÓN DE CONOCIMIENTO grant (FFI2016-76432-P, PI – Simona Mancini), as a team member. Afterward, I joined Universidad Zaragoza, where I worked on how environmental stressors like air pollution and psychological stressors affect the resilience of neural systems to age-related degenerative processes. I was incorporated into the research group of Prof. Caridad López-Granero (grupo de investigación de referencia por el Gobierno de Aragón). In Zaragoza, I was involved in supervising master theses. After 6 years in Spain, I got another Marie Sklodowska-Curie fellowship in Slovakia, which I declined in favor of Fellowship for senior researchers at Universität Göttingen (Germany). From October 2022, I am dividing my time between Germany (Universität Göttingen, as a senior researcher, with research and supervision duties) and Portugal (Institute of Nuclear Science applied to Health, as an associate professor, with teaching and research duties). In 2022, I received an ERC starting grant to launch a research group (1 postdoc, 3 PhD students, and 2 technicians).

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	JIMENEZ RODRIGUEZ-VALDES, MARTA
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Título:	Etical and Political Emotions, Justice, and Practical Experience in Aristoteles

Resumen de la Memoria:

I am an Associate Professor in the Department of Philosophy at Emory University in the USA. My primary area of research is ancient Greek and Roman philosophy. My current work focuses mainly on topics related to moral psychology, philosophy of action, theory of emotions, ethics, and political thought in Aristotle, but I have broader research interests in all areas of ancient philosophy and have written papers on issues of moral psychology and political thought in Plato, Aristotle, the Cynics, and Olympiodorus. I also have an interest in contemporary ethics, emotion theory, action theory, and social and political epistemology (with particular attention on the intersections of contemporary social epistemology with core themes in ancient Greek thought).

My most relevant scientific contributions include several major projects with Aristotle's work at the center. One of my main areas of interest lies at the intersection of Aristotle's ethics, philosophy of action, and emotion theory, with a focus on the concepts of habituation and agency. To this general area belong several pieces: (1) on Aristotle's conception of habituation; (2) on the role of pleasure and pain in moral development; (3) on Aristotle's views on shame and moral development; and (4) the effects of external goods and evils in our agency and our capacity to lead a good life. A second, newer line of research expands my interests to include questions from Aristotle's political thought and practical epistemology, with two major projects: (5) on Aristotle's conception of justice as a virtue, and (6) on the role of empeiria (experience, familiarity) in practical thought. I have also been working on other closely-related moral psychological themes in ancient Greek thought, such as (7) the role of some political emotions, concretely anger and love, in our civic life. I briefly explain each of these projects in the attached summary, highlighting the ways in which these topics are interconnected.

In my first book, Aristotle on Shame and Learning to Be Good (Oxford University Press, 2020), I offer a full account of my view of moral development in Aristotle and I explore shame as an emotion with a strong epistemic and ethical role in Aristotle's system.

I have published articles on ancient philosophy in high-level journals (Phronesis, Journal for the History of Ideas, Journal of Speculative Philosophy, Epoche), indexed in the major databases, and in volumes with renowned international scholars in my area.

I am currently finishing my second manuscript, Aristotle on Justice as a Virtue: Self-Love, Friendship and Equality, which explores Aristotle's views on the relationship between virtue, justice, and moral emotions such as love and anger with the aim of recovering valuable ancient perspectives to help us re-think our modern theories of justice and equality.

More recently, I have started a new major project on the practical role of empeiria (experience, familiarity) in ancient Greek thought. My goal is to study the nature and practical value of empeiria not only in Aristotle's practical works, but also in Plato, in the debate between empiricist and rationalist physicians in the 3rd century BC, and in some of Plato's and Aristotle' commentators. This project, which is already underway with several papers in different degrees of development the one I propose to develop as a RyC scholar.

Resumen del Currículum Vitae:

Since receiving my PhD from the University of Toronto in 2011, I have gained international recognition in the field of English-speaking ancient philosophy, as well as in Germany, where I did a pre-doctoral fellowship and cultivated collaborations with Humboldt Universität and Ludwig Maximilians Universität; in recent years, also in Brazil, France, and China. I am an Associate Professor in the Department of Philosophy at Emory University in the USA (an R1 institution, which is the highest status in the Carnegie Classification of Institutions of Higher Education). I have carried out paid stays as a senior researcher at Harvard and Oxford, and since June 2022, at the UCM, where I am a Maria Zambrano Researcher in the Philosophy and Society Department.

-- Academic positions: Associate Professor, Emory University (2017-present); Maria Zambrano researcher, UCM (2022-present); Visiting Professor, Oxford University (Michaelmas 2018); Assistant Professor, Emory University (2011-17); Harvard University, E. Safra Center for Ethics, Fellow (2015-16)

-- Education: Ph.D., University of Toronto (2011); Visiting PhD Candidate, Humboldt Universität, Berlin (2008-09); "Research Sufficiency", UCM (1998-2001); Visiting Student, UCLA Department of Philosophy (2000-01); Erasmus student, Freie Universität, Berlin (1997-98); Bachelor of Philosophy, UCM (1993-98)

-- Publications
2020. Aristotle on Shame and Learning to Be Good. Oxford University Press. (Book)
2023, forthcoming. (with Andrew Culbreth) "Aristotle on Personal and Epistemic Transformation." In Transformation and the History of Philosophy, ed. by G. Anthony Bruno and J. Vlasits, Routledge.
2022. "Aristotle and Protagoras against Socrates on Courage and Knowledge." In Studies on Socrates and the Socratics, ed. Claudia Marsico et al., Academia Verlag: Sankt Augustine.
2020. "Plato on the Role of Anger in our Intellectual and Moral Development." In Emotions in Plato, ed. Laura Candiotto & Olivier Renaut, Brill, Plato's Studies Series.
2019. "Empeiria and Good Habits in Aristotle's Ethics." Journal of the History of Philos. 57:3.

2019. "Self-Love and the Unity of Justice in Aristotle." Epoché: A Journal for the Hist. of Philosophy 23:2.
2018. "Aristotle on Enduring Evils While Staying Happy." In Aristotle on Evil, ed. Pavlos Kontos, CUP.
2016. "Aristotle on Learning Virtue by Doing Virtuous Actions." Phronesis 61:1.
2015. "A. on "Steering the Young by Pleasure and Pain." Journal of Speculative Philos., 29:2.

-- Conferences and talks: more than seventy, many of them in the US and many international (in about 15 countries).

-- Teaching: At Emory University (2011-22): 34 undergraduate courses, 11 graduate courses, 6 dissertations, 2 MA theses, director of graduate studies (2018-2021); at the University of Toronto (2003-10): 2 undergraduate courses as main instructor, 13 courses as a teaching assistant.

-- PhD Supervision: 2 supervised theses defended; 2 theses in progress; 7 doctoral thesis committees.

-- Academic service: 2019 Central APA Program Committee (2017-19); 2018 National Meeting of the Ancient Philosophy Society, organizer; Emory College Senate representative, 2017-20; American Philosophical Association (APA) Committee on Hispanics, 2017-20.

-- Languages: Spanish, English, German, Ancient Greek, Latin, Italian

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	KAPNOULA ., EFTHYMIA
Referencia:	RYC2022-035505-I
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Título:	From speech sounds to words and beyond: A comprehensive examination of how we learn and process the basic elements of language

Resumen de la Memoria:

My research examines how humans learn and process the basic elements of language; mainly speech sounds and words.

The theoretical framework of my work is based on the view of language as a dynamic and malleable system, in the sense that systematic patterns of experience with language accumulate to shape the underlying processing system. Within this framework, I ask questions related to how humans process language in real time, how we acquire novel linguistic representations (e.g., phonemes and words), and how experience changes the way we process linguistic input.

I take three complementary methodological approaches: (1) examining language processing in real time, (2) studying language learning in controlled experimental settings, and (3) exploring the role of individual differences in language processing. My main methodological expertise is in eye-tracking, but I use a wide range of methodological tools including standardized tests, behavioral and electrophysiological paradigms, as well as computational modeling.

My research agenda is comprised of four main research foci:
1. Individual differences in speech perception: This line examines the nature of individual differences in speech processing. I am particularly interested in the underlying causes of listeners' high (or low) sensitivity to subphonemic acoustic information. In addition, I am interested in the consequences of these differences for spoken language comprehension and language learning.
2. Foundations of word learning: The goal of this research line is to help us reach a better understanding of the cognitive mechanisms that underlie novel word learning. To that end, I am looking at how word learning outcomes are modulated by a number of factors related to lexical characteristics (e.g., word length) and training procedure (e.g., with or without production).
3. Multi-modal language comprehension: This work aims at drawing links between spoken and visual language comprehension and examining cross-modal interactions. I am particularly interested in how information from different modalities is combined in real time (e.g., audio-visual speech processing), but also in how one modality affects processing in the other (e.g., how orthographic information affects speech perception).
4. Language plasticity across the life-span: This line is focused on the dimension of plasticity of the underlying language processes and representations. The broad hypothesis behind this line of work is that systematic experience with language causes transient effects to accumulate leading to permanent changes in the processing system.

My research has led to important discoveries regarding: 1) the cognitive mechanisms underlying word learning and 2) the nature of individual differences in speech perception - both of which have wide theoretical and practical implications, particularly for second language learning.

Building on this work, I plan to study fundamental language mechanisms bringing together language learning and real-time language processing. The research experience I have accumulated has equipped me with invaluable theoretical knowledge, as well as cutting-edge technical and analytical skills. Most importantly, it has helped me refine my research questions and evolve into an independent researcher with a comprehensive research agenda and collaborations with researchers around the globe.

Resumen del Currículum Vitae:

I have a BA in Psychology and a MSc in Basic and Applied Cognitive Science from the University of Athens (Greece). In 2016, I received my PhD in Psychology from the University of Iowa (USA), where I led multiple projects mainly on speech perception and word learning. My doctoral thesis was focused on individual differences in speech perception. This work received the highest recognition from the University of Iowa in the form of the D.C. Spriestersbach Dissertation Prize in Social Sciences, which is awarded every two years to the best dissertation across all social sciences. In addition, in 2016, I was the recipient of the ESCoP Early Career Publication Award by the European Society for Cognitive Psychology.

I am a researcher at the Basque Center on Cognition, Brain and Language (Spain) since 2016, working on projects related to speech perception, language comprehension, and language learning in monolingual and multilingual contexts. During this time, I have been awarded a Juan de la Cierva-Formación Fellowship, a Marie Sklodowska-Curie Fellowship, and an Ikerbasque Research Fellowship, and I am currently the primary PI of a "Project I+D+I" research grant.

I have 21 publications, including 18 papers in international peer-reviewed journals (avg. percentile: 92%), 14 as first/senior author. I have 488 citations, an h-index of 12, and an i10-index of 14 on Google Scholar. Moreover, I strive for impactful dissemination of my work to diverse audiences; I regularly present my work at scientific meetings around the world, with presentations in over 40 venues across 7 countries, including 9 invited talks in the UK, Europe, and the USA, and I participate in outreach activities aiming at popularizing science.

In addition to maintaining links with my home institutions, I have built an extended network of collaborators from top-tier institutions around the world, including Macquarie University (Australia), University of Exeter, (UK), University of Alabama (USA), Adam Mickiewicz University (Poland), and University of South Carolina (USA), to name a few.

Importantly, I am an active member of the global scientific community. My contribution in the field is widely recognized in the form of several merit-based memberships in leading societies worldwide; I am a full member of the European Society for Cognitive Psychology (Europe) and the Experimental Psychology Society (UK), as well as a Psychonomic Society Fellow (USA). In addition, I have reviewed 46 manuscripts for international journals and I have served as an international evaluator for several funding agencies in the USA, Canada, the UK, and Europe.

Apart from research, I also have extensive teaching and mentoring experience. At the University of Iowa, I started teaching undergraduate classes in 2010, while in 2014 I co-taught an advanced grad-level statistics class. Since 2016, I have been an Instructor at the BCBL Master's program in Cognitive Neuroscience of Language. In addition, I have led workshops on the use of eye-tracking in psycholinguistic research in Israel and in Spain, I have supervised students at the undergraduate, Master's, and doctoral level, and I have trained several students in experimental techniques used in psycholinguistics.

My research experience and overall professional trajectory put me in an ideal position to pursue my research goals as an independent researcher.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	WIEGMANN , ALEXANDER
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Título:	Misinformation

Resumen de la Memoria:

While my research is quite diverse overall, it has been centred around moral judgments and the concept of lying. The former topic mainly stems from the early years of my career and concerns the question of whether our moral intuitions can be influenced by morally irrelevant factors such as the order in which moral scenarios are presented ("order effects"). My research papers on order effects (published in Philosophical Psychology and Cognition) have become points of reference in the field and have been cited over 330 times.

Over time, I extended this research to the broader question of how reliable the philosophical intuitions of laypeople and professional philosophers are. On the basis of studies like my work on order effects, some philosophers have challenged the important role of intuitions in moral philosophy. The most prominent reply to this challenge is the so-called "expertise defence", according to which philosophical experts are unlikely to be influenced by such irrelevant factors. I conducted several studies with professional philosophers that have become crucial for this important meta-philosophical discussion (published e.g. in Australasian Journal of Philosophy, Oxford Studies in Experimental Philosophy, and Philosophical Studies, 123 citations).

Most importantly, since 2016, I have consistently advanced my research agenda on the topic of lying. Lying is a familiar and morally important phenomenon. With presidents taking liberties with the truth and falsehoods spreading fast through social media, this topic has received special attention in recent years. But what exactly does it mean to lie? For almost two thousand years, philosophers have put forward countless proposals for how to best define lying.

Since lying is deeply embedded in our social life, it is widely accepted that any definition of lying should capture people's use and understanding of this concept. For instance, Carson (p. 33) writes:
Lying is a concept used in everyday language, and moral questions about lying arise in people's everyday experience. [..].Therefore, consistency with ordinary language and people's linguistic intuitions about what does and does not count as a lie is a desideratum of any definition of lying.
Conducting empirical studies seems a natural way to seek such a definition. However, there have only been a few studies on the concept of lying – at least until recently.

My research is focused on filling this gap by tackling questions such as "Can a person lie without saying something false?", "Is an intention to deceive necessary for lying?", "Can a person lie by asking a question", etc. I have published over a dozen papers in leading journals (in Cognition, Cognitive Science, Ergo, Synthese, Philosophical Psychology, Analysis, and elsewhere), with 199 citations already. Moreover, I was invited to write a survey paper on the folk concept of lying for Philosophy Compass (Wiegmann & Meibauer, 2019), and I am currently editing a volume for Bloomsbury Press, titled Lying, Fake News, and Bullshit, which brings together cutting-edge research from different research areas and from several world-leading scholars. My future aim is to further advance philosophical discussions and produce work that makes substantial contributions of topics that are important for society (e.g., through my research on misinformation).

Resumen del Currículum Vitae:

My research is characterized by an interdisciplinary and empirically informed approach to philosophy (following Open Science principles). I address philosophical questions with tools from analytic philosophy, psychology, linguistics and cognitive science. My broad and international educational background has allowed me to successfully apply this experimental philosophy approach. I studied philosophy and psychology (University of Göttingen, Germany), before I obtained a master's degree in cognitive science (University College London, UK). Afterwards, I did my first PhD in moral psychology (University of Göttingen, Germany). During this time in a cognitive science lab, I acquired a high level of expertise in designing and conducting empirical studies. To deepen my philosophical skills and knowledge, I then decided to pursue a (second) PhD in philosophy (University of Zurich, Switzerland).

This broad education has enabled me to position myself among the most productive experimental philosophers, as the most cited German experimental philosopher, and as a world-leading researcher in my empirical research on the concept of lying.

Overall, I have published more than 40 papers, chapters and books, accumulating 879 citations (2022: 190 citations; h-index: 14; i10-index: 19). Most of my work has been published in leading psychology journals (such as Cognition, Cognitive Science, and Cognitive Psychology), as well as in leading philosophy journals (such as Philosophical Studies, Australasian Journal of Philosophy, Ergo, Synthese, Erkenntnis, Philosophy Compass, and Analysis). My papers have also been published as book chapters in leading presses (such as Oxford University Press and MIT Press), and I have edited two books for Bloomsbury Publishing.

I have given over 30 talks in many countries in Europe, North America (USA) and Asia (Japan), several of which were invited and paid for, e.g. in Japan (Wiegmann, 2014; see CVA for details). I have collaborated and published joint work with almost 30 international researchers, and I have led several international research projects. My collaborators are from different fields (philosophy, psychology, cognitive science, linguistics), from several different countries (e.g. the USA, the UK, Spain, Italy, Germany, Switzerland, Israel, China, Japan, Colombia), and among them were bachelor students as well as MacArthur fellows. I have established a global network of collaborations that places me in a rather unique position.

I contributed to two successful grant applications with an overall value of almost €1.5 million (in both of these projects I was subsequently employed as postdoc). Moreover, as a PI, I received three small grants for my research on lying (€25,100) and for organizing an international workshop on language (€3,100).

I am a member of the Scientific Committee of Experimental Philosophy Europe and have organized or co-organized several international workshops with world-leading researchers (two alone in 2022, among whose participants were Timothy Williamson, Sally Haslanger and Edouard Machery).

I have taught more than a dozen of courses (average evaluation of 6.4 out of 7) and I have supervised about 30 BSc and MSc theses. Currently I am the main PhD supervisor of Louisa Reins, who already has an impressive publication record (three publications in Q1 journals in her first year).

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	SIMON , ZSOLT
Referencia:	RYC2022-036225-I
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Título:	Ancient Anatolian Languages

Resumen de la Memoria:

My research fields consist of three main topics. First, the historical and diachronic grammar, the lexicon, and the epigraphy of the Indo-European and non-Indo-European Anatolian languages (especially Cuneiform and Hieroglyphic Luwian, Carian, Sidetic, and Hattian). Second, the Neo-Hittite states, with a special emphasis on their history, chronology, and geography. Third, the phonological, morphological, etymological, and prehistoric study of the Ancient Indo-European languages (especially Latin, Greek, and Armenian) and of Proto-Indo-European (with an emphasis on loan contacts).

My planned research consists of two pillars, both being the organic continuation of the first two above mentioned research lines: the description and history of the Ancient Anatolian languages and the Neo-Hittite world. In particular:

Despite the progress of the last three decades in the research of the Ancient Anatolian languages, some of them remained understudied and badly understood, lacking an up-to-date grammar and a complete dictionary, first of all due to problems in understanding and even in deciphering their texts. The synchronic and diachronic investigation of these languages (more closely the Luwic group, especially the Luwian and the Carian languages) will be the first pillar of my research, with a special emphasis on their writing systems (origins, development, undeciphered signs), phonology, morphology, lexicography (both descriptively and etymologically) as well as onomastics.

A better historical understanding of these languages serves also as a starting point for the research on the prehistory of these speech communities (e.g., the Carians or the Anatolian branch as such), a fairly neglected issue, which I also plan to address.

The other main impact of this research can be best illustrated by the second pillar of my planned research: the Neo-Hittite world. The Neo-Hittite world consisted a series of states that gradually grew out of the remains of the disintegrated Hittite Empire, continuing and transforming its culture as well as transmitting it to the neighbouring cultures. While limited information on these states is available in other Ancient Near Eastern sources, the central source of this world consists of their own inscriptions, mostly in Hieroglyphic Luwian. Therefore, any sstudy on this world must be based on the meticulous analysis of these inscriptions. However, this is not possible without the continuous linguistic elucidation of these inscriptions. Since numerous simple chronological, geographical or cultural aspects of these states are still unknown, their research is still a desideratum. The second pillar of my planned research is thus a research on the history, geography and culture of the Neo-Hittite states based on the re-analysis of their inscriptions.

Two further planned research subtopics should be mentioned at this juncture. First, I am a member of an international research project on Anatolian theonyms just started, which also unifies the aspects discussed above but limited to the divine names. Second, the toponymy of the Hieroglyphic Luwian inscriptions. Although the literature on these toponyms is rich, they have never been collected in an up-to-date, philologically trustworthy handbook offering a linguistic and a geographic analysis, with a critical overview of the proposals. My mid-term plan is to write such a handbook

Resumen del Currículum Vitae:

After having studied Ancient Near Eastern philology and archaeology, prehistoric archaeology, Indo-European linguistics, Latin and Iranian studies in Budapest, I have chosen Hittitology and Indo-European linguistics for my research fields, with a special emphasis on the Anatolian languages and the Neo-Hittite world. In 2007, after finishing the doctoral education (with state fellowship), I received a one-year Sasakawa research fellowship at the Research Institute for Linguistics of the Hungarian Academy Sciences. In 2008, this was followed by a research fellowship at the same institute I still hold (in the meanwhile renamed as Hungarian Research Centre for Linguistics). Next to this fellowship, I spent almost two years in Istanbul with two different research fellowships (a junior research fellowship in 2010-2011 at the Research Centre of the Anatolian Civilizations of the Koç University, and a TÜBITAK research fellowship in 2012-2013 at the same university). In 2013, I defended my dissertation, the description of Hattian, an Ancient Near Eastern language with summa cum laude in Budapest. In 2015, I was invited to become a research associate at the Ludwig-Maximilians-Universität in Munich as a member of the research project Digital Philological-Etymological Dictionary of the Minor Ancient Anatolian Corpus Languages financed by the Deutsche Forschungsgemeinschaft, a project that ended in 2021 (and resulted in more than 450 dictionary entries written by me).

My research results were presented at the leading conferences of these fields and published both in the leading journals of my fields (e.g., Altorientalische Forschungen, Anatolica, Zeitschrift für Assyriologie, Glotta, Indogermanische Forschungen, Kadmos) and in several conference proceedings, comprising altogether more than 120 research articles (that led to more than 760 independent citations and a h-index 14).

My research during these years was supported not only by the above mentioned grants, but also by a DAAD fellowship as well as different awards. I was invited to several international research projects, including four Spanish ones on the Anatolian languages and a Hungarian one on Latin.

As a scholar devoted to the dissemination of scholarly results, next to my teaching activities I frequently give lectures not only at the main conferences of my fields but also at smaller, thematically focused conferences. One dozen times I presented my results as an invited speaker. I myself (co-)organized (and published) two international workshops on Anatolian languages, one devoted to Hattian and one to Lycian.

Although my positions held until now were exclusively research positions, I kept training and mentoring young researchers by continuously teaching Hittitological and Indo-European topics, both at my home university ELTE in Budapest and at the LMU in Munich. Furthermore, I taught block seminars in Tbilisi, Jena, and Tel Aviv (latter as a part of the Erasmus program between the Munich and Tel Aviv universities).

Besides, I worked as a peer-reviewer for numerous international journals as well as reviewer and evaluator for the Hungarian and Polish national scholarly funding agencies. Finally, I am the co-editor of the international journal Hungarian Assyriological Review since its founding in 2020.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	SERRANO ZAMORA, JUSTO
Referencia:	RYC2022-036207-I
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Título:	Epistemología de la Democracia

Resumen de la Memoria:

In my doctoral studies at the University of Frankfurt, as well as in my postdoctoral period at the TU Munich and the University of Groningen I have developed an epistemic approach to democracy taking as a theoretical framework the pragmatist theories of democratic experimentalism in combination with Frankfurt School critique of society. My aim is to show that this strategy can contribute to enriching our view on topics such as the role of science in a democratic society, the problems derived from neoliberal expertocracy, and the democratic function of social movements. The projects derived from this main line of research are four: First, in my monograph Democratization and Struggles Against Injustice I develop an approach to progressive social movements such as feminism and environmentalism in which I identify experimental practices of knowledge production, which allows them to articulate injustices and at the same time deepen the meaning of democracy. Secondly, my postdoctoral project within the framework of the project "Democracy and its Futures" is empirical and consists in operationalizing the notion of experimental practice in the study of social movements through the analysis of two empirical cases: that of two "climate camps" (Erkelenz 2019, Montpellier 2021). Some results of my work appear in A Realist Epistemic Utopia? (with L. Herzog, J. of Social Philosophy, 2021) My third project is normative and consists in formulating an epistemic justification of democracy and thereby contributing to the current debate on instrumental defenses of democracy. My thesis is that it is necessary to abandon the widespread idea of a standard of correctness of the results of political deliberation that is independent of the deliberative processes themselves and to substitute it for an "deliberation-immanent" standard. The results of this line of research have been published in my paper Articulating the Social World: Expressive Domination and Dewey's Epistemic Argument for Democracy (Philosophy and Social Criticism, 2022). My fourth project is social-critical and consists in formulating an epistemic critique of populism, including the populist theories of Ernesto Laclau, and proposing a democratic-experimentalist alternative to neoliberal technocracy that promotes cooperation between experts and citizens to address issues such as HIV and Covid. Among other publications, the results of this line of research have been published in my paper Is Populism a Social Pathology? The Myth of Immediacy and its Effects (European Journal of Social Theory, 2022). The results of all these projects have appeared in Q1 and Q2 peer-reviewed journals as well as in prestigious publishers such as Roman & Littlefield, Routledge, and SUNY Press. At the moment I pursue my current research on epistemic and critical approaches to democracy by developing a co-written paper (with Lisa Herzog, under review) on how the Paulo Freire's pedagogy of the oppressed can contribute to developing a new approach to democratic practices. Finally, I am also developing my own approach on epistemic-political questions regarding climate change and the challenges it direct both to scientific practices and democratic institutions (I have recently sent a panel proposal to an international conference inviting several experts on this topic).

Resumen del Currículum Vitae:

After obtaining my Licenciatura in Philosophy (UB, 2006), I completed my DEA at the UAB in 2009. With the financial support of a La Caixa-DAAD postgraduate scholarship I completed my M.A. in Political Theory (TU Darmstadt, Goethe-Universität Frankfurt) in 2011. In the same year, I enrolled as a doctoral student at the Goethe-Universität under the supervision of Prof. Axel Honneth. I was also a doctoral candidate at the Institute for Social Research in the same city. At the Institute I was leader of the International Critical Theory Group, and had a one-year research contract in the project "Aktualität der Kritik" (DFG-ANR, 2011-2012) and subsequently a doctoral fellowship from the Episcopal Cusanuswerk Foundation (2014-2017). As a doctoral candidate I completed two research stays (EHESS, Paris - where I also taught two courses in different periods - and UB, Barcelona). One year before my thesis defense in July 2018 I joined as a research and teaching assistant at the Hochschule für Politik of the TU Munich at Lisa Herzog's Professur. After my PhD defense, I continued as a postdoctoral researcher and lecturer at her chair of Political Philosophy. In 2019 I applied together with Lisa Herzog and Jan Spurk (Paris-Descartes) for an ANR-DFG (Franco-German) project "Democracy and its Futures" which was accepted and started working as a postdoctoral researcher pursuing my own research and responsible for the French-German coordination of the project. The same year the project was transferred from Munich to the University of Groningen, where I was working until August 2022. In October 2022 I joined the University of Málaga as Profesor Ayudante Doctor, where I pursue my research, I teach, and apply for research funding.

I have published my PhD thesis as a monograph in Rowman & Littlefield International and have published several articles in Q1 and Q2 peer-reviewed journals (European Journal of Social Theory, Philosophy & Social Criticism, Journal of Social Philosophy, etc.) as well as in internationally renowned publishers such as Routledge, Metlzer and Transkript. I have also edited a volume based on my experience as leader of the International Group for Critical Theory (Frankfurt) in Anthropos (Barcelona). I am currently co-editing the volume Democratizing Social Critique in Routledge (with Kurt Mertel and Gianfraco Casuso).

I have (co-) organized several academic events such as the international conference "Freedom-in-View" (Frankfurt, 2015) and "Ways forward for Democracy" (Munich, 2019). I have reviewed articles for many international journals. I have discussed my papers in international conferences and workshops in London (2014), Wahington D.C. (2016), Prague (2019), or Leuven (2021). I have been a member of the scientific committee of the Graduate Pragmatist Conference (Paris, 2018) and member of the selection committee of the postdoc "The political philosophy of work" (2022) During these years, I have worked on giving public visibility to my research, presentations on actual political problems (Frankfurt 2017, Groningen 2020) and participating in projects such as Democratize Work (online). Finally, I have recently awared with the Prix Jean Widmer (1st position) for my article "Approfondir la démocratie avec John Dewey" (Université de Fribourg - 5000 CHF) and the Marie S. Curie Actions Postdoctoral Fellowship – Seal of Excellence.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	LIZANA MORAL, FRANCISCO JESUS
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Correo Electrónico:	lizanafj@gmail.com
Título:	ALMACENAMIENTO Y GESTIÓN DE LA ENERGÍA TÉRMICA HACÍA EDIFICIOS DE BAJA EMISIÓN DE CARBONO

Resumen de la Memoria:

La presente trayectoria investigadora se ha focalizado en el desarrollo y validación de materiales, sistemas, aplicaciones y estrategias de actuación para el almacenamiento y la gestión de la energía térmica en edificación, con el objetivo de hacer frente al objetivo de descarbonización de la calefacción y refrigeración, responsables de casi el 50% del consumo de energía final, siendo el 75% todavía basado en combustibles fósiles. Su línea de investigación se ha centrado en 4 áreas: MATERIALES, SISTEMAS, EDIFICACIÓN Y PLANIFICACIÓN ESTRATÉGICA.

En el área de investigación MATERIAL, la investigación se ha centrado en la identificación, caracterización, desarrollo y validación de nuevos materiales para el almacenamiento térmico a través de técnicas experimentales en laboratorio. En el área de SISTEMAS, la investigación se ha focalizado en la evaluación de técnicas de integración de las soluciones de almacenamiento e intercambio de calor en edificios a través de modelos numéricos (evaluaciones "bottom-up"). En EDIFICACIÓN, la investigación se ha centrado en la evaluación de las necesidades y demandas del parque edificado a través de estudios de campo. Y en PLANIFICACIÓN ESTRATÉGICA, los trabajos se han centrado en la identificación de planes de acción según las estrategias óptimas de implementación a escala local y/o nacional a través de modelos numéricos de análisis (evaluaciones "top-down"). Dicha línea de investigación ha derivado en la siguiente trayectoria:

Como contribuciones científico-técnicas, la línea abarca 30 artículos en revistas científicas JCR, 4 capítulos de libro y 26 comunicaciones a congresos internacionales, obteniendo un índice h17 y 1138 citas. La investigación ha sido financiada a través de 10 ayudas y contratos de excelencia obtenidos en convocatorias públicas competitivas, englobando una Juan de la Cierva en el CSIC y una Marie Curie en la Universidad de Oxford. El candidato ha contribuido a 15 proyectos de i+D (2 internacionales, 4 europeos y 9 nacionales), siendo en la actualidad IP del proyecto H2020 MSCA ResCool en Oxford. Participa con regularidad en actividades de divulgación y gestión. Su trayectoria ha sido ampliamente reconocida, destacando el 1er Premio nacional a la mejor tesis doctoral por el Grupo GECAT, 1er Premio Joven a la Cultura Científica 2018; y 1er Premio Internacional YEAR AWARD 2018.

En cuanto a Movilidad e internacionalización, ha desarrollado 3 estancias predoctorales de 3 meses en The University of Edinburgh, Technical University of Munich, Universidade de Lisboa; y 3 estancias postdoctorales en la Universidad de Sevilla, el CSIC y la University of Oxford. Resultado de dichas estancias, junto con la participación en 2 proyectos internacionales y 4 europeos, han publicado 15 artículos JCR en colaboración internacional y 1 patente.

En relación con actividades de Liderazgo, el candidato es en la actualidad Investigador Principal del proyecto H2020 MSCA ResCool, supervisa estudiantes de master y doctorado, y es líder de un equipo de trabajo en el programa "Future of Cooling" de la Universidad de Oxford. Además, es miembro del consejo editorial de las revistas Sustainable Cities and Society (JCR, Q1, IF: 10.696) y Frontiers in Built Environment (JCR, Q2), chair en congresos internacionales, revisor de proyectos europeos y colabora con diversos grupos e instituciones internacionales.

Resumen del Currículum Vitae:

El Dr. Jesús Lizana es experto en ingeniería térmica en edificación y simulación avanzada. Dr. Lizana es licenciado en Arquitectura por la Universidad de Sevilla (2013), Master Universitario en Peritación y Reparación de Edificios (2015) y Doctor por la misma universidad (2019). Su investigación ha sido financiada a través de 10 ayudas y contratos de excelencia obtenidas en convocatorias públicas competitivas, lo que le ha permitido desarrollar su doctorado a través de un contrato de Formación del Personal Universitario (FPU), y consolidar su etapa postdoctoral con un contrato Juan de la Cierva (JdC-F) en el CSIC y una Marie Curie Individual Fellowship (MSCA) en la University of Oxford, y abordar investigaciones interdisciplinares a través de estancias internacionales en la University of Edinburgh, la Technical University of Munich y Universidade de Lisboa. Cuenta con acreditación Prof. Contratado Doctor (ANECA).

En la actualidad, Dr. Lizana es IP del Proyecto Europeo ResCool en la Universidad de Oxford, y responsable de un grupo de trabajo de 4 investigadores jóvenes dentro del programa "The Future of Cooling". Imparte docencia y colabora en actividades de supervisión y mentorización de estudiantes de máster y doctorando en el dept. de Engineering Science.

Dr. Lizana ha contribuido a 15 proyectos de i+D (2 internacionales, 4 europeos y 9 nacionales), cuenta con 30 artículos en revistas científicas JCR, 1 libro, 4 capítulos de libro y 26 comunicaciones a congresos internacionales, obteniendo un índice h17 y 1138 citas. Uno de sus trabajos está en la categoría de artículo altamente citado, 15 son resultado de colaboraciones internacionales. La mayoría de sus publicaciones están en acceso abierto (15 Open Access + preprints en repositorios institucionales).

Es revisor frecuente de revistas científicas y congresos, comité científico-técnico de congresos internacionales (CICSE, SDEWES), y editor de las revistas Sustainable Cities and Society (JCR, Q1, IF: 10.696) y Frontiers in Built Environment (Q2).

Destaca su capacidad de transferencia y aportación a la sociedad a través del desarrollo de una patente, la participación en 5 proyectos de I+D financiados por empresas, y la colaboración en proyectos de arquitectura en España, Marruecos, Arabia Saudí y Reino Unido, algunos de los cuales han obtenido reconocimientos internacionales, como el Premio Internacional Solar Decathlon Europe 2012, o el Primer Premio Nacional de ANfhARQ-FYM ARQ-TMOSFERAS. Además, desarrolla actividades de divulgación en medios cómo TheConversation, TheTimes, Cadenaser o Housing Matters,

participa en actividades de difusión (10th OXFORD ENERGY DAY, Network H+C, video TESIS EN 3 MINUTOS, Noche Europea de los Investigadores) y colabora con frecuencia en programas de promoción de la investigación en escuelas cómo Science is Wanderful (2022) o Jóvenes con Investigadores (2016-19).

Su trabajo investigador ha sido reconocido en numerosas ocasiones, destacando el 1er Premio nacional a la mejor tesis doctoral por el Grupo GECAT de la Real Sociedad Española de Química y la Real Sociedad Española de Física (1000€); 1er Premio Joven a la Cultura Científica 2018 del Ayuntamiento de Sevilla/CSIC (4000€); el 1er Premio Internacional YEAR AWARD 2018 por la Asociación Europea de Jóvenes Investigadores; premio extraordinario de doctorado; y accésit en "Tu tesis en 3 minutos".

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	OLIVEIRA BARROSO, FILIPE ANDRÉ
Referencia:	RYC2022-036551-I
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Título:	Neural engineering to reduce pathological tremor

Resumen de la Memoria:

Since the beginning of his scientific career, Dr. Barroso has been working in the neural engineering field. Specifically, he has been applying engineering techniques to investigate the function and manipulate the central and peripheral nervous system, in animal models and in humans. The main line of research that the candidate intends to carry out throughout the duration of the fellowship is Neural engineering to reduce pathological tremor.

In the past 5 years, the candidate supervised several studies that achieved prolonged reduction of pathological tremor when applying customized peripheral electrical stimulation (PES) below motor threshold (MT), paving the way for a potential therapeutical approach targeting patients with intractable and disabling tremor (DOI: 10.1109/TBME.2020.3015572). The main goal of the line of research to be developed by the candidate is to investigate the capability of PES below MT to modulate spinal and supraspinal centers involved in the pathogenesis of tremor in PD/ET patients in the short and long-term. To achieve this goal, several electrophysiological assessments will be combined to assess changes in corticospinal excitability, such as somatosensory evoked potentials (SSEPs), motor evoked potentials (MEPs) and measures of reciprocal inhibition. The second goal of this line of research is to assess the potential transfer of benefits of a therapy based on the intelligent control of PES through Artificial Intelligence (AI) techniques. For that, a setup that can be tested at home as an intervention to reduce tremor in the long term will be developed. Experiments with patients will be carried out at Gregorio Marañón Hospital (Madrid, Spain), where the candidate performed the past experiments with ET/PD patients and where there is an ongoing collaboration towards the development of innovative strategies for tremor reduction.

Pathological tremor is the most prevalent movement disorder and a fundamental clinical sign of essential tremor (ET) and Parkinson's disease (PD). ET has an estimated incidence of 4% of the population over 65 years and PD affects 2% of the population over 60 years. About one third of patients with ET are refractory to drug treatments and tremor in PD may not respond to levodopa or other antiparkinsonian drugs. This line of research is expected to have a high impact for achieving technology that can effectively improve the daily life of ET/PD patients, preventing the adverse side effects of drugs and functional neurosurgery, which can reduce the socioeconomic burden on the healthcare system.

Resumen del Currículum Vitae:

Filipe Oliveira Barroso received his Ph.D. degree in Biomedical Engineering from University of Minho (Portugal) in 2016. On January 1st 2022, he was awarded with the highly competitive Juan de la Cierva – Incorporación Postdoctoral fellowship. Since March 2018, he leads the Neural Interfaces and Enhancement line of research at the Neural Rehabilitation Group (Cajal Institute - CSIC). The main goal of his research is to design breakthrough neural engineering interventions to promote neurorecovery by using neural interfaces and techniques able to modulate and strengthen neural pathways (e.g., he coordinated an international study that achieved prolonged (up to 24h) reduction of pathological tremor using customized peripheral electrical stimulation). Dr. Barroso was the Coordinator of the EU Project EXTEND "Bidirectional Hyper-Connected Neural System" (Grant Agreement Number 779982).

From 2016 to February 2018, Dr. Barroso was a Postdoctoral Researcher at Feinberg School of Medicine - Northwestern University (Chicago, IL, U.S.A.), where he enriched his knowledge on neural engineering, neuroplasticity, motor control, Brain-Machine Interfaces (BMIs) and spinal cord injury (SCI), namely by conducting research for the Projects "The Neural Control of Internal Joint State" (NIH Project number 5R01NS086973-04) and "Development of an FES neuroprosthesis for rehabilitation following SCI" (Senior Research Grant 340943 from the Craig H. Neilsen Foundation) under the supervision of Professors Matthew C. Tresch and Lee E. Miller, respectively.

His interests include neural engineering, neural rehabilitation, tremor, movement disorders, motor control, electromyography, biomechanics, muscle synergies and wearable robots. Within these areas, he has (co-)authored 25 papers in peer-reviewed Journals indexed in Journal Citation Reports (JCR) of ISI Web of Knowledge (14 articles in Journals of the first quartile, 7 as first or co-first author, 2 as senior author, 6 as corresponding author) and over 50 among conference papers/abstracts, books and book chapters, which have currently received cumulatively 675 citations (according to Google Scholar) and an h-index of 15. He has participated in 9 R&D projects (2 Europeans, 2 from U.S.A., 5 Spanish national projects). He has also supervised 5 Doctoral Theses (2 already defended) and 8 Bachelor Theses (all of them completed). Dr. Barroso is also the supervisor of 1 JAE Intro grant offered by CSIC, aimed at university students interested in starting a research career.

As part of his service to the scientific community, he has been referee for several Journals and International Conferences. Dr. Barroso is Review Editor in 5 scientific journals and he was also Guest Editor of the Special Issue "Neurorobotics and Neuroprostheses: Towards a new anatomy" in the scientific journal The Anatomical Record. He has 1 request for grant of a USA patent (National Phase in USA No. 17/926,278, Title "Control method for a neuroprosthetic device for the reduction of pathological tremors") based on International Application PCT/EP2021/063189. Dr. Barroso is also IEEE Senior Member.

Resumen de la Memoria:

My main line of research has been focused on energy-based ablative medical techniques in different medical areas by applying radiofrequency (RF) and high-intensity pulsed electric fields (PEF). In the last 12 years of work at different national and international research labs, I have developed a vast multidisciplinary collaboration network including practising doctors, veterinarians, engineers, physicists, biologists and mathematicians, favouring synergies and achieving goals. It is important to highlight that my entire career was funded by competitive pre- and post-doctoral grants (>€300k).

In total I have spent more than 7 years in prestigious national and international research institutions away from the Universitat Politècnica de València (UPV) where I did my PhD formation in RF ablative techniques granted with a predoctoral grant from Generalitat Valenciana-GVA. During this time, I collaborated with Apeiron Medical (Spain) supporting R&D tasks to improve the performance a device for RF tumour resection. I have also conducted a 4-months stay at the Wellman Center for Photomedicine (US), granted with a GVA mobility grant.

Since January 2020 I have been Research Fellow and Adjunct Lecturer at the University of Galway (UoG, Ireland), where recently I created a 5-member research team. I am currently leading two research projects (€6.1M), funded by Irish Government, focused on the development of disruptive technologies for PEF ablation of arrhythmias and cancer, in close collaboration with Irish companies AtriAn Medical and Mirai Medical respectivetly. I also made a significant contribution to the IP of other Irish (Xtremedy Medical, Aurigen) and US (Attune Medical) companies.

Before joining the UoG, I enjoyed more than two-years postdoctoral stay at the Universitat Pompeu Fabra (Spain) with a competitive Juan de la Cierva Grant, where I started a new line of research in RF cardiac ablative techniques to combine with the PhySense group' expertise in electrophysiological modelling. During this period, I did a 3-months visiting stay at the Mount Sinai Hospital (US) granted with José Castillejo and Fulbright Grants.

Before joining the UPF and after a period of 7-months at UPV with a competitive postdoctoral grant from the GVA, I did a two-year postdoctoral stay at the BCAM-Basque Center for Applied Mathematics (Spain) granted al Severo Ochoa Grant. Here I created and lead my own research line in RF cardiac ablation. I was also involved as PI in an industrial project with MedLumics (Spain) focused on optics-based innovative cardiac ablation technologies.

Projecting towards the medium and long-term future, a Ramón y Cajal Fellow position will enable me to undertake an independent research line within the framework of a prestigious Spanish university, and oriented not only to the execution of progressively more complex challenges with growing social and economic impacts, but also to the training of excellent researchers. This line will be focused on non-thermal novel ablative medical technologies for treatment of arrhythmias and cancer by using PEF. In general, my plan is to develop disruptive technologies in close collaboration with private companies aimed at treating high-prevalence and/or chronic diseases through minimally invasive approaches, thus reducing health care costs and improving the life quality and expectancy.

Resumen del Currículum Vitae:

I have 12 years of international research experience in experiments and in-silico modelling of energy-based ablation techniques in different medical areas, including dermatology, oncology and interventional cardiology. These techniques are based on the minimally invasive treatment of fat disorders, tumours and arrhythmias by using radiofrequency (RF) power or pulsed electric field (PEF). In this time, I have produced over 75 peer-reviewed scientific publications. This outcome has made a great contribution to knowledge in the energy-based ablation field and has had a considerable impact on optimizing clinical treatments and advances in medical devices. Most of these publications were produced in collaboration with well-known cardiac electrophysiologists from leading US clinics, oncology surgeons and prominent engineers from prestigious international institutions.

My collaboration with industry has led to the optimisation of energy-based ablative devices to improve patient' s safety and reduce health cost system. I started in my predoctoral stage when I gave scientific support to Apeiron Medical (Spain). In 2015 I was PI in a project carried out by MedLumics (Spain) focused on innovative RF cardiac ablation catheter. I am currently involved as Lead Researcher in two projects funded by Irish Government, focused on developing disruptive PEF technology for treating cancer and arrythmias, in collaboration with Mirai and AtriAN Medical (Ireland) respectively. I also support R&D in other companies from Ireland (Xtremedy Medical, Aurigen) and US (Attune Medical) on PEF techniques. In the same period, I organized several workshops for young scientists, summer courses and disseminating science in secondary schools and in teaching conferences.

Since January 2020 I am Research Fellow at University of Galway (Ireland), where last year I created a 5-member research team focused on the use of PEF for treating cancer and arrhythmias. I recently got Honorary Adjunct Lectureship Appointment in recognition of my excellent track-record. I am currently supervising 4 PhD and 3 MSc at Spanish and Irish universities. I have supervised 7 BSc and 4 MSc thesis in the last three years. Since January 2023, I am Research Professor at Universidad Internacional de Valencia (VIU), where I am currently teacher coordinator of medical device and signal processing courses within MSc Biomedical Engineering.

I am currently a Commission member of Woman & Mathematics Committee of the RSME, and member of international scientific societies (STM and ASLMS) as well as Member of European COST Action-MyWave. I recently participated in organizing two scientific events in Ireland (EIT2021 Conference

and EMERALD Workshop). I am also an active reviewer in high-impact journals and conferences, on the examination panel of scientific activities, conferences, committee member for BSc, MSc and PhD thesis. I was recently invited as guest editor to organize and lead a special issue in the Journal of Cardiovascular Development and Disease focused on cardiac ablative techniques.

It is worth noting that my entire research career has been funded by competitive predoctoral and postdoctoral grants (>€300k). I received the "IFMBE Young Investigator Award" at the MBEC2014 Conference as well as with several Educational Awards. I have also been involved in 20 research projects.

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	MATEOS MARTÍN, JOSÉ IGNACIO
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Título:	Low-frequency magnetic sensing techniques for space-based gravitational wave detectors

Resumen de la Memoria:

The main research line of Ignacio Mateos is focused on the development of high-precision low-noise systems for space applications capable of measuring the slow magnetic field drifts in non-previously explored sub-millihertz band. The key aspects of Mateos' work are focused on the research of electronic noise reduction techniques to improve the sensitivity performance of the system by means of a thorough understanding of noise processes in electronic circuits.

In this sense, his research aims at developing novel prototypes of ultra-stable compact magnetic sensors with low-noise electronics at frequencies that have barely been studied before. This research is especially valuable for pushing forward space applications that require high-precision magnetic field sensing. This is very clear from the nature of the advanced magnetic instrumentation that was required for demanding mission, such as LISA Pathfinder (ESA/NASA) and the revolutionary science and emerging technology that LISA (ESA/NASA) promises as the first space-borne gravitational wave detector. Both space missions are pioneering from the scientific and technological challenges that they have reached and will reach.

However, emerging technological applications for space need to increase the technical maturity before being accepted by ESA in large scientific mission. The use of nanosatellites as technology demonstrator is an effective way of establishing that promising innovations are ready for space. In an effort to advance the Technology Readiness Level (TRL) of chip-scale magnetic sensors and associated electronics for space, Ignacio is currently working on experiments with In-orbit Demonstrator/Validation (IOD/IOV) by using nanosatellites, which offer the possibility to test emerging technologies in space. To this end, MELISA (Magnetic Experiments for the Laser Interferometer Space Antenna) are a series of compact magnetic measurement payloads designed at UCA with a detectivity capable of distinguishing interplanetary magnetic field fluctuations down to 100 uHz. The special feature of the in-orbit experiments is that the MR sensors under test are placed inside a cylindrical shield of mu-metal to screen out the slow drift of the environmental magnetic field at Low Earth Orbit (LEO). These in-flight experiments, which have not been done before, will give valuable insights to understand the quantitative effects on the low-frequency intrinsic noise behavior of the electronics under the harsh space environment. We will take advantage of these breakthroughs to shed light on flicker noise mitigation techniques at the scarcely studied milliHertz frequencies. The data to be obtained during scientific operations will help us to develop criteria for the best choice of magnetic sensing techniques for future space-based GW observatories.

Resumen del Currículum Vitae:

Ignacio has published more than 75 original research papers in refereed journals and conference proceedings (10 as a first author), with more than 2630 citations during the last 5 years (h-index = 20 and i-10 = 37 Ref. Google Scholar). His work has been presented in 20 international conferences, including 7 invitations to deliver seminars at different institutions. His research includes electronic noise reduction techniques, advanced electronic systems for space missions, and the transfer of technology from astrophysical instrumentation to industrial and medical applications. Ignacio's responsibilities during 10 years within the International LISA Pathfinder Consortium were instrumentation design, data processing, and in-flight scientific operations. Moreover, as a member of the Core Team of the LISA's International Consortium, he participated in the proposal of the European Space Agency Call for the L3 mission that was selected and is expected to be launched in 2034 in collaboration with NASA.

He is currently Principal Investigator of 3 research projects (1 H2020, 1 PAIDI2020, and 1 FEDER) and 2 educational/research projects, one supported by the European Space Agency (Fly You Satellite Program) and another by national private space companies (Europe to Space Challenge). In total, as a PI, Ignacio has collected funds equivalent to around 580.000 € In addition, the development of two nanosatellites within an H2020 IOD/IOV project costs 2.5 M€, which have been invested by the European Commission in 7 selected experiments. Ignacio is the PI of one of these experiments, the Magnetic Experiment for the LISA Interferometer Space Antenna (MELISA-III).

Ignacio is the team leader of the UCAnFly educational nanosatellite, which is one of the three CubeSats taking part in the European Space Agency (ESA) third edition of the Fly Your Satellite! (FYS) program. As such, he coordinates and mentors the 15-member student team composed of 2 PhD and 13 MSc/Bsc students. Only two Spanish university teams (UPC and UCA) have been selected during the eight years of existence of the program. This unique opportunity is establishing the initial conditions for Ignacio to create a research group in the field of space technology in the University of Cadiz. Moreover, his team has been recently selected to participate in another CubeSat mission called Europe to Space Challenge.

It must be remarked that different national and international private companies have expressed interest in Ignacio's research by collaborating in the tasks associated with the different research and educational projects. Currently, private companies such as ALTER Technologies, DHV, Titania, Ansys, ESATAN-TMS, TRAD Test & Radiation, Valispace, UARX Space, and Hydra Space are supporting different projects in which Ignacio is the PI.

He is currently Guest Editor for the Sensor Journal in a Special Issue on Sensors for Space Applications. Moreover, he is a member of the editorial board for Nanosensors in the same journal.

His work was awarded the biennial prize for the best doctoral thesis in Astrophysical and Astronomical Instrumentation by the Spanish Astronomical Society (SEA) in 2018. In 2019, Ignacio received the research excellence award by the University of Cádiz in the category of young researcher in the area of Engineering.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	BIRKENFELD BIRKENFELD, JUDITH
Referencia:	RYC2022-037910-I
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Título:	Advanced light-based imaging technologies for improved diagnosis and treatment evaluation of eye and skin conditions

Resumen de la Memoria:

My research focuses on the study of the human eye using advanced light-based imaging technologies. It covers a wide range of areas and technologies such as optics, photonics, optical coherence tomography (OCT), and the design of prototypes and optical instruments. Additionally, I apply my knowledge on innovative technology projects that enable me to work in different clinical fields. My research projects are designed to address an unmet clinical need and involve international research institutions as well as clinical and industrial collaborators. It has motivated research projects awarded at competitive public calls and with industrial collaborators.

As a PhD student (IO-CSIC), I investigated the relative contribution of the gradient refractive index and the shape of crystalline lenses using for the first time optical methods, namely OCT and Laser Ray tracing, coupled with powerful reconstruction algorithms. This work has significant implications for the quantitative study of in vivo lenses and designs of intraocular lenses (IOLs). I was also involved in three impactful studies on pre-operative 3D biometry, and evaluation of current accommodating IOLs. My overall work resulted in 8 publications in high impact Q1 journals.

In my final PhD year, I won the prestigious MVision fellowship at the Massachusetts Institute of Technology (MIT), where I proposed, led, and obtained funding for an original research project, OmniDerm, that aimed to provide physicians with a tool for early detection of suspicious skin lesions. Using low cost image acquisition tools and artificial intelligence, the team (in collaboration with clinics in Spain) defined a novel suspiciousness score for skin lesions, and extracted intrapatient lesion saliency ("ugly duckling" criteria) on the basis of DCNN features. The results of this work were published in 2 D1 journals (e.g. Science Translational Medicine), earned several awards, and were mentioned in international press releases.

In 2016, I successfully applied for funding, with a project based on the critical need for tools that quantify corneal biomechanics for early detection of corneal diseases, in collaboration with the Wellman Center/Harvard Medical School, US. I introduced a novel approach for corneal excitation combined with OCT, and initiated a study on measurements of the shear modulus in human eyes.

In 2018, I returned to IO-CSIC, Spain, following an invitation to join the EU-H2020 consortium Imcustomeye to lead several work packages on OCT development. Since 2020 I am local coordinator of the Madrid node of the consortium and responsible for 1 PhD student, 1 postdoctoral fellow, and 2 technicians. I introduced 2 new research lines at IO-CSIC (Scleral biomechanics for a better understanding of myopia and PS-OCT depolarization metrics of the cornea for sensing collagen microstructures), and have established three collaborations with high profile research institutes (Harvard University, USA; Sorbonne University and CNRS, FR; CNR-IPCF, IT). In my future work, I aim to expand the development of novel technologies to improve assessment of ocular diseases, and the means of evaluating current and future treatment options. A secondary project of my research is concerned with wound healing in biological tissue (skin and cornea), and thematically connects the research lines that I have worked on in the past.

Resumen del Currículum Vitae:

I am a Juan de la Cierva – Incorporación Researcher at the Spanish National Research Council (CSIC). I carried out my predoctoral research at IO-CSIC in the field of optics and biophotonics, and my postdoctoral research at the Massachusetts Institute of Technology (MIT) and Harvard Medical School, before returning to Spain. I have recently received I3 accreditation (programa de Incentivación de la Incorporación e Intensificación de la actividad Investigadora) with the maximum score (10/10).

My research is motivated by solving current unmet medical needs, and focuses on application in eye and skin research, using state of the art techniques from Optics, Photonics and Artificial Intelligence.

I have more than 55 JCR/ISI publications, of which 22 are articles in high impact factor journals: 3 articles published in top 2% journals (e.g. Science Translational Medicine and JAAD), 25% of my articles in D1 (top 10%) journals, and >90% in Q1 journals. My current h-index is 12/14 (SCOPUS/Google Scholar), with more than 600 citations (self-citation approx. 9%).

During my postdoctoral career, I have participated in 23 projects with 33 international collaborators, and over 10.5M EUR of funding. In my first year as a postdoctoral researcher at MIT, I started and led as PI the research project OmniDerm (AI-based detection of suspicious skin lesions) which later became catalyst project for the Start-up LumenDX (now PictionHealth).

As a PI (or co-PI) I have obtained 9 competitive grants and 1 R&D contract to carry out international projects, with accumulated funding of approx. 1M EUR. I am also local coordinator of 1 EU-H2020 Grant, and European PI of 1 NIH P49 project, a combined funding of >2.9M EUR.

I have established collaborations with end-users from clinics and industry, which has led to the development of four technological tools, and the generation of 4 patent applications. I regularly disseminate my work to different stakeholders (researchers, healthcare professionals, public, and more). My work has been presented in over 60 invited talks and presentations at international conferences, and prestigious institutions like Harvard Medical School (US), CNRS (FR), and The University of Tokyo (JP), and it is regularly picked up by international press. Additionally, I have been working for the dissemination of science amongst the public through student groups, political initiatives, and through collaborations with hospitals.

I regularly participate as a lecturer for Master courses of several universities, and I have trained, supervised and/or mentored 15 students (including 1 PhD student, 3 MSc, 1 BSc) and research fellows (2 postdocs). I am a reviewer for 4 agencies (e.g Agencia Estatal de Investigación) and at least 12 different scientific Q1 journals. I have been in 5 scientific committees of international conferences or organizations, and 4 PhD thesis committees.

I have recently won the prestigious Spanish L'Oréal-UNESCO "For Women in Science" 2021 award and was included on the EVI TOP LIST of Women in European Vision Research. I am elected Chair of the OPTICA Technical Group "Microscopy and OCT", and member of the "Grupo de Igualdad Committee" at IO-CSIC. I am co-founder and faculty of MITlinQ, an Spanish-Americn innovation technology accelerator program.

Resumen de la Memoria:

Exploration of the Earth's final frontier, the ocean, has become increasingly important due to the consequences that human activities have on ecosystem functioning and biodiversity, such as ocean heating and species decline. The United Nations proclaimed a Decade of Ocean Science and declared that the world is in the middle of an "ocean emergency" related to climate change, a major social problem that must be addressed.

From microbes to large predators, there is increasing evidence that marine life is shaped by short-lived upper-ocean submesoscale (0.1–10 km) currents that are difficult to observe, model, and explain theoretically. How these intense three-dimensional currents structure the productivity and diversity of marine ecosystems is a subject of active debate. Moreover, marine megafauna plays a key role in ecosystem functioning. Yet, one-third of these animals are at risk of extinction.

Recent studies have shown the importance of using robotic platforms to advance the study of key marine research areas such as physical and movement ecology. Still, there is a lack of full coordination among vehicles, reducing their performance and limiting their applicability, which could be addressed with machine learning.

Here, I propose a new approach by using multi-agent reinforcement learning methods to solve the coordination problems of marine robotic fleets, which will bring an important step forward in their use and will advance the marine robotics community.

I am envisioning a future where the reinforcement learning will boost the use of marine robotic fleets to address major social problems. This interdisciplinary project will make an important contribution to the EU Biodiversity Strategy for 2030 and the UN Decade of Restoration, apportioning new insights to improve the health of the ocean.

Resumen del Currículum Vitae:

On 2020, I was awarded a Marie Sklodowska-Curie Actions Individual-Fellowship Global-Fellowship (AIforUTracking - ID:893089). In addition, the research conducted during my PhD (FPI fellowship), which was focused on the use of autonomous vehicles to track underwater targets, has yielded numerous international conferences and journal publications. Specifically, one in the top-ranked journal Science Robotics as the first and corresponding author. I have also conducted part of my postdoctoral research at the Monterey Bay Aquarium Research Institute - MBARI (California, USA), one of the world's top non-profit companies related to marine research, working with Dr. Kakani Katija (lead of the Bioinspiration Lab) and at ViCOROB research group form Universitat de Girona with Prof. Marc Carreras. Finally, I did part of my PhD studies at Isen Yncréa Ouest - Site De Brest with Prof. Pierre-Jean Bouvet, and MBARI.

I have contributed to the transfer of technologies to industries during my years at the SARTI research group at the UPC as a researcher. I worked with companies such as Alstom (Spain) or Evologics (Germany), developing different instruments and characterization sensors for a wide range of applications. I have also participated in the RESNEP project (CTM2017-82991-C2-1-R), where we demonstrated how the implementation of a no-take marine reserve in Mediterranean deep-sea environments could be an effective management strategy to recover the population stocks of deep-sea fishery resources. Based on the main results of the RESNEP project, the Secretaria de Pesca of Gobierno de España recently incorporated the use of no-take marine reserves in the management plan for the exploitation of demersal resources (APA/753/2020 of BOE number 208, 1 August 2020).

Besides my research interests, helping other students and young investigators has been a fundamental part of my career. Since 2019, I have co-supervised 8 BS and 2 MS students from different disciplines (e.g., in electronic engineering or artificial intelligence). Moreover, I also helped different colleagues during their PhD studies, e.g., Cesar M.G. who after receiving his PhD (2018) become associate professor at Universidad Santo Tomás – Tunja (Colombia). In addition, I have imparted classes at UPC (e.g., in Electronic systems) and I have conducted different invited seminars (e.g., at University of Washington – Paul g. Allen School of computer science and engineering, and Universidad Politécnica de Madrid, MS degree in Acoustic engineering). I am also the co-supervisor of 3 PhD students: Antoni Marquez (FPI grant) at ICM-CSIC, Gerard Batet Xaus (FPI grant) at UPC, and Matteo Gallici (FPI grant) at UPC. Finally, I have been member of IEEE Young Professionals, IEEE Membership, and IEEE Oceanic Engineering Society Membership. I have been guest editor of different journals like the Remote Sensing journal in the Special Issue "Sustainable Development of Our Oceans and Coastal Zones through AI and Remote Sensing".

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	GUINDOS BRETONES, PABLO
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Título:	Construcción sustentable

Resumen de la Memoria:

Mi línea de investigación se centra en mejorar el conocimiento y la utilización de la madera y las mezclas de hormigón no convencionales como materiales de construcción sostenibles en la ingeniería civil. Esta investigación está motivada por mi convicción de que la infraestructura debe ser más sostenible en el contexto del cambio climático. Aunque mi perfil científico está profundamente comprometido con este objetivo, mi investigación ha sido diversa en cuanto al tipo de materiales estudiatos (madera, compuestos de madera, mezclas de hormigón) como al grado de madurez y aplicabilidad de las investigaciones (desde proyectos teóricos de bajo TRL hasta la construcción de edificios pioneros y elaboración de directricees de códigos estructurales de uso práctico).

Mi trayectoria investigadora se puede resumir en 5 fases:

1. Estudiante de doctorado (2008-2011): al principio de mi carrera me centré únicamente en la investigación de la madera como material de construcción en forma teórica y de modelación numérica. Realicé el doctorado en la Universidad de Santiago de Compostela, España (con una beca FPU).
2. Postdoctorado (2012-2014): expandí mis objetivos de investigación y comencé a realizar trabajos experimentales. Obtuve la beca posdoctoral (Barrié de la Maza) y realicé un intercambio de 2 años en el instituto Fraunhofer WKI (Alemania). Me dediqué a realizar investigación aplicada, transferencia y postular a proyectos.
3. Project Manager (2015-2016): luego del postdoc me contrataron como project manager en el mismo instituto de Fraunhofer, Alemania. Comencé a ejecutar mis propios proyectos e interactuar con diversos investigadores y grupos. Adquirí conocimientos valiosos para interactuar con la industria y grupos internacionales. Además, inicié actividades docentes en la Universidad Técnica de Hildesheim, lo que me sirvió como primera experiencia docente.
4. Profesor asistente y joven investigador (2017-2019): en 2017 fui contratado en la Pontifcia Universidad Católica de Chile (actualmnte la universidad mejor rankeada en Latinoamérica en la mayor parte de rankings internacionales) como assistant professor (equivalente a profesor contratado doctor), a tiempo completo y con contrato indefinido. En esta etapa me dediqué a tareas de docencia, investigación y consultoría y comencé a supervisar estudiantes de postgrado. Incrementé mi productividad científica y adquisición de proyectos.
5. Profesor asociado e investigador principal (desde 2019): en 2019 fui nombrado director del centro de innovación en madera de la UC (CIM UC) -un centro tecnológico reconocido internacionalmente para el desarrollo de la madera y la construcción sostenible-, manteniendo la misma cátedra que ostentaba anteriormente. En 2019 edité un tratado de 3 libros (unas 1500 páginas en total) sobre la construcción en madera, los cuales rápidamente se convirtieron en un referente internacional. En 2021 y mientras ocupaba la dirección de CIM UC, postulé como director a un prestigioso concurso de fondos basales para centros de excelencia logrando un fondo de 13,9 millones de €para expandir el alcance y recursos del centro. De esta manera, se convirtió en uno de los centros más destacados de América Latina. En 2022 promocioné a profesor asociado (equivalente a profesor titular de universidad). Durante esta fase amplié mi investigación incluyendo compuestos madera-hormigón.

Resumen del Currículum Vitae:

I. Producción de investigación: mi producción científica a la fecha comprende 80 contribuciones de investigación, 31 de ellas son artículos de revistas indexadas en Web of Science (71% Q1, uno en Nature Scientific Reports, la mayoría como primer o último autor, 11 en Open Access), 44 otras publicaciones como conferencias y otras revistas revisadas por pares, 3 libros completos como autor único, 1 capítulo de libro, 1 patente como IP y 1 software como IP.
II. Adquisición de proyectos e independencia y liderazgo en investigación: he adquirido más de 14,9 millones de €en convocatorias competitivas de proyectos de investigación, contando tan sólo aquellos proyectos en los que he actuado como IP. Esto incluye el liderazgo de 16 proyectos de investigación competitivos. De ellos, destaco la ayuda a la investigación de 13,9 millones de €para liderar la creación de un nuevo centro de excelencia base con la industria. También he liderado los más prestigiosos proyectos de investigación fundamental de las convocatorias chilenas (Fondecyt Regular y Fondecyt Inicio), así como los más prestigiosos proyectos de investigación aplicada (Fondef), proyectos con la industria (Crea y Valida, Súmate a Innovar, CORFO Preinversión) y proyectos para el establecimiento de redes internacionales (Conicyt redes internacionales, CYTED). Aparte de liderar esos proyectos, también lideré dos centros de investigación (CIM UC) con una plantilla de 25 personas y otro centro mayor (CENAMAD) con una plantilla de 95 personas.
III.- Formación: he supervisado a 3 doctorandos, 2 en ingeniería civil y 1 en arquitectura. Además, supervisé 5 estudiantes de maestría (MSc), 12 proyectos finales de grado y 6 investigaciones de pregrado. Mi grupo de investigación actual está compuesto por 3 postdoctorados, 4 estudiantes de doctorado y 3 estudiantes de maestría.
IV. Transferencia vía actividades docentes: He escrito 3 libros que se utilizan como texto de referencia en varias universidades y he creado una nueva asignatura de posgrado (nivel de doctorado). Además, creé y actualmente dirijo un programa de maestría profesional (diploma) para arquitectos e ingenieros sobre diseño y construcción en madera. Fui invitado a dictar dos cursos de doctorado en universidades de diferentes países (UTN Argentina y USP Brasil).
V. Transferencia vía consultoría con la industria: he liderado el diseño del primer edificio de madera de 6 pisos de América Latina (Torre Peñuelas), proyectos de consultoría con la industria para el diseño de varios edificios híbridos madera-hormigón, el diseño de módulos hospitalarios de emergencia, y el diseño de una planta de industrialización. Adicionalmente también lideré la creación de una plataforma CAD-BIM abierta para

descargar gratuitamente soluciones constructivas (www.disenmadera.cl). Soy PI de una patente solicitada y la creación de un software, ambos en cooperación con la industria. Fui consultor para los códigos de construcción de Guatemala.

VI. Cooperación internacional. Poseo 10,5 años de experiencia trabajando en el extranjero, así como 12 meses de estancias internacionales en diferentes grupos. He sido invitado por universidades de 3 países para impartir cursos de doctorado, y he co-supervisado 4 estudiantes de doctorado con grupos internacionales. También he liderado dos redes internacionales que han contado con financiación de dos proyectos públicos.

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	BALADO FRÍAS, JESÚS
Referencia:	RYC2022-038100-I
Correo Electrónico:	jesus90.bf@gmail.com
Título:	New tools for point cloud acquisition and processing in built environments

Resumen de la Memoria:

Jesús Balado Frias (JBF) completed his PhD thesis in 2019 at the University of Vigo after obtaining a predoctoral fellowship from the UVigo. With the title "Classification and modelling of urban environments from point clouds for physical accessibility diagnosis and pedestrian pathfinding", his PhD thesis has cum laude distinctions and international mention, also won the extraordinary award of the UVigo, the 2019 IEEE GRSS award, and the 2019 Abertis National and International award in Road Safety. The applicant conducted his research on the development of point cloud processing techniques applied to pedestrian mobility and instance segmentation in road, urban and indoor environments. His research brought new ideas, such as 3D point mathematical morphology (open source on the GitHub repository from 2021) for object detection and segmentation in point clouds. JBF designed new ways to apply Artificial Intelligence to point clouds. The idea presented in the paper "Transfer Learning in urban object classification: Online images to recognize point clouds", was awarded with the Honorific Mention in Research Ernesto Viéitez Cortizo 2020 from the Royal Galician Academy of Science.

Also in 2019, JBF obtained a postdoctoral scholarship from the Xunta de Galicia which allowed two research stays: 18 mo. at Delft University of Technology (The Netherlands) and 12 mo. at INESCTEC (Portugal). These stays, added to another two research stays during his PhD of 3 mo. at Karlsruhe Institute of Technology (Germany) and 2 mo. at UMinho (Portugal), make a total of 37 months of stays in international centres.

Since his first publication in 2017 as a PhD student, JBF has authored 44 publications, 22 JCR articles (8 D1, 13 Q1, 15 as first and/or corresponding author, 13 in open access). In total, he has participated in papers with 59 co-authors (29 international co-authors from 17 different centers). According to Google Scholar, JBF achieved an h-index = 14, i10 index = 16, with 574 citations, average of 100 citations per year in postdoc period (2019-2023). In addition, he has co-authored 22 SJR proceedings in international conferences (IEEE, ISPRS, and KES International).

JBF has participated in 12 R&D competitive projects (2,9M€, 5 H2020, 1 Interreg, 6 national projects) 3 COST Actions, 2 non-EU international scientific initiatives. JBF is evaluator for the "Agencia Estatal de Investigación", the COST Open Call and Research Grants Council (Hong Kong).

JBF has supervised 11 BSc and 3 MSc. JBF promotes the students' work, resulting in several papers in JCR Q1 journals, proceedings, oral presentations, preprints and published software. JBF is supervising 3 PhD students. From 2019, JBF is accredited as 'Profesor Contratado Doctor' by the ANECA. He has imparted more than 150 teaching hours UVigo, including the in Automotive Engineering in collaboration with Stellantis, lectures at TUDelft, and he collaborated in development and teaching of two courses at European Menelaos NT Project.

JBF has been member of the editorial board of 2 international journals (The Photogrammetric Record - Wiley, and Surveying and Geospatial Engineering Journal - IPAcademia), guest editor of 5 special issues in JCR journals, and he has reviewed more than 90 articles for 30 journals.

Resumen del Currículum Vitae:

Jesus Balado Frías conducted his research on the development of point cloud processing techniques applied to pedestrian mobility and instance segmentation in road, urban and indoor environments. His research brought new ideas, such as 3D point mathematical morphology (open source on the GitHub repository from 2021) for object detection and segmentation in point clouds. JBF designed new ways to apply Artificial Intelligence to point clouds. This is demonstrated by his numerous publications, awards, international collaborations, participation in conferences and contributions to R&D projects and COST Actions. His new research focuses on the use and development of new tools to update LiDAR technology and make it accessible to a larger part of the population and professionals.

LiDAR was an expensive technology, at least in the past. Recently, several low-cost LiDAR devices have emerged on the market, such as HoloLens, iPhone and iPad. These devices, although not designed to scan and map environments, obtain 3D point clouds with similar quality to more expensive Handled Mobile Laser Scanners. However, the potential of low-cost LiDAR devices lies not only in the price, but also in their design as Augmented Reality (AR) devices.

The sensors integrated by AR devices allow multiple tasks to be performed in addition to scanning. With eye and hand tracking technology, it is possible to check the data and label it during the scan without a significant increase in time. In contrast, the conventional survey used to involve a long post-processing step with tedious tasks (manual labeling and quality control). This leads to time savings and greater user-friendliness. Furthermore, there is also an improvement in the automatic processing algorithms since the detection can be supported by the user experience.

The general objective of this research line is the development of methods that take advantage of all the benefits of Augmented Reality devices to obtain geospatial data and generate 3D models. The general objective is addressed through a series of specific scientific and technical objectives:
- Adaptation of old algorithms to AR point clouds.
- Improved visualization and color of point clouds in AR environments.
- Improved handling and interaction with point clouds through eye and hand tracking.
- Study of real-time processing algorithms inside AR devices.

This research will have a high impact on the scientific and technical aspect due to the proposed innovation and the synergy of LiDAR and AR technologies. The socio-economic impact is assured. The low price of AR devices makes this technology affordable for almost the entire population. Likewise, following the Open Science movement, a great diffusion is expected in terms of open source and publication of free applications to be used by professionals in the construction sector. At the same time, the AR devices are based on Graphics Engines, so a close collaboration with game industry is expected to improve 3D models with advances in visualization, performance, and user experience.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	DOMINGUEZ ALONSO, JOSE MANUEL
Referencia:	RYC2022-038341-I
Correo Electrónico:	jmdalonso@gmail.com
Título:	Development of CFD models for real engineering problems

Resumen de la Memoria:

Dr José Domínguez has developed a multidisciplinary research line focuses on the development and advancement of CFD models for real engineering problems. His work on the Smoothed Particle Hydrodynamics (SPH) method stands out by his contributions which have led to significant advances in the SPH technique. Advances supported by 63 high impact articles indexed in WoS (34 in Q1 of JCR) with 3607 citations in Scopus (h-index=32) and more than 140 contributions to international conferences.

SPH is a Lagrangian method particularly suitable for modelling non-linear free-surface flows and violent fluid-structure interaction. However, this method had shortcomings when applied to real engineering cases. All high-impact publications by José are focused on solving one or more of these issues:

- Acceleration of the SPH method. José contributed to accelerate and parallelise the SPH method on different hardware architectures by using High Performance Computing techniques.
- Improvement of boundary conditions. The candidate has worked on the development of 2 new boundary conditions for SPH (LUST and mDBC).
- Improvements in convergence, consistency and stability. The main contribution is the development of a new density diffusion term that provides a smoothed and accurate density field.
- Coupling with wave propagation models. Implementation of coupling strategies with propagation models such as SWASH and OceanWave3D.
- Coupling with other methods for multiphysics. The coupling with the Project Chrono multiphysics library allows the interaction between solids using DEM and complex mechanisms. Another key coupling is with MoorDyn+ for modelling of moored devices.
- Applicability to industry. José has developed an advanced pre-processing tool to define the initial condition of complex cases and a collection of post-processing applications to calculate any desired information.

These contributions are included in the DualSPHysics software (Domínguez et al., 2022), which eventually became a powerful simulation tool for real problems related to civil, mechanical, aerospace, naval and coastal engineering. Another remarkable aspect of José's research is the model application in many different areas such as the following:

- Coastal defence design using high-resolution SPH simulations to model wave interaction with coastal protections.
- Survival study of moored floating structures under extreme and highly non-linear wave conditions.
- Design of wave energy harvesting devices composed of complex mechanisms by using multiphysics libraries.

The major contribution was the creation of the DualSPHysics (dual.sphysics.org). DualSPHysics is one of the most efficient SPH software available and capable of simulating large systems by using hardware acceleration, but also a true engineering tool for application in naval and coastal engineering problems. Nowadays, the open-source DualSPHysics is an international reference SPH code for its versatility and performance. This is substantiated by the ever-growing attendance to the annual DualSPHysics Users Workshop and also by many training courses given at international conferences and companies (on demand).

Nowadays, DualSPHysics has evolved into a state-of-the-art international collaborative project between numerous centres across Europe and the United States, where José continues as leader and main developer of the model.

Resumen del Currículum Vitae:

Dr José Domínguez is a Postdoctoral Researcher at Universidade de Vigo. His main research activity is focused on the development and improvement of CFD models for application to real-life engineering problems. José is involved in the development of well-known models such as Iber (iberaula.es) and the MoorDyn+. However, the work carried out on the Smoothed Particle Hydrodynamics (SPH) method stands out and his contributions have led to significant advances in the SPH technique. José is the main developer of DualSPHysics software, which is one of the most powerful and versatile SPH codes (Domínguez et al., 2022). This software is provided as open source under LGPL (120k+ downloads). José is also leading the modelling development within the international project DualSPHysics (dual.sphysics.org), which involves several prestigious academic centres across Europe and the United States and whose purpose is the improvement and promotion of the DualSPHysics. In terms of dissemination, José has organised 27 training courses in international conferences and companies from 13 countries. He has also been involved in the organisation of 6 DualSPHysics Workshops.

Jose's contributions to the development of SPH and other numerical methods, as well as their application to challenging real-life problems, have been published in prestigious journals. His scientific production includes the publication of 85 documents in Scopus from which are 63 high impact articles in WoS (34 in journals Q1), also 10 book chapters. The relevance of his publications is evidenced by the high number of citations in different databases: Scopus: h-Index: 32, Citations: 3607; WoS: h-Index: 30, Citations: 2910. José has also 8 Keynotes and 124 contributions to international conferences. José has spent 27 months at several prestigious international centres and has created a wide network of collaborators (70+ international co-authors). As a result, more than 85% of his scientific production includes international researchers.

In terms of fundraising, José' s work was awarded with 4 grants (national and autonomic) in competitive processes with a total funding of 350,000 € and 5 grants for travelling and stays. José was PI of 3 R&D contracts and has participated in other 2 contracts with companies focused on the application of DualSPHysics (165,906 €). José has also participated in 21 R&D projects (2 international projects), where his contribution as a lead developer of DualSPHysics has been key to achieving the scientific goals. He was PI of 3 projects (130,200 €) and PI of SPH modelling tasks in 3 national projects (366,010 €). José is the co-founder of a spin-off of Universidade de Vigo (Environmental Physics Technologies S.L.), which was founded to attract R&D contracts on numerical modelling with private companies.

José has supervised 2 PhD theses (A. Barreiro, 2015; O. García-Feal, 2021), is also supervisor in other 2 PhD theses in progress and participate in an international PhD thesis at NIJT (USA). He has also supervised 3 MSc. thesis (2 from international centres). In terms of teaching, he has lectured more

than 696 hours on different Degrees and PhD programs at Universidade de Vigo and is involved in the HIPATIA Teaching Innovation Group. José is accredited to "Profesor Titular de Universidad" by ANECA and was awarded the I3 certificate.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	WANG , JIE
Referencia:	RYC2022-036744-I
Correo Electrónico:	alfredo.camara@upm.es
Título:	Novel metallic structures for digital construction

Resumen de la Memoria:

Dr Wang finished her PhD at Imperial College London in 2016, where she focused on the design and assessment of structures composed of high-strength steel, including nonlinear finite element models and extensive experimental testing. The latter encompassed coupon and member tests, as well as the design and load to failure of the largest high-strength steel truss ever built in a laboratory. The results were used by Dr Wang to develop a complete framework of design equations for high-strength steel structures that are being implemented by practitioners since their appearance in highly-cited journal publications.

The success in her PhD work granted Dr Wang a 2-years fully-funded post-doctoral research position at Imperial College London in a different team, focusing on the design and analysis of ultra-slender shell structures. In this work, the applicant engaged in collaborative work with renowned experts in the field of shell structures, and her comprehensive numerical work on thousands of nonlinear finite element models was key to the establishment of new design equations for slender metallic shells, which are now included in the new version of Eurocode 3, where she currently contributes as member of different working groups.

Her pre- and post-doctoral research experience were fundamental to secure her academic position as Lecturer at the University of Bath in 2018. Since then, she worked independently to establish and lead an active research group on steel structures at this institution. Although she continued working on the previous two research lines, Dr Wang started a new line of work directed towards digital construction, aiming and optimising the design of steel structures through the use of additive manufacturing. She incorporated to this group a multi-disciplinary team of researchers composed of 5 PhD students and several academics, with not only civil structural engineers but also Aeronautical, Industrial and Architectural backgrounds. This research group has attracted the attention of other researchers and practitioners worldwide, as well as a sustained stream of funding to support its activities with Dr Wang as Principal Investigator.

In this context of her research career, Dr Wang wishes to move to Spain and to establish a research group on novel steel structures for digital construction that will tackle critical societal challenges such as the development of sustainable infrastructures.

Resumen del Currículum Vitae:

The applicant, Dr Jie Wang, is a Lecturer of Structural Engineering in the Department of Architecture and Civil Engineering. The applicant holds a PhD in Structural Engineering (2016) and a MSc with Distinction in Steel Structural Design (2013), all from Imperial College London, UK. After obtaining her PhD degree, she was awarded a 2-years' EPSRC Research Fellowship (2016-2018) to work in a different research group at Imperial College London, UK.

The applicant's research interests focus on the behaviour and design of thin-walled metallic structures, aiming at providing practitioners and researchers with a sound understanding and useful design recommendations. She is now leading the Bath Steel Research Team consisting of 5 PhD students and several MSc and Undergraduate project students. Since 2018, she has been the Principal Investigator of 8 projects that secured more than 200,000 Euros in funding, and generated more than 30 publications, including 24 journal publications and 8 international conference publications. The publications of Dr Wang count more than 550 citations to date, with an h-index of 12 (source: Google Scholar).

Dr Jie Wang is a committee member of the Eurocode 3 development team CEN/TC250/SC3/WG6, WG15 and WG16, working on the development of EN 1993-1-6, 4-1 and 4-2 on shell structures. She is also a committee member of the IStructE West County Regional Group since 2019.

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	GONEN , SEMIH
Referencia:	RYC2022-037263-I
Correo Electrónico:	semihgonen@gmail.com
Título:	ID2-SHM2-AB Integrated Data-driven Framework for Reliable Structural Health Monitoring and Management of Ageing Bridges and Infrastructures

Resumen de la Memoria:

Ageing transport infrastructure (especially bridges) worldwide, considerable increases in mobility, traffic and urbanization, as well as climate change and continuous deterioration may lead bridges to collapse. We need a cost-effective approach to early warn the bridge damage and avoid collapses. Such an approach requires an interdisciplinary approach combining SHM, structural analysis, artificial intelligence and risk-based decision making. In this context, multiple monitoring and inspection activities can provide useful real time information to assist structural diagnosis and management policy. The processing of the real-time data with the AI-based models will result in relating the observed damage with the possible collapse scenarios. The most useful information is obtained through a risk-based framework that will assist decision-making by the infrastructure managers. This will facilitate the large-scale application of derived SHM solutions to prevent catastrophic failures. Novel and cost-effective monitoring strategies and methods for quantifying the risk and continuously updating risk indicators will be developed.

Deep learning (DL) is emerging in the field of SHM as a powerful technique to perform data-driven diagnosis and surrogate modelling due to its outstanding ability to map complex input-output relationships. Similarly, risk-based decision making and quantifying the value of information has become a major concern in SHM field. I will focus on mobile or cost-effective sensing systems, AI-based approaches (such as DL), risk-based decision making and quantifying the value of SHM in my research career with the aim of developing decision-support tools for bridge managers. I will also develop a technique to transfer the knowledge learned from one bridge to other similar typologies.

Resumen del Currículum Vitae:

My research activity is characterised by a multi-disciplinary approach to structural engineering problems, forming connections among boundaries of diverse research fields, embracing structural health monitoring (SHM) and damage detection in complex structures, seismic structural reliability, experimental testing, advanced numerical simulation of the seismic behaviour of masonry and special structures, also using machine learning (ML) techniques as a support tool.

My PhD research started in 2015 at Bogazici University and contributed to reliability-based performance criteria for masonry arch bridges' seismic assessment, including experimental testing, SHM, and advanced computational modelling. The PhD thesis was submitted as a compendium of four scientific papers and received the "2021 Outstanding Thesis Award" from Bogazici University. During my PhD studies, I was also involved from 2015 up to 2017 in the conservation project of the archaeological site of Gordion, the capital city of ancient Phrygia. My work comprised the design, execution, and management of the conservation of the Early Phrygian Gate, a 3000-year-old magnificent masonry structure, and the conservation of one of the oldest timber structures in the World that still stands in Tumulus MM.

After my PhD studies, I submitted a postdoc research proposal to join prof. Necati Catbas at the University of Central Florida, which was awarded 30,000$ funding from the TUBITAK. However, I did not use that funding as I was selected amongst 44 applicants for a postdoc fellowship from Oslo Metropolitan University, Norway, to work in the NEAR Project (289,000€ budget), which targeted SHM of Norway's ageing railway infrastructure. I led the data acquisition campaign for the dynamic identification of multi-span post-tensioned Stange Bridges. These peculiar bridge typologies presented significant uncertainties in the modelling. I generated FEM models of the bridges, and updated them using Artificial Neural Networks. During my postdoc at OsloMet, I also worked in other research topics related to SHM, e.g. indirect vibration monitoring of railway bridges by proposing a novel method using sensors on crossing trains; novel vibration-based damage detection methodologies for bridges, based on a hybrid composition of computer vision and conventional acceleration measurements; novel optimal sensor placement algorithms for bridges with highly uncertain boundary conditions. A unique technology transfer project at OsloMet consisted of monitoring the vibration and shock monitoring of Edward Munch's paintings during their transport to the new Munch Museum building, opened in 2021. This fruitful postdoc research period in Norway was acknowledged by the "Promising Researcher of the Year" award from OsloMet in 2022. I also co-supervised four Master's theses and a PhD thesis (ongoing) at OsloMet. During my PhD and postdoc research experience, my growing interest in interdisciplinary studies and data-driven models led to fruitful international collaborations in the field of stochastic Distinct Element Method (DEM) simulations of masonry behaviour. The research allowed the development of novel data-based prediction models (surrogate models) trained on the basis of advanced DEM models.

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	CILLA HERNÁNDEZ, MYRIAM
Referencia:	RYC2022-038288-I
Correo Electrónico:	mcilla@unizar.es
Título:	Biomechanics of the cardiovascular and muskuloskeletal systems

Resumen de la Memoria:

As the current memory and the candidate's CV show, Myriam has matured as a researcher and gained significant expertise in biomechanics field during the last 14 years, especially focused on cardiovascular and musculoskeletal systems. It includes participation in several conferences, publications in peer-reviewed journals and editorials, attendance to a large range of courses, direct participation in several research projects, some of them directly with the industry, and mentoring diverse master/bachelor students, as well as, a PhD student. Her publications have a great impact, being a reference in her research field, and having received 453 cites according to Scopus website.

Her research career started in 2009 on the biomechanics field with a PhD initiation scholarship associated to a research singular strategic project of the Spanish Ministry of Science and Technology. Two months later, she got a 4-year research grant from the Regional Government of Aragon for PhD studies to perform her Thesis, which was completed successfully in 2013, at the Aragon Institute for Engineering Research (I3A) of Saragossa. Once she finished her PhD, as a proof of her enthusiasm for research, she decided to continue doing research and she got a post-doc position at the Julius Wolff Institute of the Charitè-Berlin University of Medicine (Germany). By the end of 2015, Myriam was looking for her career growth and she got a position as assistant professor at the Defence University Center of Saragossa through a competitive selection process. Recently, she has accepted a new challenge and she is going to work at the Aragon Institute for Engineering Research (I3A) financed by the European strategic line "3D advanced biomanufacturing for the generation of therapeutic computer designed human scale cardiac tissue (PLEC2021‐008127)".

She has contributed to fundamental knowledge in medicine and biology, and impacts health care, focusing on the development of medical innovations such as prosthetics and high-tech implants, tissue engineering and computational modelling of human and/or animal body using mostly Finite Element Methods, Fluid Dynamics and reaction-diffusion-convection equations, and, advanced non-linear numerical methods for modelling inelastic effects of biological tissue such as viscoelasticity, damage, growth or remodeling. She has also developed experimental methods to validate computational models and to obtain parameters for modelling. Additionally, the introduction of artificial intelligence to biomedical sciences has opened opportunities for exploring new domains in medical research, as well as improving existing technology employed for various medical procedures. Furthermore, she also uses these complex algorithms to mirror human intelligence in the analysis of composite medical data in order to estimate results without direct human interaction and to predict multidimensional biological phenomena. Summing up, her contribution to the research community has been already considerable, being a researcher that has a diverse and deep knowledge in different parts of the multidisciplinary field of biomechanics. The applicant has an already established rich network of contacts in different national and international institutions that would allow her to stablish new specific and interesting research collaborations with them.

Resumen del Currículum Vitae:

Myriam's Thesis was financed through a 4-year research grant from the Regional Government of Aragon, it was defended under the European doctorate modality and the qualification obtained was Cum Laudem. Apart from her PhD, she has one Master degree in Applied Mechanics, the Diploma of Advanced Studies and a MSc in Industrial Engineering, of which she studied her last year at the Warsaw University of Technology (Poland) thanks to an Erasmus grant. She is fluent in English, German and Spanish (mother tongue). She got the intermediate level of German certification in 2018 and the advanced level of English certification in 2012 by the Official School of Languages. Finally, she got the Senior Lecturer accreditation by ANECA in 2019 and 2 periods of 6 years each for research certification by ACPUA.

She did 2 pre-doctoral stays, which were financed by the CAI-Europa Program, at the University of Grenoble (France) in 2012 (3 months) and at the Trinity College Dublin (Ireland) in 2011 (4 months). She also performed a post-doctoral stay at the Charité-Berlin University of Medicine (Germany) from April 2013 to September 2015 (2,5 years).

She was able to contribute to 65 conferences (some of them financed with travel fellowships) and publish 24 peer-reviewed papers, out of which the applicant is first author in 15 of them (62.5%). Moreover, 19 of them are located at the first tertile (79.2%). She also contributed to 8 books or book chapters out of which she is the first author of 3 of them (62.5%). These publications have a great impact since they have received 453 citations according to Scopus website. Additionally, several of her publications represent the state-of-the-art, and they have been included in review papers. All her papers have a cumulative impact of 72,751 and her h-index is 11. She has participated in 23 research projects of competitive calls, being principal investigator of 2 of them, with a total of 3,799.184€ granted, and in 5 collaborations with the industry.

She maintains close collaboration with international colleagues. In 7 of her 23 publications are implying all these contacts. She also collaborates with other national faculties different from her own.

She took part into different reviewer activities such as member of the committee of 5 PhD theses, PhD external reviewer of 4 students, reviewer for several peer-reviewed JCR journals, member of peer-reviewed committees for 5 conferences and project reviewer for the company Acerta. In addition, she is very active in management for international scientific conferences; organizing 2 sessions and being session chairman 5 times, as well as being part of the organizing team of the Bone Regeneration International Symposium in 2015 and of the stand CUD-AGM (Spanish Army Pavilion) at the Saragossa's fair. She is also involved in informative activities such as the scientific conferences to celebrate 11st February, the day of women and girls in science.

Finally, she has advised 23 MSc/BSc students and she is currently supervising one PhD student. In this regard, she likes to be up to date with educational research in order to better mentor her students. Thus, she has published 5 book chapters (first or last author of 3 of them), she has attended 7 educational conferences and worked in 12 educational innovative projects, being principal investigator of 1 of them.

Área Temática: Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre: CAMERIN CAMERIN, FEDERICO
Referencia: RYC2022-037235-I
Correo Electrónico: federico.camerin@uva.es
Título: Las propiedades militares en Europa: Estrategias de Regeneración y sus efectos sobre Procesos de Producción Socio-Espaciales

Resumen de la Memoria:

La trayectoria del proponente en el Área de conocimiento de Urbanística y Ordenación del Territorio ha sido forjada por experiencias académicas de investigación previas al doctorado y una formación predoctoral y postdoctoral entre España e Italia, sobre todo en las Universidades UVa de Valladolid y Iuav de Venecia. Este recorrido implicó también estancias en otros países como Alemania y Eslovaquia, constituyendo, todo ello, un programa de formación internacional, intersectorial e interdisciplinar. La movilidad e internacionalización del proponente, explotada sobre todo a partir del programa Marie Curie H2020 "UrbanHist", ha llevado a un incremento de la capacidad colaborativa y de adaptación del proponente en diferentes grupos de investigación, con un especial arraigo en el Instituto Universitario de Urbanística de la UVa, demostrándose capaz de contribuir activamente en los proyectos de investigación en que ha sido involucrado. Al mismo tiempo, este recorrido ha permitido al proponente desarrollar paulatinamente un adecuado grado de independencia y liderazgo a la hora de encauzar investigaciones innovadoras en el Área de conocimiento, instaurar una red interdisciplinar de organismos académicos y públicos en materia de regeneración urbana, además de dar continuidad y coherencia a su trabajo investigador, en que se mantiene un objeto de estudio concreto, pero donde se busca una comprensión generalizable de la cuestión de la regeneración urbana aplicada a grandes paquetes de suelo institucional, especialmente aquello perteneciente al Ministerio de Defensa. Por eso, la investigación "Las propiedades militares en Europa: Estrategias de Regeneración y sus efectos sobre Procesos de Producción Socio-Espaciales" tiene por objeto la comprensión de los procesos de cambio urbano que van asociados a las trasformaciones de las instalaciones militares enajenadas, y en estado de abandono, en Europa, con especial atención al caso español e italiano, con una perspectiva amplia, transversal y transnacional, con respecto a los enfoques implementados hasta ahora en el AUOT, focalizados en lo específico de cada Estado. Se trata de un trabajo apenas emprendido en la Disciplina del Urbanismo, por lo que se refiere a lo estudiado en España, también, en el contexto europeo, y representa una evolución en la trayectoria del proponente, el cual se ha centrado, prioritariamente, en el caso italiano en relación con las dinámicas que afectan al caso español. Una parte del interés, y la actualidad, de este proyecto, reside en la oportunidad de profundizar en el conocimiento a propósito del rol que representan las instalaciones militares en el proceso de construcción de la ciudad, en concreto, en sus relaciones con las operaciones de "regeneración urbana". La implementación del proyecto tendrá, entre otros resultados, la creación de la red internacional "ReForMS.EU" (REgenerate FORmer Military Sites in EUrope), para involucrar a expertos procedentes del mundo académico y de las instituciones involucradas en la gestión de las propiedades militares para reconvertirlas a un uso civil. Gracias a estas colaboraciones se desarrollarán proyectos para la obtención de ayudas de cara a su realización, llevándose a cabo una plataforma abierta donde compartir experiencias de "regeneración urbana" a través de la divulgación de los resultados en ciencia abierta.

Resumen del Currículum Vitae:

El proponente, arquitecto-urbanista por la Università Iuav di Venezia (2014), fue investigador en 2014-15 y 2016-17 en la misma Universidad a través de dos becas de investigación anuales en urbanismo. En 2020 consiguió el doble título de Doctor en Arquitectura (Universidad de Valladolid) y Ph.D. (Bauhaus-Universität Weimar, Alemania) en el marco del proyecto europeo "urbanHist". En 2021 fue investigador postdoctoral en urbanismo en Iuav y es actualmente investigador postdoctoral en el marco del programa nacional español "Margarita Salas" contratado por la Universidad de Valladolid (estancia en la Universidad Politécnica de Madrid). Las aportaciones científicas del investigador han formulado propuestas integradas de análisis e intervención, ya sea desde el Planeamiento Urbanístico y Territorial como desde los nuevos instrumentos de carácter estratégico, de las operaciones de "renovación" y "regeneración" urbanas en España e Italia. El proponente ha contribuido a la generación de conocimiento y de ideas el Área de conocimiento de Urbanística y Ordenación del Territorio (AUOT) a través de la continuidad y coherencia en el trabajo investigador, donde se mantiene un objeto de estudio concreto, pero donde se busca una comprensión generalizable de la cuestión de la regeneración urbana aplicada a grandes paquetes de suelo institucional. Los resultados se han publicado en 2 monografías, 2 libros coeditados, 56 artículos en revistas científicas, 16 capítulos de libro y 20 actas de conferencias, siendo difundidos en 66 entre seminarios/congresos nacionales e internacionales. Las capacidades científico técnicas adquiridas, entre las cuales destacan el uso de instrumentos de análisis, nuevas tecnologías y criterios de planificación y diseño, han permitido al proponente alcanzar un elevado grado de autonomía, liderazgo y transdisciplinariedad para encauzar investigaciones en AUOT y adquirir una perspectiva interdisciplinar en la que están implicados campos de conocimiento como los de la Arquitectura, Geografía, Derecho, Historia y Economía. Las responsabilidades científicas ejercidas han sido la ejecución de investigaciones dentro de proyectos internacionales (UrbanHist) y nacionales en entidades universitarias (Iuav y UVa). De estas responsabilidades han surgido colaboraciones internacionales a varios niveles, que han desembocado en actividades de divulgación sobre todo instauradas con profesores provenientes de universidades italianas y españolas. Entre sus aportaciones a la sociedad, el investigador ha sido invitado por parte de Ayuntamientos, entidades públicas y redes de agentes a tomar parte en específicos eventos públicos debido a su conocimiento técnico, sólido y original en el AUOT, lo que sirvió de soporte científico a las decisiones a tomar por parte de los responsables políticos en materia de gobierno del territorio y divulgación al público general. El proponente es responsable de un intercambio de estudiantes (Erasmus+ Blended Intensive Programme) y ha sido invitado como experto en talleres internacionales de arquitectura/urbanismo en temas de regeneración urbana y como revisor de artículos para revistas científicas. Entre las actividades editoriales, el proponente es miembro de varias revistas internacionales (comité editorial y científico). Entre la evaluación de proyectos, el proponente fue llamado como revisor para COST Association.

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	VILOR TEJEDOR, NATALIA
Referencia:	RYC2022-038136-I
Correo Electrónico:	nvilor@barcelonabeta.org
Título:	Enhancing the biological and molecular characterization of neurodegenerative processes through integrating functional genetic measures, brain imaging features and modifiable risk factors

Resumen de la Memoria:

My research interests have always been related to the role of genetic and neuroepidemiological factors, and particularly on gaining a clear view of the etiology and prevention of complex neurological and neurodevelopmental diseases. I received my B.Sc. in Mathematics and B.Sc. in Applied Statistics in 2012 at the Autonomous University of Barcelona (UAB), Spain, and my M.Sc. in Omics data analysis in 2014 at the University of Vic, Spain. My curiosity and passion about research motivated me to apply for an internship while being an undergraduate student. Specifically, the last two years as an undergraduate of the degree of Mathematics, I was awarded with a Collaboration Grant in the Department of Physics at the UAB. By the end of my MSc, I was fortunate to obtain a competitive fellowship from the AGAUR-Generalitat de Catalunya to start my PhD in Biomedicine at Prof. Sunyer's group (ISGLOBAL, Spain) within the European Research Council project. During my PhD, I obtained travel fellowship from the Open Multiscale Systems Medicine Cost Action, and from the CIBERESP and I moved to Prof. Ikram's group (Erasmus Medical Center (EMC), Rotterdam) to expand my work on developing analytical methods for integrating genetic and neuroimaging data. I also obtained a travel fellowship from the AGAUR and I moved to Prof. Valvi lab (Harvard T.H. Chan School of Public Health, Boston) where I was involved as the principal data analyst in the EGG/EAGLE international consortia. Throughout my PhD, I worked in the field of neurodevelopmental and child disorders with a focus on post-traumatic stress disorder, using neuroimaging genetics techniques. My doctoral thesis was awarded with honours. After finishing my PhD, I joined the group of Prof. Guigo (CRG, Spain), leading analyses elucidating brain transcriptomic profiling patterns across neurological disorders. Pursuing my passion to promote mainstreaming in research, I joined the BBRC, with a "Juan de la Cierva-Formación'' contract (Dr. Gispert group), to lead analyses focused on identifying environmental and genetic factors potentially related to the etiology of Alzheimer's disease (AD) and neurological conditions. Moreover, I completed a post-doctoral stay in Rotterdam (2020-2021, 16 months), thanks to an EMBO fellowship and with the support of an Alzheimer's Nederland Association project. Since 2020, I have been a visiting researcher in the Department of Clinical Genetics at the EMC (Dr. Adams lab), and I was recently appointed as chief of statistical modeling in the UNITED consortium. I am working also as a statistical consultant within the CHARGE consortium. Furthemore, I am an external co-researcher in the BrainLat Institute (Universidad Adolfo Ibáñez, Chile), and I am leading the research partner agreement and analytical procedures in my research institution within the ENIGMA Consortium. I was awarded a "Juan de la Cierva-Incorporación" contract to expand my research lines on neurogenetics of AD at the BBRC in Barcelona, and since the beginning of 2022 I have served as the team leader of the Neurobiogenetic team at BBRC. My team consists of 3 Ph.D students, a postdoctoral researcher and two undergraduate students.

Resumen del Currículum Vitae:

My research interests have always been related to the role of genetic (non-modifiable) and environmental (modifiable) factors in the development of neurological disorders and related traits. In the past decade, I have developed various methods to study the relationship between brain proxies of neurological processes and genetic data. Moreover, I have contributed to the characterization of the genetic architecture of brain endophenotypes by integrating genetics, brain neuroimaging correlates, environmental exposures and other potential risk factors associated with neurological processes. Some of these studies have been performed as part of large international consortia. My research has resulted in the publication of 47 scientific publications (13 as first author, 5 as last author and 19 as corresponding author) in high-ranked peer-reviewed international journals (95% in Q1). I have given 10 invited talks and received two keynote speaker invitations in the last 3 years. My work has been cited 2663 times, with an H-index of 20, and i10 index of 31 (Google Scholar, Feb. 2023). Furthermore, throughout my research career, I have obtained 9 travel and accommodation grants to present my work at national and international conferences. I have also received a competitive PhD fellowship (Agency for Management of University and Research Grants-Generalitat de Catalunya), two competitive postdoctoral fellowships (Spanish Ministry for Science and Innovation), three fellowships for predoctoral stays, an EMBO fellowship for a postdoctoral stay, and an Alzheimer's Nederland Association project for a collaborative international project. I performed predoctoral stays at Prof. Ikram's group (Department Epidemiology, Erasmus Medical Center, Rotterdam), Prof. Valvi lab (Harvard T.H. Chan School of Public Health, Boston), and Prof. Arostegui group (Department of Applied Mathematics at the University of the Basque Country, Bilbao). My doctoral thesis was awarded with honours. After finishing my PhD, I joined the group of Prof. Guigo (Center for Genomic Regulation, Barcelona), leading analyses elucidating brain transcriptomic profiling patterns across neurological disorders.I performed a postdoctoral stay at Prof. Adams group (Department of Clinical Genetics, Erasmus Medical Center, Rotterdam), and I spent three months traveling in South America (2022; Peru, Bolivia and Chile) to give lectures and seminars to train clinicians and researchers partners of the UNITED consortium. Since the beginning of 2022, I have served as the team leader of the Neurobiogenetic team at BarcelonaBeta Brain Research Center. My team consists of 3 Ph.D students, a postdoctoral researcher and two undergraduate students. Additionally, I have been an assistant professor at the UAB and UVIC since 2016 and 2018, respectively.

Resumen de la Memoria:

I define myself as a semiarid land ecohydrologist. My work's overall scientific impact and achievement record are significant for my research stage and field (H-i 8WoS/9RG, 21 JCR pub.). My career focuses on semiarid savanna-type and agricultural ecosystems, driven by my concerns about the current agricultural & livestock production model, sustainability, and potential alternatives. I have a competitive position at the Fluvial Dynamics and Hydrology Group (UCO-DAUCO), studying the impact of microclimate conditions on the hydrology and management of Andalusian mountainous and dehesa areas. I also lead the project "DroughT impACt on the vegeTation of South African semIarid mosaiC landscapes", funded by the European Space Agency (ESA). Previously I was a Marie Sklodowska-Curie postdoc. (IFAPA, Córdoba), leading SWATCH ("Savanna WATer and Carbon fluxes modeling integrating EartH Observation"). Its main goal was to monitor water use & biomass in savanna (dehesa in Spain and other semiarid savannas in California and South Africa) to inform decision-making. The 1st stage was with Prof. Baldocchi at one of the world's best and most competitive universities (Univ. of California, Berkeley -Cal, US). From 2015 to 2017, I worked at the United Nations Univ. -FLORES (Germany), where I led the "Remote Sensing of Water Use & Stress in African Savanna" project, funded by ESA. I focused on policy, training, and knowledge transfer during this period, strengthening the science-society relationship. Before this experience, I was a postdoc at Cal. I defended my Ph.D. in Dec/2014 (Cum Laude) in collaboration with groups in Spain, The Netherlands, and the US.

All my career aligns with my fundamental scientific interest, the functioning of partially covered systems in which water availability has an essential control, reinforcing ecosystem services with technical recommendations based on precision tools. My contributions have been developed according to 3 axes: 1) To improve our understanding of the biophysical processes that govern water & carbon exchanges at semiarid, partially covered ecosystems through experimental work, 2) To develop robust water & carbon modeling for semiarid areas (with publications in high-impact journals), and 3) To strengthen the link between different sectors of society (with knowledge transfer activities and more than a decade of experience in outreach).

My research line's central hypothesis is that in a highly intervened and semiarid environment like dehesas(and mosaic-savanna landscapes), vegetation structure and the presence of livestock are major factors affecting microclimates' delimitation and shifts. Thus, accounting for these factors' variations is critical for conserving system stability, and their relationships should be considered in management. My approach is innovative because it considers these semiarid ecosystems both productive and an environmental system of high natural value with an impact on global cycles; furthermore, it highlights how decision-making must be supported by precision management based on quantitative metrics. A meaningful portion of my experiments are conducted on farms; the close groundwork with technicians and farmers facilitates the future incorporation of the results into their current practices and contributes meaningfully to developing my research lines.

Resumen del Currículum Vitae:

My work's overall scientific impact and achievement record are significant for my research stage and field. I have a competitive position at the Fluvial Dynamics and Hydrology Group (Univ. of Cordoba, Maria de Maetzu Unit-UCO). I also lead an EO-Africa project funded by the European Space Agency (ESA). Previously I was a Marie Skłodowska-Curie fellow leading SWATCH-IF-2015-GF. The first 2yr stage was at the Biometlab at the University of California (Berkeley -Cal, USA), one of the world's best and most competitive. The return phase was at the Research and Training Institute of Agriculture from Andalucía (IFAPA), a center known for the quality of its knowledge transfer processes. From 2015 to 2017, I joined the United Nations Univ. -FLORES (Germany), where I led a Tiger project funded by the ESA while also focusing on policy, regulation, and training. Before this experience, I was a postdoc at Cal for 8 months. I defended my Ph.D. in Dec/2014 (Cum Laude, UCO), collaborating with groups in Spain, The Netherlands, and the USA.

I have demonstrated leadership and independent thinking by 1) leading (3) and participating in international (7) and national (4) projects, 2) publishing in indexed journals (21 JCR pub., citations 132WoS/196RG, 9 in Q1, 5 in 1st decile, 7 as 1st author, 3 as 2nd), 3) designing and conducting field campaigns (e.g., at Tonzi-Ameriflux site in the US, at the National Kruger Park in South Africa, or Santa Clotilde dehesa in Spain), 4) by supervising Ph.D. thesis (1 finalized Cum Laude, 1 ongoing) and MsC (1 finalized with honors, 1 ongoing), 5) writing book chapters, 6) obtaining grants (e.g., 2 Researcher in Training Fellowships), and 7) initiating independent collaborations with world-leading researchers that developed into publications or project collaborations.

I also have been Co-Chair, Guest Editor, and part of the Scientific Committee for the Remote Sensing & Hydrology Symposium -IAHS, Guest Editor for the II Special Issue of MPDI Remote Sensing for Savannas, coordinator, and lecturer of the Workshop on Remote Sensing for Monitoring Water in African Savannas in Limpopo, a scientific reviewer at the DNC 2017 Conference, and coordinator of the Remote Sensing-based Water Fluxes Workshop Phanta Rhei -IAHS.

My academic and personal trajectory demonstrates my potential and flexibility in adapting to new environments and disciplines, working with international groups from different cultures. Besides the mentioned 5-yrs abroad, I have extensive international experience, including experimental campaigns, training competitive courses (e.g., 5th Regional Experiments for Land-atmosphere Exchanges, 8th Advance Training on Land Remote Sensing -ESA), conferences (71, 58 international, 39 oral), and short stays (10 months) in France (CEFE-CNRS), South Africa (KwaZulu Natal Univ.), the Netherlands (ITC, Twente Univ.), Germany (Bio- and Geosciences Forschungszentrum) and the US (ARS-USDA). I have teaching experience, participating in seminars, courses, and doctorate programs (UCO and UNU-FLORES). I believe that science needs to be accessible to people. I have more than a decade of experience in outreach activities: supporting women in science (#11F Las Que Cuentan La Ciencia), ecosystem conservation through NGOs, or institutional activities.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	GREQUE DE MORAIS, ETIELE
Referencia:	RYC2022-038380-I
Correo Electrónico:	etiele@gmail.com
Título:	Microalgae culture for biotechnological application

Resumen de la Memoria:

The researcher has a proven track record of high achievement, having published 24 scientific papers, 10 book chapters, and interacted with 81 collaborators in co-authoring scientific works with an h-index of 10 in Scopus with 598 citations. More than 30% of her papers have been published in journals of the Q1 in the areas of Environmental Sciences and Chemical Engineering. due to her internships/job placements at universities and industry in Uruguay (Internship - Universidad de la República - 4 months), Portugal (Internship - Universidade de Lisboa - 4 months and Job - Centro de Ciências do Mar – 2.8 years, Necton and University of Algarve, 5 months) and from her country-of-origin Brazil (Universidade Federal do Rio Grande – 11 years). The researcher has participated in 12 competitive research projects and has wide international research experience from different countries and have collaborated with companies like Necton, Allmicroalgae and Olson nutriçao and public companies as Companhia de Geração Térmica de Energia Elétrica (CGTEE). She is principal investigator in CHARMI project and adivised 14 students in their masters, bachelor and internships. She is particularly interested in continuing her career in the Group of Environmental Engineering and Microbiology (GEMMA) from the UPC, bringing 2 new research lines to the group: proteins production by microalgae and biochar production. She gained knowledge about these themes from her previous experiences and aims to continue join her research interests in the group.

Resumen del Currículum Vitae:

Drª Etiele Morais was always involved in Biochemical Engineering and Environmental Engineering projects. More than 30% of her papers have been published in journals of the Q1 (JCR articles in Q1: 8 and Q2: 3 and 9 open access publications) on areas of Environmental Sciences and Chemical Engineering. She has remarkable experience in microalgae culture, downstream, and biomass application on lab, pilot, and industrial scales. She has worked in the most diverse aspects of microalgae cultivation for 15 years. The researcher has a proven track record of high achievement relative to her career stage, having published 24 scientific papers (JCR journals) and was the first author in 10 of them, 10 book chapters, and more than 60 works presented in national and international conferences, and interacted with 81 collaborators in co-authoring scientific works being produced 9 joint publications in collaboration with international groups with an h-index of 10 in Scopus with 598 citations. She has close contact with the private sector through her internship at Olson Nutrição in Brazil and working as an employee at Necton (Olhão, Portugal) and collaboration with Allmicroalgae (Leiria,Portugal). She also participates in projects involving public institutions, being a consultant for microalgae production at the Federal University of Bahia in Brazil. She works in on projects with the deployment of microalgae reators inside governmental companies such as Águas do Algarve (Portugal) and Companhia Brasileira de Energia Eletria (Brazil). She applied successfully to two exchange programs during her Master (Universidad de la República, Uruguay) and PhD (University of Lisbon, Portugal). She started to work on urban wastewater treatment with microalgae in lab and pilot scale in 2019 in the framework of the European Regional Development Fund (FEDER) Greentreat project as a Researcher by a contract granted by the Foundation for Science and Technology at the Center of Marine Sciences (Faro, Portugal). In this project, the researcher has developed skills of leading and project management, leading tasks and coordinating other researchers. The researcher has participated in 14 competitive research projects and supervised 14 university students in their bachelor thesis (4), internships (5), and master thesis (5). She is now the principal investigator of her first research project (CHARMI) with an international collaboration with the Federal University of Rio Grande about biochar production and its application on wastewater treatment and as a biofertiliser. That's a new research line that she already brings to her team at Polytechnique University of Catalonia (UPC, Spain), the GEMMA group where she wants to establish herself as a researcher. She serves as a reviewer for 6 JCR journals and as a guest editor on a Special Issue of Marine Drugs, "Microalgae-based Immune System Boosters." She was also a jury in 4 master thesis, 3 PhD thesis and 5 proposal qualifications.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	JUAN POVEDA, CARLOS GABRIEL
Referencia:	RYC2022-036257-I
Correo Electrónico:	cgjuanpoveda@gmail.com
Título:	Designing microwave sensors for glucose concentration detection: Towards non-invasive glucose sensing

Resumen de la Memoria:

Since the start of his research career, the candidate focused his interest on the development of electronic devices for bettering outpatient biomedical care, with a special emphasis on glucose level monitoring. More specifically, his research is focused on the pursue of microwave resonating solutions for the detection of variations of the dielectric permittivity in the surroundings, which can be tuned to track the variations of glucose level (or other interesting variables). These devices find potential applications in both clinical and ambulatory diabetes management and treatment, advanced biomedical studies and point-of-care diagnostics, among others. The candidate's profile stands out due to its multidisciplinary nature, involving electronic engineering, novel fabrication techniques, signal processing, material sciences, chemistry and biochemistry. His work covers the whole development process for new enabling, user-oriented technologies, from the hypothesis definition, evolving to the design, fabrication, assessment and optimization of novel sensor systems, until the final validation in real clinical settings, including the identification of new challenges and envisioning the future research lines. All this process is always conducted with a clear technology-transfer approach, enriched through close collaborations and proposals with stakeholders and end users, including biotechnology industry and public hospitals.

During the first years, the candidate researched on the dielectric signature of glucose in aqueous and biological solutions and the development of novel microwave sensors for the non-invasive measurement of glucose level. Among his main contributions, he developed and demonstrated the potential of a new sensing paradigm, the so-called Qu-based sensors, currently broadly recognized by the scientific community. He also carried out studies involving real biological and clinical contexts which contributed to set the road map for current research lines for this emerging technology. His works led him to stablish fruitful international collaborations and relationships. As a result, he was engaged in a 24-month postdoctoral post with CRNS Lab-STICC (UBO, Brest, France). He has also been involved in a number of national and international research projects and technology transfer contracts.

The candidate's last works have pushed microwave biosensors notably beyond the state of the art. He recently developed the first certified fully biocompatible microwave glucose sensor, which also was the first Qu-based sensor to ever measure biologically relevant glucose concentrations. He made considerable contributions towards the standardization and integration of these sensors into complex systems, and on the desirable development of multi-parameter sensors. He led an international collaboration for the study and characterization of strategies to face the selectivity limitations of these sensors. Due to the impact of his work, the candidate has been recipient of several research awards, both at national and international level. Currently, after some months with UMA, he recently joined UPCT to face the new research challenges in the field. Parallelly, he keeps close collaboration with his national and international colleagues, and he also keeps engaging both academic and industry partners for research and technology transfer proposals.

Resumen del Currículum Vitae:

Carlos G. Juan is an Early Career Researcher specialized in microwave sensors for biomedical applications. He received the highest-quality training in top leading international research groups as for microwave engineering and bioengineering, thereby gaining a significant track record in electronic- and microwave-based biomedical engineering. He is currently a Postdoctoral Fellow jointly with UPCT and UMH (Spain), where he leads cutting-edge research lines on biomedical engineering while getting involved in chief national and international research projects as well as collaborations with industry, hospitals and end users for knowledge and technology transfer actions.

His research career started in 2015 with nBio research group at UMH, where he developed his PhD dissertation (graded Cum Laude with International Doctorate Mention) in 2019. During his predoctoral stage he carried out two international research internships in France (2016, 2018). He developed and coined a brand-new measurement strategy (Qu-based sensors), whose authorship and potential is now globally acknowledged by the scientific community. His work was recognized with the CEA-Springer Award to the Best PhD Thesis in Bioengineering 2020 (national award), the Santander Bank Young Researchers Award and the Extraordinary PhD Award. In January 2020 he was engaged as a Postdoctoral Fellow with the prestigious group CNRS Lab-STICC (Université de Bretagne Occidentale, Brest, France), through different research projects and technology transfer contracts, for a total time of 24 months. During this period, he carried out path-breaking research on microwave-based biosensors and high-frequency electronics fabrication techniques, developing the first biocompatible microwave sensor, which was also the first Qu-based sensor to ever measure biologically-relevant glucose concentrations. As a result of his works with CNRS Lab-STICC, he was awarded the Applied Sciences 2021 Highly Cited Paper Award, among other merits. In January 2022 he gained his own Postdoctoral Research Project at UMA (jointly with UMH). After being granted another own project, since October 2022 he is a Postdoctoral Research Fellow with UPCT, also jointly with UMH.

He published 1 scientific book, 13 JCR articles (+2 under review), being first and/or corresponding author of 9 of them, 12 contributions to international conferences and 11 to national conferences (including Spanish and French conferences). He has H-index 11, with over 300 citations (225 of which were during the last 2 years, which shows his exponentially-growing impact). Considering his experience as a doctor, these numbers yield 3.33 JCR articles/year (2 Q1 articles/year), 2.33 international conferences/year, 2 national conferences/year, and ∼100 citations/year. He participated in many dissemination and divulgation activities (dissemination workshops in prestigious international conferences, events, talks, websites, press…), as well as one technology transfer to industry contract. He is actively involved in editorial (currently Associate Editor for IEEE Trans. Instrum. Meas.) and peer review activities for the most prestigious journals in the field. He is also constantly engaged in leadership and supervision tasks, including 3 undergraduate students (1 of them within an international framework) and 1 PhD student during the last 2 years.

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	RUESTES VEGAS, CARLOS JAVIER
Referencia:	RYC2022-035570-I
Correo Electrónico:	cjruestes@gmail.com
Título:	Mechanical behavior of materials for engineering applications under extreme conditions

Resumen de la Memoria:

I graduated in Aeronautics Engineering (5-years program) in 2005 and worked 5 years in the industry of turbomachinery. In 2010 I started my PhD studies in Engineering Sciences at Instituto Balseiro (Arg.) where I specialized in atomistic simulations for metals under mechanical extremes. As part of my PhD, I spent one year at the Mechanical and Aerospace Engineering Department of UC-San Diego (USA), working with Prof. M.A. Meyers. The results of my PhD work were published in Scientific Reports, Scripta Materialia, Materials Science and Engineering A and Acta Materialia, among others. The results were also presented in international conferences, such as TMS.

In 2016, and after a short postdoc stay, I was accepted as Assistant Researcher at CONICET (Argentina's National Scientific and Research Council). During that time, I concentrated on funding acquisition. I was able to get my first personal grants as well as a donation of equipment from NVIDIA Corporation. I was able to manage this funding independently and concentrated my efforts on establishing my independent network of collaborators. In 2018 I was promoted to Associate Researcher. At that time, I obtained a highly-competitive PICT-Grupos de Reciente Formación project to develop my own research group at Facultad de Ciencias Exactas y Naturales (FCEN) of Universidad Nacional de Cuyo (Argentina), where I am also a professor (currently on leave). I had a strong university service activity, as member of boards and chair of the school computer cluster. I built a significant network of collaborators (Spain, Germany, USA, Brazil, China, etc) thanks to a strong and continuous internationalization and mobility activity. Some of my work in this period can be found in the Journal of Applied Physics, Journal of Alloys and Compounds, Journal of the Mechanics and Physics of Solids, and Acta Materialia, to name a few. I also have significant experience on technology transfer. For example Computer assisted design and fabrication of orthosis and prosthesis for lower limb, which included development, commissioning and technology transfer of a system based on the use of a video camera, a software and a 3D printer for fast and efficient fabrication of foot drop orthosis devices for Hospital Lencinas of Mendoza, Argentina. Another example of technology transfer consisted on the design optimization of construction safety helmets for an important manufacturer in Argentina.

In 2022 I moved to Europe and I am currently a Marie-Sklodowska Curie Fellow at IMDEA Materials Institute – Madrid (2022-2024) and I am a member of MecaNano COST Action. I am currently tacking engineering problems using continuum-scale methods, with focus on engineering applications, such aerospace components and materials for fusion. I am also an Editor for the Journal of Materials Research and Technology (Elsevier, IF=6.2). My publication record includes +50 articles (+1 submitted) in international peer-reviewed journals (h-index = 21, +1480 citations according to Google Scholar).

Resumen del Currículum Vitae:

Marie Sklodowska-Curie Postdoctoral Fellow at IMDEA Materials Institute. Editor for the Journal of Materials Research and Technology (Elsevier). Team member of MecaNano COST Action. Staff researcher at CONICET - Argentina (on leave). Aeronautics Engineer (U.N. de La Plata) and Ph.D. in Engineering Sciences (Instituto Balseiro). 5 years of industry experience (Siemens Power Generation Division and IMPSA Hydro Power).

Using state-of-the-art simulation techniques, I have made numerous contributions to the mechanical behaviour of materials under extreme conditions and nanoscale plasticity. These include 50+ publications in journals such as Acta Materialia, Scripta Materialia, Journal of the Mechanics and Physics of Solids and Computational Materials Science. My publications have rapidly accumulated more than 1470 citations (h-index=21, >1470 citations in total, with >200 citations per year in the past 3 years, according to Google Scholar). I am also the first author of a book chapter published by Wiley. Regular editor for the Journal of Materials Research and Technology, I am also a regular reviewer for a number of journals.

Participant (oral) in international conferences (TMS, Pan American Materials Conference, SAM-CONAMET, Brazilian MRS). Invited speaker in seminars in USA (UC-San Diego, Louisiana State U., and Lawrence Livermore National Laboratory) and Brazil (UNICAMP). Member of program committee and organizing committee of international workshops and congresses.

I have an extensive international mobility experience, I spent one year (11/2012 – 10/2013) as a visiting scholar at the Mechanical and Aerospace Department, University of California, San Diego (USA) working with Prof. Marc A. Meyers (h-index = 102) followed by short stays every year since 2016. I participated in short stays at Louisiana State University (USA) and UNICAMP (Brazil). Extensive international network of collaborators, including H.M. Urbassek, A. Stukowski (Germany), D. Farkas, M.A. Meyers, G. Voyiadjis, R.E. Rudd, B.A. Remington (USA), M. de Koning (Brazil) and M.J. Caturla (Spain), among others. Since 2013 I am also an off-site collaborator of Lawrence Livermore National Laboratory (USA), with access to their high performance computing facility.

Since 2018, I head my independent research group at FCEN-UNCuyo. I have supervised 2 degree projects (TFG), I am now co-supervising 2 engineering Ph.D. thesis in progress, and supervising 3 degree projects (TFG).

I have been involved in more than 10 research projects (5 as principal investigator) funded by Agencia Nacional de Promoción Científica y Tecnológica – Argentina. Aside from my research and supervision activity, I have extensive experience in teaching at the undergraduate level (10+ years at FCEN - Universidad Nacional de Cuyo). I served as Chair of FCEN Computer Cluster, where I was responsible for management tasks, such as the coordination of actions for the development of the school cluster.

I also have significant outreach activity, collaborating with Hospital Lencinas (Mendoza, Argentina) on the fabrication of cost-effective platform for the fabrication of orthosis and prosthesis for lower limb. I have also provided consultancy services for industry, including finite element analysis and design optimization of of safety equipment.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	MARTÍNEZ ENRÍQUEZ, EDUARDO
Referencia:	RYC2022-038195-I
Correo Electrónico:	emenriquez@tsc.uc3m.es
Título:	Quantification of the anterior segment of the eye and its applications

Resumen de la Memoria:

I started my research in 2007 in the Signal Theory and Communications Department (TSC), Universidad Carlos III de Madrid (UC3M), with a long term fellowship ("Beca Formación de Doctores-UC3M"). My research was focused to low complexity video coding and video coding optimization, mainly under the H.264 and HEVC video coding standards. In 2010 I carried out a research stay of 22 weeks, funded in part by the fellowship "Ayudas para la movilidad de investigadores-UC3M", in the Signal and Image Processing Institute of University of Southern California, USC, with Professor Antonio Ortega. During my research stay, I started to investigate in the design and optimization of new compact representations of signals on graphs. The works on this topic attracted the attention of the Signal Processing community, receiving important awards. Given the impact, promising, and novelty of these works, I decided to include this research in my PhD and continue further research in this area, and Antonio Ortega became the co-advisor of my PhD along with Fernando Diaz (UC3M). In 2013 I defended my PhD thesis (receiving the Extraordinary PhD award from the UC3M), and started the PhD direction of two students in low complexity video coding and video coding optimization (both PhD thesis defended in 2016). I started my postdoctoral period as a Visiting Associate Professor in the UC3M, where I was 8 months. In October 2014 I decided to move to VioBio Lab, motivated by applying my signal processing knowledge to biomedical problems, and by the prestigious and internationality of the laboratory, as well as by its extraordinary research output. In VioBio I have developed my main research line, mainly focused to the modelling and quantification of the crystalline lens and its applications, taking advantage of my diverse background in signal processing and visual optics. In 2021 I worked during 15 months for the University of Rochester (UR) as a postdoctoral associate applying the proposed models of the crystalline lens and machine learning algorithms in order to improve cataract surgery outcomes, which would have a positive impact on society.

Since 2016, I have published 27 journal papers mainly related with my main research line (approximately 4 papers/year) and participated in 72 conferences (approximately 10/year).

I have worked in several international projects, highlighting a long-term (2015-2023) collaboration with the College of Engineering of Miami University (USA) and the LV Prasad Eye Institute (India).

I have contributed as author or coauthor in papers with coauthors of 21 different centers (14 outside Spain) from 15 nationalities, and as a researcher in projects and contracts with international collaborators from 18 institutions (outside Spain) from 8 different countries.

Furthermore, I am the co-IP in a long term Project started in 2020 signed with Alcon (world leading company in the field). The results of this project may be the first solution useful for presbyopia, optimized using our proposed patents related with the crystalline lens modelling (licensed to Alcon).

Resumen del Currículum Vitae:

I am engineer by training and obtained my PhD from the UC3M (including a predoctoral research stay of 5 months at the University of Southern California). I started my postdoctoral stage in the UC3M during 8 months. In 2014 I moved to the VioBio Lab at CSIC. In 2021-2022 I worked in the University of Rochester (UR) as a postdoctoral associate during 13 months.

I have published 32 JCR journal papers (27 in Q1; 5 in Q2; 5 in D1), 1 arXiv (computer science) and 17 conference proceedings. I am the first author in 11 JCR papers, 1 arXiv and 8 proceedings, and the PhD director in 7 JCR and 2 proceedings. I have participated in 55 communications to international meetings (12 as first author), in 13 invited talks or courses (7 personally invited), and in several chapters in 2 books. I have an h-index=18 (Google Scholar), 705 citations. Currently, I have 3 articles submitted (first author in 2).

I have actively participated in 20 competitive calls (6 grants funded by the European Commission, including 2 Advance Grants and 2 H2020 projects; 1 funded by the NIH; 5 funded by the Spanish Government) and 12 R&D contracts (8 international), leading critical work packages in several of them. The total funding from these projects was about 10 million € I have been PI or co-PI in 6 research projects and grants, with a total funding of about 600 K€, including an i-LINK grant funded by CSIC (24 k€), 3 Proof of Concept R&D contracts with Alcon Research (USA) and Deneb Medical; 1 agreement with Alcon started in 2020 (458 K€); and 1 R&D project with Heidelberg Engineering, Germany (transfer of an ANTERION OCT system, valued at more than 100K€; other funds under negotiation).

I am the principal inventor of 4 intellectual property items: 2 families of patents related with the crystalline lens geometry (Patent 1: 2017, 45% of participation, granted in USA and Japan; Patent 2: 2020, 60 % of participation, granted in USA and Europe), both licensed to the world leading company in eye-care Alcon (USA); and 2 registered softwares: one related with OCT images quantification, licensed to Abbott Medical Optics, AMO (USA) in 2018 (37.5% of participation), and other related with the European H2020 project, 2021 (50 % participation).

I have been director or co-director of 2 PhD Thesis and 10 Master's Degree projects. Currently, I am co-directing 2 PhD Thesis and a 1 Master's Degree project.

I have received prestigious awards, as the "Best paper award" in the International Conference on Image Processing ICIP 2011; the "Top 10 % paper recognition" in ICIP 2013; the "International Travel Grant" from the ARVO; finalist in the "MIT Outstanding poster award" in ARVO 2018. Furthermore, I received the Extraordinary PhD award from the UC3M in January 2015 and the second place national award for my Final Degree Project, 2002.

I have been teaching at the UC3M from 2006 to 2014 (456 hours total) in 9 subjects related to Signal Processing, being subject coordinator of Electroacoustics (2010- 2012). As a teacher, I obtained a mark higher than 4 (up to 5) as evaluated by the students. I have participated in several divulgation activities as the "Semana de la Ciencia" (2020) and the "IOSA Scientific Seminars" (2020), and formed part of project evaluation panels (Goergen Institute for Data Science, 2022-2023, NY state) and committees in 19 TFMs or TFGs and in 2 PhDs.

Resumen de la Memoria:

The Spanish Aerospace sector is one of the best prospect industry areas for the country (5th in Europe), showing enormous potential in the highly competitive air transportation market. It represents a field of engineering in which the development of lighter structures is critical and, hence, the use of composite materials is crucial to reduce the aircraft weight and achieving lower fuel consumption. The environmental sustainability will be enhanced transitioning to TPC, because they offer better recyclability compared to traditional thermoset-based composites, combined with green propulsion and new fuel technologies. However, integration of such technologies will have a major impact on the fuselage design since the material behaviour under extreme conditions (i.e., hydrogen at cryogenic temperature) must be known to ensure a proper mechanical performance of the main aircraft structures affected by the ancillary systems devoted to fuel storage and distribution and safety requirements. The proposed research line is thus replying to a direct need from the aerospace industry: the lack of knowledge regarding the mechanical properties and performance of TPCs when subjected to combined high strain rates and cryogenic temperatures. To this end, new material testing and certification procedures suitable for such extreme conditions should be developed. To tackle the problem, a novel bottom-up multiscale methodology to provide a better understanding at the microconstituent level under high strain-rates loading at cryogenic temperature is proposed. To this end, micromechanical characterization of the material will be performed to gather information to reproduce the mechanical behaviour of the composite by means of numerical models based on finite elements. The constitutive models should incorporate the influence of the strain rate in the material behaviour to capture accurately damage initiation and propagation at cryogenic temperature, and they will be fed by the mechanical properties of the composite constituents (i.e., polymeric matrix, fibres, and fibre/matrix interface). This virtual ply characterization based on reliable properties of the microconstituents provide full control of the microstructure and constituent properties, allowing microstructural optimization to be performed and the simulation of complex stress states not possible experimentally. Thanks to this bottom-up multiscale approach, the importance of micromechanical parameters such as fibre distribution, cohesive-frictional fibre/matrix interface behaviour and polymer behaviour can be assessed. The applicant has a relevant experience in both numerical and experimental techniques applied to the mechanical characterization of composite materials. Moreover, he has a large professional experience in the aeronautical and nuclear industry, where he participated in 6 research projects obtained through competitive calls funded by the European Union and 5 technological R&D projects funded by private companies. Such experience has been acquired through his work at national and international universities and research institutions, allowing him to establish a broad collaboration network. The proposed research line will position the applicant and his research team as one of the few national groups performing dynamic testing of composite materials at cryogenic temperatures.

Resumen del Currículum Vitae:

Fernando Naya Montáns studied industrial engineering at the Technical University of Madrid (UPM), majoring in mechanical and nuclear engineering in 2011, after developing his master thesis in Air Liquide's combustion department at the Claude-Delorme Research Center (CRCD) in Paris (France). Back to Spain, he continued his professional career at Airbus Military, working in the design of engine equipment and systems of the A-400M aircraft. His interest in the design of aeronautical structures and aircraft components encouraged him to start a PhD in material science and engineering at UPM civil engineering school, where he developed his research in computational and experimental micromechanics of composite materials. He also worked as a researcher at IMDEA Materials institute, where he strengthened his relationship with the aeronautical industry and the Airbus group through several European research projects (ITER PCR, SIMSCREEN, CRASHING) funded by public and private entities. Once he obtained his PhD, with honors, in 2017, he moved to Switzerland, where he worked for two years as a postdoctoral researcher at the École Polytechnique Fédérale de Lausanne (EPFL), within the laboratory of applied mechanics and reliability analysis (LMAF) supervised by prof. John Botsis, developing numerical (FEA) and experimental techniques aimed to understand the fracture behavior of advanced composite materials. During his postdoctoral stay, he was also a lecturer in Strength of Materials and Fracture Mechanics, and he supervised several bachelor and master thesis. After EPFL, in 2019 he resumed his professional activity at IDOM (Madrid) nuclear department, where he coordinated the design and thermomechanical analysis (FEA) of systems and components for advanced nuclear reactors (ITER, STEP, JHR). In 2020 he resumed his academic activity, combining his work at IDOM with a lecturer position in the Continuum Mechanics and Structural Analysis (MMCyTE) department at the University Carlos III of Madrid (UC3M). In 2021, he started a position as a postdoctoral researcher in the same department, where he currently combines his research within the Lightweight Structures Dynamics group with his teaching activity at the UC3M. He has a relevant experience in numerical and experimental techniques applied to the mechanical characterization of composite materials. Moreover, he has a large professional experience in the aeronautical and nuclear industry, acquired through 11 R&D projects, most obtained through competitive calls, funded by the European Union and private companies. Fernando Naya has published 19 scientific documents, including 12 JCR published in journals recognized internationally as a reference in the field of composite materials (most of them Q1). According to Scopus, his scientific work accumulates 597 citations, and his h index is 11. His scientific interest includes simulation and optimization of the mechanical behavior of composite materials under complex loading, such as multiaxial stress states, dynamic loading, thermal and electromagnetic loading, and harsh environments (e.g., nuclear radiation, cryogenic environment). Moreover, he is also interested in advanced material characterization techniques (dynamic regime, microscale) and innovative manufacturing methods (thermoforming, 3D printing) for next generation composite materials.

Área Temática:	Psicología
Nombre:	MOTRICO MARTINEZ, EMMA
Referencia:	RYC2022-037556-I
Correo Electrónico:	emotrico@uloyola.es
Título:	Prevention of depression and anxiety and its implementation in different settings

Resumen de la Memoria:

Emma Motrico, PhD (www.emmamotrico.com) is an associate professor at the Psychology Department of the Universidad Loyola (Spain). She completed her PhD in Psychology (Summa Cum Laude) working as a researcher at the Biomedical Research Institute of Málaga (FIMABIS-IBIMA, Spain). Her post-doctoral work spanned more than ten years in the psychology department of two universities in Spain: the University of Seville (2011-2013) and Loyola University (2013-current).

Her post-doctoral research work concerned the prevention of mental health disorders and implementing of preventive interventions in health settings. The five major achievements in her entire research career are: 1) Identifying the risk factors of common mental health disorders; 2) Meta-analysis of the effectiveness of preventive interventions for depression and anxiety; 3) First review of the moderators of preventive interventions for depression and anxiety; 4) Empirical evidence of the effectiveness lifestyle interventions for depression and anxiety; and 5) Classifying the programs and interventions in the European context.

Since 2018, she has initiated my own independent research line focusing on mental health disorders during the perinatal period (from pregnancy to one year postpartum). This proposal brings me the opportunity to go beyond and lead a new research line to investigate the prevention of perinatal mental disorders in women and partners and the implementation of effective preventive programs in different settings. The new line of research evolves around three main interconnected areas:

AREA 1. Generation of scientific evidence of the effectiveness of preventive interventions for perinatal depression and anxiety in women and fathers/partners.

AREA 2. Developing and testing preventive interventions (universal, selective and indicate) for perinatal depression and anxiety in women and fathers/partners.

AREA 3. Investigating the implementation of effective preventive programs in different settings (e.g., high schools, workplace, healthcare).

The results of her research activity can be summarized in a total of 69 scientific publications in high-impact journals. Her research has been recognized with several awards and international lead positions (e.g., International Marce Society). Her strong research background, international expertise, and research leadership in the prevention of depression and anxiety uniquely position her to lead a new paradigm to investigate the prevention of mental disorders and implement preventive programs in global health care services.

Resumen del Currículum Vitae:

Emma Motrico, PhD (www.emmamotrico.com) is an associate professor at the Psychology Department of the Universidad Loyola (Spain). Her research focuses on the prevention of mental disorders, especially perinatal depression and anxiety, and the implementation of preventive interventions in health settings.

The results of her research activity can be summarized in 69 scientific publications. Of these, 62 are indexed in the Journal Citation Reports (JCR), 41 are indexed in Q1 (of which 12 are in D1) in high-impact journals (e.g., JAMA, Clinical Psychology Review). She is in a leadership position in 36 (first author in 10, corresponding author in 16, and last author in 10). The h-index (WOS) value is 19 (total cites: 999), and h-index (google scholar) is 26. Furthermore, she has participated in 63 scientific congresses, 39 of them international.

Principal researcher of the project ' e-Perinatal' funded by ERC-Starting Grant 2021. The ERC Starting Grant is awarded by the European Research Council (ERC), the most prestigious funder of excellent research in Europe. Professor Motrico is also the principal researcher of four other funded projects (one international and four national) and collaborating researcher in a total of 16 funded research projects, of which two are European projects, eleven are national (Ministry of Education, Science and Technology, and Health Institute Carlos III) and three are regional projects (Regional Ministry of Health, Junta de Andalucía). She collaborates with patient organizations and public institutions, such as Catalonian Health Service and ' RedMadre Foundation". Also, she is the owner of intellectual property.

Expert of the European Commission for the evaluation of Marie Skłodowska-Curie Actions – Postdoctoral Fellowships- 2021 & 2022 and member of the ANECA International Equivalence Commission, she is editor of international scientific journals (e.g., BMC Women Health, Frontiers in Psychology). She is a usual reviewer of several international journals (e.g., Women¿s Health, Psychological Medicine). She has done six international stays: George Washington University (José Castillejo- Fulbright Scholarship), Virje Universirtat, Amsterdam, University of Minnesota, University of Texas in Austin, Penn State University, and Caledonian University. Also, she has supervised four PhD theses (five ongoing) and 21 MSc/BSc theses (four MSc and six BSc theses ongoing).

Finally, her research has been recognized with several awards and international leadership positions. In 2018, she received an award in recognition of her research career, and she also received the first IBIMA award for the best scientific publication. Currently, she is the co-chair of the 'Prevention of Perinatal Mental Disorders' Special Interest Group in the International Marcé Society for Perinatal Mental health and the leader of the Task Force 'Perinatal Mental health and COVID-19 pandemic' in the international network Riseup-PPD Cost-Action. In 2021, she was chosen from more than 10.000 candidates as one of the 50 women for the London School of Economics-Santander W50 Leadership programme.

Área Temática:	Psicología
Nombre:	LERMA USABIAGA, GARIKOITZ
Referencia:	RYC2022-035502-I
Correo Electrónico:	g.lerma@bcbl.eu
Título:	Neural basis of vision and reading interactions and reproducible method development for evaluating the reading circuitry

Resumen de la Memoria:

My long-term career objective is to characterize the neural basis of reading, with the objective of developing a neuroimaging evaluation procedure to help those struggling to read. Developmental dyslexia is the most prevalent reading disability in the population; its manifestations range from specific inabilities to decode words to higher level language limitations, with life-altering educational, social and economic impact on the individual. My past, present and future research has the potential to significantly improve our understanding of reading and dyslexia, and to offer tools for an earlier accurate diagnosis that would improve the assessment of interventions.

My scientific career has been focused on acquiring experience and developing the skills to accomplish the aforementioned objectives:

-- Neural basis of vision and reading interactions: I am an expert on the ventral occipitotemporal cortex involvement in reading, as well as in thalamic and visual cortex functional and structural characterizations. This constitutes my main research line for the future.
-- Evaluating the neural reading circuitry: I am an expert on replication, generalization, and validation in applied neuroimaging. I work on the reliability and validity of the scientific results, collaborating with international researchers, working towards a comprehensive set of techniques to evaluate the neural reading circuitry. This constitutes my second main research line.
-- Retinotopy and field-of-view experiment design and analysis: I am an expert on the population receptive field model based method, used to characterize the visual cortex and early reading regions. I have used this expertise to contribute to our understanding of vision and reading, and I have contributed to the community with reproducible validation and analysis tools.
-- Diffusion MRI analysis: I am an expert in diffusion MRI pipeline implementation and application. I integrated a new scanner-to-tract-to-metric automated pipeline called RTP2, which is being used in several international collaborations and by my PhD students, as well as by other independent research teams.
-- Quantitative MRI (qMRI) acquisition and analysis: I am an advanced user in qMRI sequence acquisition and analysis, I already used it in a highly cited publication, the only one in BCBL at the moment.
-- Reproducibility and validation frameworks: I am an expert containerizing (Docker/Singularity) and streamlining complex analyses that guarantee the integrity of the results in the future. This is crucial for anybody that wants to use/share software analysis results. I collaborate with a private company that makes these tools available for their paying customers, illustrating my recognized experience and expertise in the field.
-- General organizational support: I have extensive business and managerial experience, I contribute by participating in Working Groups, organizing events, obtaining grants, teaching, mentoring and with outreach actions.

Ramon y Cajal's Grant and its career plan is the best option for 1) successfully fulfilling my research plans and consolidating my scientific career at the BCBL, and 2) for the BCBL to take advantage of my knowledge, experience, leadership, technical expertise, and the outcomes of my research plan, which has the potential to be BCBL's future flagship research line and service.

Resumen del Currículum Vitae:

My research is focused on 1) using behavioral, functional and structural Magnetic Resonance Imaging (MRI) techniques to investigate the neural basis of vision and reading and 2) developing functional and structural MRI methods to further examine cognitive functions and enhance neuroimaging reproducibility, validity and generalizability. During my PhD I worked at the Basque Center on Cognition, Brain and Language (BCBL) on characterizing the involvement of ventral occipitotemporal cortex in word recognition using multimodal MRI techniques, granted with a Cum Laude International Doctorate. During this time, I was awarded 3 fellowships (EMBO, McDonnell Foundation, NIH) to extend my training in international research centers: a 3 month stay at Stanford University with Prof. Brian Wandell and advanced neuroanatomy and neuroimaging courses at Bangor University and Harvard/MIT. After my PhD I moved back to Prof. Wandell's Stanford Lab for postdoctoral studies, to work on advanced diffusion MRI methods, population receptive fields (pRF), MRI biomarkers and single-subject quantification methods to better understand and characterize reading in proficient and poor readers. While at Stanford, I was awarded with a 3-year Marie Sklodowska Curie Global Fellowship, the first two years I had a joint Postdoctoral position at Stanford University and BCBL. I spent 1 month in New York University with Prof. Winawer, working on quantitative pRF methods. I have participated as a collaborator, Co-PI, and PI in multiple research projects funded by national (e.g., MINECO, Basque Gov.) and international funding agencies (e.g., ERC, Stanford, Japan) and I recently obtained a Juan de la Cierva grant in the Psychology panel with a 100/100 mark and a 5 year Ikerbasque Research Fellow. I maintain an extensive network of international collaborators, with 7 active ongoing projects. I published my work in high impact factor Q1 journals, I am corresponding author in my first author publications, and I have contributed significantly to the papers where I am a co-author (median of 5 authors per paper). I serve as an ad-hoc reviewer for several scientific journals (J. of Neuroscience, PLoS Comp. Biol. Cerebral Cortex, NeuroImage, Neuron, etc.), and I am an active member of some of the main scientific societies in the field (SfN, OHBM, VSS, SNL), where I regularly present my work in their annual conferences. I have 32 contributions to international conferences as a first and senior author. I have actively joined scientific divulgation activities, such as Brain Awareness Week, Brainhack, or Stanford Brain Day. I have accumulated academic leadership experience with doctoral (3) and master (5) student supervision, and additionally, technical leadership and guidance in multimodal MRI techniques over my PI's students at Stanford (Tanya Glozman & Fabian Reith). Importantly, previously in the private sector I worked in big multinational companies (IBM, PricewaterhouseCoopers), where due to my leadership capabilities I was promoted to team leader, the youngest

in the company at the time. I founded a company where I managed a team of 50 people for 10 years, where I acquired experience in team/project management, leadership, grant writing, training, legal/ethical issues, and in all the financial aspects of a project. This experience has been critical in my leadership roles in academia.

Área Temática:	Psicología
Nombre:	AMORUSO ., LUCIA
Referencia:	RYC2022-035514-I
Correo Electrónico:	l.amoruso@bcbl.eu
Título:	Neurophysiological markers of plasticity changes in language and social cognition networks: Evidence from neurotypical individuals and brain tumor patients

Resumen de la Memoria:

Since the beginning of my professional journey, I have been fascinated by the brain's remarkable ability to change and adapt in response to different experiences, such as learning a second language or coping with disease. My research centers on the mechanisms that facilitate neuroplasticity, with a special focus on the oscillatory dynamics supporting functional "rewiring" in language and social cognition networks.

In particular, my work aims to answer key questions related to how neurotypical individuals and brain tumor patients acquire and preserve cognitive functions that play a critical role in communication and relational life. For instance, how do long-term learning shape brain's functional connections? How does the brain reorganize itself to preserve language and social abilities in the presence of a tumor? Are there specific neurophysiological markers that allow us to track compensatory changes and predict postoperative outcomes?

The mainstream approach to studying neuroplasticity has largely focused on identifying "localization" patterns with fMRI; however, complementary methods capable of capturing the timing and brain rhythms involved in this phenomenon are also required. My original research program uses behavioral and neurophysiological techniques such as magnetoencephalography (MEG) and electroencephalography (EEG), which provide a direct measure of oscillatory brain activity with millisecond precision, opening new avenues for studying neuroplasticity.

Furthermore, my work is interdisciplinary by nature as it capitalizes on knowledge from different fields of expertise, including cognitive neuroscience (revealing spatial, temporal, and spectral signatures of brain activity), linguistics (offering a detailed characterization of human language), social psychology (contributing to understanding psychological processes underlying interpersonal behaviors), and neurosurgery (informing surgical procedures for treating brain tumors, such as intra-operative mapping during awake craniotomies).

My work aims to bridge the gap between experimental science and clinical practice through a translational approach. By using the insights gained from my research in the clinic, we can make evidence-based neuro-oncological decisions that have the potential to improve patients' well-being. The ultimate goal of my work is to preserve patients' language abilities but also their distinct personalities and social lives. In other words, to preserve who they are.

Resumen del Currículum Vitae:

Dr. Amoruso obtained her PhD in Psychology (Summa cum Laude) at the Catholic University of Argentina. Her research combines neurophysiology, neuroimaging, and clinical approaches to study neuroplasticity induced by learning and brain damage. She is Ikerbasque Staff Scientist at the Basque Center on Cognition, Brain and Language (BCBL) since 2019 and Associate Professor at the University of the Basque Country (UPV). She is also Team Leader of the EEG Lab at the Cognitive Neuroscience Center of the University of San Andrés (CNC-UdeSA) in Argentina since 2022.

At the BCBL, she leads a research program that aims to uncover oscillatory markers of language and social cognition plasticity in brain tumor patients and currently supervises two PhD students on this topic. This line of research is funded by two consecutive Plan Nacional I+D+i (MEGLIOMA: 2019-2021 and SCANCER: 2022-2025) that she obtained as Principal Investigator. Notably, this research initiative obtained the prize for the "Best Technological Innovation in Health" promoted by an autonomous community, granted by the Spanish Federation of Health Technology Companies (FENIN).

Dr. Amoruso completed her PhD studies in 2014 funded by the Argentinian Research Council (CONICET) under the supervision of Dr. Agustín Ibañez. In this context, she performed an international research stay in Switzerland at the Laboratory for Behavioral Neurology and Imaging of Cognition with Dr. Vuilleumier. The results obtained in her PhD made a significant contribution to the comprehension of brain plasticity following skilled motor learning. Specifically, she translated neurophysiological markers discovered in the language domain (i.e., N400) to support effects of long-lasting motor training in the action domain. After finishing her PhD, Dr. Amoruso obtained an individual Marie Curie fellowship and moved to Europe with her family for a postdoc training with Prof. Urgesi (Laboratory of Cognitive Neuroscience, UNIUD, Italy). During this period, she expanded her experimental skillset to include non-invasive brain stimulation techniques (TMS) and strengthen her background on social cognition and its disorders. In 2017, she moved to Spain for a second postdoc training as a Juan de la Cierva (Inc.) fellow at the BCBL, under the supervision of Dr. Manuel Carreiras. Since then she has continued to work at this institution, consolidating herself as an emerging leader in the field of brain plasticity, specifically in the areas of language and social cognition.

So far she has published 32 scientific articles, including first-authored papers in top-ranked journals such as PNAS, Journal of Neuroscience, NeuroImage and Cerebral Cortex. Her work has been cited more than 1000 times (H-index = 18 [GS]; 16 [WoS]) and includes collaborations with 80 co-authors from different nationalities, research backgrounds and labs. She has received funding from the European Commission, the IBRO, Ikerbasque and the Spanish Ministry of Science and Innovation (i.e., total fund attracted ~1.000.000 €). Her work has been highlighted by national and international media, including the BBC, Discovery and El País. Currently, she has obtained a second Marie Curie global grant (2021-2024) to develop a multi-centric project between the BCBL (Spain) and the CNC-UdeSA (Argentina) to identify natural language markers for the early diagnosis of neurodegenerative diseases.

Área Temática:	Psicología
Nombre:	MOLANO MAZÓN, MANUEL
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Título:	Circuit mechanisms of priors and learning during decision making

Resumen de la Memoria:

Throughout my career I have worked at 5 different institutions in 4 different countries: Instituto de Neurociencias de Alicante (Spain), Centre for Systems Neuroscience (UK), Istituto Italiano di Tecnologia (Italy), IDIBAPS (Spain), École Normale Supérieure (France) and Centre de Recerca Matemàtica (Spain). I've also done 2 stays in top international institutions: Max Planck Institute in Tübingen (Germany) and Center for Theoretical Neuroscience (Columbia University, US).

2007-2012: PhD (Alicante, Spain). I did my PhD at the Instituto de Neurociencias de Alicante, under the supervision of Dr. Miguel Maravall and Dr. Luis Martínez (Alenda et al. 2010; Martinez et al. 2014; Pitas et al. 2016). I also collaborated with Prof. Oscar Marín's laboratory, developing a model that described the distribution of the Cajal Retzius neurons (Villar-Cerviño et al. 2013).

2010-2011: Short stay at the Max Planck Institute (Tübingen). During my PhD, I learned how to perform two-photon calcium-imaging experiments thanks to a 7-month stay in the laboratory of Jason Kerr, in the Max Planck Institute in Tübingen (Germany).

2012-2014: Centre for Systems Neuroscience (Leicester, UK). In 2012 I started a postdoctoral position in the laboratory of Prof. Rodrigo Quian-Quiroga at Leicester University where I built a virtual reality set-up. Furthermore, I collaborated with Prof. Todor Gerdjikov in the analysis of electrophysiological data (Stubbendorff et al. 2019).

2015-2018: Neural Computation lab (Rovereto, Italy). In 2015, I started a second postdoctoral position in Dr. Stefano Panzeri's laboratory at the Istituto Italiano di Tecnologia in Rovereto. During this period, I was awarded with the Marie Curie fellowship (2016-2018) which involved the collaboration with Prof. Tommaso Fellin's laboratory (IIT, in Genoa) (Zucca et al. 2017; Vecchia et al. 2020; Brondi et al. 2020). Furthermore, I led a project that applied the deep-learning technique Generative Adversarial Networks (GANs) to simulate the activity of a population of neurons (Molano-Mazon et al. 2018).

2018-2022: Brain Circuits and Behavior lab (Barcelona, Spain). In September 2018 I joined the laboratory of Dr. Jaime de la Rocha, at IDIBAPS (Barcelona), where I started my current line of research: combining analyses of behavioral and electrophysiological dataset with machine learning techniques to understand how we make decisions.

2019: Short stay at Columbia (New York). In 2019, I spent 3 months working at the Center for Theoretical Neuroscience (Columbia University, US), as part of my collaboration with Dr. Guangyu Robert Yang a world leading expert in the training of RNNs (Yang and Molano-Mazón 2021; Molano-Mazón et al. 2022; Molano-Mazón et al. 2023).

2022-2022: École Normale Supérieure (Paris). In 2022, I spent 6 months at the Group of Neural Theory at the École Normale Supérieure (Paris, France) where I started a collaboration with Srdjan Ostojic laboratory, a world leading expert in the analysis of RNNs (Molano-Mazón et al. 2023).

2022-: Centre de Recerca Matemàtica (Barcelona, Spain). In July 2022 I joined the laboratory of Dr. Alexandre Hyafil, at the Centre de Recerca Matemàtica (Barcelona) where I work on a project that investigates the interplay between the processes that lead to a decision and the motor commands that execute it.

Resumen del Currículum Vitae:

I have dedicated my scientific career to investigate how neurons in the mammalian brain process sensory information to make decisions. Below, I describe my main contributions.

Studying decision making. My current line of research focuses on investigating the computational principles underlying decision making in the mammalian brain using machine-learning techniques. My current line of research (Yang and Molano-Mazón 2021; Molano-Mazon et al. 2022; Molano-Mazón et al. 2023), aims at establishing a new paradigm in the use of RNNs to investigate learning of cognitive tasks by separating the training into: (1) pre-training, mimicking evolution, in more naturalistic environments and (2) task learning by pre-trained RNNs using biologically plausible synaptic plasticity rules.

Investigating perception. During my PhD (2007-2012, Instituto de Neurociencias de Alicante), I developed a topological model of the early visual pathway of the cat based on electrophysiological data (Martinez et al. 2014). I also learned how to perform two-photon calcium-imaging experiments on the somatosensory cortex of rats and mice and investigated the spatial distribution of neurons with sensitivity to different stimuli (Martini, Molano-Mazón, and Maravall 2017). A great part of my early career focused on studying the encoding of sensory information in the somatosensory cortex of rats and mice, applying advanced data analysis techniques to the analysis of electrophysiological data (Alenda et al. 2010; Pitas et al. 2016; Zucca et al. 2017; Vecchia et al. 2020).

Collaborations. I have worked in 7 distinct research institutions, worked in 6 different countries and collaborated with more than 15 established researchers, both with computational and experimental expertise. I am currently collaborating with Jaime de la Rocha (IDIBAPS), Robert Yang (MIT), Srdjan Ostojic (École Normale Supérieure) and Alexandre Hyafil (Centre de Recerca Matemàtica).

Software. I have also produced several toolboxes: 1) A matlab toolbox that allows image hundreds of neurons at fast sampling rates (Brondi et al. 2020); 2) Spike-Gan, that permits to model the concerted activity of populations of neurons using machine learning techniques (Molano-Mazon et al. 2018); 3) NeuroGym, a large collection of cognitive tasks to train Artificial Neural Networks (Molano-Mazon et al. 2022).

Funding. During my career I have won several fellowships, securing important funding for my research, including the Junta de Ampliación de Estudios (JAE, 2008), the Marie Curie fellowship (2015, with ~200k € financing), the Juan de la Cierva fellowship (2018, ~70K, I renounced it because of time constraints) and the Beatriu de Pinós fellowship from the Catalan Government (2018, ~92k € financing). In 2021 I participated in the development of a grant proposal based on my line of research (see below (Molano-Mazón et al. 2023)) for the Collaborative Research in Computational Neuroscience (CRCNS, 2022, ~250k €) with Jaime de la Rocha (IDIBAPS) and Robert Yang (MIT).

Mentoring. I have co-supervised 1 PhD student, 1 MSc thesis and 5 BSc theses. I am currently co-supervising 2 MSc theses and will co-supervise a PhD from September 2023.

Outreach. Since 2020 I have co-organized several online seminars, workshops and seminars that have had more than 6K visits in youtube.

Área Temática:	Psicología
Nombre:	URBIOLA VEGA, ANA
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Título:	Reconciling Prejudice Reduction and Collective Action: Testing the AMIGAS model and allies' underlying motivations

Resumen de la Memoria:

I am an interdisciplinary social psychologist, working in the field of intergroup relations.
My scientific contributions, mobility and international experience, together with evidence of my autonomy and leadership skills, are presented in the CV summary and trajectory document.

My work pursues four main research lines, that has contributed to:
a) Understand the important psychosocial factors involved in intergroup prejudice and stereotypes (Urbiola et al. 2022a; Urbiola et al. 2018; Urbiola et al. 2021; Kende et al. 2021).
b) Provide effective strategies for reducing prejudice, even under negative contextual conditions such as a terrorist attacks, and provide instruments to evaluate the motivation to control prejudice in the Spanish language (Urbiola et al., 2014; Urbiola et al. 2018a; 2018b; Bruneau et al. 2020).
c) Construct a conceptual framework of the multicultural perspective, as well as a compilation of its psychosocial effects and its connection with acculturation (Zagefka et al; 2022; Urbiola et al., 2017; 2018b; 2020; book chapter on 2021).
d) Provide an innovative integrative theoretical model of the two approaches of prejudice reduction and social change (Urbiola et al., 2022b).

One of my main recent achievements was the conception of the integrative AMIGAS model (Urbiola et al. 2022) reconciling two supposedly incompatible approaches to social change. The first, the prejudice reduction model (PRM), argues that reducing negative attitudes held by the advantaged will undermine the basis for discrimination and will lead to intergroup harmony. The second approach, the collective action model (CAM) examines social protest and collective action as a means of improving the position or treatment of one's social group.

Building on previous findings, the contribution of the present line of research will be to:
 a) test the AMIGAS model empirically and cross-culturally
 b) analyze the multiculturalist identity as a predictor of social harmony and social change from both majority and different minority perspectives (diverse migrant groups and Roma)
c) incorporate the role of underlying motivations to support migrants/refugees and Roma from both majority and minority (attributed motivations to the advantaged) perspectives.

The main research objectives are:
O1) To provide theoretical advances on, and adjustments to, the integrative innovative model (the AMIGAS model) in order to generate practical social interventions and policies.
O2) To empirically test the model using Multilevel Analysis and data from different national autochthonous groups in more than 20 countries
O3) To analyze the moderating role of contextual variables (e.g., cultural policies of the country) in the relationship between a multiculturalist identity and participation in pro-migrant collective action, using Multilevel Analysis.
O4) To test the role of the underlying motivations of the members of the majority group (egalitarian, paternalistic or performative alliance) in the relationship between multiculturalist identity and participation in pro-diversity collective action.
O5) To test the predicting role of attributed underlying motivations of majority members for creating multicultural allyships from different minority perspectives (migrants from different backgrounds and Roma).
O6) To consolidate an international network on multiculturalism and social change.

Resumen del Currículum Vitae:

Scientific achievements: My research has resulted in high-impact contributions, with an increase of the profile of my publications in 2021 and 2022 in Q1 and Q2 (JCR). I have published in top-level journals in my field (e.g. European Review of Social Psychology) or in General Psychology (Nature Human Behavior or Review of General Psychology). The research outputs have been presented in more than 30 scientific meetings. I started with a Master's thesis (Cum Laude) followed by a PhD in Psychology at the University of Granada, receiving the Cum Laude and the mention of International PhD. In 2020, I was awarded with the Seal of Excellence from the European Commission for a research project on multiculturalism, prejudice and collective action, and scored more than 85 in the previous RyC call.

Internationalization and mobility: I have been the PI of a European project at the University of Almeria entitled Using contact interventions to promote engagement and mobilisation for social change (ENGAGE), funded by the European Union (Program REC-AG-2020, Ref: 963122). I completed several funded international and national research stays in Canada, Portugal and Granada. I received the only mobility grant awarded by the Ministry at the UAL in 2022 of Recualificación del profesorado (01/01/23 to 01/01/24). I have a collaboration network of distinguished researchers, such as Emile Bruneau from USA, Craig McGarty from Australia, Anna Kende from Hungary, Barbara Lášticová from Slovakia or Rui Costa from Portugal, with whom I have published articles in Q1 and work on funded projects.

Leadership and funding: I obtained pre-doc and two Post-doc grants (2016-2017), the Contrato Puente Doctores (University of Granada), and FPDI Postdoc contract (32,042€). I consolidated my own research coordinating two research projects for which I am the PI, one funded by the European Union (ENGAGE, with €312,842.32) and other from the Ministry of Science and Innovation started in 2020 (ALLIES, PID2019-111549GB-I00, €90,000 of funding). I am the first author of most of my publications and together with S. de Lemus, created the Psychology of Social Change Lab (https://www.pps-ugr.es/en/labs/psychology-of-social-change/).

Social impact and dissemination: I collaborated closely with Fundación Secretariado Gitano for the empowerment of the Roma community and the defense of social justice during the ENGAGE project. I coordinated contracts for workshops in public schools on diversity and intergroup conflict resolution, as well as in the private sector (training to Granada Club de Fútbol on strategies to fight xenophobia). I am part of RedHnet. My research results have been reported in many national and international newspapers (El País, El Público, La Vanguardia, La Sexta,Science Code, etc.) and on the radio (Onda Cero).

Mentoring and community service: I have supervised the work of a Phd candidate on prejudice and collective action, Cristina Carmona (in process, her Master's thesis received an excellent evaluation), four Master's theses and fourteen undergraduate theses. I am also an associate editor at Frontiers in Psychology. I have peer reviewed more than 40 papers and assessed 2 Doctoral theses (one as international committee member), in addition to 12 Master's defenses and more than 20 undergraduate theses. I also obtained the national accreditation Contratado Doctor.

Área Temática:	Psicología
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Título:	Neurocognitive changes associated with ageing and non-pharmacological strategies to enhance cognitive functioning

Resumen de la Memoria:

I have developed three main research lines linked to the study of neurocognitive ageing: 1) studying cognitive and neural changes associated with physiological ageing and mild cognitive impairment (MCI) related to Alzheimer's disease (AD); 2) studying the utility of non-pharmacological techniques -mainly, transcranial magnetic stimulation (TMS) and transcranial electrical stimulation (tES)- to modulate neural activity and enhance cognitive functions in older adults and AD patients; 3) investigating neural correlates of cognitive reserve (CR) and to what extent specific variables such as bilingualism contribute to strength executive functions and enhance CR in older adults.

I use electroencephalogram (EEG), event-related brain potentials (ERP), and TMS-EEG co-registration to investigate neural changes related to physiological ageing and AD. I showed that cognitive slowing (and underlying neural correlates) related to perceptive, attentional, cognitive control, and motor processes change at different rates throughout the lifespan. I also demonstrated that cortical excitability changes related to physiological ageing reflect dysfunctional alterations rather than compensatory mechanisms. I obtained several ERP markers to distinguish between healthy older adults and MCI. Currently, a main aim of my research is obtaining, in healthy middle-aged and older adults, EEG markers to very early predict what persons are prone to develop AD.

Another main research line is studying the utility of TMS and tES to enhance cognition. I showed that frontal activity increased after applying anodal transcranial direct current stimulation (tDCS) –i.e., the so called excitatory current- in healthy older adults. Instead, in AD patients, frontal activity increased by cathodal tDCS (i.e., the so called inhibitory current), which was linked to the utility of cathodal tDCS to reduce the cortical hyper-excitability related to AD and increase synchronization of neural activity during the performance of a working memory task. I also reviewed to what extent neurophysiological studies using EEG/ERP and functional and structural magnetic resonance imaging (MRI) showed evidence for brain plasticity mechanisms in healthy older adults and AD patients after applying cognitive training, physical exercise and TMS/tES. I suggested specific ways to combine these three types of interventions and to design tailored protocols in order to maximize cognitive improvement.

I also focus on relationships between bilingualism, executive functions, and CR in healthy older adults. Recent results from my experiments showed that high CR in older adults is related to maintenance of "youthful" activity patterns rather than deployment of compensatory mechanisms. To overtake biased results interpretations, I published a theoretical review that makes explicit what specific ERP differences between monolinguals and bilinguals can be taken as a bilingual advantage in executive functions. In addition, I registered the methods of an ongoing research project (Plan Nacional 2019) in a peer-reviewed journal (Psychophysiology). This ongoing study is focused on how difficulty (easy vs. difficult) and modality (i.e., visual vs. auditory) of cognitive control tasks as well as CR levels of the participants (low CR vs. high CR) modulate the relationships between bilingualism and executive functions in older adults.

Resumen del Currículum Vitae:

I obtained my PhD at University of Santiago de Compostela (USC, 2013). I studied changes in electroencephalogram (EEG) and event-related potentials (ERP) correlates of cognitive control and motor processes in healthy young and older adults as well as in mild cognitive impairment (MCI) patients. I obtained a PhD awarded with distinction and international mention. I was postdoctoral researcher at The Saint John of God Clinical Research Centre (2014-2017), which is part of an Italian network of excellent research centers for research and care. I studied the utility of transcranial magnetic stimulation (TMS) and transcranial electrical stimulation (tES) to improve executive functions in older adults and Alzheimer's disease (AD) patients. Since the 2018 to date, I work in the Basque Centre on Cognition, Brain and Language (BCBL) investigating relationships between bilingualism, executive functions and cognitive reserve in older adults by means of EEG/ERP.

I published 20 peer-reviewed studies (17 as first author) including numerous experiments as well as theoretical reviews, opinions, and a meta-analysis in top international journals. I have another three first author studies submitted or published as preprints (preprints are linked to ORCID). It represents an excellent scientific productivity and an outstanding number of first author studies for a postdoctoral researcher. I presented my work in numerous national and international congresses. I have experience in public engagement activities such as writing papers for magazines (e.g., IPA Bulletin), talks to different audiences (e.g., association of retired persons of Brescia), and interviews for local media. I taught several subjects in the Degree of Psychology (USC) and Master in Cognitive Neuroscience of Language (University of the Basque Country). I have also supervised several master theses. I serve as academic editor for several journals (e.g., Frontiers in Aging Neuroscience) and I have large experience reviewing papers, projects (ANEP), and PhD dissertations.

The mobility and internationalization of my research is reflected by the high number of different co-authors working at different institutions, including collaborations with international leading scientists such as Prof Carlo Miniussi (CIMeC, University of Trento) and Prof Bernhard Hommel (Shandong Normal University, China). As PhD student, I spent 7 months at University of Bremen and a main part of my postdoctoral research (44 months) was carried out in Italy. I presented my work in numerous international congresses. I obtained funding in highly competitive international calls (Marie Curie Actions: calls 2014 and 2018). Importantly, I am leading a large international network of researchers to study relationships between cognitive control and ageing https://osf.io/zudt9/.

The high number of first author studies (20) and the funding obtained in highly competitive national (Plan Nacional 2019) and international (Marie Curie 2014 and 2018) calls demonstrate my ability to lead a research. As evidenced from my publications, I have a high number of different co-authors, which shows my scientific independence and my ability to establish successful research collaborations. Moreover, I have extensive experience supervising numerous postgraduate students, including research assistants and master theses students.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Psicología
Nombre:	SOKOLIUK , RODIKA
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Título:	The role of brain oscillations in perception, attention and consciousness

Resumen de la Memoria:

I am a cognitive neuroscientist with two main research foci, (i) one on basic research in the domain of brain oscillations and their role in different cognitive processes, such as attention, perception and consciousness, and (ii) one on applied research in disorders of consciousness (DOC). Specifically, using electroencephalography (EEG), I am investigating the involvement and role of ongoing and entrained brain oscillations in perceptual and attentional processes. Therefore, I am applying state-of-the-art analytic tools using my own custom-written code, such as time-frequency, cross-frequency-coupling and source reconstruction analyses, which I am validating using advanced statistical analysis methods. For my research in unresponsive DOC patients, I am combining bedside-EEG recordings with standard clinical assessments for patients with DOC, like the Coma Recovery Scale Revised (CRS-R) and Glasgow Outcome Scale Extended (GOSE). Moreover, during my career, I have gained expertise in numerous neuroscientific methods such as EEG, functional Magnetic Resonance Imaging (fMRI), EEG/fMRI co-registration, transcranial alternating current stimulation (tACS), and transcranial magnetic Stimulation (TMS). I have published my findings exclusively in top ranked journals (Q1; e.g., Annals of Neurology, Brain, Journal of Neuroscience), and presented my findings at the most prestigious and most relevant international conferences in the field (e.g., Annual Meeting of the Society for Neuroscience, Association of Scientific Studies of Consciousness). I acquired strong leadership skills by co-supervising 2 PhD students and supervising 1 master and 5 undergraduate students, as well as by teaching undergraduate classes. I am currently leading a research project on the development of diagnostic, prognostic and therapeutic tools in chronic unresponsive DOC patients. Since my first postdoc position, I am reviewing articles for high impact journals (e.g., NeuroImage, The Journal of Neuroscience, Cerebral Cortex), moreover, I have reviewed an ESRC (UK) grant proposal and have been external reviewer for 2 PhD theses. Since my early career, I am showing high mobility and worked in France, the UK, and Germany, which allowed me to build a strong international network with continuing scientific collaborations. This scientific network with collaborations in place will allow me to collect large samples via planned multi-centre studies, supporting my future research. In the latter, I will investigate alterations of the oscillatory profile in unresponsive DOC patients, as a general slowing down of oscillatory brain activity can be observed. I will analyse the consequences of these alterations for different cognitive processes and probe whether these alterations are reversible, for instance by using neuromodulation techniques (e.g., tACS, TMS, neurofeedback). For this project, I am currently preparing an application for this year's call for an ERC starting grant. A Ramón y Cajal grant would allow me to continue the path of my scientific career and become an independent researcher, to contribute shaping the future research landscape of Spain.

Resumen del Currículum Vitae:

I am a cognitive neuroscientist focused on basic research on brain oscillations and applied research in disorders of consciousness (DOC).

After my Biology undergraduate training (Julius-Maximilians-Universität Würzburg, Germany), I did my master's thesis and PhD in Dr VanRullen's group (Université Paul Sabatier, Toulouse, France) on the role of brain oscillations in visual processes. I learned to design and program psychophysical experiments, acquire electroencephalography (EEG) data and use advanced signal processing analyses. I published two 1st-author articles, one 2nd-author article, a book chapter and presented at 5 international conferences and 2 invited talks. I organised lab meetings and an international conference. I set-up concurrent EEG/fMRI recordings as a new technique and obtained approval of an elaborate ethics application. I received a 1-year PhD funding (DAAD), an ERASMUS internship grant, and funding to cover fMRI scanner costs.

I then joined Dr Hanslmayr's group at the University of Birmingham, UK, to work on alpha oscillations in attention. I designed paradigms and learned to reconstruct brain sources of EEG signals. I published one 1st and two 2nd-author articles and presented at 2 international conferences. I contributed to a methodologically challenging cutting-edge project aiming to combine EEG and 7 Tesla fMRI to track brain oscillations on the level of individual cortical layers. I learned to apply algorithms improving quality of the from the scanner artefacts heavily affected EEG data. I managed the EEG lab and organised an international workshop.

For my 2nd postdoc, I joined Dr Cruse's group at the Centre for Human Brain Health (University of Birmingham, UK), and studied EEG correlates of consciousness in unresponsive patients. In total, I published four 1st-author articles, two 2nd- and one 4th-author articles and presented at 4 international conferences, for which I obtained a travel grant. I joined recruitment panels for academic job interviews and built up the EEG lab. Besides reviewing a grant proposal of the ESRC (UK), I was external reviewer of 2 PhD theses.

After giving birth to my daughter and 18 months of maternal leave, I started my first academic position in Germany, at the Center for Neuromodulation (Charité–Universitätsmedizin Berlin), where I currently lead a project to develop diagnostic, prognostic and therapeutic tools in chronic unresponsive DOC patients, in collaboration with Prof Soekadar. Via a collaboration with Dr Leithner, I further set the grounds to collect EEG data from acute DOC patients on the Charité's intensive care unit. I gave 2 invited talks and took part in a workshop on standard clinical assessments of DOC patients. Within the Center for Neuromodulation I gained crucial skills for becoming an independent researcher: coordinating research projects and scientific meetings, supervising data analyses, responsibility for technical core facilities.

Throughout my career, I introduced students and researchers into EEG, concurrent EEG/fMRI, and different neuromodulation methods, co-supervised 2 PhD students, supervised 1 master student and 5 undergraduate students and I taught undergraduate neurophysiology and EEG classes.

Recently, I became guest editor to lead my own Research Topic. Moreover, since my first postdoc position, I am reviewing articles for high-impact journals.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: Psicología
Nombre: LOZANO SOLDEVILLA, DIEGO
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Título: Algo-Rhythms: linking uncertainty, plasticity, and stochastic sampling through neuronal oscillations

Resumen de la Memoria:

Career summary. The scientific and technical contributions I earned in the academy and the industry allow me to test the ground-breaking notion of "Algo-Rhythm": the utilization of neuronal oscillations as Bayesian sampling algorithms to mechanistically account rhythmic processing. During my entire career, I have acquired all necessary knowledge and research experience to undertake it from the basic to the applied sides: 1) During my PhD at Ole Jensen's lab, I learned the experimental skills together with cutting-edge data analysis techniques to demonstrate the fundamental role of alpha and gamma oscillations to support cognitive operations. 2) During my first postdoc at Rufin VanRullen's lab, pioneer in rhythmic perception (he coined the term), I earned the state of the art of the psychophysics influencing alpha oscillations. Moreover, I run a monocular deprivation experiment to manipulate rhythmic perception that will be used in the present proposal1. 3) At Bryan Strange's lab, I generalized the notion of rhythmic perception to human single neuron spiking activity. This work sets the base for the potential link between Bayesian sampling, neuronal oscillations, and rhythmic processing. 4) At the industry, I am working as a Senior Research Scientist on the development of digital twin technology applied to brain stimulation (Neuroelectrics) and now improving the state of the art of brain-computer interface systems using the latest developments in Artificial Intelligence (Telefonica I+D). A a first version of the line of research to be developed was submitted to a MSCA-IF-2017 action and it was awarded with a Seal of Excellence.

Line of research to be developed. Algo-Rhythms: linking uncertainty, plasticity, and stochastic sampling through neuronal oscillations.
The last decade has shown the critical role of neuronal oscillations supporting perception. Surprisingly, most researchers have overlooked the other side of the equation: if the brain relies on an oscillatory code, sensory processing should code information rhythmically. Despite the compelling support, "rhythmic perception" lacks a mechanistic model. Conversely, the "sampling hypothesis" proposes that the variability in spiking activity would represent a probability distribution containing all possible perceptual outcomes given a stimulus (posterior distribution). The goal of the present proposal aims to combine these two perspectives into a single model to test the ground-breaking notion of "Algo-Rhythm": the utilization of neuronal oscillations as sampling-based probabilistic inference algorithms to mechanistically account rhythmic processing. I utilize the Bayesian multiplicative rule to test whether oscillations perform sampling-based inference to explain rhythmic performance. I develop perturbation-based interventions (casting immobilization, monocular deprivation, Vulcan ears..) to test their impact on neuronal oscillations and its sampling-based probabilistic inference consequences. In conclusion, the Algo-rhythm has the potential to reinterpret radically the way we understand neuronal oscillations. If true, it will confer upon neuronal oscillations a new role at David Marr's computational level: neuronal oscillations would be the natural algorithms that draw samples from the posterior distribution representing all possible interpretations of a sensory input.

Resumen del Currículum Vitae:

Scientific contributions. I am an independent Senior Research Scientist (SE2) working at Telefonica I+D. I have solid research experience in academy and industry, combining various methods and interventions such as magnetoencephalography (MEG), invasive and non-invasive electroencephalography (EEG), including single-neuron data analysis in humans and psychopharmacology. Since my PhD, I had the privilege to work in world leading academic institutions such as the Donders Institute for Cognitive Neuroimaging (The Netherlands), CNRS (France), IDIBAPS (Spain) and CTB-UPM (Spain). I always have participated as a team member in highly competitive national and European grants: Proyectos Integrados de Excelencia PIE16/00014, EIC Pathfinder Grant 101071147, FET 101017716, ERC Consolidator grant P-CYCLES nr. 614244, ERC-2018-COG 819814, NWO Open Competition/MaGW grant 400-09-491.
I have a proven track record publishing with 14 papers (7 as first author/corresponding, 7 years and 1 month since the PhD defense), some of which have been published in prestigious journals such as Curr Biol, Cell Rep, PLoS Biol and Nat Commun. According to the Web of Science, my publications have received a total number of 216 citations (h-index 6). According to Google Scholar, I received a total number of 435 citations (h-index 8). Importantly, these papers were published in independent research groups from different countries. My work has been cited multiple times in top-tier journals such as Neuron, Nat Commun, eLife, Sci Adv. Some of my papers lay the groundwork of subsequent breakthroughs led by other researchers. For example, my work with Rufin VanRullen published in Cell Rep proved that alpha oscillations are travelling waves that perform a "temporal scanning" of the cortex, like a sonar. This work was the seed of a predictive coding account, as outlined by Prof. Karl Friston. Moreover, the very same paper set the basis of recent ERC Starting grants on travelling waves led two alumni from VanRullen's lab: Dr. Laura Dugue and Dr. Andrea Alamia.
Contributions to society. I have been strongly implicated in open science. I periodically publish early versions of my publications in preprint servers (biorxiv, medrxiv, psyarxiv). I distribute scientific code using my own repository and other's repositories. From 2012-2019 I had the honor to work for the FieldTrip core development team. There I contributed providing help through the discussion list, generating core functions and providing code maintenance. This experience was key to lead the software development in industry. I developed a new functional connectivity metric that have yielded new fundamental insights during aversive memory formation (Costa*, Lozano-Soldevilla* et al., 2022 Nat Commun; *Shared first authorship).
Mentoring and teaching. I contributed to scientific mentoring of master science candidates (Severin Limal, 2016, Imperial College of London). Moreover, I provided scientific training by organizing and lecturing data analysis workshops around the globe: San Sebastian 2013 (Spain), Parma 2014 (Italy), Barcelona 2015 (Spain), Coimbra 2016 (Portugal), Guangzhou 2016 (China) and Madrid 2019 (Spain). I periodically review scientific papers for top-tier journals such as Nat Commun, Prog Neurobiol, Cereb Cortex, J Neurosci, Neuroimage.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática: Psicología
Nombre: ROJAS GARCIA, ANTONIO
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Título: Innovative research methods and strategies to improve population mental health and well'being

Resumen de la Memoria:

As a mental health researcher and epidemiologist my research has evolved based on the intersection of different components: i) mental health and behavioural sciences, ii) public health and the social determinants of health, iii) and advanced research and statistical methods, and evidence synthesis. Accordingly, my research line will focus on the implementation of innovative strategies and research methods to determine the effectiveness of behavioural and health interventions to improve population mental health, as well as to analyse the factors that may have an influence in mental health in populations with different characteristics. At the present time, February 2023, I am the lead investigator of 4 research projects focused on: early interventions in psychosis, mental health services, effectiveness of behaviour change techniques and social intervention in mental health, and a RCT to evaluate a digital intervention to support mental health treatments. In the short/mid-term, I will aim to develop these projects, especially those in early stages. Three of them have already obtained funding, and the project comprising the RCT has been submitted to the Knowledge Generation 2022 funding call and is waiting for resolution. Recruitment of researchers and PhD students will be made in order to cope with the work streams of the projects, which include systematic reviews, planning methodological designs for the different studies, interviews with health professionals, data collection, statistical analyses and dissemination of the results. This may require obtaining new funding (including international funding calls) for finishing part these projects or exploring extensions of the proposals. In the long term, I will aim to create a research group/centre aimed to explore the mental health strategies, such as behavioural change theories, that help to prevent and treat the mental health disorders and their associated unwanted consequences (e.g., suicide, severe mental health symptoms) within the Spanish university system. This research group would work first by identifying the needs of the society around mental health and then investigating the potential strategies that may be effective in addressing those health issues. The group will emphasise the importance of the knowledge translation and the implementation of the research evidence in practice. Therefore, the research group will promote close collaboration local, national and international researchers and mental health professionals.
The main objectives will be:
i) To determine what intervention components (social and behavioural), and under what circumstances may have influence population mental and physical health
ii) To explore innovative methods in mental health epidemiology to understand the relationship between social, behavioural, and potentially biological factors, and mental health and well-being
iii) To explore how this evidence may be translated into policy and practice in order to improve mental health services, especially for vulnerable populations.

Resumen del Currículum Vitae:

I am a postdoctoral researcher in the Department of Psychiatry at the University of Granada and a (Honorary) Senior Research Fellow in the Mental Health Policy Research Unit (MHPRU) at the University College London (UCL). I have an interdisciplinary background and my research expertise lies on the intersection of i) mental health and epidemiology, ii) the social determinants of health and health psychology, and iii) advanced research and statistical methods, and evidence synthesis. At the UCL, I am currently leading two projects on i) the implementation of early interventions in psychosis in the UK, and ii) hierarchical models for factors related to the efficiency of crisis care teams in mental health. I am line managing two researchers and the outputs from these projects will directly inform the UK Department of Health and Social Care (DHSC). At the UGR, I am developing a project as the principal investigator (PI) which includes a PhD project and a randomised controlled trial to test a digital intervention in mental health services. Likewise, I am conducting a project on behavioural change and social interventions on children and adolescents at risk for mental health disorders, for which the Maria Zambrano fellowship was awarded – my proposal was ranked 1st in health sciences.
Before joining the UCL MHPRU, I have held two postdoctoral positions in the School of Public Health at the Imperial College London (2020-2021), and in the UCL Institute of Epidemiology and Health Care (2014-2020). I have been the PI of two research projects funded by the National Institute for Health Research (NIHR) in the UK, aimed at analysing the psychosocial, health and economic impact of delayed discharges in hospitals, and at exploring the implementation of social care services among adults with intellectual disabilities; both projects provided research evidence that has been successfully implemented across London, the UK and internationally. My research as PI/co-applicant focuses on mental health epidemiology and services improvement, effectiveness of behavioural and social interventions on health and mental health, neuroimaging, and the use of research evidence in practice. The sum of the awarded funding for this research is over £500,000, and it has been funded by institutions like the UK Government (via the NIHR and DHSC), the Instituto de Salud Carlos III, and the Junta de Andalucía.
The outputs of my research have been published in high-quality journals, 28 JCR papers (h-index=18, h10=22), mainly quartile 1 (plus 5 more papers invited/accepted/under review), and I have been 1st, 2nd or corresponding/last author in more than half of these papers (15). I have also presented

this research at international conferences (more than 40 conference papers). Though, apart from the high quality of the journals and conferences, the research outputs have more importantly been used to directly inform mental health and other health professionals, since their main objective has been to benefit society through evidence-based research. In this regard, I have also been responsible for the organisation and presentation of knowledge transfer events in several academic and non-academic institutions mainly in the UK and Spain.

Either the UCL or Imperial College London have been consistently ranked among top-10 and top-20 universities in the world, especially in fields like Psychology, Mental Health and Epidemiology. This has allowed me to be member of outstanding research

Área Temática:	Psicología
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Título:	The neurobiological basis of cognition: integrating neural activity, behavior, machine learning and artificial neural networks

Resumen de la Memoria:

My work as a postdoctoral researcher at the Center for Theoretical Neuroscience (Columbia University) has focused on shedding light onto how perceptual decision-making is supported by the geometry of neural representations in mouse S1. In Nogueira et al. 2023 (published in Nature Neuroscience as first and corresponding author), we identified what is the geometry of neural representations in S1 and how it affects animals' ability to generalize to unseen experimental conditions and behave flexibly. I combined an encoding approach with artificial neural networks and a decoding analysis with linear classifiers and we found that the geometry of S1 can be characterized by a low-dimensional scaffold that facilitates generalization with small nonlinearities that expand the dimensionality of the representation to produce flexible behavior. We also trained artificial neural networks (ANNs) to perform an artificial equivalent of the whisker-based discrimination task and found that the geometry of the representations is modulated by the complexity of the task.

As a PhD student at the Center for Brain and Cognition (CBC) at UPF I worked on several projects that aimed at characterizing the role of correlated neuronal activity on encoded information and behavioral performance (Nogueira et al. 2020). In particular, I derived analytically the prediction that only the statistical features population signal (PS) and projected precision (PP) were important for both encoded information and behavior, while classic features like pairwise correlations and global activity of the network did not have any effect besides through their similarity to PS and PP. Importantly, I tested the theoretical predictions on datasets from three different labs that encompassed two different brain regions and three different behavioral tasks. My predictions were correct and only PS and PP had an effect on behavioral performance, whereas other features like mean pairwise correlations and global activity did not produce any change in performance.

During my PhD at the Moreno-Bote lab (Universitat Pompeu Fabra) I also worked in a collaboration with the Sanchez-Vives (IDIBAPS, Universitat de Barcelona) lab were we analyzed the behavior and neuronal encoding properties of the orbitofrontal cortex (OFC) while rats performed an auditory-discrimination task with serial dependencies between consecutive trials (Nogueira et al. 2017). We first found that rats exploited these serial dependencies at the behavioral level in order to increase the probability of making a correct response. In particular, given that the same stimulus category was repeated after an incorrect response, rats increased the probability of switching response port after incorrect trials. Rats integrated sensory information with the additional information present in the statistics of the environment (prior) to maximize the probability of obtaining a reward. While rats performed the task, populations of neurons were recorded in their OFC and we combined linear classifiers with GLMs to show that populations of neurons in the OFC encoded task-related variables from current and previous trials. Importantly, they were predictive of the upcoming choice of the animal even before the stimulus was presented at the beginning of the trial.

Resumen del Currículum Vitae:

I graduated Physics as "Premio Extraordinario" in 2011 (UAB) and in 2012 I graduated a master degree in Theoretical Physics (UB). During my last year as a Physics student I also enrolled in the degree of Philosophy at UB and I was able to complete 30 credits out of 60 (average grade 9/10). In September 2012 I started a PhD in computational neuroscience in the lab of Prof. Ruben Moreno-Bote at UPF (2012 - 2017). During my graduate years I studied the integration of sensory with prior information on perceptual decision-making in rats (Nogueira et al. 2017) and the role of population tuning and correlated variability on encoded information and behavioral performance (Nogueira et al. 2020), which set some of the foundations for a number of follow-up studies I was involved in (Roussy et al. 2021, Kafashan et al. 2021, Balaguer-Ballester et al. 2020). In Nogueira et al. 2020 I derived mathematically a set of predictions that were later tested in different datasets encompassing three different behavioral tasks and two brain regions. I also wrote and contributed on two review articles (Nogueira et al. 2018, Arandia-Romero et al. 2017).

In December 2017 I joined the Center for Theoretical Neuroscience (CTN) at Columbia University (New York, USA) as a postdoctoral researcher (Prof. Stefano Fusi), which is part of the Zuckerman Institute (ZI). The ZI is a world-renowned institution directed by two Nobel Prize laureates (Profs. Eric Kandel and Richard Axel). During my years at the CTN I have mostly worked on characterizing the geometry of representations in mouse somatosensory cortex (S1) during perceptual decision-making, which has been published in Neuron and Nature Neuroscience (Rodgers et al. 2021, Nogueira et al. 2023). As a postdoc I have also worked on the role of sparseness on the trade-off between generalization and discrimination (Nogueira and Fusi, 2021). I have also presented my work at several international conferences (COSYNE 2018-2022; CNS 2019; CCN 2019) and international meetings (Gatsby Tri-Center meeting 2021; Neuromatch 2020; ZIPS 2021), and I organized the workshop "Is geometry all you need?" in COSYNE 2022 (17-22 March, Lisbon). I have also organized a reading group ("RANN", 2018 - present) and a seminar series ("NeuroNex", 2020) at the CTN. I have been a TA in a graduate-level course at the CTN ("ACCN" 2018 - 2019), a summer school on modelling of behavior ("BAMB" 2019, Barcelona), and I have mentored three students as part of the "Leadership Alliance Program" in 2021 and 2022, which promotes STEM careers for historically under-represented groups. Since 2019 I am also a regular scientific reviewer for top journals and conferences in computational neuroscience and cognitive sciences: Nature Neuroscience, Nature Communications, Plos Computational Biology, and COSYNE, among others.

The combination of my strong mathematical background, my experience on computational neuroscience and experimental collaborations, my publications on high-impact factor journals, my network of international collaborators, and my experience on organizing scientific events, teaching and mentoring students, represent my strongest assets and make me confident about my potential to successfully run an independent research group.

Resumen de la Memoria:

During my career, I have developed broad research capacities and a great experience. I have published 34 scientific papers in world-leading journals such as JCI Insight, Pharmacol Therapy, Biomedicine, Nanomedicine, Biomolecules, or Neuropharmacology (14 as the first author (41%) and 6 as corresponding (18%)) cited more than 2100 times, with an h-index of 21 and i10-index of 28 (source: Google Scholar, 22/1/ 2022). I have also acted as a reviewer in several prestigious journals (such as Neurotherapeutics and PLOS ONE, among others). As a result of my independency and establishment of my own line of research I am a Special Issue Editor on a special issue of Molecules (ISSN 1420-3049) (https://www.mdpi.com/si/152912). Additionally, I have experience building and managing a budget, and teaching and supervising students.

During my Ph.D. my work focused on understanding the interaction between dopamine (DA) and adenosine on effort-related processes. I performed one research stay at the University of Connecticut, where I established collaboration with Dr. Salamone, one of the leads of effort-related processes studies worldwide. With my first postdoc, I extended my expertise in behavioral studies to DA interactions with other signaling pathways involved in cognitive control and stress. I established myself as an expert in behavioral studies for the study of psychiatric and neurodegenerative disorders.

I started my independency in 2018, when I took the lead to guide the research with DAT transgenic rats. As an Assistant Scientist, I started to work independently on my own research projects, to manage resources efficiently, to establish my own colony, and to prepare and execute research plans and experiments with proper administration of resources, including the building and management of a budget. In parallel, I contacted Dr. Sakhrat Khizroev, the inventor of the brand-new magnetoelectric nanoparticles (MENPs), who got excited to hear all the innovative approaches I wanted to share with him about the powerful use that his resources (MENPs) could have for the treatment of psychiatric and neurodegenerative disorders. I led the coordination and organization of our working collaboration. As a result of my own 2 lines of research, I published 6 research articles (5 as corresponding author) in peer reviewed international journals.

My research line focuses on the DA system's implication on psychiatric diseases characterized with cognitive impairments. More precisely, due to the side effects of current treatment strategies and current translational handicaps, I am using MENPs for brain targeting with an ultimate goal of delaying or even curing cognitive symptoms and underlying mechanisms, present in Alzheimer but also in DA-related syndromes. At this point, we obtained data showing the ability of MENPs, when administered intracerebrally, to induce neuronal response in vivo as well as behavioral movement with a spatial resolution of less than 1mm^3. and temporal resolution lower than 35 ms. These data (ready for submission) give strong feasibility to the proposal to use MENPs to stimulate on demand hippocampal areas with the main goal of restore cognitive impairment related to aberrant underlying mechanisms (such as inflammation, neurogenesis or even amyloid and tau formation, previously shown to respond to electric and magnetic stimulation)

Resumen del Currículum Vitae:

My PhD focused on the study of Dopamine/adenosine implication in effort-related processes. I moved to the University of Miami to focus on cognitive and anxiety-related disorders. In 2018, my independent career moved towards the use of innovative approaches to overcome problems of current methodology (psychopharmacology, psychotherapy, and stimulation approaches) for the treatment of a variety psychiatric disorders. I stablished collaborations with renowned scientists across the world, and inventors of high-tech resources not available to all research community.

Dr. Gainetdinov developed Dopamine Transporter (DAT) transgenic rats (2018), a rat model of hyperdopaminergia. I started a research line focus on stress-related disorders, with the use of DAT transgenic rats, including posttraumatic stress disorder (PTSD) as well as drug addiction. This rat model, due to the higher similarity to humans in their genetics and pharmacokinetics, as well as the greater synaptic complexity (when compared to mice models), could provide greater predictive validity. My current line of research using DAT transgenic rats could lead to the better understanding of the underlying pathophysiology related to stress-related disorders, to help find better targets for PTSD and drug addiction. I have been the first one to characterize DAT rats' response to stress and underlying mechanisms, in brain areas with an important role in decision making and response to stress. We just shown the value of this rat model for the study of addictive substances.

In 2019 I contacted Dr. Khizroev, the inventor of the innovative magnetoelectric nanoparticles (MENPs). I was the first behavioral studies expert to guide Dr. Khizroev on the use of MENPs into a new scientific angle, for their use on brain targeting for the treatment of psychiatric and neurodegenerative disorders. We highlight the ability of MENPs to target specific brain areas allowing on site drug delivery and/or brain stimulation. Our current collaboration using MENPs has the potential to surpass the handicaps present with the use of current approaches and technologies, such as the deep brain stimulation and transcranial magnetic stimulation, as well as side effects of pharmacological approaches due to, for example, undesired drug release or metabolism before arriving to the target area. My research has been instrumental in Dr. Khizroev's team winning major proposals in USA. My first study using MENPs was the key to show in vivo 3D localization of MENPs across the brain, and the use of intranasal administration for a fast brain targeting. The potential of MENPs just started to be explored. We propose to use MENPs for wirelessly localization and on demand stimulation and/or drug release on specific brain areas of interest. Our current data (ready for submission) show: the ability to induce neuronal response in vivo, and MENPs ability to induce field-stimulated motor activity in rats when applied directly into the brain, with a spatial and temporal resolution of less than 1mm2 and 35 ms.

Recently I have been promoted to Senior Research Associate on the Molecular and Cellular Pharmacology Department, where my leadership and problem-solving skills are being potentiated. I am preparing funding proposals, supervising students and other lab personnel, and designing experiments to support a variety of research projects.

Área Temática:	Psicología
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Título:	Characterization of the biological underpinnings of reading ability

Resumen de la Memoria:

To elucidate the biological mechanisms, underlying reading in the brain, I combine techniques from the cognitive sciences, neuroimaging and genetics, integrating different types of data, while carefully combining perspectives and theories for multiple fields. Given this expertise, I am involved in projects currently carried out at the BCBL (Spain), in Europe, and world-wide. Albeit being highly interdisciplinary work and has been grounded on collaboration I have shown independence to learn and share new skills and leadership to establish new collaborations and acquire the funds to support my research program.

Throughout my career, I have had international training at first-class scientific institutes, having been supervised and mentored by leading experts in the field of neurobiology and genetics of language and reading in France (MSc at the École Normale Supérieure/Neurospin; Dr. Christophe Pallier), the Netherlands (PhD and postdoc at the Max Planck Institute (MPI) for Psycholinguistics; Prof. Simon E. Fisher and Prof. Clyde Francks) and Spain (postdoc at the Basque Center on Cognition Brain and Language; Prof. Manuel Carreiras). This mobility and international experience has resulted in a wide and interdisciplinary network of collaborators at the local, national and international levels, as reflected by presentations in international venues and publications in international journals.

My scientific contributions have been in the in two main research lines: i. Cognitive and genetic factors underlying reading ability; ii. Genetics of behaviour-associated brain phenotypes.
In my first research line, I pursued dissecting the cognitive components of reading, and its underlying genetic architecture. I conducted several studies investigating the contribution of rare and common genetic variants to reading ability.
In the second research line, I have investigated the genetic contributions to brain phenotypes associated with multiple behavioural measures such as reading, language and handedness. Most of these studies were conducted using the large UK Biobank dataset and leveraged data from thousands of participants with behavioural, structural imaging and genetic data available.
I have recently combined both lines of research (i and ii) to perform large-scale genetic analyses of reading-related brain measures. A first study, with BCBL collaborators Dr. Paz-Alonso and Prof. Carreiras, has examined the phenotypic and genetic relationship of reading ability and structural cortical measures (surface area and thickness) using a large dataset of 9-10 year-old-children (ABCD dataset, N>9,000). A manuscript related to this study, is currently in press in Human Brain Behaviour (a preprint is also available in bioRxiv: DOI: 10.1101/2022.02.24.481767).

In order to transfer to society the latest scientific knowledge about cognition and language, I collaborate with the Neure clinic, a specialized diagnostics centre for language and reading disorders associated to the BCBL, to combine the efforts to identify early markers of reading difficulties and to develop early intervention programs for the identified risk groups. I actively participate in the Neuresoft project, with the goal to develop assessment batteries for language and reading disorders.

Resumen del Currículum Vitae:

Now a postdoctoral fellow at the Basque Center on Brain, Cognition and Language (BCBL), during the last decade I have developed an original research program on cognitive and biological mechanisms underlying language and reading.
In the course of my scientific career I have contributed to 15 scientific articles in high-quality international journals. My work has been presented in over twenty international conferences and workshops, as well as in invited talks at international research labs, and has been impactful in the field.

My work is divided in two main themes, namely the genetics of reading (dis)abilities, and the genetics of brain laterality. Besides, I am involved in a large international consortia to tackle these questions through collaborative powerful team-science.
Since 2020 I have continued my research at the BCBL, thanks to Juan de la Cierva and MSCA individual fellowships. Through this experience, I have enhanced my knowledge of the neurobiology of language and reading, and set up new collaborations within and outside the BCBL to examine cognitive aspects of reading and brain-behaviour relationships through genetics. Two articles derived from this work are currently under review (and available in bioRxiv). I continue to be involved in large collaborative projects as the Genetics of Language consortium.

Besides these research efforts, I collaborate with clinical neuropsychologists to develop tools for language and reading assessment, and I have also devoted considerable attention to supervision/training and dissemination activities.

I collaborate in the Neuresoft project (https://www.neuresoft.eu/en/) to develop an assessment battery for language and reading disorders. I am the lead data analyst of the project: validating the instruments through psychometric tools and defining the population norms.

I have participated in multiple public outreach activities, including Open Day of the Max Planck Institute to the general public (2015), Pint of Science event, Brain Awareness Week, Women in Science. In order to disseminate my results beyond the specialist audience, I wrote short reviews for the lay audience about my PhD thesis and about one of my latest scientific publications.

I taught R in workshops to PhD students,and I now lecture at the Cognitive Neuroscience of Language Master program at the University of the Basque Country. I am currently supervising two students with their bachelor and master's thesis, and I provided training and mentoring to PhD students at the MPI.

I provide ad-hoc reviewing for international journals in the fields of neuroscience, reading and human genetics, including Scientific Reports, Neuropsychologia, Journal of Language Evolution, European Journal of Human Genetics, Journal of Child Psychology and Psychiatry, Brain & Language, Frontiers in Neuroscience, Scientific Studies of Reading.

Área Temática:	Psicología
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Título:	Research on the neural mechanisms underlying perceptual decisions

Resumen de la Memoria:

I am an experimental psychologist, working as a postdoctoral fellow at the Brain and Circuits lab lead by Profferors Albert Compte and Jaime de la Rocha at IDIBAPS in Spain. I am interested in understanding how the human brain encodes, retains and integrates information from multiple sensory modalities. My research has shed light on the neural mechanisms underlaying the interaction between sounds and visual detection, revealed a shared representation system for auditory and tactile frequency information in the human brain, explored human predictions of complex visual scenes, and provided evidence that statistical learning occurs across sensory modalities, not just within one modality.

Over the years, I have developed a strong research track record in the neural mechanisms of perception. This has facilitated my expansion into the area of multisensory perception and predictive processing. This scientific shift has evolved naturally as a result of my personal scientific development. I have had the chance to work in various labs, some of which focused on behaviour modelling and others on brain function. By combining the knowledge and techniques gained in these diverse settings, I have been able to address more intricate questions that share common theoretical principles: "how humans combine internal and external information to decrease sensory uncertainty."

At this stage of my scientific career, I am ready to consolidate my research line and transfer all the knowledge acquired to the Spanish academic system. (i) My theoretical background in multisensory processing and prediction, (ii) my methodological expertise and experience in psychophysics, computational modelling, and neuroimaging, and (iii) my first-class international scientific training, independent thinking, and leadership skills acquired over the years put me in the perfect position to develop a pioneering research line aiming to understand the neural mechanisms used by the brain to predict information between sensory modalities.

This research line is a continuation of my previous project in crossmodal statistical learning, and it is revolutionary because whereas the vast majority of prediction research has investigated how the brain predicts within-modality information, I firmly believe that a multisensory approach may shed new light on the understanding of (1) how the human brain predicts information in naturally complex multisensory environments, (2) how the different sensory systems exchange information to improve the process of perceptual inference, and (3) test hypotheses postulated by the predictive coding framework that are difficult to test in a single modality (see Line of Research for a more detailed description of the questions that I plan to address).

Resumen del Currículum Vitae:

Research quality
In my career, I have always placed a high value on quality over quantity. My research is published in highly regarded journals such as Journal of Vision, Cerebral Cortex, Journal of Neurophysiology, Current Biology or Communications Biology. Some of these publications have received international recognition, such as the study Pérez-Bellido et al. (2013) in Journal of Neurophysiology, which was awarded by the International Multisensory Research Forum ($1000). My poster "Auditory and Tactile Frequency Representations Overlap in Parietal Operculum" was a first nominee in the postdoc category ($100) at the Houston Annual Neuroscience Session. The study Crommet, Pérez-Bellido, and Yau (2017) was also selected as one of the best American Physiological Society research articles of 2017. Due to the COVID-19 pandemic, my publication productivity was impacted over the last two years. However, I recently published a paper in Communications Biology and have two more papers under review at Current Biology and Cerebral Cortex, with two additional papers in preparation for submission soon

Methodology:
I have a strong background on psychophysics and experience in modelling behavioural data in a hypothesis-driven manner; I possess advanced programming skills using Matlab, R and Python for both experimental procedure and data analyses. I have a long and recognized experience in pre-processing and analyzing fMRI, M/EEG and iEEG data. Indeed, I am member of the associate editorial board of Frontiers Neuroimaging for Cognitive Neuroscience.

Internationalization
During my PhD I established international collaborative projects with Bielefeld University (Germany) and Oxford University (United Kingdom) that resulted in 2 research publications. As a postdoctoral fellow, I have worked in leading research institutions in the field of cognitive of neuroscience as Baylor College of Medicine (USA) and the Donders Institute (Netherlands). Trhoughout these international experience I have developed an extense and multidisciplinar collaborative network that allows me to join scientific efforts from researchers in different countries like Spain, the Netherlands, USA and China.

Mentoring
During my postdoctoral and PI stages I had the opportunity to develop my mentoring skills by supervising 2 Degree's Final Projects and 4 Master Thesis. Furthermore, the PIs in my previous research groups demonstrated their reliance on my mentoring skills, allowing me to act as daily supervisor of two PhD students at the Floris de Lange's group and now I am officially co-directing two PhD students at the University of Barcelona in Lluis Fuentemilla's group. That makes a total of 9 supervised students. This dilated mentoring experience endorse me as an effective supervisor and qualifies me as future reference for those new PhD students that will join my lab.

Funding

A scientific leader must be able to finance her research group. In this sense the impact of my research and the potential of my ideas favoured the capture of resources through highly competitive personal fellowships such as the Beatriu de Pinós (<12% success rate; 92000€) and Jóvenes Investigadores (<8% success rate; 163.000€). I also have experience in reviewing projects from other researchers as an ESF expert reviewer for the "FWO Call for Junior and Senior postdoctoral Fellowships" and I officially advise other postdocs on how to apply for funding as a UBneuro mentor (Institut de Neurociènci

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	GALDRÁN CABELLO, ADRIÁN
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Título:	Computational Medical Image Analysis

Resumen de la Memoria:

My carrera académica comenzó en Tecnalia, un centro tecnológico de investigación y desarrollo centrado en la transferencia tecnológica de las universidades hacia el tejido industrial. Aquí desarrollé mi doctorado entre 2011 y 2015, ganando experiencia y exposición a la parte más aplicada de la investigación científica. Además tuve la oportunidad de participar en grandes proyectos Europeos de investigación mientras desarrollaba mi doctorado en procesamiento matemático de la imagen. En concreto, en la mejora de imágenes degradas por efectos atmosféricos y medios atenuantes, como la niebla o el agua.

En mi etapa post-doctoral, hice una transición hacia el campo de la visión computacional y el aprendizaje automático, particularmente con aplicaciones en imágenes biomédicas. A lo largo de los últimos años he conseguido posiciones de investigación en laboratorios relevantes a nivel internacional, y he tenido la oportunidad de trabajar junto con expertos en mi área de reconocido prestigio internacional. Primero en Portugal, después en Canadá e Inglaterra, y según escribo esto en el Australian Institute for Machine Learning de Adelaide. Durante bastante tiempo he demostrado my independencia y autonomía como investigador, con una serie de publicaciones prolongada, incluyendo trabajos como primer o segundo author en conferencias de máximo nivel como: CVPR 2016 & 2022, MICCAI 2022, 2021, 2020, 2018 (x2).

En 2021 conseguí una beca Marie Sklodowska Curie - outgoing, una ayuda altamente competitiva que financia mi estancia en Australia por un año y medio seguida de un año en la Universitat Pompeu Fabra, desarrollando un proyecto para la cuantificación de incertidumbre en el aprendizaje automático y la visión computacional con aplicaciones a imagen cardíaca. En 2022 fui incluido en la iniciativa Metrics Reloaded, un consorcio de científicos encargados de definir nuevos estándares para la validación de los sistemas de aprendizaje en tareas de procesamiento de imagen médica. Este consorcio incluye investigadores de prestigio y jefes de grupo en prestigiosos laboratorios internacionales, lo cual indica una posición respetada en la comunidad científica del procesamiento de imagen biomédica.

Resumen del Currículum Vitae:

- Resumen Carrera Académica:
1) Actualmente: UPF, Barcelona + University of Adelaide - MSC Global Research Fellow
* MSC global fellowship, proyecto UNCARIA: Uncertainty estimation in CARdiac Image Analysis
* En colaboración con los Profs. G. Carneiro (UoA) and M. A. Gonzalez-Ballester (UPF)

2) Nov/2019 - Ago/2021: Bournemouth University, England - Senior Lecturer
BU Academic Targeted Research Scheme para atracción de talento

3) Dec/2018 - Nov/2019: École de Tecnologie Superieure, Montréal
* Investigador Post-Doctoral en colaboración con Profs. José Dolz e Ismail Ben Ayed, Laboratoire d' imagerie, de vision et d' intelligence artificielle (LIVIA).
* Colaboración industrial con DIAGNOS INC., Quebec, CA.

4) Sep/2016 - Nov/2018: INESC-TEC Porto, Portugal
* Investigador Post-Doctoral en colaboración con Prof. Aurélio Campilho, BioImaging Lab INESC.

5) Sep/2011 - Dic/2015 Tecnalia Research Corporation/Universidad Pais Vasco
* Doctorado en Procesamiento Matemático de la Imagen.

- Resumen de Producción Científica:
* Más de 2,800 citas desde 2015, más de 750 en 2022, Índice H = 24 (fuente: Google Scholar).
* Publicaciones indexadas en revistas científicas: 18, Q1=13, Q2=5
* Publicaciones en conferencias internacionales: 32
* Patentes: 1, Analysing histological images, PCT/ES2016/070881, 2016

- Financiación y Premios
* Ayuda Marie Sklodowska-Curie - Proyecto UNCARIA: UNcertainty estimation in CARdiac Image Analysis, 225K € European Commission
* Proyecto "Deep Learning Algorithms for Retinal Image Analysis", 186K $, Partenar IA, Canadian Government.
* Beca de Master de la Fundación "Iñaki de Goenaga", 2011 - 18K €
* Beca de Master de la Fundación "la Caixa", 2008 - 15K €
* Ganador de la Competición de Visión Computacional "MedAI Transparency in Medical Image Segmentation", 2021, 5K €
* Ganador de la Competición de Visión Computacional "DFU Diabetic Foot Ulcer Segmentation", 2021, NVIDIA 3080 gpu card - 3K €
* Ganador de las Competiciones de Visión Computacional "Endotect 2021" y "EndoCV 2021" en segmentación de pólipos en imágenes endoscópicas.

* MICCAI 2022 Outstanding Reviewer Award (mejores 12 revisores de 1242), registro gratuito en la conferencia = 800€

- Resumen de presentaciones en conferencias o escuelas de prestigio internacional
* Octubre/2022 MICCAI Singapore 2022: Presentación del trabajo "Test time transform prediction for open set histopathological image recognition"
* Octubre/2022 MICCAIw Singapore 2022: Presentación del trabajo "On the Optimal Combination of Cross-Entropy and Soft Dice Losses for Lesion Segmentation with Out-of-Distribution
Robustness", que consiguió la 3a posición en la competición DFUC.
* Octubre/2022 MICCAI 2021: Presentación del trabajo "Balanced-MixUp for Highly Imbalanced Medical Image Classification".
* Octubre/2021 ISBI 2021: Presentación del trabajo "Multi-Center Polyp Segmentation with Double Encoder-Decoder Networks", ganador de la competición EndoCV 2021.
* Septiembre 2021, ICPR 2021: Presentación del trabajo "Double Encoder-Decoder Netws for Gastrointestinal Polyp Segmentation", ganador de la competición Endotect 2021.
* 2017, 2018, 2019: Profesor inivatdo en el programa MAIA (Medical Imaging and Applications) Erasmus Mundus MsC Program. Invitado a impartir una serie de clases sobre Procesamiento del Color en Imagen Biomédica en la Universidad de Cassino y el sur del Lazio en Italia.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	VALDERRAMA VALENZUELA, JOAQUÍN TOMÁS
Referencia:	RYC2022-037875-I
Correo Electrónico:	jvalderrama@ugr.es
Título:	Procesamiento de Señal en Audiología

Resumen de la Memoria:

Trajectory: I am an experienced researcher, with 8 years of postdoctoral experience in hearing neuroscience. After finishing my PhD, I moved to Sydney (Australia) to join the National Acoustic Laboratories (NAL), where I was also appointed with an honorary position at Macquarie University. During my time in Australia, I have successfully led 5 research projects from conception to publication, and I have kept a productive international collaboration with a research team at the University of Granada (Spain) from which we have developed impactful signal processing algorithms that are transforming the way that auditory evoked responses (AEPs) are recorded and analysed (AEPs - signals that represent the neural response to sounds and are commonly used in hearing clinics worldwide to assess hearing). For example, we have developed an algorithm that has enabled for the first time a comprehensive analysis of the human auditory system (from cochlea to cortex), which is substantially expanding the clinical and research possibilities of these signals. Further, we have developed an algorithm that suppresses artifacts elicited by eye-blinks, which severely contaminate the recorded signals. By attenuating this artifact, AEPs can be recorded with better quality and in less test time - which is highly relevant in clinical applications when testing babies or other non-collaborative subjects. I have also experience using design-thinking methodologies to learn from end-users about their unmet needs, as a way to ensure my research addresses real problems and has an impact on society.

Proposed research: It is estimated that 40-60% of the European population is at risk of developing hearing loss due to exposure to unsafe noise levels. The early signs of hearing loss usually involve speech-comprehension difficulties in noisy environments - a form of hearing problem known as hidden hearing loss (HHL) because it is not possible to diagnose using best-practice clinical tools. In this research, my research team and I will develop an open-access toolkit sensitive to early signs of hearing loss - appropriate for use as an early diagnosis. This objective will be achieved by (1) ideating innovative behaviorual and neurophysiological tests that will provide novel biomarkers of hearing performance, and (2) developing an automatic classifier that estimates the degree of hearing damage based on these biomarkers. This project has the potential to transform current clinical practice by providing clinicians with the necessary tools to diagnose hearing disorders that are currently undetected in 1 out of 10 of their patients. The early diagnosis of hearing difficulties will enable the provision of individualised recommendations to ameliorate a person¿s hearing difficulties and prevent any further deterioration, thus reducing the risk of social isolation, anxiety, depression and dementia.

Resumen del Currículum Vitae:

My education supports the technical and audiological knowledge required in the proposed research, as it includes two bachelor degrees in Telecommunication Engineering and in Business Administration (2008), a master's degree in Multimedia Technologies (2011), a PhD in Signal Processing (2014), and a Specialization in Audiology diploma (2015). I have successfully led several research projects in auditory neuroscience from conception to publication, demonstrating efficient leadership and project management skills and a deep knowledge of the proposed research. These include (i) the investigation of the impact of noise exposure on the integrity of the auditory system, for which I was awarded the Young Presenter Award at the XXII Audiology Australia National Conference (Melbourne, 2016); (ii) the application of design-thinking methodologies to identify the unmet needs of individuals with speech-intelligibility difficulties but normal audiograms, research that has inspired the current project proposal; and (iii) the development of several advanced signal processing techniques that will enable the methodologies proposed in this research. My scientific track record includes 22 scientific papers related to hearing research (11 as lead author, and other 4 currently under review), 1 book chapter, 2 patents, and 58 contributions to national and international conferences (8 of them invited with expenses covered); I have secured €96,600 in competitive academic grants and €111,390 in sponsored research, and I have experience creating a small company (Inggra Solutions S.L.). In line with my commitment to education and mentoring, I have co-supervised 2 undergraduate and 3 PhD students, I have lectured formal courses at the UGR, and I have delivered several guest University lectures related to auditory neurophysiology. I am also passionate about science dissemination to the general public – I am Honorary President of the not-for-profit association 'Spanish Researchers in Australia-Pacific (SRAP)', and I am regularly invited to participate in webinars, radio and podcast interviews. The excellence of my research trajectory has been recognised by prestigious awards such as the 'Knight's Cross of the Order of Isabella the Catholic' awarded by the Spanish Monarch (June, 2022), and the 'Alhameño Oriundo 2020 Medal' awarded by the local government of my hometown (July, 2021); and situates me in an ideal position to carry out this project.

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	MARTINEZ MALDONADO, ROBERTO
Referencia:	RYC2022-035727-I
Correo Electrónico:	roberto.robmar@gmail.com
Título:	Human-centred Data Storytelling in Education

Resumen de la Memoria:

My research focuses on advancing the understanding of socio-technical issues around the use of artificial intelligence (AI) in education, promoting the use of human-centred methodologies to create learning analytics interfaces with integrity and enhancing authentic learning spaces with multimodal data-intensive computing capabilities.

My key research contributions are thus to the fields of learning analytics (LA), human-computer interaction (HCI), and computer-supported collaborative learning (CSCL). The line of research I will develop ("Human-centred Data Storytelling in Education", to support teamwork learning), will contribute to these fields by producing methodologies, knowledge, resources and infrastructure to make multimodal traces of educational activity into data interfaces that teachers and students can understand.

The following exemplar, funded projects demonstrate my ability to lead new lines of research:

1.   2021–2023   ARC Discovery Project. "Human-Centred Teamwork Analytics". Principal investigator (PI). (148,021 EUR)
Discovery projects are highly competitive in Australia. This project focused on building the technical infrastructure to use data to assess high-performance teamwork using sensing and multimodal LA technologies. I lead an interdisciplinary team of 3 post-doctoral researchers, 4 PhD students and other partner academics. The project has successfully delivered a total of 14 papers published in JCR Q1 and CORE A conferences in the last 2 years.

2.   2021–2023 Jacobs Foundation Research Fellowship. Role: Principal investigator. (164,882 EUR)
This personal fellowship has helped me focus on the development of my own line of research. I supervise 3 research assistants who have provided support to conduct data collection, analysis and reporting of results. Since I got the fellowship, I have been able to publish 18 JCR-indexed papers, 17 conference papers, and 7 book chapters. This demonstrates that I am able to make the most of personal research grants.

The proposed line of research (Human-centred Data Storytelling in Education, to support teamwork learning) aims to invent new methods to support embodied teamwork by creating automated multimodal data storytelling interfaces with educators and students.

This project comprises four objectives:
1. To invent a new method for identifying key data storytelling elements that effectively support educators' and learners' sensemaking of embodied activity data.
2. To develop and evaluate a generative design toolkit for the co-creation of human-centred data storytelling interfaces with educational stakeholders (i.e., educators and students).
3. To generate a set of modelling techniques to automatically identify and extract teamwork constructs (e.g., those related to effective leadership and closed-loop communication) from speech and multimodal trace data.
4. To propose and evaluate a framework to help developers and researchers create the next generation of analytics tools that provide human-centred data stories for enhancing reflection.

Significance and novelty. The proposed research will build upon my previous work and will go beyond it by being the first to provide a timely solution to building LA interfaces that communicate multimodal, team data to educators and students who do not have formal data analysis training.

Resumen del Currículum Vitae:

I am a Senior Lecturer at the Faculty of Information Technology, Monash University; a Jacobs Foundation Research Fellow; associate director of the Centre for Learning Analytics at Monash (CoLAM) and Deputy Director of the Bachelor of Information Technology at Monash.

I am an internationally-recognised leading researcher in human-centred learning analytics (LA). My areas of expertise are multimodal learning analytics (MMLA), artificial intelligence in education (AIED), computer-supported collaborative learning (CSCL), and data storytelling. My research has focused on co-designing LA visual interfaces (e.g., dashboards) with educators and students in order to augment authentic learning spaces with data-intensive computing and artificial intelligence (AI) capabilities.

Research outputs summary. My outstanding research performance is evidenced by over 150 peer-reviewed papers (h-index: 35, G Scholar), most of which are published in CORE A/A* conferences and JCR Q1 journals. This demonstrates my capacity to conduct high-quality research and places me as one of the most cited researchers internationally in my generation in learning analytics.

Mentoring and training of novice researchers. Since joining Monash University, I have been Associate Director of the Centre for Learning Analytics at Monash (CoLAM) – the largest LA institute in the world. I have been the main supervisor of 5 PhD students and a co-supervisor for 7 PhD students.

Contributions to society. My research is mostly conducted in real-world educational settings, offering immediate impact from research to practice. I am also part of the multi-million initiative funded by Jacobs Foundation, aimed at connecting secondary schools and Edtech companies to translate innovative educational research into technologies that can actually benefit learners.

Leadership and national and international standing. I am the first Australian in winning the Swiss-based Jacobs Foundation Research Fellowship (2021–23) which is granted to only 10 scholars annually out of the best scholars in the world who apply for it. I led the teams that won Best Full Paper Awards at the top conferences on AI in education, AIED' 20, and learning analytics, LAK' 22. I have also presented 8 keynote speeches and international webinars, and delivered more than 39 invited talks at prestigious universities around Australia, America, and Europe.

I have been invited by many leading journals and conferences to serve in editorial roles such as associate editor (2023–25) of the top AIED journal (JCR Q1) and program chair for the top-tier conferences AIED' 18 and LAK' 22. I regularly serve as associate program chair for the SIGCHI Conference (2019–23) and I have been a guest editor for the JCR Q1 journals UMUAI, JLA, BJET and MDPI Sensors.

Capability to build collaborations. I have significant experience in initiating, fostering and leading collaborative projects with international researchers in Australia, UK, Europe, USA, and Latin America. In many of my collaborations. In the last 5 years, I have published +17 Q1 papers from these collaborations.

My research is currently supported by international and ARC grants worth over AUD$1 million: two ARC Discovery Projects (one as the lead researcher); one funded by the Research Council of Norway (2022–25); and the Jacobs Foundation fellowship (2021–23).

Resumen de la Memoria:

Since I finished my PhD at the University of Granada (Spain) in 2015, I have worked abroad for more than 7 years at Soochow University (China), Stanford University (USA), Applied Materials Inc. (Italy), a USA-based multinational company linked to the electronic industry, and King Abdullah University of Science and Technology - KAUST (Saudi Arabia).

At Soochow University as a postdoctoral researcher, the main research area of this group was the fabrication and electrical characterization of resistive switching devices based on two-dimensional materials. All team members had an experimental profile, so my main role was to provide theoretical support to the experimental results obtained based on physical models and simulations developed by myself. Since I was the only team member in charge of the theoretical support of all projects, I was the person responsible for producing most of the theoretical contributions of our journal publications.

At Stanford University. During my stay, I started a new project focused on the study of the atomic and electrical properties of the Ti-Iridium oxide alloy through ab-initio simulations.

I was hired by Applied Materials Inc. as a physicist in the R&D department. I had a double role: My main role was to support our customers and collaborators by providing an accurate physical characterization of the device under study based on the simulations performed in our multi-platform simulation tool, Ginestra. In my secondary role, I was in charge of three projects that led to important improvements and new features of this software. Finally, I was hired as senior postdoctoral researcher at KAUST. I am in charge of providing theoretical support to the experimental results generated by the group. In this case, my main topic is the characterization of 2D materials by ab-initio simulations for neuromorphic applications.

My main research area is resistive switching technology. It is the property shown by some materials that change their electrical resistivity between two or more stable levels when exposed to specific electrical stresses. This technology is very versatile with applications in electronic memories, neuromorphic computing, etc., and I will focus my research project on this second application.

According to my experience, top universities and companies do not have time to invest resources in fundamental research or explore uncertain technological routes. Based on that, my plan consists in exploiting it.

My research plan will focus on device engineering based on simulation tools developed by myself for RS technologies oriented to neuromorphic applications. During the first stage, we are going to develop compact models at the system level for neural network systems. These tools are critical for the industry to design final products. In parallel and based on our results, we are going to design efficient work routines to perform device engineering based on commercial TCAD software. For the second stage of the scholarship, we will establish collaborations with some companies. The idea is to take care of that part of the product development process where companies cannot invest time. These types of collaborations will allow us to get some additional funding and a direct transfer of technology from our group to the market.

Resumen del Currículum Vitae:

If I had to summarize my CV in a few words, I would say "interdisciplinarity", "internationalization", and "excellence". Although the backbone of my background is the modeling and simulation of electronic devices, I have developed most of my career working in experimentalist groups at Soochow University (China), Stanford University (USA), and King Abdullah University of Science and Technology (KAUST) (Saudi Arabia). I also spent 3 years working in the industry in the Artificial Intelligence R&D department of Applied Materials Inc. (Italy, USA-based company). Therefore, I have been involved in one way or another in all the pillars of science.

In summary, according to Google Scholar, I have published 35 journal publications (1 as a corresponding author) since 2014. I have an h-index = 17 and 1296 citations at the present time. Nature is the journal with a higher Impact Factor where I have published.

During my PhD at the University of Granada (2015), I developed a simulation tool called SIM2RRAM for resistive switching devices. This work was graded cum laude and it was supported by 7 papers in Q1 journals.

At Soochow University as a postdoctoral researcher (2016), I published 1 patent, 3 papers as 1st author (1 as corresponding author), and 18 as collaborator, for which I was the main responsible for the theoretical contributions. I was member of one international project granted 320,000 USD and another national project granted 115,000 € I also obtained the NANO-CIC fellowship financed with 30000 USD.

At Stanford University (2017) a postdoctoral fellow, I published 1 paper as 1st author and I got a project that gave me access to the National Energy Research Scientific Computing Center supercomputer of USA.

At Applied Materials Inc. (2109), I worked as a physicist in the R&D department. I was in charge of 3 internal projects and my entire salary was paid by one of our customers as part of our collaboration agreement.

Finally, I was hired as a senior postdoctoral researcher at KAUST. In 9 months, we publish 2 journal publications and one of them in Nature. Also, two projects have been granted by the cluster computer Shaheen II with a total budget of 179653 USD.

I am also an active member of the community, so I was chair of the organizing committee of the ChinaRRAM workshop 2017, member of the technical committee of IPFA 2019, and the leader of 2 discussion groups of IIRW 2017. I also am an active reviewer for Nature Publishing Group, IEEE Publishing group, and I have been also a reviewer of PhD thesis for the University of Valladolid. In the same way, I have developed several tools that can be downloaded from my personal website for free.

Regarding my teaching activities, I am currently an assistant professor at KAUST. Also, I will give a lecture for the students of Master "Radiaciones, Nanotecnología, Partículas y Astrofísica" at the University of Granada. In addition, to help pre-university students, I gave a talk to the students of 2nd Bachillerato from the IES Griñón (Madrid) to explain the scientific career and the new technologies. And last, during my bachelor, master, and PhD periods, I worked as a private tutor for students in high school and bachelor for 1084 hours.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	LÓPEZ ESPEJO, IVÁN
Referencia:	RYC2022-036755-I
Correo Electrónico:	ivanloes@hotmail.com
Título:	Speech Processing: Robustness is what Matters

Resumen de la Memoria:

I received my M.Sc. degrees in Telecommunications and Electronics Engineering from the University of Granada in 2011 and 2013. In this same university, from 2013 to 2017, I carried out my doctoral studies focused on the development of noise-robust signal processing and machine learning algorithms enhancing the performance of speech-enabled services running on multi-microphone intelligent devices like smartphones. In 2017, I jumped to the Navarrese industry to first work as an engineer and then as a team leader towards the development of robust speaker verification technology for BBVA and other customers, keeping active research-wise and achieving a number of milestones like funding attraction, patent registration, international positioning and team management. Since January 2019 and until September 2022, I have been a postdoc at the prestigious Centre for Acoustic Signal Processing Research of Aalborg University (Denmark). Here, I have addressed several research lines, two of them including the development of robust voice interfaces for handling hearing aids via voice and deep learning-based speech enhancement systems that perform optimally with respect to state-of-the-art intelligibility predictors. One of the ambitious objectives of these research lines (carried out in collaboration with the hearing aid manufacturer Oticon A/S) has been improving the life quality of hearing-impaired people. Along my research and industry career, I have shown independent thinking, project management and leadership skills. This translates to having recently obtained European Commission's funding for which I have become the principal investigator (PI) of my own Marie Curie Global Fellowship project, which is being partially implemented at The University of Texas at Dallas (USA) in close connection with NASA. Nowadays, I combine the execution of this speech technology project, which envisions the research and development of novel acoustic distortion-robust speech recognition methods, with an Assistant Professor position at Aalborg University (since October 2022). The current framework is being a valuable opportunity to launch my career as an independent researcher within the hot and broad areas of speech/signal processing and machine/deep learning.

Resumen del Currículum Vitae:

Since the start of my Ph.D. degree, I have been specializing in speech technologies and applied machine learning. During my Ph.D. studies, I developed new algorithms to improve the performance of automatic speech recognition by seizing multi-microphone signals from modern portable devices like smartphones, which are typically used in noisy conditions. Two best paper awards in the international conferences EUSIPCO 2014 and IberSPEECH 2016 endorse the quality of my Ph.D. outcomes. My Ph.D. studies included a research stay in the University of Sheffield (UK). In 2017, I jumped to the Navarrese industry to focus on the development of speaker recognition technology, first, in das-Nano, and then, in Veridas (BBVA Group), where I led a speech technology team and enhanced my leadership skills by courses of the Marketing Club of Navarre. Milestones of my time in the industry are: 1) a speaker verification product used by some big companies (das-Peak); 2) a patent as a main inventor; 3) a granted Torres Quevedo Fellowship; 4) an industry-academia collaboration agreement with the University of Zaragoza to develop anti-spoofing technology; and 5) a successful participation in NIST SRE 2018 (where das-Peak proved to be the 4th best industry speaker verification system worldwide). During the period 2019-2022, I have been a postdoc at Aalborg University (AAU, Denmark). At AAU, my teaching responsibilities have involved lecturing in 6 Master's and Ph.D. courses on signal/speech processing and machine/deep learning, as well as the assessment of 3 Master's projects and the supervision of 2 Master's projects. My research at AAU has focused on: 1) the development of personalized and robust voice interfaces for controlling hearing aids; 2) the development of neural network-based systems enhancing speech intelligibility; and 3) the analysis of acoustic signals for industrial predictive maintenance. All these projects have implied industry-academia collaboration: while 1) and 2) were performed in collaboration with Oticon A/S, the 2nd largest manufacturer of hearing aids worldwide, 3) was carried out with LEGO and Grundfos, who are looking forward to optimizing their manufacturing processes. I have participated, as a researcher, in 8 research projects. For two of them, funded by the Spanish Ministry of Economy and Competitiveness and involving a total of 113,222€, I contributed by proposal writing. More importantly, I have been granted (Score: 100/100) a Marie Curie Global Fellowship (MCGF) for which I have become the PI of a speech technology project with a cultural heritage dimension: the preservation of the NASA's Apollo mission speech recordings. This project (286,191€) has a duration of 3 years, and it is partially being conducted in The University of Texas at Dallas (UTD, USA). As of 1st of October 2022, I have been appointed as an Assistant Professor at AAU. At the present time, I combine my MCGF project (as a Visiting Scientist at UTD) with this position. As a result of this track, I have more than 25 publications in top-tier journals and international conferences. According to Google Scholar, I have more than 180 citations and an h-index of 9. I have also served as a reviewer for some of the best journals in my field, and, since 2018, I am also a member of the technical committee of the most important conference in my field, Interspeech.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	COLL PERALES, BALDOMERO
Referencia:	RYC2022-036953-I
Correo Electrónico:	bcoll@umh.es
Título:	5G and Beyond Communications and Networking for Mission-Critical Verticals

Resumen de la Memoria:

Dr. Baldomero Coll-Perales has established and is leading his own research lines including:
- UE-to-network relaying or multi-hop cellular (MCN) for 5G and Beyond networks: his research includes validating (also experimentally) the benefits that MCN technologies using mobile relays can provide over traditional cellular systems. This research line also explores more efficient design of networks, that are not driven by the presence or absence of connectivity but by their efficiency, through the integration of opportunistic and anticipatory mobile networking schemes into MCN systems.
- Millimeter Wave Vehicular Communications: the goal is to support the growing vehicular data demands resulting from advanced connected automated driving applications. He proposed the decoupling of the data and control planes of mmWave V2X communications, and the offloading of the control functions to the sub-6GHz band with better propagation characteristics and leaving the high-bandwidth mmWave channel for the data transmissions. He has also proposed novel mechanisms that enable directional mmWave V2X transmissions to be scheduled to multiple neighboring vehicles at the same time by adapting the beamwidth.
- V2X maneuver coordination solutions for connected automated driving: he is leading the design (including prototypes) of V2X solutions aimed at supporting (for the first time through field tests) the coordination of maneuvers between connected and automated vehicles (CAVs). The activities in this research line have resulted in the design and implementation of first CAV and roadside infrastructure prototypes and Transition of Control management measures to showcase the benefits of infrastructure-assisted traffic management and cooperative maneuvers to support CAVs.
- 5G and Beyond for advanced V2X services: he has analyzed and optimized 5G and beyond networks so that they can support latency-critical V2X services using V2N and V2N2V communications. The studies focus on identifying the limits and the potential of 5G and Beyond systems under different configurations of its New Radio (NR) interface, 5G network deployments and scenarios in which vehicles are supported by different mobile network operators. The activities also focus on the 5G NR V2X technology for sidelink or direct V2V communications, especially for the management of radio resources and link-level performance evaluations.
- He also contributes to designing flexible and robust solutions for industrial wireless networks. This includes redundancy and diversity mechanisms and novel multipath routing protocols that identify and establish the necessary redundant routes to satisfy the reliability and latency requirements demanded by industrial applications.
The research line to be developed in the Ramon y Cajal period focuses on designing future dependable 6G wireless subnetworks capable of supporting mission-critical services with deterministic service levels. The research line targets the dependable support of multiple traffic flows with varying requirements in 6G subnetworks. The applicant will study data-driven, AI/ML-assisted and goal-oriented solutions for optimizing resource utilization and guaranteeing bounded performance of deterministic and event-based services coexisting with data-demanding applications in entities such as vehicles, robots or production modules.

Resumen del Currículum Vitae:

Juan de la Cierva Research Fellow at UMH. Former Visiting Postdoctoral Researcher at UPCT (Spain; 2 months), Hyundai Motor Europe Technical Centre (HMETC)(Germany; 6 months), IIT-CNR (Italy; 4 months), WINLAB (Rutgers University, USA; 1 year), and Visiting Researcher at King's College London (KCL) (UK; 3 months). Research lines established and led along his +12 years of research experience towards the digitalization of critical verticals with relevant contributions in 5G and beyond 5G (B5G): integration of opportunistic networking and multi-hop cellular networking in B5G, including 1st experimental demonstrations and novel graph-based capacity estimations; connected and automated driving: 5G NR V2X link-level and radio resource management solutions and optimization, sub-6GHz assisted millimeter wave V2V communications, V2X for infrastructure-assisted maneuver coordination, and 5G V2N and V2N2V end-to-end modelling and solutions for critical low-latency V2X services. Contributions in Industry 4.0 towards reliable industrial wireless networks.
Research contributions recognized with various awards and distinctions: 2022 Santander-UMH Young Researcher Award, 2021 Santander-UMH Young Researcher runner-up, best Ph.D. Thesis Award of his Ph.D. program at UMH, and two distinctions in national conferences (JITEL 2013 and URSI 2010). Co-author of 20 papers in JCR journals (15 Q1 & 11 as first author), 45 publications in international & national conferences (all with ISBN and peer review process on the full article). Co-inventor of 2 patent applications submitted in DE, US and KR. 2 recognized six-year research period (sexenio) and accredited as Profesor Contratado Doctor by ANECA.
Leading Principal Investigator of 4 R&D projects funded through competitive calls of public entities, 3 R&D contracts, and Work Package leader of 2 European projects. Member of the research team in 6 European projects (3 Horizon Europe & 2 H2020 projects and 1 CELTIC), 24 national/regional research projects, 15 contracts/collaborations with companies.
Invited speaker in IEEE HPSR (2022), IEEE IV-Workshop (2022), C2C-CC Forum (2021) and C2C-CC Week (2021) on 5G NR V2X, and CAED (2021). Invited seminars in IEEE VTS YP webinar series (2023) and HMETC (2019) on V2X technologies, IIT-CNR on opportunistic networking (2018), and WINLAB on multi-hop cellular networking (2016) and mmWave for V2V communications (2017).
Member of the Editorial Board of the JCR International Journal of Sensor Networks and Telecommunication Systems journal. Actively participates in technical and organization committees of flagship inter-/national conferences: Track Chair in IEEEVTC2018-Fall, Local Organizing Committee in EuCNC 2019, IEEE CAVS 2018 and IEEE PIMRC 2016, Publicity Co-chair in EUCNC 2019, IEEE CAVS 2019 & 2018, IEEE 5G World Forum 2018, IEEE VTC2018-Spring, IEEE PIMRC 2016 and IEEE VTC2015-Spring.
Expert evaluator for the Spanish's Research Agency (AEI), the professional organization of Telecommunications Engineers and SGS International for R&D projects and certification services.

First author of 3 published teaching books in mobile and wireless communications in English. Co-supervisor of 1 Ph.D. thesis, and 8 (Master) thesis projects at UMH, 2 research internships, and 1 special problem project in WINLAB (Rutgers University, USA).

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	AIZPURUA UNANUE, JOSE IGNACIO
Referencia:	RYC2022-037300-I
Correo Electrónico:	joxe.aizpurua@gmail.com
Título:	Dependability, prognostics and health management techniques for the reliable operation of power and energy systems

Resumen de la Memoria:

I obtained my Telecommunications Engineering degree from Mondragon University (MU) in 2010, with a year in Brno University of Technology (Czech Republic) working on the reliability of wireless optical communications and another year working on the hardware implementation of intelligent vision algorithms as part of an European project.

During my PhD, I focused on the dependability analysis of complex and dynamic systems. My PhD included two half-year stays at the Dependable Intelligent Systems group at the University of Hull (Kingston-Upon-Hull, UK) and at a leading Spanish Railway company. My PhD experience was continued with a 4-year postdoctoral period at the University of Strathclyde in Glasgow (UK) focused on the development and deployment of prognostics and health management (PHM) solutions for leading international power companies to monitor their power assets and systems such as transformers, cables and breakers. This stay also included a one-month teaching and research period at Shanghai University of Electric Power. From February 2019, I am a Lecturer at Mondragon University (Spain), and as of September 2020, I am also an Ikerbasque Research Fellow at the same institution.

My research line focuses on the development of fundamental science in the area of dependability and PHM algorithms of power and energy systems (PES). Dependability is an umbrella term, which integrates reliability, availability, maintenance, and safety and PHM covers anomaly detection, diagnostics and prognostics methods. This line is closely attached with experimentation, including the development of hardware-accelerated real-time dependability and PHM solutions and coordination with PES experimentation and sensing. These are the main research areas that I have explored, which I integrate in my current research line:

- Dependability prediction of complex, dynamic and open systems encountered in new technological systems and applications.
- Power transformer diagnostics, prognostics and condition monitoring
- Power protection system prognostics and semiconductor lifetime estimation
- Power cable diagnostics and prognostics
- Hardware acceleration of diagnostics and prognostics models
- Integration of dependability engineering methods with artificial intelligence for improved condition monitoring, and operation and maintenance decisions
- Dependability prediction of renewable energy systems, focused on solar energy and storage.
- Condition monitoring technologies for offshore energy – wind and wave applications.
- Decision-making under uncertainty in engineering asset management practice.
- Integrated smart grids and probabilistic forecasting

My work in these areas addresses new challenges introduced by the complexity, intelligence, autonomy and openness of emerging power and energy systems, and uncertainties these create in prediction and optimization of dependability through improved PHM and maintenance.

Beyond the theoretical advances achieved, this work has a strong applied focus and is being successfully transferred to industry, yielding significant innovation and economic-societal benefits.

Resumen del Currículum Vitae:

I am Ikerbasque researcher at Mondragon University (MU), where I lead the Dependability, Prognostics and Health Management (PMH) team since 09/2020, which comprises two PhD researchers, and four PhD, one MSc and one BSc students. The two main research lines that we are developing are dependability and PHM prediction algorithms and development of hardware technologies for real-time operation of PHM and dependability models, mainly focused on power and energy systems.

I have published 57 peer-reviewed scientific contributions, comprising 25 journal (15 as first author, 10 in IEEE Transactions), 30 conference (17 as first author), and 2 magazine articles, with 62 researchers from 27 different institutions. My research trajectory is rapidly increasing (21 Q1, 2 Q2 in 2017-2021). According to Google Scholar, I have 703 citations (408 in 2018-2022) and my h-index is 15. I have one "Sexenio de Investigación" granted in the period 2014-2019 in the area "Science of Computation and Artificial Intelligence.

I have ongoing collaborations with Prof. McArthur and Prof. Stewart at the University of Strathclyde (UoS) in Glasgow (UK), Prof. Papadopoulos at the University of Hull (UK), Dr Knutsen and Prof. Vanem at DNV and University of Oslo (Norway) and Prof. Chiacchio at the University of Catania (Italy).

I actively participate in different national and international projects. During my 45 months postdoc period at UoS, as co-PI, I took care of two UK-funded international research projects in collaboration with Bruce Power (Canada), EDF Energy (UK) and Kinectrics (Canada), and one transfer project with MU (Spain). Back in MU, I have been PI of one transfer project with Ingeteam Power Technology (Spain) and PI of MU in one regional research project. Currently I am PI of one research project and PI of MU in 1 national and 2 regional projects.

My research has obtained different prizes. During my PhD, I obtained a best-paper award (international conference on Dependability, DEPEND 2012). As a postdoc, I was awarded with the "Young Basque Investigator Award" in 2017, with the "Juan de la Cierva Incorporación" grant from the Spanish Research Agency (call 2019, acceptance rate <14%), and Ikerbasque Research Fellowship (call 2020, acceptance rate < 18%) to continue my research at Mondragon University.

I am Senior IEEE member with participation in the Reliability Society and Power and Energy Society (PES). I have been Treasurer of the IEEE PES Spanish Chapter (12/2019-12/2021), and I have assisted in the organization of various international webinars, which lead to achieve the best Spanish IEEE chapter in 2020. I serve as a reviewer for several high-impact journals and conferences. I sit on the board of different technical committees and I have given invited seminars and panels in international conferences.

Furthermore, I am actively engaged in the research career of young researchers. Proof of this is that, in my research career, I have successfully supervised one PhD student and I am the main supervisor of three PhD students. Additionally, I have supervised six MSc and four BSc theses. I also have teaching experience at undergraduate and MSc level in Mondragon University (Spain), University of Strathclyde (UK) and Shanghai University of Electric Power (China).

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	ALGABA BRAZALEZ, ASTRID
Referencia:	RYC2022-037385-I
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Título:	Highly efficient antennas for the next generation of communication systems

Resumen de la Memoria:

Mobile communications have evolved rapidly during the last decades, so that people cannot imagine their lives without being continuously interconnected. The huge increase of users per covered area has led to higher data rates and capacity requirements. Consequently, there is a need to develop new generations of communications systems (5G and beyond) able to provide service to an even larger number of applications, users and environments with more advanced technological tools. Critical aspects of future radio networks are the antenna system and the hardware solution to implement it, which face performance challenges in terms of losses, power consumption, reconfigurability, antenna radiation behavior, manufacturing robustness and tolerances, mass-production capabilities for technology industrialization, and cost. During my career (more than 13 years of international experience, including PhD studies and 8 years in industry), I have focused my research activities on investigating innovative, highly efficient and cost-effective antenna solutions that can fulfill the strict requirements of future 5G/6G systems, and outperform traditional antennas like phased arrays. My main line of research is composed of 3 different but well interconnected areas: 1) developing new antenna solutions and microwave components with metasurfaces (based on glide symmetry and gap waveguide technology) able to overcome drawbacks from traditional hardware technologies at millimeter-wave (mm-wave) frequencies; 2) using transformation optics techniques to design high efficient lens antennas (geodesic lenses) which are more robust in terms of fabrication tolerances than metasurface lens antennas; 3) combining dielectric lenses with traditional array antennas to create more flexible, energy-efficient and cost-effective antenna systems. Area 1) is focused on solving issues of traditional hardware technologies (printed transmission lines and hollow waveguides) by using metasurfaces. In this topic, I have made relevant research breakthroughs in the fields of lens antennas and glide symmetry technology by introducing several proof of concepts of innovative fully metallic metasurface lens (metalens) antennas, glide-symmetric planar slotted array antennas, field leakage suppression methods and implementation of mass-producible microwave components by applying metasurfaces. Area 2) deals with the development of highly efficient and cost-effective fully metallic geodesic lens antennas as an alternative to traditional phased arrays (typical solution in 5G radio access products). Different performance aspects of geodesic lenses have been considered here: achieving polarization diversity, improvement of cross-over levels to ensure efficient mobile service area and obtaining two-dimensional (2-D) beam steering capability. Area 3) has a great industrial value for the development of future antenna systems expected to be applied to a big number of applications and environments with very diverse requirements. Here, the idea is to re-use the same array antenna for different scenarios by placing a customized lens on top of the array. In this way, the whole antenna system remains the same but combined with a lens that tailors the system performance. The applications targeted on these 3 areas have been mm/submm-wave 5G/6G radio access communication systems, and point-to-point radio links.

Resumen del Currículum Vitae:

Astrid Algaba Brazález received the Telecommunication Engineering degree from Miguel Hernández University of Elche, Alicante, Spain, in 2009; and the Licentiate of Engineering and Ph.D. degrees from Chalmers University of Technology (ranked #125 in QS Global World Rankings 2022), Gothenburg, Sweden, in 2013 and 2015, respectively. She joined Ericsson Research, Gothenburg, Sweden, in November 2014, where she currently works as a Senior Researcher within the Antenna and Microwave Hardware Sector where her work is focused on 5G/6G Antenna hardware projects (including contributing to coordinate, design, implement and evaluate antenna system testbed demonstrators for next generation communication systems). She has been project manager of several internal Ericsson projects related to 5G/6G Antenna Systems, and she is currently driving the project "Lenses combined with arrays for 6G". She has also been the research leader of all projects related to metasurfaces and lens antenna solutions within Ericsson Research. Her research interests include millimeter and submillimeter-wave antenna array technologies for 5G/6G radio access applications, lens antennas, design of microwave passive components such as filters, metasurfaces, system integration of active components and antennas at millimeter-wave frequencies, and design of interconnects, routing methods and transitions to achieve such integration. Her research career can be summarized in 40 contributions (11 journals and 29 peer-reviewed conferences), most of them in top journals and IEEE conferences, with 3 JCR Q1, receiving so far 728 citations and an h-index of 11, according to the source google scholar. Moreover, she is also co-inventor of 4 accepted patent applications filed by Ericsson AB.

Astrid Algaba is currently co-supervising 2 PhD students (and a 3rd one to be started in April 2023 as a collaboration with the University of Technology of Sydney, Australia) as part of an on-going partnership on the topics of metasurfaces, lens antennas and transformation optics techniques with Prof. Quevedo-Teruel from KTH Royal Institute of Technology, Stockholm, Sweden. Within this collaboration, she has been the main industrial supervisor of 6 master theses projects already concluded and is currently supervising 2 master theses (all of them hosted at her team in Ericsson Research).

Regarding projects within external collaborations, she has been co-PI (co-Principal Investigator) and main industrial responsible of 4 research projects funded by Vinnova, which is the Swedish government agency that administers state funding for research and development. She has also been co-PI and main industrial responsible of two projects funded by the European Space Agency (ESA), The Netherlands, with KTH as main academic coordinator. Moreover, Astrid Algaba is serving as one of the two Swedish delegates and management committee member of the European COST Action SYMAT. She has also been a lecturer and organizer of several European School of Antennas (ESoA) courses. Furthermore, she is currently acting as Associate Editor of IEEE Antennas and Wireless Propagation Letters (AWPL). Dr. Algaba was a recipient of the Second Best Paper Award at ISAP2017 and the Best Paper Award in Antennas at EuCAP2020. She is also co-recipient of the Best Student Paper Award and co-recipient of the Student Honorable Mention at ISAP2022.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	CANO REYES, JOSÉ
Referencia:	RYC2022-037856-I
Correo Electrónico:	Jose.CanoReyes@glasgow.ac.uk
Título:	Design and Implementation of Efficient Computing Systems Solutions for Emerging Applications

Resumen de la Memoria:

09/2018 to Present: I lead the Glasgow Intelligent Computer Laboratory (gicLAB) in the School of Computing Science at the University of Glasgow, where we do research at the intersection of Computing Systems and Machine Learning. Currently, we are working on the following topics (I include projects/people involved, collaborations and publications): 1) Hardware/Software co-design approaches to efficiently deploy Deep Learning applications on constrained edge devices (4 PhD students; Northeastern University, University of Edinburgh, UPC Barcelona, Universitat Politècnica de València and University of Murcia; 1 journal article [Elsevier JPDC], 6 conference papers {[ACM PACT, 2 x IEEE ISPASS, 2 x IEEE SBAC-PAD, IEEE ASAP] and 3 workshop papers); 2) Multimodal AI-based Security at the Edge (Project EPSRC PETRAS MAISE; 2 postdocs and 1 MSc student; University of Sussex, STMicroelectronics and SICSA; 1 journal article and 1 conference paper in preparation); 3) Digital Security by Design for Mission-Critical Systems-on-Chip (Projects EPSRC AppControl and Morello-HAT; 3 postdocs; University of Oxford, University of Essex, Arm, UltraSoc and NASA; 2 conference papers in preparation); 4) Compiler-centric Infrastructure for Fully-Homomorphic Encryption (1 PhD student; Northeastern University, AMD; 1 conference paper in preparation; 5) Testing Perception AI on Hardware Accelerators (2 PhD students; University of Edinburgh, Codeplay Software; 1 conference paper (in preparation), 1 workshop paper [NeurIPS MLSW]); 6) Acceleration of Machine Learning training (1 MSc student; Northeastern University and Universitat Politècnica de València; 1 Journal paper [IEEE TPDS]).

01/2014 to 08/2018: I worked with Professors Vijay Nagarajan, Michael O'Boyle, and Sethu Vijayakumar on the EPSRC project "AnyScale Applications" until March 2018. My research was focussed on performance optimisation of distributed systems where several computing scales are available (e.g. on-board computers in mobile robots, laptops, lab servers, and the cloud). I proposed the idea of considering variants for each task of a robotic application in order to have more options for optimisation in these distributed environments. This idea has been published in a top journal (Springer AURO) and top conferences in robotics (RSS, 2 x IEEE IROS, IEEE ICAR).

In May 2017 I joined the H2020 project "Bonseyes", where I worked with Professors Michael O'Boyle and Amos Storkey and I led the systems/architecture research of the project at University of Edinburgh. My work was focussed on optimising/accelerating the inference time of Deep Neural Networks applications (e.g. image classification) when running on low-power heterogeneous architectures that include different types of CPU cores (e.g. ARM big.LITTLE) and accelerators (e.g. GPUs, DSPs, TPUs). From this period I published several conference (2 x IISWC) and workshop (2 x HiPEAC MULTIPROG) papers.

03/2012 to 12/2013: I was a postdoctoral researcher in the Department of Computer Architecture at Universitat Politècnica de Catalunya (Spain) under supervision of Professor Antonio González. There I contributed to the management, design, development, evaluation, and optimisation of a research infrastructure (based on QEMU) called DARCO for Hardware/Software co-designed processors. I produced two conference papers (IEEE ISPASS, IEEE IISWC) from this period.

Resumen del Currículum Vitae:

I am a Senior Lecturer (Associate Professor) in the School of Computing Science at the University of Glasgow, where I teach Computer Architecture (Year 4) and Computer Systems (Year 1) since 2019. I also carry out several administrative roles in our School, such as PGT (Postgraduate Taught) projects coordinator (currently with > 350 MSc students) since 01/2021. I am a visiting member of ICSA in the School of Informatics at The University of Edinburgh.

I have more than 15 years of research experience, and currently I lead the Glasgow Intelligent Computer Laboratory (gicLAB) within the Systems Research Section (GLASS) in our School, where we do research at the intersection of Computing Systems and Machine Learning. The gicLAB is currently composed of myself, 1 postdoc, 5 PhD students and 1 MSc student. During these years, I have worked on different layers of the systems stack (applications, programming, system software, hardware) and various types of computer systems (embedded, mobile, desktop, server). This activity has produced over 40 refereed publications including top journals such as "Elsevier JPDC", "IEEE TPDS", "IEEE Transactions on Computers", "IEEE Communications Magazine", and conferences such as "ACM PACT", "IEEE ASAP", "IEEE SBAC-PAD", "IEEE ISPASS", "IEEE IISWC", "ACM/IEEE NOCS".

Currently I am Principal Investigator on the EPSRC PETRAS project MAISE (Multimodal AI-based Security at the Edge) and Co-Investigator on the UKRI "Digital Security by Design" projects AppControl and Morello-HAT. I have obtained a total of £206,878 as a project PI, £853,603 as a project Co-I and £68,881 from five personal grants. My current and past research has been supported by UK's UKRI/EPSRC, Horizon Europe, EU's Horizon 2020, the Spanish Ministry of Science and Innovation, the EU's FP7 Programme, and the CATRENE framework.

My research interests are in the areas of Computer Architecture, Computer Systems, Compilers, Machine Learning and Security. I collaborate with different academic institutions (University of Edinburgh, Northeastern University, UPC Barcelona, UPV, University of Murcia) and companies (STMicroelectronics, AMD). So far, I have successfully supervised 26 MSc students (Masters thesis) and 14 Undergraduate students (final year thesis). I have given 18 invited talks at different events/venues, 15 talks at conferences/workshops/seminars, and 2 defense talks (PhD, MSc I have been a member of the Organising Committee (11 times) and the Technical Program Committee (62 times) in different conferences and workshops, Guest Editor for MDPI "Big Data and Cognitive Computing" and "Sustainability" Journals, member of IEEE TPDS Review Board and ACM TACO Distinguished Reviewers Board, and reviewer of another 19 journals. I'm Senior Member of IEEE and ACM and member of HiPEAC.

I obtained my PhD in Computer Science from Universitat Politècnica de València (Spain) in January 2012 with the best possible grade (Cum Laude). After that, I was a Postdoctoral Researcher (03/2012 to 12/2013) at Universitat Politècnica de Catalunya (Barcelona, Spain) under supervision of Professor Antonio González. Then I was a Postdoctoral Research Associate at the University of Edinburgh (01/2014 to 08/2018), where I worked with Professors Michael O'Boyle and Amos Storkey on the EU's H2020 "Bonseyes" project, and with Professors Vijay Nagarajan, Michael O'Boyle, and Sethu Vijayakumar on the UK's EPSRC "AnyScale Applications" project.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	ALGORRI GENARO, JOSÉ FRANCISCO
Referencia:	RYC2022-035279-I
Correo Electrónico:	falgorri@gmail.com
Título:	Enhanced photon emission by all-dielectric metasurfaces

Resumen de la Memoria:

Dr. Algorri has worked on the anomalous scattering properties of nanoparticles and dielectric metasurfaces (MS) for more than 9 years, with 6 related projects, 25 articles and 22 conferences on this topic. After his PhD, he received 2 competitive post-doc mobility grants, one from Carlos III University (1st ranked) and another one from MECD ("José Castillejo", 1st ranked). With these grants, he stayed 9 months at the Institute for Microelectronics and Microsystems (CNR, Rome). As a result, he designed, fabricated and characterised new dielectric MS in the THz range, opening a new research line and an international collaboration (established collaboration nowadays). Thanks to this collaboration, 10 works were published (Q1, 2 journals with IF: 10.05) and 12 works were presented at renowned conferences. Now he closely collaborate with 3 international groups from different research institutes and universities (DTU, IMM-CNR, UNIBA and UNIPAV).

In addition, he has ample experience (12 years) in optical phase modulators, tunable lenses, 3D imaging systems for displays (autostereoscopic), cameras and microscopy (integral imaging), with 7 related projects, 2 patents, 28 articles and 19 conferences on these topics. Specifically, he has accomplished several challenging projects in which he has actively, if not solely, participated in the idea's conception, numerical analysis and experimental demonstration. In addition, he introduced a novel set of designs with outstanding advanced features (2 patents, 1st author). Thanks to his ample set of designs, a stable international collaboration (more than 7 years) has been established with the Division of Applied Physics (WAT, Poland). In recent years, he has focused on solving one of the bottlenecks of VR displays (the accommodation-vergence problem). Now, he leads this research line and a PhD based on his work is ongoing in WAT.

For the last three years, he has been a post-doc researcher at GIF-UC (almost 2 years as JdC-I), working in his previous lines and other lines of the host group. Thanks to the related publications and conferences (9 works, 2 in Cancers journal), he has been admitted as a member fellow in CIBER-BNN (ISCIII) and IDIVAL (Valdecilla Hospital).

During these years, he has collaborated with several private companies, research centres, international and national research groups. He was part of the EU Cost Action (IC1208) and is reviewer in 20 different journals. His patents have been presented in some national programs (e.g. MBA or Lab4pymes) and to some specific companies (e.g. Apple and Facebook). In addition, he has contributed to educational activities like seminars, short courses and training addressed to students and researchers through science dissemination in secondary schools, the Pint of Science event, the European Research Night event, and others. He also worked as Teaching Assistant for 6 years and as Assistant Professor for 4 years at UC3M, in subjects related to electronics and photonics (1017h of teaching with a 3.9/5 in student surveys). Furthermore, he has participated in training and dissemination activities, several projects of innovation in education and have been supervisor or responsible for undergraduate and Master theses. This work is certified by TU, CD, TUP and AD accreditations (ANECA).

Resumen del Currículum Vitae:

Dr. Algorri has an ample international experience thanks to 4 competitive mobility grants (16 months at UK, USA and IT) and an intense international collaboration (>80% of published papers in collaboration with DTU, UNIPV, CNR, UNIBA, WAT, UFPA and AUTH). He has a 7 post-doc experience at UC3M (4 years) and UC (3 years) with 2 own consolidated research lines (with stable international collaborations) and 1 emerging. His scientific results have been published in prestigious peer-reviewed journals (63 papers: 41 as 1st author, 12 as 2nd author, 2 as last author, 48 Q1 and 9 Q2 by JCR, max. IF: 10.05) and recognised conferences (56 communications: 39 as 1st author, some of them being invited presentations), the total cites are 1505 (1335 since 2017) with an h-index of 26. He also has 5 book chapters (4 as 1st author) and 2 patents (1st author). It has to be noted that he is the first author or the supervisor of the work in most of them, showing his leadership. Regarding his scientific duties, he has led the LC and MS research lines in his previous group, obtaining several projects as Principal Investigator in Work Packages, PI-WP (11 National projects and 1 European), he is PI in I+D+i consulting contracts with TÜV, DNV and AENOR since 2017 (13 contracts).

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	ALVAREZ ESTEVEZ, DIEGO
Referencia:	RYC2022-038121-I
Correo Electrónico:	diego.alvareze@udc.es
Título:	Biomedical signal processing and artificial intelligence for aiding clinical diagnosis in sleep medicine

Resumen de la Memoria:

Research trajectory of Dr. Alvarez-Estevez has been devoted to research, development, and validation of intelligent systems to support medical decision. First works developed in the diagnosis of sleep breathing disorders were he researched applicability of AI techniques for dealing with data variability and imprecision. These works formed the core of his doctoral thesis "Diagnosis of the Sleep Apnea-Hypopnea Syndrome: a comprehensive approach through an intelligent system to support medical decision" which was awarded with the extraordinary doctoral mention.

He then joined the Haaglanden Medisch Centrum (HMC), in The Netherlands, where he worked for 8 years as Chief Engineer at the Sleep Center & Clinical Neurophysiology department. There he led technical developments that resulted in some remarkable software tools, such as Sleep Information System (SIS), or Polyman, as well as automatic analysis methods for analysis of both sleep macro- and micro-structure. He also actively participated in developments related towards toward digitalization of medical data around the open European Data Format (EDF) digital format. As a consequence of this activity, today the HMC has a more robust and efficient workflow, having reduced by more than half the time necessary for the analysis of sleep medical recordings. Also of note, EDF format has become the de-facto standard for exchanging of EEG and sleep among clinical researches and industry.

Under the "Talent Attraction Program" of Xunta de Galicia, Dr. Alvarez-Estevez has recently returned to Spain, and since 2021 he works in the position of "Distinguished Researcher" at Center for Information and Communications Technology Research (CITIC) in A Coruña. Ongoing research involves development of generalizable and robust machine learning models in the context of multiple independent data sources, automatic analysis of (sleep) medical data, modelling inter-expert scoring variability, and more recently next applications of quantum computing.

Resumen del Currículum Vitae:

Graduated in Computer Science Engineering at University of A Coruña, Spain, in 2007, Dr. Alvarez-Estevez conducted different research stints, including the prestigious Computational Neuro-Engineering Lab at University of Florida (USA), under supervision of Dr. Principe. In 2012 he obtained his PhD (cum laude, international mention, and extraordinary award) on the application of Artificial Intelligence techniques in the diagnosis of Sleep Breathing Disorders.

He then joined the Haaglanden Medisch Centrum (HMC), in The Netherlands, where he worked for 8 years as Chief Engineer at the Sleep Center & Clinical Neurophysiology department. He supervised a team of hardware and software engineers, and led applied research, resulting in the successful development of some remarkable systems to support medical decision. At present more than 2500 patients are being analyzed annually by using these systems. During his stay at HMC, Dr. Alvarez-Estevez also supported resident neurologists on conducting research towards the achievement of their respective PhDs.

In 2017, Dr. Alvarez-Estevez was invited to give different courses and talks at the World Sleep Congress. There he was recognized with the Wayne Hening Young Investigator Award for his contributions on automatic detection of leg movements during sleep. Later on, Dr. Alvarez-Estevez was invited by the National Sleep Foundation (NSF) to join the "Sleep Health Technology Task Force" as scientific advisor in the context of emerging consumer sleep technology. He also participates in the development of standards and recommendations for the Consumer Technology Association (CTA).

In 2021 Dr. Alvarez-Estevez resulted selected under the "Talent Attraction Program" of Xunta de Galicia, returning to Spain, and working ever since in the position of "Distinguished Researcher" at Center for Information and Communications Technology Research (CITIC) in A Coruña.

On different topics related to Artificial Intelligence and its application to analysis of biomedical data Dr. Alvarez-Estevez has to date authored 25 papers in major peer-reviewed scientific journals (64% as first author, 56% as corresponding author, with 64% in Q1, 20% in Q2), 2 book chapters, 21 high-rank international conferences, and has registered 2 pieces of industrial property.

As Principal Investigator, Dr. Alvarez-Estevez has led 3 competitive research projects (total funding >400K) in 2 different countries, and he has coordinated 2 additional research actions at international level. In the context of ongoing LMoDe project, in collaboration with International Restless Legs Study group, this coordination work involves 40 scientific experts from 17 different countries around the world. He has also participated in another 12 research projects, including 2 funded in different ERC calls, and 4 research networks, on different competitive calls. Staff training experience includes the participation as external thesis reviewer, research stay supervisor, and director of several thesis and master students in different periods of time. Dr. Alvarez-Estevez also regularly participates as reviewer in a number of top-class scientific journals (e.g. Sleep, Nature Communications, IEEE Transactions on Biomedical Engineering, Biomedical Signal and Control, etc.) and collaborates as project reviewer for Agencia Española de Innovación.

Resumen de la Memoria:

The field of expertise of Dr. Martín Fernández are the micro and nano technologies applied to the integration functional materials and enabling devices that will exploit their properties. His focus is on technology and materials but his career is marked by the multidisciplinarity that results from working at the forefront of science and technology teaming with groups from different scientific disciplines and by the multicultural interactions that he has enjoyed during his long international postdoctoral experiences (~5 years).

Among his breakthroughs, he participated in the fabrication of the first CNT transistors in Spain and he integrated 10,000+ working transistors on a single wafer. At the time, this probably represented a record in integration. At Berkeley Lab he demonstrated a new solution to template the growth of GNRs and to enable their large-scale integration. In NUS, he enrolled in a 10 MSGD project to transition graphene from a lab to a Fab like environment. His major scientific contribution was conceptualizing the interactions within graphene and its copper substrate when a ferroelectric polymer was placed in intimate contact and figuring their implications for the "defect-free" peeling of graphene. Then, he was able to demonstrate the process at centimeter scale, and later to scale-up of the process and tender a one-of-a-kind unprecedented pilot line to transfer graphene sheets of up to 30 x 40 cm2. In his return to IMB-CNM he was the PI of his own project in the frame of the P-SPHERE program (MSCA-COFUND). He contributed to the development of graphene as a neural interface within the European initiative Graphene Flagship. He initiated a research line on LIG. Currently, he works on solutions to demonstrate a thermoelectric generator based on Si materials to serve as an alternative to the batteries for a full deployment of the Internet of Things, and on demonstrating reversible Solid Oxide Cells to serve for H2 conversion in the frame of two European FET projects. His work has resulted in 18 publications and 40+ contributions to conferences (20+ orals, 2 invited talks) that cover some of the most relevant journals and events in the field, such as Nano Letters and the IEEE-IEDM conference. His research has had a strong focus on technology transfer through invention disclosures (7 invention disclosures, 3/7 are already granted patents, 1 patent is already licensed).

He has participated of the organization of international conferences including ECT¿22, MNE2022, MNE2021 and IWMSE2018. He has disseminated his scientific results to (high) school students in the Barcelona Area, and he organised an event on the mental health in research in collaboration with the European Observatory (ReMO)

Resumen del Currículum Vitae:

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	RODRÍGUEZ TRIANA, MARÍA JESÚS
Referencia:	RYC2022-037806-I
Correo Electrónico:	mer.triana@gmail.com
Título:	Aligning Learning Design & Learning Analytics in complex learning situations

Resumen de la Memoria:

My research work is multi-disciplinary, applying computer science and digital technologies to education at different levels. I have made notable contributions to knowledge in areas such as learning design and learning analytics, especially in blended and ubiquitous learning environments, with special emphasis on pedagogical approaches such as collaborative and inquiry-based learning. The contributions themselves range from technological system architectures and data models to conceptual frameworks and novel analysis methods. To develop these contributions, I have applied methods and techniques from both computer science (e.g., machine learning, human-centred design) and social sciences (qualitative data analysis, statistical methods, etc.). Currently, I am investigating the adoption of learning analytics in authentic scenarios (at classroom, institutional and community levels), including aspects such as ethics and privacy, visualisations and data literacy, pedagogically-grounded analytics and algorithmic accountability.

These contributions have been the object of more than 100 peer-reviewed publications, including 18 JCR-indexed journal papers (12 Q1) and 17 publications in GGS-listed conferences (3 CORE A, 9 CORE B). Further, these publications have had ample impact on the technology-enhanced learning community, gathering 2,416 citations in Google Scholar (h-index=23) and 853 citations in the Web of Science (h-index=15). The interest of the scientific community in my contributions is also reflected in multiple awards, such as the Estonian National Research Award (2020), the Best research paper (2016) and Best student paper (2011) at the EC-TEL conference, or the Special mention to the best doctoral thesis in technology-enhanced learning by the eMadrid network (2015). The contribution and leadership within this research community are also reflected in my activity as Chair of 3 international conferences (2 CORE B), among the best in that area.

Resumen del Currículum Vitae:

I am an Associate Professor (PTUN equivalent) since 2021, in Learning Analytics and Educational Data Mining at Tallinn University (Estonia). I completed my doctoral studies at the GSIC-EMIC group, receiving my PhD in Information and Communication Technologies from the University of Valladolid (UVa) in 2014. That same year, I joined the REACT group at the École Polytechnique Fédérale de Lausanne (EPFL – one of the top technical universities in the world) in Switzerland, as a Postdoctoral Fellow. In 2016, I joined Tallinn University as a Senior Research Fellow. In 2022, I have been accredited as Contratado Doctor (CDOC) by the Agencia para la Calidad del Sistema Universitario en Castilla y León (ACSUCYL).

I have been involved in the writing and execution of multiple educational technology research projects at the national and international levels (entailing WP/task leader roles). These projects (with a combined worth exceeding 25 million euros) have focused on technologies to support inquiry learning (GO-LAB, IMAILE, Next-Lab, GO-GA), collaborative learning (SOFOCLES, RESET), or learning analytics to support decision-making both at the classroom and institutional levels (H2020 WIDESPREAD - CEITER, PRG1634, EEE). I have also participated in knowledge transfer projects at the European level, such as Erasmus+ projects on the application of learning analytics in physical and digital spaces (LLP - PREATY), or to support learning design by the educational community (LLP-METIS). These projects have enabled me to develop a wide network of international contacts (e.g., I have co-authored publications with more than 130 researchers from foreign institutions), which is regularly reflected in my publications and funding proposals.

I have performed research stays at the Université Joseph Fourier (France, 3 months, 2013), the University of Twente (Netherlands, 1 month, 2019) and the Univerisity of Valladolid (Spain, 4 months, 2021), aside from my long-term appointments at EPFL (Switzerland, 48 months, 2014-2018) and Tallinn University (Estonia, 79 months + 8 months of parental leave, 2016-present), including a 20-month period of dual appointment in Switzerland and Estonia. I have also acted as a research project evaluator for the Riksbankens Jubileumsfond foundation (Sweden).

I have co-supervised successfully three PhD theses: Gerti Pishtari (2 JCR Q1, 2 journal, 3 conference papers), Maka Eradze (3 journal, 2 conference papers), Anu Tammeleht (4 journal papers, 1 conference presentation); and one master thesis (Maarja Hallik). Further, I am currently (co)supervising five more doctoral students. Regarding my teaching, I have delivered courses at the Master and Doctoral levels at Tallinn University, for a total of 71 ECTS (equivalent to 710 hours in the Spanish system). These courses delve into topics such as research ethics and methodologies, or educational technologies and learning analytics.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MORALES CÉSPEDES, MÁXIMO
Referencia:	RYC2022-036053-I
Correo Electrónico:	maximomoralesc@gmail.com
Título:	Radiofrequency and visible light communications for 6G

Resumen de la Memoria:

Máximo Morales has contributed to important advances to manage the interference in wireless networks, improving classical radio-frequency (RF) as well as innovative visible light communications (VLC). His interdisciplinary research career comprises from the development of theoretical transmission schemes applying advanced signal processing to the validation of these schemes into hardware testbeds. His research career also considers the development of specific transmission schemes in the framework of Industry 4.0. Some important research contributions are: 1) Pioneering the use of reconfigurable antennas for developing transmission schemes that minimize the need for channel state information or coordination in both homogeneous and ultra-dense heterogeneous networks. 2) Inventor of the reconfigure photodetector (patent ES' 2713578) that provides multiple and uncorrelated channel responses connected to a single signal processing chain. 3) Development of novel transmission schemes for VLC minimizing the required signaling. 4) Application of topology-aware network coding to cellular networks. 5) Development of transmission schemes considering the requirements for 6G communications.

The contribution to technology transfer to industry and users follows two approaches; i) improving the use of the RF spectrum developing more efficient transmission techniques in collaboration with companies such as Nokia, Huawei, or Vodafone and ii) developing VLC systems for providing connectivity in scenarios where RF systems are not efficient. He is the principal investigator (PI) of the technology transfer project Tunel 4.0 that aims at providing connectivity that enables services such as IoT communications, positioning, or resource monitoring during the construction of tunnels through VLC. He is also the inventor of a patent that plays a major role in this project. Moreover, he is currently the PI of the research project ViDiT, which motivates the development of VLC based on commercial light-emitting diodes (LEDs) for the digital and energy efficient transition of the industry.

The scientific outreach comprises 2 international seminars for early-stage researcher as coordinator and lead trainer, the development of a massive open online curse focused on ultra-dense networks for 5G, and scientific dissemination activities for the general public. Besides, all the obtained results during his research career are available in open access repositories.

He has completed 6 research stays, 2 predoctoral and 4 postdoctoral, which represents 33% of his research career. He was hired by Univ. Catholique de Louvain as postdoc, and he has visited the Univ. of Patras, Univ. of California Irvine, Univ. of Edinburgh, Univ. of Linkoping and Univ. de Alcalá. He actively participates in international committees such as IEEE ComSoc and he has been chair and organizer of special sessions in international conferences.

He has participated in 10 research projects, 2 of them international, and in 7 technology transfer projects. He is PI in 2 of these research projects and in 2 technology transfer projects. He has supervised 2 doctoral thesis, 17 TFGs, 8 TFMs 1 PFC. He serves on the editorial board of IEEE Communications Letters and IEEE Open Journal of the Communications Society as well as reviewer in international journals and conferences.

Resumen del Currículum Vitae:

Máximo Morales is currently working as postdoctoral researcher and assistant professor (personal docente) in the framework of a Juan de la Cierva Incorporación fellowship in Universidad Carlos III de Madrid (UC3M). He obtained his PhD in UC3M with the thesis "Blind Interference Alignment for Cellular Networks" in November 2015, which received the outstanding thesis award. After that, he was in the Institute of Information and Communication Technologies, Electronics and Applied Mathematics at Université Catholique de Louvain, Belgium, as postdoctoral researcher. Moreover, he has carried out research stays in University of Patras, University of California Irvine, University of Edinburgh, University of Linköping, and Universidad de Alcalá. He has stayed the 33% of his research career in an institution different from the one in which he obtained the PhD. In 2021/2022 his research career was interrupted 16 weeks due to a paternity leave.

He has authored 43 contributions in top journals and conferences. Specifically, he has published 15 JCR peer-reviewed journals (10 in Q1 and 5 in Q2), 10 of them as corresponding and first author. He has also published articles in the main track of the most prestigious conferences of IEEE such as IEEE Globecom or IEEE International Conference on Communications. Moreover, he is author of 3 chapters in international scientific books. According to Google Scholar, his publications have been cited more than 310 times and he has an h-index of 10 in January 2023.

His research career has demonstrated a strong impact on the scientific community. In this sense, he has participated in 10 research projects, 2 of them international, as part of the research team. He is the coordinator and principal investigator (PI) of 2 of these research projects. The results obtained during his research career have also a strong impact on the industry and society. He has participated in 7 technology transfer projects, 2 of them as PI, and he is the inventor of 1 patent. The projects in which he is PI aim at providing connectivity and communication services in the framework of Industry 4.0. Furthermore, he has organized multiple scientific outreach workshops for researchers, students, and general public.

Beyond his participation as PI in research and technology transfer projects, the leadership capacities of him comprise the following aspects. He serves on the editorial boards of IEEE Communication Letters and IEEE Open Journal of the Communications Society as well as reviewer in international journals. He has also been chair and has participated in the technical program committee of several international conferences and has organized special sessions in some of these conferences. Besides, he usually participates in the committees of IEEE Communication Society (ComSoc) and he is

secretary of the IEEE Vehicular Technology Society Spanish chapter. He was the lead trainer in 2 international seminars for early-stage researchers and has participated in the development of a massive open online course (MOOC). He has supervised 1 thesis, which received the outstanding thesis award by UC3M, and he is currently supervising another thesis. He has also supervised 17 TFGs, 8 TFMs and 1 PFC.

He is accredited as senior lecturer/profesor titular (TU) by ANECA and has one research six-year period (sexenio de investigación).

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	NAVALE , SACHIN TATYASAHEB
Referencia:	RYC2022-036453-I
Correo Electrónico:	stnavale2@ub.edu
Título:	Chemoresistive gas sensors based on emerging 2D materials for greenhouse gas monitoring (2D-GHGs)

Resumen de la Memoria:

In recent years, global warming and climate change have been of major concern and are considered one of the greatest global threats. The intensification in human activities has led to a rapid increase in the emissions of greenhouse gases (GHGs) to the Earth's atmosphere, particularly methane (CH4), carbon dioxide (CO2), and nitrous oxide (N2O), resulting in a gradual warming of the atmosphere. Thus, to address global warming and climate change, we must continue reducing GHGs emissions, which ultimately require miniaturized low-power gas sensor systems with greater precision for monitoring, reporting, and validating GHGs levels. Currently, to monitor GHGs emissions, one can find in the market complex, bulky, and expensive instruments, which can only be installed in few specific locations. In this regard, chemoresistive gas sensors are appealing because of their low-cost, small size, easy operation, sensitivity to various gases, and compatibility with Internet of Things (IoTs) sensing platforms, providing the required ubiquity.

The present project addresses the development, fabrication, and testing of chemoresistive gas sensors, suitable for IoT, made from advanced 2D materials, particularly conducting metal-organic frameworks (c-MOFs) and M3C2 MXenes. Notably, 2D c-MOFs and M3X2 MXenes are emerging materials and have rarely been used as detection materials in chemoresistive gas sensing field. Therefore, the use of these materials in the development of advanced gas sensors to detect GHGs is appealing. A special focus will be on the development of triphenylene-, triphenylenehexathiol-, and porphyrin-based 2D c-MOFs and M3X2 structures of MXenes (Ti3C2, Zr3C2 and Hf3C2). The developed sensor devices will be tested towards main GHGs, i.e. CH4, CO2 and N2O, as they are known to be highly responsible for climate change. The developed 2D-GHGs sensor is expected to offer benefits over the standard devices, especially in terms of miniaturization, selectivity, and power consumption. A development of laboratory-scale prototype of miniaturised and cost-efficient GHGs sensor is also planned for integration into IoT systems.

Resumen del Currículum Vitae:

I obtained my MSc (2012) and PhD (2015) degrees in Physics from Solapur University (SUS), India. During my thesis study, supervised by Prof. V. Patil, I studied the fundamentals of synthesis and characterization of nanostructured materials (oxides, conducting polymers) for the fabrication and testing of solid-state and flexible gas sensor devices to detect toxic gases, which resulted in 16 publications, 8 of which were as a first author. Additionally, I was responsible to set the lab-safety protocols and training newcomers in Prof. Patil's lab, which later gave me an opportunity to co-supervise research of 7 MSc students. Besides, during doctorate, I did 2 years of contractual teaching (8h/week) at Vidnyan Mahavidyalaya (Solapur University), where I taught physics and materials science to undergraduate students.

After PhD, I performed my first international Postdoc (2015-2018) and Research Associate (RA, 2018-2019) with Prof. F. Stadler at Shenzhen University, China, where I worked on the design and testing of nanomaterials-based MQ sensors and energy-storage devices. During research in China, I entirely designed my research project, thus acting as the only experimental driving force of the research, which resulted in 35 publications (of which 7 are in well-reputed Sensors Actuators B: Chemical as a first or contacting author; Q1) and co-supervision of 3 MSc students. In 2016, I worked in Shenzhen technology project as lead researcher to develop flexible gas sensors. In 2019, I also worked in a industrial project (Beijing Zhiji Future Medical Tech) to develop acetone sensor. In 2020, I joined Prof. Patil's lab at SUS again, to conduct the research on low-temperature chemiresistive sensors. Afterwards, in 2021, I joined sensor laboratory of Prof. H. Kim, as a Postdoc, at Hanyang University, South Korea, where I participated in research related to metal-organic framework based sensors to detect indoor gases.

In 2021, I won prestigious Marie-Curie fellowship (101030015) of European Commission to carry out research at Universitat de Barcelona (Spain) in Prof. Romano's lab, in collaboration with Fraunhofer Institute (FhG-IPM), Germany, focusing on the development of a multivariable nanosensors. I am currently working on understanding the different approaches of e-nose sensors where FhG-IPM and a sensor company (Sensotran) offers training on industrial needs. In 2022, I won the multidisciplinary research grant of IN2UB to carry out research on sensors for the safety of batteries.

In summary, I am the author of 86 publications (of which 38 are as a first or contacting author) and a lead-author of a book (ISBN:978-3-659-76177-5), resulting in an h-index of 42 and total citations of 3915. I have also been involved in 4 research projects (2 as PI) and have working experience in different countries (India, China, South Korea, Spain). I have also 2 years of teaching experience, ranked in 'Top 2% Scientists Worldwide by Stanford University' from 2019-2022, presented my research in 30+ national/international conferences, participated in co-supervision of 10 MSc students, won several prestigious fellowships (Marie-Curie, TecnioSPRING, PIFI), a member of the editorial board of Materials International, guest editor of 2 special issues on sensors, a reviewer of several renowned journals, and an organizing committee member of 4 national conferences.

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	BERMEJO VEGA, JUAN
Referencia:	RYC2022-036209-I
Correo Electrónico:	jbermejovega@gmail.com
Título:	Quantum Computing and Machine Learning

Resumen de la Memoria:

I am a quantum computing researcher working at the interface between quantum physics, the theory of computation, computer architectures, algorithms and machine learning. My research interest are multidisciplinary ranging from foundational questions to applied subjects related to novel forms of computation: at presently quantum computing (my core are by training) and machine learning (I discipline where I have recently initiated novel research directions).

I have contributed to the field of quantum computing since early on in my PhD. I am highly respected author in my field still in an early career. My research contributions in my research area rank among the 15% best cited within my area (85% Citation Percentile Web of Science). I am well known for (1) work on quantum advantage protocols for near term devices, and (2) my work understanding the role of contextuality and Wigner negativity in quantum computing with magic states (a leading paradigm in fault-tolerant quantum computing). Both of this research lines, which I co-pioneered, have led to high impact publications and invitations to prestigious international venues.

My quantum computing researcher profile is a computer science one, centered around computer science questions, themes and methodologies although I work in a Physics Department. In my collaborations with experimentalists, I developed the theoretical algorithmic protocols for quantum computer hardware teams to build. My PhD is in Physics, but the theme of my PhD is a computer science one: simulation algorithms and quantum algorithms for algebraic problems with a cryptographic application. Furthermore, my research group is now actively working on classical machine learning questions.

I have given 31 invited talks in quantum computing on international conferences, workshops and seminars; 16 expert contributed talks; 6 invited panels; and I have been 6 times a conference moderator.

Science Communication: I am a science communicator and I often act as an expert source for media outlets such as New Scientist, Wired, Gizmodo, El País (Entrevista, Fuente Experta, Artículo), Salto Diario, Radio y Televisión Española, Agencia SINC. I am regularly invited to speak at science communication events such as TEDx 2021, or science communication festivals such as Desgranando Ciencia 2022, 2021 and 2019. I have been an invited guest in primary school events such as Café con Ciencia. I participate in social science activities like Night of the Researchers and Lemon Rock.

Impact: My outreach activities have brought widespread attention towards my research areas and contributed towards generating public knowledge about quantum computing, physics and computer science. I am included in the Spanish Wikipedia as a relevant Spanish scientist and science communicator (https://es.wikipedia.org/wiki/Juani_Bermejo_Vega. I have been ranked by Maldita.es among the most relevant LGBTQ+ figures of Spain (following Wikipedia mentions) together with Ada Colau, Federico García Lorca and Pedro Almodóvar. I am ranked the 96 most popular Twitter account in Physics (@queenofquanta) by TrueSciPhi.

Resumen del Currículum Vitae:

Technical achievements: - 13 publications: 9 in Q1, 1 in 1st Tercile, 2 in Q2 (WoS: Web of Science)
- 1st author of 4 articles, 2 high impact (1 PRX, 1 PRL)
- Senior author of 2 papers, 1 high impact (1 PRL) - 4 high impact publications: 1 PNAS, 1 PRX, 2 PRL - 6 in Top 10% Impact Factor (SCOPUS), 3 (WoS) - H-index 12 (Google Scholar), 9 (Web of Science)
- i10 index 12 (Google Scholar), 8 (Web of Science) - 697 citations (Google Scholar), 311 (WoS) with 235 Citing Articles (WoS) - 3 papers with 100+ citations in Google Scholar - Average citations per item 25.9 (Web of Science) - I am a top 15% author impact across my own discipline (85% Citation Percentile Web of Science) Research Talks: - 16 expert contributed talks and 31 invited talks (quantum computing, physics and computer science) on international conferences, workshops and seminars. - 6 invited panels at international & national conferences. - 6 times moderator of expert talks & panels at international conferences.
Science Communication: I am an experienced science communicator and I often act as an expert source for media outlets such as New Scientist, Wired, Gizmodo, El País, Salto Diario, RNE, Agencia SINC. I am regularly invited to speak at science communication events such as TEDx 2021, Desgranando Ciencia 2022, 2021, 2019.
Internationalization:
- 2016 PhD Summa Cum Laude at Quantum Computing Control and Communication / Exploring Quantum Matter (QCCC/ExQM), International doctoral school of excellence. Elite Network of Bavaria. (Max Planck Institute of Quantum Optics, Munich, Germany). - International research stays at Massachusetts Institute of Technology, Boston, US; University of British Columbia, Vancouver, Canada; and Free University of Berlin, Germany
- Member of 4 organizing committees at international conferences
- Taught at 6 graduate courses and 3 master programs in 3 different universities.
Independence & Leadership:
- Principal investigator of 6 research projects on quantum computing and machine learning
- Principal investigator of International Consortium Canada-EU Horizon RIA Foundations of quantum computational advantage (FoQaCiA)
- Marie Curie Fellow –Athenea3i Talent Mobility on quantum advantages in NISQ devices. - Founder of 1 international conference series and 2 scientific associations

- Participation in 2 steering committees and 6 program committees at international conferences
- Reviewer for 6 international journals journals (3 PRX, 3 PRL, 2 Quantum, 1 PRA). Supervision and training of young researchers: 1 PhD Thesis, 4 Master Thesis, 6 Bachelor Thesis, 1 student research project
Other awards, individual grants, scholarships showing scientific achievements - 2010-2011 La Caixa-DAAD Fellowship for Postgraduate Studies. German Academic Exchange Service (DAAD); Obra Social Fundación la Caixa. (Max Planck Institute of Quantum Optics).
- Collaborative Grant (Beca-Colaboració́n), Orden EDU/2235/2009. Juani Bermejo Vega. (Universidad de Salamanca). 01/09/2010-31/08/2011

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MARGARIT , JOSEP MARIA
Referencia:	RYC2022-036701-I
Correo Electrónico:	josepmaria.margarit@csic.es
Título:	Neuroperceptive, miniaturized opto-bio-chemical monitoring solutions for ubiquitous industrial, health, and environmental care

Resumen de la Memoria:

My scientific career is devoted to conceiving, investigating, developing, and productizing intelligent sensory microsystems for ubiquitous industrial, health, and environmental care. I integrate affordable, equipment-free physical and chemical sensing devices with different levels of in-situ tunable perception, optimizing transduction, readout, computation, and communications to maximize system deployability, autonomy, speed, versatility, accuracy, and robustness in real-world conditions. To this end I apply a unifying scientific-entrepreneurial perspective, broadening state-of-the-art insight in five emerging R&D fields: neuroscience, AI, micro/nanoelectronics, artificial vision, and analytical (bio)chemistry. My main projected activities span from the research of efficient neuroinspired algorithms for real-time multisensor perception/learning/control to the integration of smart lab-on-CMOS microinstruments and portable on-flex analytical devices.

My major predoctoral research achievements came from the development of smart pixel sensors, imaging microarchitectures, and integrated test platforms for frame-based and bioinspired frame-free infrared (IR) industrial vision. The imagers made use of photonic-PbSe detectors monolithically integrated with CMOS readout circuits in the same die, seminally allowing inexpensive, micropower, and uncooled kHz operation as a commercial alternative to high-cost/bulky refrigerated photonics or slow thermal IR vision. Such results were protected under international patents and sold worldwide as the first three smart infrared cameras of NIT's Tachyon series. To fund my predoctoral research, I applied to and obtained two Catalan research fellowships. Among other recognitions, my PhD won a Springer Theses award that positioned it as one of the best across the physical sciences.

I steered my postdoctoral stage to perform independent transdisciplinary research on algorithmic and system integration techniques for efficient, brain-like multisensory integration and miniaturized (bio)chemical analysis. Doing so I joined multidisciplinary neuroinformatics and chemical transducers labs - and technology entrepreneurship training programs - in Zurich and Barcelona, bringing together multidisciplinary academic, industrial, and medical teams from different European and American countries. As an MSCA Individual Fellow at INI-UZH - a foremost center in computational neuroscience - I developed, patented, and demonstrated a novel edge-neuromorphic microtechnology for the physicochemical analysis of liquids. The pioneering use of neuromorphic sensor fusion in the invention allows it to predict configurable key attributes in small or mobile locations and to adapt to sensor drift and cross-sensitivities, all with sub-mJ/inference energy consumption. This innovation was recognized as high potential by the European Commission (EC)'s Innovation Radar. It has also had deep regulatory and industrial significance, being showcased by the EC, and presented under invitation to European policy bodies and key private stakeholders like Agbar and Intel.

After securing sponsorship from the Swiss National Science Foundation and Intel, I returned to Barcelona to lead my own line of neurocognitive analytical systems at IMB-CNM-CSIC. There I am also heading the spin-off of this technology with autonomic knowledge transfer backing.

Resumen del Currículum Vitae:

I received my PhD degree with a cum laude and international honors from the Universitat Politècnica de Catalunya (UPC) in 2015. During my predoctoral stage I engaged in numerous Spanish multidisciplinary industrial projects that extend from X-ray to infrared (IR) vision. I also worked as lecturing associate professor at the Universitat Autònoma de Barcelona (UAB) for a total of six semesters and three different courses, where I took an active role in higher education and student advising activities. I then moved to Zurich for 25 months to join the prestigious Institute of Neuroinformatics (INI-UZH) as an MSCA Individual Fellow. I am currently a Research Fellow at Instituto de Microelectrónica de Barcelona (IMB-CNM-CSIC).

I have pursued excellence in every stage of my career, with a clear focus on (i) pervading smart microsensing across both optical and electrochemical domains, and (ii) boosting local intelligence and energy autonomy by applying neural principles of multisensory integration. To that end, I took the initiative of securing funding to support large periods of independent scientific development in Spain and Switzerland, complemented with additional training on technology transfer and entrepreneurship.

My scientific contributions have been published in cross-disciplinary books and top-tier international peer-reviewed journals and conferences comprising neuroscience, AI, chemistry, and electronics fields, mainly as the single/first or last author. I have given award-winning oral presentations and live demonstrations in several rank-A1 international scientific symposiums globally. My PhD dissertation was distinguished by Springer as outstanding PhD research and published as a monograph in the Springer Theses series. The resulting innovations have been protected under multiple international patents, commercialized as three products, and recognized as high potential by the European Commission (EC)'s Innovation Radar. I am currently leading the spin-off of the latest inventions. My initiative and success in getting funding is widely proven over my career: two Catalan AGAUR predoctoral fellowships, as well as an H2020 MSCA Individual Fellowship, a Swiss SNSF Sinergia grant, a neuromorphic research grant from Intel, and knowledge transfer grants from the Catalan government (totaling more than 2.5M€). I have led these postdoctoral collaborative projects as either PI or WP coordinator.

I have mentored six degree, four master, and two PhD students from four disciplines: electronics, computer science, neural computation, and chemistry. My work has been acknowledged by leading experts and relevant professional bodies: I have delivered invited seminars in industrial forums (Agbar, Intel), EC policy events, and IEEE seasonal schools; I am also a frequent reviewer of Q1 journals and rank-A1 conferences, member of the IEEE CAS Sensory Systems Technical Committee, CSIC's AIHUB, the editorial board of Frontiers in Neuroscience, the European ICT4Water and AI Alliance

clusters, and the Intel Neuromorphic Research Community. I have published in strategic scientific monographs for the CSIC, been PhD jury member, and served as evaluator for the Spanish State Research Agency (AEI) and the EC' s Research Executive Agency.

Resumen de la Memoria:

Nowadays clinicians are faced with the challenge of analyzing a huge amount of information to help diagnosis, prognosis, and therapy planning. The heart, as compared to other organs, is specifically challenging due to its dynamic and multi-physics aspects. The main objective of my line of research concerns the merging of multiscale multimodal clinical cardiac data in a standardized time-evolving map that can be used for statistics and patient care. Such a common representation would allow: to analyze the different structure-function relationships; to transfer knowledge between modalities; and to personalize biophysical models applicable for predictive medicine. Additionally, a common representation across serial time steps would allow for detailed modelling of the evolution of pathological processes.

The first part will build on my previous work, aiming at developing robust left ventricle (LV) and left atrial (LA) flattening methods. To improve the method, I will use deep learning (DL) based techniques such as Convolutional Neural Networks (CNN) that allow for fast and automatic segmentation of thousands of samples, and an automatic standard parcellation of the LV wall (e.g., AHA 17-segment model) based on my previous work on automatic reformatting to short-axis view.

Secondly, I will investigate the implementation of accurate multimodal data fusion techniques. For example, using a database of patients who underwent both CT and LGE-CMR and the proposed spatially coherent 2D maps I will learn the relation between LGE-CMR scar and CT wall thickness to transfer the knowledge on LGE-CMR to CT scar segmentation. Additionally, I will investigate the use of novel multimodal DL techniques such as multichannel variational autoencoders and different generative models to fuse and potentially generate an image modality from others. Other sources of clinical data will also be investigated such as is invasive electroanatomical mapping (EAM).

Finally, in collaboration with clinicians, I will apply the developed methods to: (1) model cardiac evolution over the course of pathological processes, (2) relate structural imaging data to arrhythmogenesis, and (potentially) ex vivo to in vivo data, and (3) investigate novel population-based prognostic markers to stratify the risk of sudden cardiac death in structural heart disease, as well as the risk of stroke in atrial fibrillation. In particular thanks to a consolidated collaboration between the CiTIUS and the Cardiology Group at IDIS (Santiago de Compostela), we plan to start a new research line applying the research project described in this Ramon y Cajal call to atrial fibrillation prediction, the analysis and quantification of epicardial fat, the prediction of ventricular arrhythmia in patients with heart failure, and the treatment of valvular heart disease including surgery and valve replacement planning.

As a conclusion, my whole research will involve the development of cardiac data standardization methods that would allow multi-modal image analysis using big datasets. It is worth noting that even if DL techniques are powerful for image processing, they lack interpretability what jeopardizes their use in medical applications where clinicians demand trustworthy techniques. Accordingly, I will also investigate how to enhance these methods with explainability to promote trust in AI among clinicians.

Resumen del Currículum Vitae:

I am a researcher in medical image analysis working in computer vision, machine learning and image processing. I develop novel computational techniques for the automatic analysis of big imaging datasets to investigate cardiac diseases and improve diagnosis, prognosis, and therapy planning. In my career I have always worked in close collaboration with medical experts (cardiologists, electrophysiologists, radiologists, etc.). I have learned their way of communicating, and I have had access to private databases and to the clinical questions that are relevant from a medical point of view. This is a differentiating aspect of my research because with a technical background, having a real impact on medical research, even in clinical practice, is not so frequent. These fruitful collaborations resulted in the joint publication of several articles in both technical and medical international journals and conferences following the high-quality publication standards in Medicine.

I got my PhD in 2018 ("Excellent Cum Laude", "International" mention) focused on left atrial parameterization and multimodal data analysis in the context of atrial fibrillation. I developed automatic techniques to analyze multimodal cardiac images such as LGE-MRI, electroanatomical maps or echocardiography data. One quite exceptional aspect is that I used to join the weekly meetings of the Atrial Fibrillation group at the Hospital Clínic (Barcelona), which allowed me to learn first-hand about the clinical aspects of our research.

I joined the IHU Liryc (Bordeaux) as a postdoc researcher in February 2019 with funding from the ECSTATIC ERC Starting Grant aimed at improving the way in which different cardiac electrical diseases are characterized, diagnosed, and treated by developing new non-invasive imaging modalities. The IHU Liryc is a research center internationally recognized for its research on cardiac arrhythmias (in 2021: 159 researchers, 44 publicly funded projects, 111 clinical trials, 298 scientific articles). I am also a member of the Epione group (INRIA), leader in AI, machine learning, computer vision, organ modelling, in silico simulation etc.

Since November 2021 I work on my own project funded by INRIA through a Starting Research Position fellowship after my participation in a distinguished national (French) recruitment campaign (only 3 participants were selected). In March 2023 I will join the Intelligent Systems Group (CITIUS, Universidade de Santiago de Compostela) and the Grupo de Cardiología del Instituto de Investigación Sanitaria de Santiago de Compostela (IDIS).

I have published around 40 scientific articles in international journals and conference proceedings (554 citations, h index=12 and i10 index=12), with more than 50 different co-authors, and I have participated as a speaker in a dozen international conferences. My methods are publicly available and used by several research groups. I have experience in fundraising in competitive processes and a good network of international contacts including experts in AI, cardiologists, and radiologists.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2022
Turno General

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	ANNANOUCH , FATIMA EZAHRA
Referencia:	RYC2022-038111-I
Correo Electrónico:	fatimaezahra.annanouch@urv.cat
Título:	Nanomaterials-based gas sensors

Resumen de la Memoria:

During my PhD, I have used and developed Aerosol assisted chemical vapor deposition (AACVD) method, for the direct in-situ growth of intrinsic and functionalized metal oxide nanowires with a variety of metal nanoparticles for gas sensing applications. I have demonstrated that AACVD is an industrially attractive technique, it can be run at atmospheric pressure and is compatible with a variety of substrates. Besides, it allows the functionalization of the host matrix with different catalysts, via a single-step AACVD, in order to boost the sensitivity and selectivity of the sensors towards a target gas. In my first postdoc at IM2NP, Aix-Marseille university, France, I worked on an E-health project that involves the monitoring of vital and environmental parameters via an electronic bracelet. Concretely, I characterized commercial metal oxides gas sensors towards several VOCs released from the skin. I demonstrated that these sensors can be used for transdermal detections of VOCs and can substitute invasive techniques that need heavy and sophisticated equipment. This postdoc was an excellent opportunity to deploy metal oxide gas sensors in a medical application and it allowed me to earn the trust of Microsensors and Instrumentation member group at IM2NP, where I was appointed as a researcher for a new scientific/ technological transfer project "Maturation ethanol" between IM2NP, Nanos group and SATT Sud-Est. Herein, I fabricated a metal oxide microsensor for ethanol transdermal detection. The obtained results showed that this non-invasive technique allowed us the continuous monitoring, in a real time, of alcohol with low cost and simple fabrication process. The fabricated sensor fulfilled all the company required specifications, it was patented by Aix-Marseille university, the patent is exploited by Nanos group and the sensor will be soon available in the market.

After that, I won a Marti Franquès scholarship, which allowed me to return to the laboratory (Minos, URV) where I began my scientific career and refined my knowledge. Inspired by my close industrial partners collaboration, and my work on tangible applications during my previous postdocs, I realized the necessity to find out high quality gas sensors that fulfil very challenging requirements (I.e., gas sensors with excellent sensitivity and selectivity, working at very low operating temperature). Hence for, in this postdoc, I oriented my research leads towards transition metal dichalcogenides materials (TMDs), which have ultimately triggered the attention of many researchers and become the targeted materials for gas sensing field. It is worth noting that this new line of research has never been explored before at Minos Group, I have created my own Lab and started all the experimental setup from the initial phase. Indeed, I developed a totally original methodology, combining AA-CVD and AP-CVD for achieving layered TMDs. I devised the experimental set up, tested it and adjusted all the parameters, which led to successful synthesises of TMDs materials such as WS2 and MoS2. These grown materials were used as sensing films and they showed excellent results towards various pollutant gases, at room temperature. In 2020, I won Juan de la Cierva incorporation scholarship, which allowed me to gain extensive experience in the TMDs gas sensing field and continuous developing my own research lab.

Resumen del Currículum Vitae:

I'm Fatima Ezahra Annanouch, I'm 37 years old and I'm currently a Juan de la Cierva Incorporacion Postdoc at Microsystems Nanotechnologies for Chemical Analysis (Minos) group, Rovira i Virgili University, Tarragona, Spain.

In 2010, I obtained my master's degree of "Electronics of autonomous systems with "magna cum laude" from the faculty of science, My Ismail university, Meknes, Morocco.

In April 2015, I received my PhD with "Excellent Cum Laude", entitled "Design, Optimization and Characterization of Metal Oxide Nanowire Sensors", from Minos group, Rovira I Virgili university, under the supervision of Professor Eduard Llobet and Dr. Jose luis Ramirez. During these four years, I have used, and developed Aerosol assisted chemical vapor deposition (AACVD) method for the direct in-situ growth of intrinsic and functionalized WO3 nanoneedles with a variety of metal nanoparticles (i.e. Pt, Au, Cu and Pd) for gas sensing applications. Moreover, my training school (2014) in the Laboratory of Materials and Inorganic chemistry in University College London (UCL), under the supervision of Prof. Chris Blackman, gave me the ability to enhance my knowledge on the fields of nanomaterials science and chemistry.

In April 2016, I joined the Integrated Circuit Design Team, at the Institute of Materials, Microelectronics Nanoscience of Provence (IM2NP), Aix-Marseille university, Marseille, France. I was working on an E-health project that involves the monitoring of vital and environmental parameters via an electronic bracelet and diagnosing and warning individuals' health status. Concretely, my main responsibility was to characterize metal oxides gas sensors (commercial sensors) towards several volatile organic compounds, released from the skin

In February 2017, I started my second postdoc at the Microsensors and Instrumentation group, IM2NP, Aix-Marseille university. I was involved in scientific/ technological transfer project, called "Maturation ethanol", between IM2NP, Nanos group (industrial) and SATT Sud-Est (a technology transfer accelerator). In general, this work was directed towards the design, fabrication, and characterization of a metal oxide microsensor for ethanol transdermal detection. Currently, I'm a postdoc at Minos group, URV. I'm working in the fabrication and characterization of transition metal dichalcogenides materials (TMDS) based gas sensors. During this position, I was funded for 2-years by Marti Franquès scholarship and 3-years by Juan de la cierva incorporacion grant. I have participated in 10 national and international projects where I was as P.I. in two of them and as leading objectives in the others. Regarding my mentoring and training experience, I have co-supervised two PhD thesis, one was defended on 19/09/2022, in which I was a principal supervisor, and the other one will be defended in January 2024. Additionally, I have supervised two master students and I teaching electronic analogic and linear systems at URV. Finally, it is furthermore worth to mention that I have 16 as h-index, 41 publications, 7 invited talks, 16 oral presentations and 6 posters. Moreover, my works have a total number of 852 citations which indicate the relevance and the impact of my results on the gas sensing field. Source: Scopus.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	GIRÁLDEZ CRÚ, JESÚS
Referencia:	RYC2022-036395-I
Correo Electrónico:	giraldez.jesus@gmail.com
Título:	Opinion dynamics in complex systems

Resumen de la Memoria:

The researcher conducted his PhD with a FPI grant, a predoctoral excellence grant of the Spanish Ministry of Science in the IIIA-CSIC from 2011 to 2015. During this period, he conducted 3 short stays: a 3-months stay in 2013 at NICTA, University of Melbourne (Australia), a 4-months stay in 2014 at LaBRI-CNRS, University of Bordeaux (France), and a 4-months stay in 2015 at the University of Girona. In 2016, he was visiting professor (profesor asociado) at the University of Barcelona, and postdoctoral researcher at IIIA-CSIC. In 2016-2017, he was postdoctoral researcher at the Royal Institute for Technology (KTH, Stockholm, Sweden) in the ERC project ERC-279611. From 2017/18, he is invited as teaching assistant in the master of artificial intelligence research of the Spanish Association for the Artificial Intelligence (AEPIA) and the International University Menéndez Pelayo (UIMP). In 2018, he conducted an 8-months research stay at the IIIA-CSIC. Later in 2018, he was provisional professor (profesor sustituto interino, PSI) in the University of Sevilla. In 2019, he joined the University of Granada (UGR) with a Juan de la Cierva Formación grant. In 2021, he started a Juan de la Cierva Incorporación grant, also at the UGR, which is his current position. It must be emphasized that JDC grants are very competitive excellence postdoctoral grants of the Spanish Ministry of Science.

The researcher has participated in 9 research projects, both national and international. Especially relevant, he has participated in a project of the European Research Council as research staff, as well as in 5 national projects of the Spanish Ministry of Science, in one of them also as research staff. Moreover, he has also been principal investigator (IP) of one research project.

In terms of scientific production, the researcher has co-authored a total of 35 peer-review publications, including 13 JCR journal works (3 D1, 3 Q1, 4 Q2, and 3 Q3), and 11 (very) relevant conference publications (4 Class 1, and 7 Class 2) according to the GSS Conference Rating, which are considered as relevant as JCR publications according to the "Titular de Universidad" ANECA criteria in the Computer Science subarea.

Other details about scientific contribution, internationalization and mobility, and independence and leadership are included in the attached documents (CVA and memory of the research trajectory).

The line of research proposed in this application is about opinion dynamics (OD), which references the study of the evolution of opinions in a complex system (e.g., a population), where these opinions evolve as a consequence of interactions between agents or other exogeneous factors, such as mass communication. This a fundamental problem in Computational Social Sciences (CSS), with applications in multiple fields (marketing, politics, economy, etc.). The researcher has some preliminary works on this field, so the goals are realistic and affordable. In particular, this application aims to address this problem by three approaches: models (the study of the phenomena that drive OD in some complex systems), theory (the principles that explain the formation of opinions in a population, and how they can be biased or preserved in certain contexts), and application of OD in CSS. Moreover, the researcher plans to conduct several international stays with top international experts in the field.

Resumen del Currículum Vitae:

In research, the candidate's CV stands out in a continuous scientific production, including predoctoral and postdoctoral excellence grants and participation in national and international research projects, as well as leadership and internationalization.

In terms of scientific production, the researcher has co-authored a total of 35 peer-review publications: 13 of them are JCR journal works (3 D1, 3 Q1, 4 Q2, and 3 Q3), and 11 are (very) relevant conference publications (4 Class 1, and 7 Class 2) according to the GSS Conference Rating, which are considered as relevant as JCR publications according to the "Titular de Universidad" (TU) ANECA criteria in the Computer Science subarea. According to Google Scholar, the researcher has been cited 519 times, with an H-index of 13.

The researcher has been awarded with several Spanish excellence grants, both predoctoral and postdoctoral, including a JDC-Incorporación (IJC2019-040489-I), a JDC-Formación (FJCI-2017-32420), and a FPI (BES-2011-049468) of the Spanish Ministry of Science. His PhD thesis is Cum Laude, and it was awarded with an international mention.

The researcher has participated in 9 research projects, both national and international. Especially relevant, he has participated in a project of the European Research Council (ERC-279611) as research staff, as well as in 5 national projects of the Spanish Ministry of Science, in one of them also as research staff. Moreover, he has also been IP of one research project (PPJIA2021-05).

About leadership, it must be emphasized that the researcher is corresponding/main author in 29 of the 35 publication he has co-authored (i.e., in 82% of his publications), and has co-authored works in all the groups he has belong or visited (IIIA-CSIC, LaBRI-CNRS, UdG, KTH, US, and UGR), with no overlap between the authors of those groups. This can be considered as an important indicator of the leadership carried out by the candidate in the research he has conducted. Moreover, the researcher has supervised 4 TFGs and 2 TFMs in the context of these research works. Finally, he has deployed 6 invited talks.

In internationalization, the researcher is frequently invited to participate as Program Committee member in the main AI international conferences, including IJCAI (all editions since 2015) and AAAI (all editions since 2018), in some editions acting as Senior PC. Other international conferences where he acted as PC are Fuzz-IEEE, CEC, and ICTAI, among others. He is also frequently invited as a reviewer in some of the main journals of the field, including Artificial Intelligence, Information Sciences, and Knowledge-based Systems, among others. Moreover, he has conducted international research stays in Australia (NICTA, University of Melbourne, 2013, 3 months), France (LaBRI-CNRS, University of Bordeaux, 2014, 4 months), and Sweden (KTH, Royal

Institute of Technology, 2016-2017, 11 months). Finally, the researcher has participated in the organization of an international conference (SAT 2021 in Barcelona, Class 2 according to the GSS Conference Rating).

See the attached CVA for more details.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	VELEZ RASERO, PARIS
Referencia:	RYC2022-035819-I
Correo Electrónico:	paris.velez@uab.cat
Título:	Diseño y caracterización de circuitos y sensores de RF/microondas

Resumen de la Memoria:

Dr. Paris Vélez was born in Barcelona, Spain, in 1982. He received the Degree in Telecommunications Engineering, specializing in electronics, the Electronics Engineering Degree, and the PhD Degree in Electrical Engineering from the Autonomous University of Barcelona (UAB), in 2008, 2010, and 2014, respectively. His PhD studies were supported by a FPU scholarship by Ministerio de Educación, Cultura y Deporte (2011-2014). His Thesis "Differential Microwave Circuits based on Metamaterial concepts and Semilumped Resonators" obtained the Cum Laude qualification and was awarded the Extraordinary Doctorate Award granted by the Universitat Autònoma de Barcelona (UAB).

Dr. Vélez is author or co-author of more than 120 publications, including journal papers and conference contributions. His h-index is 20 and his works have been achieved 1.455 citations (Scopus, February 2022). He is also co-author of 6 book chapters and he is currently co-authoring the book "Planar Microwave Sensors", which will be published by Wiley/IEEE Press in 2022 (the contract with Wiley was signed more than one year ago). He was recently elevated to the Grade of IEEE Senior Member by the Institute of Electrical and Electronics Engineers (IEEE).

He has participated in 10 competitive research and technology transfer projects. He is co-inventor of a patent application, derived from his first participation in a European project (Eureka 5014 METASENSE) during the years 2009-2010, before starting his PhD.

In 2015, Dr. Vélez obtained a 2-year TECNIOSpring post-doctoral fellowship, granted by ACCIÓ (Generalitat de Catalunya), cofounded through Marie Curie Actions. This included 1-year stay at LAAS-CNRS (France) and 1 year returning to UAB. During this stage, he started his research related to planar microwave sensors for fluidic characterization.

After this period, he obtained a Juan de la Cierva - Incorporación fellowship (Ministerio de Ciencia e Innovación), for 2 years (2018-2020) to continue his research at UAB, focused on the design and fabrication of microwave fluidic sensors with high sensitivity based on advanced RF/microwave concepts.

Recently, he has made two additional stays (Biomedical Applications Group at IMB-CNM-CSIC and Grupo de Radiofrecuencia y Compatibilidad Electromagnética en Redes Comunicaciones at UPC) that will allow Dr. Vélez to spread the field of application of his recent developments.

The main relevant research contribution of the candidate is the development of highly sensitive microfluidic microwave sensors based on metamaterials and other advanced topologies and design strategies. This activity, derived from his 1-year stay at LAAS-CNRS, has been fundamental to open a very fruitful new research line (headed by Dr. Vélez) in the hosting Group of the candidate (CIMITEC-UAB). A significant part of the above-cited book on Planar Microwave Sensors is due to the research headed by the candidate.

Regarding teaching tasks, Paris Vélez has been teaching subjects in Technical Telecommunications Engineering (Theory of circuits and electronics), in the degree in Electronic Engineering (Design of Microwave Passive Circuits) and in the Master's Degree in Telecommunications Engineering (Sensors). He holds the accreditation for Tenure-Elegible Lecture (AQU Agregat 2018). Currently, the application to obtain the accreditation for Associate professor.

Resumen del Currículum Vitae:

Dr. Paris Velez is the head of the sensor area of the CIMITEC (Centre d' Investigació en Metamaterials per a la Innovació en Tecnologíes Electrònica i de Comunicacions) research group which is part of the Department of Electronic Engineering of the Autonomous University of Barcelona. The scientific career of Dr. Paris Vélez Rasero began before starting the PhD course. In the 2009/10 academic year he participated actively in the European "METASENSE" project through the design of a multifunctional device (to miniaturize part of the front-end in a geo-radar) able to filter and divide the power symmetrically. A patent was derived from this work. During the PhD, he was awarded a pre-doctoral teaching and research fellowship (FPU) by the Spanish Government. The work done by Dr. Vélez during the doctorate period (2010-2014) culminated with the PhD thesis entitled "Differential Microwave Circuits based on Metamaterial concepts and Semi-lumped Resonators", which obtained the Cum Laude qualification and was awarded the extraordinary doctorate prize granted by the Autonomous University of Barcelona (UAB). Dr. Vélez has been awarded a postdoctoral fellowship (TecnioSpring grant co-funded by Marie Skłodowska-Curie funds) for the realization of a project (ref. TECSPR15-1-0050) for two years (2016-2018). The candidate acted as Principal Investigator (PI). The objective of the project was the development of a low cost microwave sensor to detect electrolytes in blood/urine. This work was developed during 12 months at the prestigious LAAS-CNRS in Toulouse, France under the supervision of professors Katia Grenier and David Dubuc in the MH2F research group. Said stay has allowed collaboration over time with this entity. This 1-year stay at LAAS-CNRS, has been fundamental to open a very fruitful new research line (headed by Dr. Vélez) in the hosting Group of the candidate (CIMITEC-UAB). The research career that the candidate carried out during his stay at LAAS in Toulouse has resulted in the completion of a doctoral thesis in the field of microwave fluidics. Said thesis (carried out by the doctoral student Jonathan Muñoz Enano) has been carried out under the co-supervision of Dr. Paris Velez. The candidate, has been a beneficiary of a Juan de la Cierva - Incorporation fellowship during 2 years (2018-2021) and the objectives have been centered on the design and fabrication of high sensitivity microwave fluidic sensors.

The international/national mobility actions carried out by Dr. Paris Vélez throughout his scientific career are listed below:

UPC- RFEMC (Terrassa, Barcelona, España) (5 months)
CNM-CSIC (Bellaterra, Barcelona, España) (8 months)
TECNIOSPRING fellow. Principal Investigator (PI) (1 year)
TECNIOSPRING fellow. Principal Investigator (PI) / LAAS-CNRS /Fr. (1 year)

Dr. Vélez has participated in 10 competitive research projects (acting as PI in two of them) and has also co-authored 6 book chapters He is also co-author of the book "Planar Microwave Sensors", published by Wiley/IEEE Press in 2022. Dr. Paris Vélez has published more than 120 journal and conference papers. His research obtained a total of 1.889 citations. Dr. Vélez has co-supervised 1 PhD Thesis, 7 undergraduate and postgraduate

master thesis. Recently, the candidate has been elevated to the Grade of Senior Member by the prestigious IEEE (Institute of Electrical and Electronics Engineers).

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	YEDRA CARDONA, LLUÍS
Referencia:	RYC2022-037722-I
Correo Electrónico:	lluis.yedra@gmail.com
Título:	Advanced Methods in Analytical Transmission Electron Microscopy

Resumen de la Memoria:

2010-2014: Electronics Department (now Electrical and Biomedical Engineering) of the University of Barcelona as a PhD student in the Laboratory of Electron NanoscopieS (LENS) group. The main research field of the thesis was Transmission Electron Microscopy (TEM) and related techniques:
- biomedical applications of electron tomography (ET) (Scientific Reports 3, 1652, 2013)
- development of a software readily for integration in electron microscopes for the extraction of electron energy-loss spectroscopy (EELS) white lines characteristics (Microscopy & Miroanalysis 20, 3, 698-705, 2014)
- combining electron precession and EELS, better signal to background spectra were obtained, a technique patented (EP 2 642 279 B1), currently exploited by NanoMEGAS SPRL
- ET, EELS combination allowed for the creation of a new type of dataset, the spectrum volume (Nanoscale 6, 12, 6646-6650, 2014).

The dissertation (2013) obtained the prize for the best dissertation in technological developments during 2013-2014 by the Society for Microscopy of Spain (SME).

2011-2014 research assistant in the CCiTUB

2017-2017: Postdoctoral period in the Luxembourg Institute of Science and Technology (LIST), in the Advanced Ion NanoAnalytics (AINA) group in Belvaux, Luxembourg:
- development of a new TEM prototype combined with Secondary Ion Mass Spectrometry (SIMS), leading to pioneering results in isotope observation (Scientific Reports,6, 28705, 2016) in a TEM and further application in battery materials (Journal of Power Sources,463, 228177, 2020)
- NanoSIMS in solar cell applications (Solar Energy Materials and Solar Cells, 160, 398-409, 2017) and hydrogen embrittlement of steels (Acta Materialia 109, 69 − 81, 2016)
- correlation of SIMS and Energy Dispersive X-Ray Spectroscopy (EDS) was proposead as a means of obtaining quantitative SIMS beyond EDS resolution (Journal of Analytical Atomic Spectrometry, 36,1 56-63, 2021).

2017-2020: Research Engineer (permanent position) in two mixed CNRS / CentraleSupélec laboratories: Structures, Properties and Modelling of Solids (SPMS) and Mechanics of Soils, Structures and Materials (MSSMat) in Gif-sur-Yvette, France, responsible of the TEM equipment. Besides the user support and formation and dissemination tasks, his research focused on three objectives:
- structural and analytical measures at the atomic scale in aberration corrected TEM in materials for energy applications, such as ferroelectrics (Physical Review Materials, 5, 2, 024404, 2021)
- development of in-situ microscopy (Materialia 21, 101368 (2022))
- tomography, with the obtention of a project devoted to the exploration of laminography in the TEM. The attracted postdoc working on the project is now a lecturer (maître de conferences) in MSSMat.

2020-: Juan de la Cierva Incorporación postdoctoral researcher (JC2018-037698-I). Reincorporated in the LENS group, part of the MIND (Micro-nanotechnologies and Nanoscopies for electronic and photonic devices) and member of the Institute of Nanoscience and Nanotechnology of the UB (IN2UB). Recent work focused in the development of image and EELS analysis tools, with in-situ experimentation in mind, ultimately leading to a better understanding of advanced materials. Carried out within national projects PID2019-10615GB-C21, TED2021-129663B-C55 (PI) and European COST action OPERA.

Resumen del Currículum Vitae:

CURRENT POST
Since 2020, Juan de la Cierva – Incorporación researcher in the University of Barcelona (UB), LENS group, Department of Electronic and Biomedical Engineering.

PREVIOUS POSTS
2010-2013: PhD student, UB
2011-2013: Assistant Professor in the Electronics Department of UB
2011-2014: TEM Research Assistant in the Scientific and Technological Centers (UB)
2014-2017: Junior Researcher in the LIST (Luxembourg)
2017-2020: TEM Research Engineer in CentraleSupélec (France)

My research has been based on transmission electron microscopy and related techniques, where I' ve worked extensively in the development of novel methods and their applications.

RESEARCH TOPICS
- Electron tomography based on Z-contrast, assisted with beam precession and laminography
- Electron precession enhancement effect on EELS
- EELS White Lines automatised characterization in Digital Micrograph
- Multivariate analysis and EELS tomography: recovery of Spectrum Volumes
- SIMS imaging inside a TEM: imaging Li isotopes with a prototype TEM-SIMS

- NanoSIMS applied to H embrittlement in metals and diffusion in solar cells
- Correlative SIMS-EDS
- Aberration corrected TEM of ferroic materials: structure modifications through strain engineering and layer thickness
- In-situ thermo-electric TEM, with applications to additively manufactured steel and printed circuit boards soldering.

CURRENT RESEARCH TOPICS
- Determination of strains in the nanoscale in ionic conductors through precessed electron diffraction mapping
- Analytical electron tomography – atom probe tomography correlative 3D reconstructions
- Clustering and machine learning algorithms for automatic segmentation of 3D analytical tomography datasets
- Determination of O transport paths in ionic conductors through the determination of O vacancies in La and Sr chromites and La, Sr cobalt-ferrites.
- DFT for EELS

INDICATORS
- Book chapters: 2
- Number of peer-reviewed publications: 34; cited 813 (without self citations, WoS), 23.8 per item
- Number of international conferences: 87, 11 invited.
- Project participation: 4 in the last 5 years, 2 as PI, 1 European project.
- 1 patent under exploitation (EP12160112.4-2217)

- Accredited for associate professor (professor agregat) by AQU
- I3 certified
- 1 PhD currently under supervision.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	FIANDRINO , CLAUDIO
Referencia:	RYC2022-036375-I
Correo Electrónico:	claudio.fiandrino@imdea.org
Título:	Explainable and Robust AI for 6G Mobile Networks

Resumen de la Memoria:

My main research activities fall in the areas of computer networks and cloud-edge continuum computing. My work leverages the synergies that exists between these two areas and my methodological approach intersects theoretical and practical experimental work grounding the analysis, when possible, on extensive network measurements in the wild. I incorporate knowledge and methods from complementary research areas like computer vision, scientific data analysis and discovery.

During my research career, I developed and validated new methodologies, contributed to open-source software and high-quality impact research surveys and tutorials in different research areas. In my PhD, during the boom of cloud computing research, I made fundamental contributions around the area of energy-efficiency in cloud data center showing for the first time the breakdown of the IT component of computing and networking resources and analyzing the impact of the latter to the energy expenditure footprint. This initial research effort has evolved into characterizing the same aspect in mobile edge computing systems and wearable devices. Aside from the main area of my PhD, I initiated a line of research in mobile crowdsensing that nowadays is an appealing paradigm for urban sensing. Back in 2015, it was just an emerging paradigm and the group I helped to create along the years has significantly contributed to shape the research area. Our contributions include the first simulator for research in the field, theoretical and experimental work in energy-efficient data collection and participant recruitment strategies. Our 49-pages long survey that crystallize and consolidate past research with thorough taxonomies is still today a must-read publication in the area (in IEEE Communication Surveys and Tutorials - Q1, JCR 2018, IF 22.973, rank 1 in COMPUTER SCIENCE, INFORMATION SYSTEMS and TELECOMMUNICATIONS categories). In my postdoc transitioning to my current position of Senior Researcher at IMDEA Networks, my initial research line in the field multi-access edge computing led to the development of a new emulator and a new methodology to deploy edge data centers in urban environments based on human mobility patterns (both awarded with Best Paper Awards). Later with the support of a Juan de la Cierva Formación my main research activities have centered on how to efficiently integrate AI into 5G mobile networks and more recently how to promote trustworthy AI integration. Here, I contributed new methodologies for synthesizing network-oriented explanations from AI models, scalable channel estimation in crowded scenarios, correct data analysis of real mobile network operator traffic and the first large scale 5G measurement study in Madrid.

In a nutshell, the aforementioned contributions have appeared in top venues of the respective fields, including several Q1 journals, CORE-A* and CORE-A conferences. For each of the research line, I was invited as speaker to prestigious events like the IEEE 5G Summit in Greece or the Worlds Standards Day in Luxembourg. I aim at maintaining an excellent publication record and open-source contributions addressing research challenges with high societal impact. Across the years, my leadership and productivity has remained outstanding regardless of the hosting group, which represents well my scientific maturity and independence.

Resumen del Currículum Vitae:

My research career has started with my PhD at the University of Luxembourg in May 2013 and later has transitioned to IMDEA Networks Institute in December 2016 as postdoc researcher. Since then, I have been awarded for my research with a Juan de la Cierva Formación grant (50k €) and I am currently benefiting from a Juan de la Cierva Incorporación grant (ending Nov. 2023 – 93k €). As of Jan 2023, I am a Senior Researcher at IMDEA Networks leading a sub-team of 2 PhD students and 1 research engineer within the Wireless Networking Group led by Joerg Widmer.

My career path is distinguished by a good wealth of research outputs of outstanding quality and solid impact. I co-authored 18 journal papers (11 Q1, 3 Q2 according to JCR - 8 as first author), 33 conference papers (with 3 Best Paper Awards and 1 Best Student Paper Award - 9 as first author and 11 as second author) and 2 book chapters, all published in internationally recognized venues. Overall, as of 03/02/2023, my Google Scholar profile accounts for 1351 citations (212 per postdoc year, h-index of 20) and my Scopus profile accounts for 972 citations (156 per postdoc year, h-index of 17). I supervised the final thesis work of 9 Master and 4 Bachelor students (two Mentions as Best BSc project at the University of Luxembourg and UC3M), helped co-supervised 1 PhD (graduated Sep. 2020 with Mention as Best PhD Thesis Award at the University of Luxembourg).

I have participated as member in several EU, national and regional projects and, to support my research, I have secured funding for a number of research projects and mobility activities, including a national project where I am Co-PI (121k €) and a José Castillejo/Fulbright scholarship (13k €for a 4 months visit at Northeastern University, Boston, MA, USA).

On the forefront of the service to the research community, I participated to the organization of numerous events. As highlights, I was leading co-chair of the 9th Workshop on Management of Cloud and Smart City Systems (MoCS'19, in conjunction with IEEE ISCC), TPC co-chair of IEEE CAMAD'19-'21 and TPC co-chair of IEEE ICC'23-CQRM, flagship conference of IEEE ComSoc. I am Chair of the IEEE ComSoc EMEA Awards Committee for 2022-2023, member of the editorial board of IEEE Networking Letters (IEEE ComSoc and VTS sponsored journal), and I am active as volunteer for membership development in the IEEE Communications Systems Integration and Modeling (CSIM) Technical Committee. Finally, I regularly serve as reviewer and member of the TPC in prestigious conferences and journals, which shows that I am a renowned researcher in my field.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	FERNÁNDEZ REGÚLEZ, MARTA
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Título:	Bottom-up nanofabrication technologies for the fabrication of devices

Resumen de la Memoria:

During my PhD, my research was focused on "Nanowire technologies and devices" where I addressed both the fabrication technologies for nanowire growth and integration for the investigation of their piezoresistive response. The technology for the selective growth of the nanowires allowed the establishment of multiple collaborations for the fabrication of devices in other areas of research such as thermoelectricity, cell labeling or resonators. In 2013, as postdoc, I move to a new topic "Block copolymer technologies: applications". This was initiated at the beginning of my postdoc and continued at CEA-LETI where I joined one of the EU leading labs in the area. There, I leaded my own Marie Curie project and I was working at the lithography pilot line in close collaboration with industrial and academic partners from IDeAL consortium. My research there covered on two main objectives: the incorporation of higher resolution block copolymers (BCPs) and associated materials into the pilot line and the development of processes for line and space applications.

In 2016, I returned to IMB-CNM and I get a Marie Curie P-Sphere cofound in which I worked on development of new BCP technologies for the fabrication of nanomechanical devices. We were able to create sub-10 nm nanowires and suspended structures. I also started my collaboration with Dr. Eduardo Soriano to develop metrology methods for block copolymer templates based on synchrotron radiation. This collaboration has been possible thanks to three approved projects at Alba-CELLs call for external users.

Finally, in 2021 I was incorporated to MESSI group in IMB-CNM where I am working on "Bottom-up technologies for thermoelectric generators". This research line, that was initiated during my PhD thesis though a collaboration with the fabrication of the first device generation, is still running and has evolved with the improvement of device performance and its integrability. Additionally, we have recently incorporated block copolymer technologies for the nanostructuration of thermoelectric thin films to decrease their thermal conductivity.

In parallel, I am coordinating all activities related with block copolymers at the institute. Particularly, I am the responsible of BCP technologies offered at NFFA platform and, during the last year, I have applied for a national and an European project in the field. My BCP team is currently composed of two PhD students, an engineer, a master student and an undergrade student.

The main objective of the proposed research line is the investigation of new processes and methods to contribute to the development of a scalable and affordable technology for the future practical implementation of quantum technologies. To address this objective, I will follow these two action lines: The development of i) Advance lithography technologies based on directed self assembly of BCPs for the definition of devices and ii) Single doping strategies using self-assembled molecules containing dopant impurities. The use of BCPs and self-assembled molecules is a cheap and accessible technology for both research institutes and industry. Features of few nanometers can be easily obtained and their inherent self-alignment properties combined with the right alignment technology can help make them an attractive approach for quantum technologies.

Resumen del Currículum Vitae:

I obtained my PhD in Electronic Engineering at the UAB in 2012, for which I got the extraordinary PhD award. My thesis was carried at the NanoNEMS group in IMB-CNM with a FPI fellowship. During my PhD, I realized a predoctoral stay at the University of Berkeley (USA) where I developed a process for selective deposition of catalyst to control the growth of Si nanowires (NWs) that was later employed to enable the integration of NWs in the process flow for the fabrication of mechanical devices and also in other areas as thermoelectricity, chips for cell labeling and resonators, in collaboration with multiple groups. The work was awarded with best posters and outstanding paper at several international conferences, most as me as main author (MNC07, TNT09, ICT12, EIPBN17, MNE19).

In 2013, as a postdoc, I moved my research into a new topic, the development of patterning technologies using block copolymers (BCPs) directed self-assembly (DSA) which represent a low cost alternative to standard lithography. I started with the topic at NanoNEMS group where I developed novel, high resolution methods for DSA and, a year after, I joined one of the European leading groups in the field, the DSA group at CEA-LETI (France), through a "Enhanced Eurotalents" MC Fellowship. Next two years, my research was performed in close collaboration with industry through my participation in the IDEAL consortium that brought together academic and industrial associations (ASML, Arkema, STMicroelectronics, TEL, Nova etc.). I was in charge of the incorporation of new state of the art BCPs at CEA-LETI lithography pilot line to reach resolution limits. I was also involved in ZeroPova project, a French consortium, with the objective of incorporating these new technologies to quantum device fabrication.

In 2016, I moved back to IMB-CNM where I was granted with a MC, P-SPHERE fellowship. Here, I have been coordinating the BCP activities of the Institute. I have been involved in national projects Nanointegra and Starsed and I have supervised two students. Christian Pinto, a FPI granted PhD student, finished his thesis in February 2021 with a "Cum Laude". David Bricio, a Master student, defended his project in December 2020 with Honours. I have been actively involved in the European NFFA and NEP projects, which provides access to world-class nanoscience European facilities. In 2018, inside NFFA, I perform a short visit to Lund University where I explored new polymer infiltration processes to improve etch-resistance of BCPs. On my return to IMB-CNM and due to my previous experience gained at ESRF synchrotron (France), I have promoted at IMB-CNM the realization of measurements at synchrotons. I was involved in multiple projects at European light source infrastructures, such as DESY (Germany), Elettra (Italy) and I have been the PI of 3 approved competitive proposals at Alba (Spain). In 2021, I started to work with MESSI group at IMB-CNM where I continuous my research in nanofabrication towards applications in electric power and thermoelectric devices in the framework of the EPISTORE project. I have incorporated BCP and silicon-on-nothing technologies for the fabrication of this kind of devices to extend their performance limits. Currently, I supervise a team composed of two PhD student, Alex Rodriguez and Meriem Guergour, a Master student, Iker Uranga, and an undergrade student, Daniel Bedmar.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	BERNARDINO , GABRIEL
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Título:	Learning physic−consistent representations for fetal echocardiographic understanding

Resumen de la Memoria:

Perinatal mortality and morbidity caused by cardiovascular disease is a significant concern, as it can have lasting impacts from childhood through adulthood. This encompasses both severe congenital heart defects affecting 4 in every 10,000 pregnancies in Europe and less severe syndromes which are more prevalent, occurring in about 10% of all pregnancies. The challenge in managing these conditions lies in their difficulty of detection, particularly the milder forms that may not appear until later stages of pregnancy; and current detection rates can be lower than 50%. To ensure optimal outcomes and prevent permanent harm, prompt detection and diligent monitoring is essential. Echocardiography allows the study of cardiac structure and function: blood movement and myocardial deformation via speckle tracking and Doppler imaging, but its assessment has challenges: 1) it has low contrast 2) it has a limited imaging window, and 3) several sequences and views need to be combined during the analysis.

Representation learning, a subfield of machine learning (ML), can obtain a compact encoding of several medical images that captures their combined variability, allowing us to recognise and visualise patterns in high-dimensional objects. Despite the potential of ML as a tool for understanding and identifying patterns in complex data, most of its applications are only in automatic image quantification of clinical measurements, where, when large annotated populations are available, it has been highly successful. Nevertheless, its use as a tool for summarizing the data and identifying new patterns and biomarkers from small/medium populations is underused, because this requires relating image patterns to our current understanding of physiology and interpretability of ML methods is still lacking. Therefore, robust, data-efficient and physiologically-interpretable ML are needed to take advantage of population data to identify and understand early biomarkers of disease in medical images.

A problem with ML is that it does not incorporate knowledge from physiology, increasing data requirements, and decreasing its interpretability. Recently, the ML community has realised the need to combine physical knowledge with data-based models, proposing hybrid methodologies for engineering applications. In cardiac physiology, the use of physics, in particular fluid mechanics, has been key to its understanding since the heart is a pressure pump. Despite its importance, this knowledge is mostly ignored by the engineering community working on cardiac image analysis. I propose to develop a methodology to guide representation learning of cardiac images with physical prior knowledge of fluid and structural mechanics. The reduced representation will be useful to identify and understand cardiac disease, as we can use ML algorithms that only consider physically plausible patterns.

I will develop new physics-guided ML methods to detect and understand the progression of cardiac diseases from medical images. This will improve cardiovascular disease management and reduce its burden. My contributions will especially benefit fetal cardiology, which requires an integrated analysis of the different echocardiographic views.

Resumen del Currículum Vitae:

I am a researcher in medical image analysis working at the intersection of applied mathematics, machine learning and image processing. I develop novel computational techniques for better assessment of the cardiovascular system. My methodological contributions consider the physiology of the underlying clinical problems.

I started my PhD in 2016 within the MSCA project "Cardiofunxion", a collaboration between Philips (Paris) and the Universitat Pompeu Fabra (UPF, Barcelona). The PhD was awarded in 2019, with the Cum Laude mention. During my PhD, I developed novel statistical shape analysis and mesh processing methods to identify and understand the effect of altered working conditions on the cardiac shape from medical images (MRI, 3D echocardiography). In my one-and-a-half years stay at Philips, I worked in an industrial setting, integrating my pipelines with their clinical software. The project involved collaboration with renowned clinical research centres specialised in sports cardiology (CHU Caen, Hospital Clinic de Barcelona); and fetal cardiac pathologies (BCNatal).

From 2020 to 2022, I was a postdoctoral researcher at CREATIS (Lyon, France), one of the largest public medical imaging research laboratories. The objective of the postdoc was to exploit hierarchical relationships between the different imaging modalities to obtain optimal and cost-effective (financial as well as patient safety) data-integration strategies. I proposed a reinforcement learning framework that interactively selects the most relevant modalities during diagnosis. I also worked with a PhD on the same project project, on hierarchical unsupervised representation learning of multiple modalities using Gaussian Processes. Each of these approaches led to a methodological journal article to be submitted.

In September 2022, I returned to Barcelona with the fellowship Margarita Salas to develop machine learning methods to detect illnesses in fetal echocardiographies, in a collaboration between the clinical research group BCNatal and the UPF. The objective is to overcome the limiting factors for the application of machine learning for the automatic assessment of fetal images: 1) data scarcity, 2) the high noise in fetal echocardiographic images 3) complexity of the still incomplete fetal heart. Additionally, I am supervising a PhD student working on biophysical modelling of the fetal circulation. I have a strong technical expertise in machine learning, especially in its applications to medical image analysis, and a deep knowledge of cardiac physiology and its biophysical modelling. I am author of 11 peer-reviewed journal papers and 7 conference proceeding, with a total of 165 citations. I supervised undergraduate theses (8 in total, including 4 in progress). I am currently co-supervising a PhD at UPF, and making contributions to 2 additional PhDs (at UPF and CREATIS). I reviewed ~20 articles for international journals and conferences. I am a nucleus member of the working group on e-Cardiology of the European Society of Cardiology, where we work towards the deployment of computational tools in clinical cardiology. My national and international collaborators include the different stakeholders involved in medical imaging: academia (UPF and CREATIS), industry (Philips) and reference hospitals (CHU Caen, Hospital Clinic and BCNatal in Barcelona, Sickkids in Toronto).