

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	LIBRADO , PABLO
Referencia:	RYC2021-031607-I
Correo Electrónico:	plibradosanz@gmail.com
Título:	Comparative and ancient population genomics: life-style shifts and domestication

Resumen de la Memoria:

As evolutionary biologist trained in the era of high-throughput DNA sequencing, my research aims at understanding the mechanism underlying the evolution of species and populations, from their levels and patterns of DNA variation over time. Specialized in the revolutionizing field of palaeogenomics, my skills range from bioinformatics to molecular evolution, including population and statistical genomics, albeit my expertise and perspective keep gradually broadening over time.

My career began at the best-ranked University in Spain, the University of Barcelona (UB), with two MSc and a PhD awarded with extraordinary mention (premio extraordinario de doctorado). Supervised by Prof. Julio Rozas, I investigated the evolution of the multigene families involved in peripheral chemosensation in Drosophila, focusing on gene gain and loss processes, and the evolution of their promoter regions. My work was presented in multiple national and international meetings, yielding 8 publications, 6 of which as first author. Since the UB hired me at the early age of 23 years-old, I accumulate over 1000 hours of teaching experience.

After my PhD, I did two post-doctoral stays at the Center of Excellence for GeoGenetics (Copenhagen; Denmark), establishing a large network of renown collaborators. CEGG is known as one of the most competitive research centers to conduct ancient DNA studies in Europe, if not the best. I joined Prof. Orlando s group, where my work fundamentally transformed our understanding of horse domestication, a process that deeply impacted our own (pre-)history. My work unveiled the genomic changes underlying horse domestication, including: (i) drops in diversity paralleled by fitness depression, due to the breeding schemes implemented since the 1700s, and (ii) early selection at genes involved in learning and neural crest formation. The latter supports the unified theory of animal domestication, positing that alterations in the neural crest development shape the phenotypic traits common to domestic vertebrates (the domestication syndrome). Still in Denmark, my principal discovery was that the endangered Przewalskii horse, considered the last wild horse on the planet, ironically descends from Botai horses, which provide the earliest archaeological evidence of domestications. As not at Botai, the question of when and where modern horses were domesticated turned subject of intense debate.

In 2018, the group relocated within the prestigious Centre National de la Recherche Scientifique (CNRS; France). Ever since, I act de facto as junior leader (non-permanent), designing, conducting and interpreting research, including my own areas of investigation. I also supervised 1 undergraduate, 2 MSc. and 2 PhD students. All this recently culminated with a study in Nature as first author, where I finally discovered the original homeland of modern domestic horses, including the molecular changes underlying their evolutionary success.

With an h-index of 22, a book chapter and 36 peer-reviewed publications, including two Nature, three Science, one Cell and three PNAS, my leadership and productivity has remained outstanding regardless of the hosting group, which represents the best guarantee of scientific maturity.

Resumen del Currículum Vitae:

My career started at the UB, with a phD. cum laude also awarded with an extraordinary mention only given to the top-5% theses. Supervised by Prof. Julio Rozas, I comparatively studied the evolution of the multigene families associated with chemosensation in Drosophila. My work was presented in multiple national and international meetings, and led to 8 publications, 6 of which as a first author or co-author. I was twice recognized as rising star in computer science by ScienceWatch.com.

In Barcelona, I acquired substantial teaching experience, hired as professor associat (180h/year) at the early age of 23 years-old. The first two years at the Department of Statistics (2006-2008), and two last at that of Genetics (2012-2014). Considering additional sessions instructed as a PhD student (~60h/year; 4 years), as well as invited lectures, my total teaching experience at the bachelor level or superior amounts to ~1000h.

After my phD in 2014, I did two post-doc stays at the Center of Excellence for GeoGenetics (Denmark), funded by the prestigious Villum fonden fellowship. I specifically joined the group of Prof. Orlando to study the process of horse domestication, analyzing genome time-series retrieved from fossil remains. My work fundamentally rewrote our understanding of this revolutionizing process, deeply impacting our field and beyond.

In 2018, the group relocated in Toulouse, as Prof. Orlando obtained an ERC Consolidator to study the origins of modern horses (PEGASUS project). I joined his CNRS unit, acting de facto as junior leader. My work since then has starred the covers of the most important scientific journals in the world, including a recent publication in Nature as first author.

My leadership indicators are consolidated by editorial (Diversity board member) and reviewing tasks (~10 articles/year), scientific committees (eg. ISBA9 meeting, the most important in ancient DNA), invited articles (1), book chapters (1), reviews (1) and talks (2), as well as lectures in prestigious courses (4 in 2021). I co-supervised 1 undergraduate, 2 MSc. and 2 phD students (another defending soon), and mentored many other colleagues. I have been external evaluator of a PhD thesis (Dr. David Castellanos), full member of a PhD committee (Dra. Cristina Frias), and alternate member for Dr. Joel Vizueta. I am additionally co-PI of BUCEPHALE, granting us 38 HiSeq4000 flow cells that produced 291 ancient horse genomes, approximately corresponding to ~460k .



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I am engaged to disseminate science to broader audiences, through informal articles, press releases, two live radio interviews at Radio Nacional de España, and with journalists from the BBC, The New York Times, The Sunday Times, Agencia SINC, La Vanguardia, and DR1 Danish Radio. I am co-founder and co-responsible of the SIEF (Socieded de Investigadores Españoles en Francia) delegation in Toulouse, grouping ~30 scientists. We attain funding yearly (~1.5k-8.5k) for regularly organizing dissemination events, each with 50+ attendees on average.

I thus have extensive international experience, a stable network of renown collaborators, 37 peer-reviewed publications (2 Nature, 3 Science, 1 Cell and 3 PNAS), an h index of 22, my work has been cited more than 21,200 times. I will always keep growing scientifically, but already reached maturity for a RyC position.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	URSACHE , ROBERTAS
Referencia:	RYC2021-033414-I
Correo Electrónico:	robertas.ursache@gmail.com
Título:	Plant cell wall remodelling during normal growth and adaptation to abiotic stress

Resumen de la Memoria:

I completed my PhD in Prof. Ykä Helariutta s group, University of Helsinki, Finland. During my PhD, I gained expertise in plant vascular development, plant genetics and molecular biology. The focus of my PhD projects was on the hormonal control of specification of the water conducting tissue, xylem, and the discovery of novel regulators of phloem sieve element formation in the model organism Arabidopsis thaliana. I discovered a key mechanism of plant hormone auxin-dependent meta- and protoxylem specification and discovered a novel regulator of phloem sieve plate formation. All these discoveries resulted in two first author publications (Development 2014; Nature Communications 2014). The experiments performed during this phase highly increased my interest in cell biology and therefore decided to pursue my studies as a Postdoctoral fellow with Prof. Niko Geldner, Lausanne, Switzerland. I used my skills to investigate the endodermal suberin dynamics in the growing Arabidopsis root. My studies led to the discovery of a set of essential suberin polymerization enzymes crucial for establishing a functional suberin barrier required for normal plant growth and adaptation to environmental stress (Nature Plants 2021). During both, my PhD and my post-doctoral stage, I have been able to perform top-level research and publish in 18 high-impact international journals which include Nature, Science, Nature Plants, Nature Communications, EMBO Journal, PNAS, and I have also contributed to the plant research community with highly valuable protocols and toolkits. Over my career, I developed a passion for developmental cell biology and gained the ability to tackle various biological questions at the same time. I developed a strong drive and curiosity to solve cell-and developmentally-oriented questions, gained the experience, scientific skills and ability to contribute collaboratively required for conducting my future projects where I aim to exploit my expertise on cell wall studies together with state-of-the-art methodologies and a

Resumen del Currículum Vitae:

I obtained my PhD degree in the University of Helsinki in 2015 under the direction of Professor Ykä Helariutta, and supported by a fellowship from Graduate Program in Biotechnology and Molecular Biology (GPBM), University of Helsinki. As a result of my PhD work, I published 6 articles, in journals that include Nature Communications, Development, Current Biology, Journal of Experimental Biology and New Phytologist. I also presented my work at 7 conferences. Afterwards I obtained the prestigious EMBO Long Term postdoctoral fellowship to initiate my postdoctoral period in 2015 at Department of Plant Molecular Biology, University of Lausanne, in the group of Professor Niko Geldner. During this period, I published 12 articles in journals that include Nature, Nature Plants, Plant Journal, Plant Methods, PNAS and EMBO Journal. During my career I also have had the opportunity to train a master student and participate in master and doctoral thesis examinations and teaching activities at the Faculty of Biology and Medicine, University of Lausanne. After 11 years of my scientific career (PhD and Postdoc) in Finland, United Kingdom, and Switzerland, in 2021 I applied for a Junior Group Leader position at the Centre for Research in Agricultural Genomics (CRAG), Barcelona, where I will start my independent research group in June 2022.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	QUESTA , JULIA
Referencia:	RYC2021-032539-I
Correo Electrónico:	julia.questa@cragenomica.es
Título:	Epigenetic mechanisms controlling plant development and responses to the environment

Resumen de la Memoria:

I have long been fascinated by the ability of plants to survive extreme environments and coordinate their development with the changing seasons. These interests led me to study plant epigenetics and developmental biology. During my PhD in Prof. Casati lab (Rosario, Argentina), I investigated the role of epigenetic mechanisms in counteracting the deleterious effect of UV-B radiation in plants. Through a short research stay at Stanford University, USA, I gained expertise in conducting molecular analyses in maize. My work revealed how epigenetic mechanisms prevent transposon reactivation upon UV-B (Qüesta et al Epigenetics 2010, Mol Plant 201, Plant Cell and Environ 2016). During my postdoc in the Dean lab (JIC, Norwich, UK) I took advantage of the Arabidopsis thaliana FLOWERING LOCUS C (C)/vernalization system to investigate novel aspects of Polycomb- and long non-coding RNA (IncRNAs)-mediated silencing mechanisms in plants. I was able to determine that antisense IncRNAs (COOLAIR) facilitate epigenetic silencing by coordinating the switch between active and repressive chromatin states (Csorba*, Qüesta* et al PNAS 2014). Moreover, I discovered that one intronic genetic element (RY motif) triggers Polycomb silencing at FLC during winter (Qüesta et al Science 2016), demonstrating for the first time that epigenetic silencing in plants can be instructed by a DNA sequence. In 2019, I obtained a Junior Group Leader (PI) position at CRAG (Barcelona, Spain) to start my group on Epigenetics and Plant Development. Currently, my group of five members (one postdoc, two PhD students, one technician and one Master student) is supported by numerous grants. Our main research interest is to study novel epigenetic mechanisms underlying plant developmental transitions and rendering plant resilience to changing climates. We are applying innovative approaches to investigate these exciting lines of research.

Resumen del Currículum Vitae:

I hold a BSc. in Biotechnology (2007) and PhD in Biological Sciences (2011) both awarded by the National University of Rosario, Argentina. During my PhD (2010), I obtained a prestigious Fulbright-Bunge&Born fellowship for a short research stay at Stanford University, USA. Following my PhD, I worked as postdoctoral scientist at the John Innes Centre (Norwich, UK; 2012-2017) funded by BBSRC. Next, I performed a 3-month research stay at the Earlham Institute (Norwich, UK). In 2018, I returned to Argentina as independent research fellow at the University of Buenos Aires. Since 2019, I lead the research group Epigenetics and Plant Development at CRAG (Barcelona, Spain). My research aims at uncovering the epigenetic silencing mechanisms that promote plant developmental transitions and adaptation to natural environments. At CRAG, I am currently supervising one postdoctoral scientist, two PhD students, one Master student and one research technician.

Throughout my career, I have succeeded in obtaining funding to cover my research expenses and stipends (PhD and postdoctoral fellowships). In 2019, I received the highly competitive Ia Caixa Incoming Junior Leader award to develop my independent research line at CRAG. In addition, my group is currently supported by numerous grants (MICINN, Severo Ochoa Centre of Excellence awarded to CRAG, Chinese Scholarship Council). I have an excellent publication record in journals of the highest calibre (Science, PNAS, Genes&Development), which shows my capacity to lead competitive projects and deliver high impact publications. My work has so far produced 15 scientific publications (twelve research papers, one book chapter and two reviews) in high impact journals, in 7 of which I am first author. I am co-corresponding author of the two reviews. Total publications: 15; Number of Q1 publications: 14; Sum of times cited: 784; h-index: 11.

I have been invited to present my work at international conferences (IPMB, Keystone Symposia, European Workshop of Plant Chromatin, EMBO). Due to my internationally recognized expertise, I have been invited to review manuscripts for prestigious journals (The Plant Cell, The Plant Journal, PLoS Genetics, Nature Communications) and international research grants (ANR, BMBF, ANPCYT). Throughout my scientific career, I have actively participated in teaching and outreach activities. I worked as teaching assistant during both my degree and PhD. At present, I teach in the "Plant Biology, Genomics and Biotechnology Master Program from UB-UAB-CRAG. I have presented my work to the general public in visits to local schools, outreach events and publications in local media. My research group benefits from local (Barcelona area) and international collaborations (UK, Germany, Sweden, Argentina) that I have established throughout my career.





Área Temática:	Biociencias y biotecnología
Nombre:	VELASCO LOZANO, SUSANA
Referencia:	RYC2021-033141-I
Correo Electrónico:	susuvelo@gmail.com
Título:	Enzymatic piezoelectrocatalysis

Resumen de la Memoria:

The major goal of my research work is targeted at providing self-sufficient heterogeneous biocatalytic tools as technological platforms to afford sustainable synthetic routes in a bio-based greener economy. Along my research trajectory, I have dealt with the challenging design of novel heterogeneous multi-enzyme biocatalysts performing cascade biotransformations, their stabilization under industrial conditions, their advanced catalytic characterization through cutting-edge microscopy techniques, their genetic molecular design to achieve unnatural biotransformations, as well as the custom designed solid microporous materials and nanoparticles to immobilize enzymatic biocatalysts. As a result of my trajectory, I visualized the basis of my future research line, entitled Piezoelectro Biocatalysis .

Piezoelectrically mediated chemistry is an emerging area of interest in which environmental mechanical energy can be harvested and directly converted to chemical energy. Although, piezoelectric materials have shown elegant ways of transducing mechanical energy into chemical energy, yet seldom reports tackle the incorporation of biocatalytic functions. Therefore, a new research opportunity arises at the interface of enzymatic biocatalysis and piezoelectro chemistry. My research line will address the unprecedented coupling of piezoelectric materials and enzymes to harness mechanical and/or electric energy, in order to perform sustainable piezoelectric-transformations. To achieve this, my research agenda focuses on the enzymatic molecular design in order to achieve novel piezoelectrocatalytic functions, the development of bioconjugation techniques among enzymes and piezoelectric materials, the study of the mechanistic insights on their reactivity, and the fabrication of piezoelectro enzymatic catalysts capable to harness mechanical energy to perform piezoelectrocatalytic functions for its application in synthetic chemistry, polymer synthesis, biosensors fabrication, energy production, pharmaceutics and biomedicine.

My research work consists of 30 co-authored publications at JCR journals (70% in Q1), including 2 book chapters (h-index: 10, 437 total citations). I have been highly implied within 8 national and international I+D+i projects funded by the European Union, as well as the Mexican and the Spanish governments. I have disseminated my work at 16 recognized international biocatalysis conferences (6 invited or selected oral presentations). In 2019, both my scientific activity and productivity were recognized by the Mexican National Research System (SNI, level 1 distinction). I have demonstrated my capacity to acquire funds during my entire professional scientific career been supported by national and international (Marie-Sklodowska Curie actions) competitive fellowships (total funds: 229.478). Likewise, the last December 2021, I obtained an ERC-Stating grant to start my independent scientific career (2022-2027, funds: 1.5 million).

Resumen del Currículum Vitae:

My scientific expertise is targeted at harness naturally available catalytic tools as technological platforms to afford sustainable synthetic routes in a financially viable greener economy. To that end, I design and develop cell-free and self-sufficient heterogeneous multi-enzye biocatalysts performing cascade biotransformations, aiming at create artificial metabolic pathways to synthesize valuable commercial compounds supplying the current and future social demands.

My research interests encompass multidisciplinary approaches merging biochemistry, enzymology, molecular biology, organic and material chemistry and piezoelectricity. Along my scientific trajectory, I have centered my interests in the control and enhancement of the enzymatic activity and selectivity by genetic and protein engineering, alike the stabilization of enzymes under industrial operation conditions. My research line will merge biocatalysis and piezoelectricity to enable novel piezoelectro biocatalytic pathways fueled by mechanical and/or electric energy to achieve sustainable biotransformations. Hence, at the mid- and long-term, my research line will be devoted at the development and physiochemical characterization of piezoelectro enzymatic catalysts capable to harness mechanical and/or electric energy to perform electrocatalytic functions for its application in synthetic chemistry, polymer synthesis, biosensors fabrication, energy production and biomedicine.

The impact of my research work within the biotechnology and biocatalysis fields is reflected by my 30 co-authored publications at JCR journals (70% in Q1), including 2 book chapters. These publications, including top ranked journals (22 in the first quartile and 11 in the first decile of their respective research areas), including worldwide recognized journals as Angewandte International Chemie, Chemical Science and Green Chemistry. My high level of involvement and active participation in these published works is reflected in the authorship of 15 of them as the first author, 10 of them as the second author, and 2 of them as the corresponding author. These publications have received increasing and continuous citations (an average of 68 citations per year from 2016-2021) within the biocatalysis field reaching an h-index of 10, with 437 total citations (SCOPUS). Besides, I have been highly actively participating within 8 national and international research projects funded by the European Union, as well as the Mexican and the Spanish governments. Moreover, I have disseminated my work at 16 recognized international biocatalysis conferences, where 6 of them were invited or selected oral presentations. Since 2019, I received the distinction of SNI-1 from the Mexican National Research System. I have demonstrated my capacity to acquire funds during my entire professional scientific career been supported by national and international (Marie-Sklodowska Curie actions) competitive fellowships (total funds: 229.478). Likewise, on December 2021, I obtained an ERC-Stating grant to start my independent scientific career (2022-2027, funds: 1.5 million).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	SANCHEZ LOPEZ, MATEO
Referencia:	RYC2021-031961-I
Correo Electrónico:	mateoisidro@hotmail.com
Título:	Directed evolution of optogenetic technologies for cell biology and neuroscience

Resumen de la Memoria:

I did my PhD in Santiago de Compostela in the department of organic chemistry under the supervision of Prof. Jose Luis Mascarenas and Eugenio Vazquez (2008-2014). The main focus of my thesis was related with the design and synthesis fluorescent DNA binders. Thanks to a FPU scholarship I had the opportunity the perform two internships in the in the groups of Prof. Matthew Bogyo, in the Pathology Department at Stanford University, and Prof. Alice Ting in the Chemistry Department at the Massachusetts Institute of Technology. I was awarded with the best thesis award of the University of Santiago de Compostela and with the X Eli Lilly Award for the best PhD Students in organic and analytical chemistry. During my training, I gained expertise in organic synthesis, spectroscopic and biophysical techniques. However, I become fascinated with protein engineering and directed evolution techniques. Therefore, for my postdoctoral studies (2015-2020) I decided to switch fields and I joined the Ting lab, first at MIT and later in the genetics and biology department at Stanford University. As postdoc, I was funded with a long-term EMBO fellowship and I worked on the directed evolution of optogenetic technologies for cell biology and neuroscience. To build tools like SPARK and FLARE, I combined yeast genetics, FACS, protein expression, molecular biology techniques, cellular cultures and neuroscience. This work in directed evolution has been recognized with the XIII Suschem award for the best national paper in chemistry and the XII Angeles Alvarino award.

Later, I decided to join the Bioengineering Department at Imperial College to work with Prof. Tom Ellis in artificial genomes and synthetic biology. During this time, I have already been awarded with the Marie Skłodowska-Curie Fellowship, and with the support of my current advisor, I am working on my own research lines to build my independent lab, while acquiring expertise in the core capabilities of the lab, like genome-editing CRISPR technologies, which I plan to incorporate into my scientific program.

I aim to combine my training in synthetic organic chemistry and molecular biology to establish my own research at the interface between chemistry and biology; using chemistry to expand our knowledge in biology and biology to create new chemistry. This expertise in distinct fields along with international experience in top universities (MIT, Stanford, and Imperial College London), has uniquely prepared me to develop cutting edge research at the frontier of biosciences and biotechnology.

Resumen del Currículum Vitae:

I did my PhD in Santiago de Compostela in the department of organic chemistry under the supervision of Prof. Jose Luis Mascarenas and Dr. Eugenio Vazquez Sentis (2008-2014) with a FPU. The main focus of my thesis was related with the design and synthesis fluorescent DNA binders. As result of my thesis, I published 17 papers (10 of them as first or co-first author) some of them among the best journal in the area (ACIE or Chem Sci). I would like to highlight that I performed the first experiments in Mascarenas lab on the use organometallic catalysts in living cells (Chem. Sci. 2014, 5, 1901). I also worked on the synthesis of new mitochondrial probes with novel spectroscopic properties (ACS Chem Biol 2014, 9, 2742, and Sci Rep. 2020, 10, 3528). One of these dyes is being commercialized under the name of Mitoblue by several companies.

During my thesis, I become fascinated with protein engineering and directed evolution methods. Consequently, I decided to switch fields for my postdoctoral studies (2015-2020) and I joined the Ting lab, initially at MIT and later in the genetics and biology department at Stanford University. As postdoc, I was funded with a long-term EMBO (2016-2017) fellowship and I worked on the directed evolution of optogenetic technologies for cell biology and neuroscience to build molecular tools such as SPARK and FLARE.

I created a new platform in yeast for the directed evolution of faster TEV protease variants. I was able to report these results as first author in an article published this year in Nature Methods (2020,17,167), and I also filled up a patent that could be exploited by Sigma. The selected mutants were incorporated into the FLARE design combined with other optimized modules which led to a much improved second generation tool (FLICRE). In collaboration with the Deisserothas lab, we applied FLICRE to discovered a new cell type in the nucleus accumbens that drove aversion upon illumination via opsin-reactivation of the tagged neuronal ensemble; a proof of concept that demonstrates the revolutionary potential of tool. These findings will be published in Cell. (joint co-first, 2020, 183, 2003). As the development of calcium integrators is still in its infancy, I engineered a new Ca2+-activated TEV protease for the transcriptionally readout of neuronal activity, this work was also recently published in PNAS (2020, 117, 33186). All these tools have the potential to revolutionized neuroscience and due to its modular nature can be adapted to other areas in biology. As I wanted to facilitate the use of my technology, I upload the key constructs to Addgene, and I am happy to see that in one year has been requested by more than 100 labs worldwide.

During this postdoctoral appointment, I have gained expertise in a wide and diverse set of skills such could be yeast genetics, FACS, protein expression, molecular biology techniques, cellular cultures and neuroscience.

I have since moved to the Imperial College to work in the Bioengineering Department with Prof Tom Ellis in synthetic genomics and artificial chromosomes. I was awarded with the Marie Skłodowska-Curie Action, and with the support of my current institution and advisor, have the freedom to work on my own research lines, while acquiring expertise in the core capabilities of the lab that I plan to incorporate into my scientific program.



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	FAURE , ANDRE
Referencia:	RYC2021-033375-I
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Título:	Global mapping of the energetic and allosteric landscapes of proteins

Resumen de la Memoria:

My research aims to understand, predict and engineer the encoding of biophysical and regulatory properties by biomolecular sequences. I have a strong multi-disciplinary background from engineering, bioinformatics and machine learning to molecular biology and biophysics and a demonstrated track record of leading research projects that have culminated in first author publications accepted in high impact journals including Nature, Nature Communications, Genome Biology, Cell Systems and Genome Research.

I recently co-led the development of a novel technique that produces global maps of allosteric regulation for protein binding domains. Although the phenomenon of allosteric communication has been studied for over 40 years, our work is the first to quantify it comprehensively for any protein. This hybrid experimental/computational technology disentangles the effects of mutations on the underlying biophysical traits by fitting thermodynamic models to the data using neural networks. The significance of this work is that it has opened the door to the holy grail of allosteric research: systematic residue resolution discovery of allosteric sites for any protein of interest. Given the method s potential to accelerate biotechnological discoveries, I therefore intend to rapidly apply it to other therapeutically relevant proteins.

I am a strong advocate of (and contributor towards) open science practices and open-source software. In this spirit I developed DiMSum: a freely available software pipeline that represents an end-to-end solution for obtaining reliable fitness and error estimates from deep mutational scanning (DMS) data. I am also currently finalizing a second open-source software tool (MoCHI) that will greatly accelerate and simplify the fitting of (biophysical) models to DMS datasets.

My development as a scientist has spanned four countries in both academia and industry, I have successfully obtained competitive funding and awards at every stage of my career including an EMBL International PhD Programme Fellowship for my PhD at the University of Cambridge and my work has consistently been the result of strong research collaborations.

Resumen del Currículum Vitae:

My research aims to understand, predict and engineer the encoding of biophysical and regulatory properties by biomolecular sequences. I have a strong multi-disciplinary background from engineering, bioinformatics and machine learning to molecular biology and biophysics and a demonstrated track record of leading research projects that have culminated in first author publications accepted in high impact journals including Nature, Nature Communications, Genome Biology, Cell Systems and Genome Research.

During my PhD (EMBL-EBI, University of Cambridge, UK) I co-led two collaborative projects involving the integrative analysis and modelling of transcriptomic, epigenomic and higher-order chromatin structure data, which resulted in two high impact first author publications in the journal Genome Research with a combined total of nearly 500 citations to date. Upon completing my PhD, I decided to join the lab of Ben Lehner (CRG, Spain) where the principal focus of my research has been the development of methods and software for the analysis of deep mutational scanning (DMS) data. However, for my initial post-doctoral research I conducted the first systematic analysis of the determinants of gene expression noise. This study culminated in a first author publication in the journal Cell Systems. More recently, I have led and contributed deeply to projects that address the fundamental question of how biological sequences encode biophysical properties such as protein self-assembly, stability, affinity and allostery. For example, in collaboration with the lab of Benedetta Bolognesi (IBEC, Spain), we produced the first full mutational landscape of an intrinsically disordered protein region. This study resulted in a co-first author publication in the journal Nature used neural networks to fit thermodynamic models to DMS data producing the first global atlases of allosteric mutations for any proteins.

I am a strong advocate of (and contributor towards) open science practices and open-source software. In this spirit I developed DiMSum: a freely available software pipeline that represents an end-to-end solution for obtaining reliable fitness and error estimates from deep mutational scanning (DMS) data. DiMSum resulted in a first author publication in the journal Genome Biology. I am also currently finalizing a second open-source software tool (MoCHI) that will greatly accelerate and simplify the fitting of (biophysical) models to DMS datasets.

My development as a scientist has spanned four countries in both academia and industry, I have successfully obtained competitive funding and awards at every stage of my career including an EMBL International PhD Programme Fellowship for my PhD at the University of Cambridge and my work has consistently been the result of strong research collaborations.





Área Temática:	Biociencias y biotecnología
Nombre:	LLORENS RICO, VERONICA
Referencia:	RYC2021-031410-I
Correo Electrónico:	veronica.llorensrico@gmail.com
Título:	Gene regulation as a mediator of microbial interactions in the gut

Resumen de la Memoria:

The gut microbiome is a highly dynamic community that conducts functions essential for its host. To adequately perform these functions, microbes must rapidly adapt to perturbations in their environment to survive. Responses to several microbiome perturbations have been studied by measuring changes in community composition at ecological and/or evolutionary timescales However, the initial mechanisms driving those changes, which involve complex microbe-microbe and microbe-host interactions, are less understood. These mechanisms must be tightly controlled at the transcriptional level by gene regulation processes. The goal of my future research is to understand how transcriptional regulation and mediates microbial interactions and the responses to perturbations in the gut microbiome. To tackle this question, I will benefit from my background on microbial transcriptomics and systems biology, as well as from my postdoctoral experience in the human gut microbiome.

During my PhD, I characterized the diverse mechanisms of transcriptional regulation in the model bacterium Mycoplasma pneumoniae to understand how it responds to in vitro perturbations. More specifically, (i) I reconstructed the gene regulatory network of this bacterium; (ii) I studied and characterized the role of non-canonical transcriptional regulation mechanisms, such as non-coding RNAs, promoter structure or gene organization in operons; and (iii) I developed an integrative model of transcription considering both the gene regulatory network and the non-canonical regulators. This model was able to recapitulate the transcriptomic phenotype in environmental perturbation experiments, thus representing the first systemslevel quantification of the role of different transcriptional regulation mechanisms in a model bacterium.

As a postdoc, I leveraged my expertise in microbial transcriptomics to study how bacteria respond to different perturbations in their natural ecosystems, using the human microbiome as a model, opening new research lines metatranscriptomics in the group of Jeroen Raes at the VIB-KU Leuven Center for Microbiology. As part of my research, I recently determined best practices regarding data normalization in microbiome datasets, and I developed computational tools to profile the composition and functionality of complex microbial communities. Using the tools I developed, I characterized for the first time direct physical associations of specific bacteria with host immune cells in the lungs of COVID-19 patients using single-cell RNA-seq datasets. Among my ongoing projects, I am applying the methods I developed to the study of host-microbiome interactions in colorectal cancer.

My future research plans capitalize on the techniques and knowledge that I generated during both my PhD and postdoc, to study the impact of transcriptional regulation in the responses to perturbations of the gut microbiome. While this is primarily a fundamental research question, a better understanding of how gene regulation impacts community behavior will open new opportunities for the development of targeted microbiota modulation strategies.

Resumen del Currículum Vitae:

After completing my BSc in Biotechnology in 2011, I pursued a MSc in Biophysics thanks to a La Caixa MSc fellowship, which allowed me to join the lab of Luis Serrano at the Centre for Genomic Regulation. As a PhD, I worked in understanding the mechanisms of transcriptional regulation in the model bacterium Mycoplasma pneumoniae, by using a combination of experimental data and computational approaches. As part of my PhD training, I carried out a research stay of 2 months in the group of Prof. Markus Covert at Stanford University, where I worked in developing a computational model to simulate the cell cycle of M. pneumoniae. The work towards my PhD represented the first systems-level quantification of the role of different transcriptional regulation mechanisms in a model bacterium, and led to 10 publications (5 as first author). Additionally, it received an Extraordinary PhD award, as well as a Young Investigator Award from the Catalan Society of Biology.

After my PhD, I joined the group of Prof. Jeroen Raes at the VIB-KU Leuven Center of Microbiology, where I am opening new research lines in the field of meta-transcriptomics to study the functionality of the human microbiota. To do so, I develop experimental and computational tools to profile the transcriptome of complex bacterial communities, and have applied them to different projects and collaborations. To develop this work, I received highly competitive fellowships such as the FWO postdoctoral fellowship (2017-2020) and the FWO Senior postdoctoral fellowship (2020-2023, including 29,800 for research expenses). Additionally, I received an internal VIB Technology Watch grant (75,000) as lead researcher, to develop new technologies for metatranscriptomics profiling.

As a postdoc, I have participated in ongoing collaborations or contributed to establish new ones with clinical groups (Prof. Sabine Tejpar and Prof. Joost Wauters, from the Leuven University Hospital) and pharmaceutical companies (Janssen Pharmaceutica) to apply the methods I develop to the study of the gut microbiome in colorectal cancer or the respiratory microbiome in COVID-19 patients. As part of these collaborations, I am co-principal investigator of an FWO Senior Research project (awarded 507,300) to study host-microbiome interactions in the development of colorectal cancer.

In addition to my research activities, I have taught courses and invited lectures at several international workshops. For example, in 2019 I was an instructor at the EMBO Summer School in Whole Cell Modeling, and last year I was invited to deliver a lecture and two hands-on tutorials at the Microbiome Data Analysis Workshop organized by the University of Hasselt in Belgium. Additionally, I have co-supervised a master student and I am currently co-supervising two PhD students in our lab, together with Prof. Jeroen Raes. Lastly, as a postdoc I have been part of the organizing committee of the departmental meetings and seminars, and currently I am part of the postdoc association of the VIB-KU Leuven Center for Microbiology.

Besides these tasks, I have been very active in promoting the role of women in science throughout my entire career, as well as taking part in several science outreach initiatives both in Belgium and in Spain (VIB Biotech day, PRBB Open day, 11 de Febrero).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	OLIVA JORGE, NURIA
Referencia:	RYC2021-034652-I
Correo Electrónico:	nuriaolivaj@gmail.com
Título:	Bio(nano)materials to tackle human disease

Resumen de la Memoria:

I am an Imperial College Research Fellow and independent group leader in the department of Bioengineering at Imperial College London. I have a track record of research in the areas of biomaterials, nanotechnology and medical devices for tissue engineering and regeneration and smart cancer therapies. I have also received formal training in medicine and entrepreneurship. Prior to this position, I held postdoctoral fellowships in Institut Quimic de Sarria (Barcelona, Spain), Imperial College London (London, UK) and Harvard Medical School (Boston, USA), after graduating with a PhD in Medical Engineering and Medical Physics from the Massachusetts Institute of Technology (Cambridge, USA). I have published 11 original articles, 4 review articles, 1 editorial and 2 book chapters, and have filed 5 patents. My research has produced two spin-offs: Biodevek from my PhD work, and TrAPs from my postdoc in Imperial College London. I have given 3 invited seminars and 3 invited plenary talks (apart from 4 poster and 6 oral presentations in international conferences). I serve in the editorial boards of ACS Biomaterials Science & Engineering and Frontiers in Biomaterials Science. I have secured funding in the form of scholarships (>£350,000), fellowships (~£400,000) and grants (~£123,000) and have received internationally recognised awards like the 2019 European Tissue Repair Society (ETRS) Young Investigator Award and the 2020 Women of the Future Award in the Science Category. In the roughly 17 months that I have led my independent research group, I have published one article as senior author, supervised 1 PhD, 6 undergraduate and 6 master s students, and secured £40,000 in grants, demonstrating my ability to be a successful principal investigator and group leader.

Resumen del Currículum Vitae:

Scientific contributions

Nuria s first contributions to science focused on the development of adhesive hydrogels to close gastrointestinal wounds, preventing leakage and reducing morbidity and mortality associated with GI surgery. She quickly realised that adhesion relied on chemical groups with tissues, and tissue structure and composition changes dramatically under pathological conditions (i.e., inflammation, cancer). The data she gathered challenged the one material fits all status quo, and demonstrated that it was critical to study material performance under clinically relevant conditions.

Nuria also became interested in using these injectable hydrogels as depots for sustained delivery of drugs and nanotechnology. She collaborated in numerous projects involving the delivery of polymeric and gold nanoparticles from her hydrogels for breast and colon cancer treatment. She then leveraged the concepts learned to develop a new injectable hydrogel doped with polymeric nanoparticles to deliver RNA-based therapies to skin, with regenerative and healing purposes rather than cancer treatment. Her group currently works on new formulations of tough, injectable hydrogels to promote cartilage regeneration in a minimally invasive manner, which will potentially be combined with RNA-based therapies to treat inflammation associated with osteoarthritis.

Societal contributions

Two of the projects she has led are currently spin-off companies. Her doctoral work on adhesive hydrogels is currently undergoing preclinical trials in the United States (Biodevek). During her postdoctoral fellowship at Imperial, Nuria secured funding from the MedTech SuperConnector to perform the first preclinical test of a new DNA nanotechnology to heal broken bones and to put together a business plan and a scientific board. She is currently the co-founder of the spin-off TrAPs with Dr. Ben Almquist, and they are hiring the executive board and applying for translational funding.

Nuria has also contributed to society through outreach and public engagement. She gave an invited talk at the New Scientist Live Festival in 2018 and an exhibit in the 2019 Wonder Women Imperial Lates. She is passionate about increasing participation of women in STEM. In light of this, she has given a number of public engagement and outreach talks to young girls interested in STEM, like the MIT s Biotech in Action Watercooler talk series and Imperial s Girls Y9 Engineering Summer School.

Fostering new talent

Since becoming independent, Nuria has formally supervised 6 undergraduate and 6 master s students from the departments of Bioengineering and Chemistry at Imperial College London. She has also been the co-supervisor of a PhD student from IQS who is currently writing his thesis. This student has published an original paper and a book chapter, and has a review paper and an additional original paper under preparation. He was awarded an Erasmus scholarship to spend a year in London, during which he participated in the Techcelerate programme to gain entrepreneurial skills and received the gold award in Your PhD in 5 minutes pitch competition by the Imperial Network of Excellence in Wound Healing and Regeneration.



AGENCIA ESTATL DE INVESTICAL

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	PARK , SOLIP
Referencia:	RYC2021-034415-I
Correo Electrónico:	solippark@cnio.es
Título:	Comprehensive cancer fitness landscape analysis for the targeted therapy

Resumen de la Memoria:

Contributions to the field of systems biology/cancer genomics in high impact factor journals.

I have made substantial contributions to the fields of cancer genomics/systems biology, which resulted in 10 publications in top-ranked journals as a first author (3 x Mol Syst Biol; 2 x Nature Comm; 1 x Scientific Reports; 1 x PLoS Genetics). I also recently published a Nature Comm as a cocorresponding author (Park et al., 2021). These studies analyzed extensively large cancer genomics and developed new methodologies to identify new cancer predisposition genes and cancer-type specific genetic interactions between cancer drivers.

Systems biology: disease networks based on the sub-cellular localization

During my Ph.D. training, I developed a consensus localization predictor called ConLoc using a machine learning approach. It systematically integrated 13 available predictors and trained them using all possible human proteins. It provided high prediction performance across all major localizations with substantially improved performances (Park et al., J Proteome Res 2009). Next, we investigated the contribution of molecular connections for dithe sease-associated nenetworks (Park et al., Mol Syst Bio 2011; Park et al., Scientific Reports 2012). This provides comprehensive molecular connections for understanding the phenotypic connections.

Cancer genomics: cancer-type specific genetic interactions

During my post-doc training, I developed a stringent statistical method to discover the cancer-type specific genetic interactions after controlling tumor heterogeneity (Park et al., Mol Syst Bio 2015). I proved that > 60% of detected interactions change quite extensively across cancer types. It indicated how different genomic alterations interact cooperatively or antagonistically to increase cancer fitness depending on different cancer types. Also, I proved connectionect of high-order interactions between two cancer genes for understanding cancer-type specific fitness landscape (Park et al, Nature Comm 2021). These studies will have important clinical implications because a synthetic lethal strategy to kill cancer cells in a cancer-type specific manner (Lehner and Park, Nature News and View 2012).

Cancer genomics: identification of novel cancer predisposition genes

I developed a new statistical method based on the classical two-hit hypothesis (Park et al., Nature Comm 2018). Applied this method to > 10,000 tumor exomes, I identified 13 possible novel cancer predisposition genes (CPGs) in a pan-cancer and across cancer types. Next, I proved the contribution of 13 newly identified CPGs to cancer risk. With this method, I also established several successful collaborations including a study in colon cancer with IDIBAPS, BCN (Cancers, 2019) and the role of mendelian disease-associated genes to cancer risk with Seoul National University, South Korea (Manuscript in-preparation as a corresponding author).

Open-source software development

- ConLoc: Park et al., J Proteome Res (2009). https://sbi.postech.ac.kr/conloc/
- ALFRED: Park et al., Nature Comm (2018). https://github.com/lehner-lab/ALFRED_method
 - CancerFitness: Park et al., Nature Comm (2021). https://github.com/SolipParkLab/CancerFitness

Resumen del Currículum Vitae:

I obtained my Ph.D. as a systems biologist at POSTECH, South Korea. During my Ph.D., I actively participated in disease network analyses that required big-data analysis and statistical method development, resulting in 7 articles (first author of 4 publications). Next, I moved to Barcelona in Spain where I worked as a postdoctoral researcher at Dr. Ben Lehner s Lab (CRG). My position was supported by the Juan de la Cierva fellowship, Novartis, and Grant for the female scientist (CRG). During this period, I worked in cancer genomics, resulting in three first-author papers, (1) for identifying novel cancer predisposition genes using large-scale cancer genomics (Nature Comm. 2018), (2) for elucidating cancer-type specific genetic interactions (Mol Syst Biol. 2015), and (3) addressing the role of epigenetic-epistatic regulation (Mol Syst Biol. 2013).

Since September 2019, I started as a Junior Group Leader to CNIO after an open call and selection process. I have started my independent research group on cancer genomics, with the goal of the understanding context-specific cancer fitness landscape. This work will be crucial for rationally developing targeted therapy. I published a one-corresponding author paper (Nature Comm., 2021) and another corresponding paper is in preparation.

Among the most relevant achievements in my career, I highlight the following:

(1) Awarded by several prestigious competitive fellowships from national and international calls. A research grant for specializing female scientists (Women Scientists Support Grant);

(2) Contributions to the field of cancer genomics and systems biology in high impact journals (Mol Syst Biolx3, Nature Commx2, Nature News and View);

(3) Establishment of an inter/national network with more than 10 research groups from 3 different countries;

(4) Author of 3 open-source software

(5) Supervision of Ph.D. (2) and Master Thesis (4) and teaching in Master/Bachelor courses;

(6) Establishment of an independent research line with CNIO s strong support, a grant from the Spanish Government and a biotherapeutic company in South Korea;

(7) Studies of disease networks based on the subcellular localization (4 papers)

(8) Studies of cancer-type specific genetic interactions (3 papers)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

(9) Identification of novel cancer predisposition genes (2 papers)(10) Studies of virus-host interactions (1 paper)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Biociencias y biotecnologíaNombre:HERVERA ABAD, ARNAUReferencia:RYC2021-033528-ICorreo Electrónico:ahervera@ibecbarcelona.euTítulo:Pathophysiology and treatment of sensorimotor diseases: From epigenetics to neuroinflammation

Resumen de la Memoria:

Sensorimotor diseases including spinal cord injuries and multiple sclerosis, are diseases currently without a cure associated with severe chronic neurological disabilities, including pain or sensory and motor disabilities. Despite recent progress in our understanding of cellular and molecular mechanisms underlying some pathophysiological aspects of these diseases, there is still no medical intervention to cure them. The limited success of current therapies and treatments is highly associated with the lack of mechanistic insight in the pathophysiology of these diseases. Since the early days of my research career, I focused on understanding the cellular and molecular mechanisms underlying neural pathologies, starting from peripheral nerve injuries during my PhD, where I described the undefined role of nitric oxide and carbon monoxide in the physiopathology and opioid and cannabinoid pharmacology of neuropathic pain. During my postdoctoral phase, I concentrated my research on spinal cord injuries and their therapies. I identified a novel mechanism involving for the first time neuroimmune crosstalk leading to neuronal regeneration through redox signaling after peripheral injury. These findings had a remarkable impact both in the neural injuries field as well as in the redox community. Within the same injury paradigm, I also developed a project describing the mechanisms of neuronal activity, neuroinflammation, metabolism and epigenetic regulation in the pathophysiology and treatment of sensorimotor diseases, including axonal injuries and demyelinating diseases, taking advantage of neuroengineering state-of-the-art tools.

Resumen del Currículum Vitae:

Therapeutic modulation of the complex organization and regulation of cellular processes for the benefit of human health has always been at the core of my research goals. Following my bachelor s studies in Biotechnology and Biochemistry I became specialized in the field of neuroscience with my master s degree and PhD in which I examined the molecular mechanisms of neuropathic pain and its pharmacological treatment. During my thesis I developed a particular interest in the molecular and genomic regulation of pathological processes, while mastering work in animal models. This research led to the publication of seven first author papers as well as one co-author publication in top journals of the field. During those years I also supervised several Bachelors and Masters projects that led to the publication of three additional papers, of which I am first author or co-author, as well as garnered an award for the best undergraduate science project in Catalonia (Premi "Gemma Rossell" awarded to Roger Negrete). I personally developed new techniques and established collaborations for the laboratory that have led to further publications. Upon completion of my PhD, I moved to the laboratory of Dr. DiGiovanni (Tübingen, Germany). I then followed him the following year after his promotion to professorship at Imperial College in London (UK). During my first year as a postdoctoral researcher, I mastered new state-of-the-art techniques involving molecular and genomic regulation, next generation deep sequencing, chromatin immunoprecipitation and sensorimotor behavioural assessment. I led two independent projects as well as being actively involved in other projects, which resulted in publications in high impact journals. My projects were well received by leaders in the fields of redox signalling, neuroinflammation, glial cells and Spinal Cord Injury at various conferences at which I was invited to present my work. Both projects were published in high impact journals and have received a great deal of citation sin the short time since its publication. Additionally, this led to the publication of an invited review article, that included the cover in a high impact review journal. In January 2016, I joined the lab of Prof. Jose A. Del Río at the Institute for Bioengineering of Catalonia (IBEC) in Barcelona as an independent Postdoctoral researcher, where I developed a project to study the use of optogenetic stimulation in promotion of axonal growth following Spinal Cord Injury, which merged my previous expertise with the bioengineering profile of the lab and the institute. Already since my arrival I begun to establish collaborations for high-level network projects that have established the basis for the creation of an extensive international and interdisciplinary collaborative network. In 2017 I was awarded with the Juan de la Cierva-Incorporación grant. Since 2016 I directed a PhD thesis and several Master theses, that have led to the publication of different papers as corresponding author. Finally, since the beginning of 2020 I am leading an independent team as a senior researcher at IBEC exploring the cellular and molecular mechanisms of epigenetics, neuroinflammation and metabolic modulation in axonal injuries and demyelinating diseases. In 2021 I was granted with a I+D+i - RTI Tipo A project from the Spanish ministry of Science for the next 3 years.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	BELDA PALAZON, BORJA
Referencia:	RYC2021-034731-I
Correo Electrónico:	bbelda@ibmcp.upv.es
Título:	Plant growth balance regulation under stress conditions

Resumen de la Memoria:

I am BSc in Biology and Biochemistry by the Universidad de Valencia (2008) and PhD in Biotechnology by the Universidad Politécnica de Valencia (2014). During 2015 to 2019, I carried out postdoctoral training at the Instituto de Biología Molecular y Celular de Plantas (IBMCP, Valencia) and the Instituto Gulbenkian de Ciência (IGC, Portugal). Since 2019, I have obtained international funding to support my independent research line at the IGC, first with a Marie Curie action grant (PI) and later with a research project funded by the Portuguese Research Council (Co-PI). Furthermore, I have recently obtained funding by NextGenerationEU (María Zambrano 2021) to return to the IBCMP during 2022 to 2024. This funding has allowed me to develop my own projects and to gain experience as independent researcher.

My scientific career has always been driven by the aim to understand how environmental conditions modulate plant growth and development through the action of major growth regulators like polyamines, ABA and the SnRK1 (Sucrose non-fermenting-Related protein Kinase 1) - TOR (Target of Rapamycin) axis. During my PhD in the IBMCP (2010-2014), I uncovered basic aspects of polyamine metabolism and signaling through the regulation of translation factors, uncovering unexpected links between the spermidine-modulated eIF5A translation factor and ABA responses. My knowledge on the regulation of translation has also helped to identify novel molecular actions of viroid plant pathogens on ribosome biogenesis. From this period, I published 2 book chapters (1 as first author) and 6 Q1 papers (3 as first author and 2 as second author in PLOS ONE, Frontiers in Plant Science, Genetics, and Nucleic Acids Research). In my early postdoctoral stage (2015-2018), first in the IBMCP and later in the IGC, I consolidated my training in plant molecular and cell biology, making key findings on the post-translational modification and half-life regulation of ABA core components. My contributions to our understanding of how these central elements are regulated could enable the improvement of plant ABA responses, by increasing and decreasing the half-life of the ABA positive and negative regulators, respectively. From this period, I published 1 book chapter as first author and 11 Q1 papers (4 as first author in Plant Cell, PNAS, Plant Journal and Plant Physiology). In my late postdoctoral stage in the IGC (2019-present), my scientific efforts have been directed towards establishing my own line of research, addressing the interplay between energy signaling, regulated by the SnRK1-TOR conserved molecular axis, and major stress signaling pathways like ABA signaling. In this regard, my work has uncovered the significant SnRK1/TOR-dependent mechanisms by which plants balance root growth in accordance to water availability. From this period, I published 1 book chapter as corresponding author and 2 Q1 papers (1 as first author in Nature Plants and 1 as corresponding author BioRxiv preprint, currently under second review in PNAS).

More recently, I have received national and international funding to continue developing my own line of research focused on the understanding of how plants balance growth and energy through the modulation of the SnRK1-TOR axis in response to multiple suboptimal environments like low water and nutrient availability and infectious agents e.g. viroids.

Resumen del Currículum Vitae:

I graduated both in Biology and Biochemistry at the University of Valencia (Spain, 2008) and I obtained my PhD in Biotechnology from the Polytechnic University of Valencia (Spain, 2014). Currently, I am investigating the mechanisms that regulate plant growth and adaptation to stress conditions at the Gulbenkian Institute of Science (IGC, Portugal) where I have been working as senior postdoctoral researcher since October 2019. Since the beginning of my scientific career, I have noticed the importance of understanding plant stress responses and its enormous potential for contributing new strategies to reduce the impact that nutrient deficiency, water scarcity, extreme temperatures or salinity have on crop productivity and food security. However, I have also understood that comprehension of the molecular and cellular mechanisms underlying these stress responses is essential for developing such strategies. I have published 4 book chapters (2 as first author and 1 as corresponding author) and 19 international peer-reviewed scientific papers in leading multi-disciplinary and specialized journals (9 as first author, one also corresponding author; all in the Q1 of their respective fields), receiving a total of 802 citations (h-index 16, Google Scholar). I have secured a total of ~0.80M from national and international grants, including 2 grants of VALi+d Programme (GVA, Spain) for PhD and Postdoctoral formation, and a Marie Sklodowska-Curie Actions Grant (Horizon 2020, EU). Recently, I was awarded one grant as a distinguished researcher (NextGenerationEU, Spain) and received funding as a PI in a competitive call for a research project (FCT, Portugal). In addition, I have participated in 34 national and international scientific meetings, symposiums and seminars, delivering 8 talks. Furthermore, I have reviewed for various Q1 journals (e.g., Science Advances, Plant Cell, New Phytologist, Scientific Reports, Frontiers in Plant Science, Plant Physiology and Biochemistry, Molecules, Plants), and supervised 3 undergrad and 2 MSc student. Currently, I am also participating in the supervision of 1 PhD student (IGC, Portugal). In addition, I have lectured in the courses of Plant Molecular Biology (part of the Degree in Agricultural Engineering) and Stays in Research Centers (belonging to the Degree in Biotechnology) of UPV (Valencia, Spain). Last, but not least, I am included in the Mentoring Program Alumni UPV, being mentor of 3 undergraduate students in the Degree in Biotechnology so far.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	BAJIC BABIC, DJORDJE
Referencia:	RYC2021-034153-I
Correo Electrónico:	je.li.bre@gmail.com
Título:	Genotype-phenotype maps in microbial ecology and evolution: a systems biology approach
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Resumen de la Memoria:

My research focuses on understanding how the structure of the genotype-phenotype map shapes and is shaped by the evolution and ecology of microbes. My interdisciplinary approach combines experiments with the development and use of innovative theoretical concepts and cutting-edge computational tools (e.g. genomics, metabolic modeling).

My output includes 16 publications in prestigious journals (e.g. Science, PNAS, PloS Biology, Molecular Biology and Evolution, Nature Protocols) 9 of them as first or co-first author and in 2 also as co-corresponding author (PNAS and a perspective in Front. Microbiology). I have published high-impact papers in all the labs where I have conducted my training, and I have also translated my basic research to address relevant biotechnological problems (e.g. Nature Communications). These achievements attest to my productivity and success in designing, managing, and executing research.

Since I started my career, I have worked in 3 different laboratories, including >5 years of international research experience at Yale University and 8 months at the BRC in Hungary. I have also established several successful collaborations with leading laboratories in the USA and Europe. As a postdoc, I have effectively led the computational wing of the laboratory, successfully co-directing one undergraduate thesis and co-supervising two PhD students and one visiting postdoc. Overall, this has allowed me to develop multiple technical, theoretical and leadership skills, reaching a position of professional maturity and independence, and gaining a broad vision of the field. As a result, I have been a finalist in the 2021 ERC Starting Grant Call (now resubmitted). I am increasingly often invited to speak at prestigious venues, serve in a grant evaluation panel (NASA), and review for prestigious journals. Through all these contributions, I have established myself as an emerging leader in the rapidly growing field of ecological and evolutionary systems biology.

Resumen del Currículum Vitae:

In my Ph.D. at the CNB (Madrid), I combined constraint-based metabolic models and statistical modeling of big omics data to understand the structure of microbial genotype-phenotype (G-P) maps.

As a postdoc, my goal was to introduce explicit ecological interactions in empirical G-P maps, which had not been done before. To do this, I joined Alvaro Sanchez, who was starting his lab at Yale University. I also initiated a collaboration with Daniel Segre (Boston Univ.), co-leading the development of a cutting-edge modeling platform for the Computation of Microbial Ecosystems in Time and Space ("COMETS", Nat Protoc.). Using COMETS, I pioneered the mapping of eco-evolutionary interactions on an empirical G-P map (first author paper in PNAS). I formally defined a new kind of ecologically-mediated genetic interactions (non-commutative epistasis) and mapped their effects deforming the fitness landscape.

My work also extended fitness landscape theory beyond G-P maps to define the novel concept of ecological structure-function landscapes, mapping the composition of a community to its function. In a collaboration with experimentalists (co-first author, PLoS Biol.), this innovative approach allowed us to understand how high-order ecological interactions shape the function of amylolytic consortia. I also supervised a visiting student, who used this theory to identify a new industrial probiotic in bioethanol production (Nat Commun.).

I have also designed and carried out high-throughput quantitative phenotyping experiments, contributing as a co-author to several important studies (Science; Cell Syst.). These works demonstrated how quantitative metabolic traits (e.g. growth rate, metabolite secretion) shape microbiome assembly. Currently, I am using these methods to map a large metabolic G-P space in thousands of natural isolates. The result will be a foundational tool for my future research program, with very promising pilot data (proposal shortlisted in the ERC StG 2021 call, now resubmitted).

I firmly believe that, beyond producing knowledge, a core function of scientists is to contribute to an informed and critical society. I have engaged in many activities to bring science closer to society. I have been a content curator for "Wikillerato", a resource for high school students; I have also contributed a chapter to the first Bioinformatics textbook in Spanish. I have also been interviewed several times about my work, including with a "collaborative learning" blog, and an award-winning interview with primary school kids (ComNPlay SCIENCE H2020 Project).

During my postdoc, I have effectively led the "computational wing" of the lab, providing extensive mentorship and supervision to many coworkers in different career phases. This includes co-directing an undergraduate thesis (article in prep.), and co-supervising two PhD students (soon starting postdocs at Stanford and Princeton, respectively) and two visiting scientists. I have also initiated several national and international collaborations (Hungary, Netherlands, USA); I have reviewed for renowned journals (e.g. Sci. Adv., Nat. Commun.), I have been invited to speak at prestigious venues, and I have served as a grant evaluation panel member at NASA. Through all these contributions, I have established myself as an emerging leader in the growing field of ecological and evolutionary systems biology.



AGENCIA ESTATLGA INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	LOPEZ IGUAL, Mª DEL ROCIO
Referencia:	RYC2021-034768-I
Correo Electrónico:	rologua@gmail.com
Título:	Genome instability and Synthetic biology in cyanobacteria for biotechnological applications
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Resumen de la Memoria:

My early research focused on cyanobacteria, a group of photosynthetic Gram-negative bacteria. During my PhD, I described the first bicarbonate transport system in a filamentous and nitrogen fixing cyanobacterium, and I also identified sucrose as a photosynthetical carbon molecule essential for nitrogen fixation. From this period, I gained experience in biochemistry, molecular biology, cyanobacteria and published 5 research articles.

During my first post-doc (CEA, Saclay, France), my interest in cyanobacteria focused on photoprotection and more specifically the orange carotenoid protein, OCP, which is photoactivated under excess of light preventing cell damage. Here, I was involved in many projects that resulted on 6 papers published, 3 of them as first author. To highlight a study (Plant Cell) that opened new research avenues, I described a novel activity for OCP as a potent antioxidant that gave me the notion of the huge biologic potential of cyanobacteria.

In my second postdoc (Institut Pasteur, Paris, France) I worked on Synthetic Biology. I developed from scratch a new method to kill specifically pathogenic and antibiotic resistant bacteria without the downfalls of traditional antibiotic treatments. This original system based on plasmid conjugation and toxins is relevant for fighting antibiotic resistance. Results of this work allowed me to publish in the renowned journal Nature Biotechnology.

After two postdoctoral stages abroad, I went back to my roots studying cyanobacteria (IBVF, Seville, Spain). First, I worked with translational machinery in cyanobacteria and I am co-author of a manuscript (NAR). Then, I developed a system based on split-GFP to analyze in vivo protein-protein interaction in cyanobacteria (unpublished). Finally, I collaborate in a recently accepted paper (Nature) for the identification of a new cyanobacterial protein that mediates the assimilation of guanidine as nitrogen source.

Currently, I am working at the IBVF (University of Seville) with a contract as a PI-Young Investigator (2019 R+D+i Projects - JIN Modality) developing an independent research line. Despite their environmental and biotechnological importance, cyanobacteria present a handicap due to genome instability. I am applying my capabilities to identify and erase cyanobacterial accessory genome responsible for genome instability- in order to engineer an easier handle synthetic strain. More precisely, I co-supervised a master student and we have developed a system to construct modular plasmids for genetic engineering of Anabaena, which results were presented in a national congress (SEG). Moreover, I am supervising a "Garantía Juvenil" student and we have successfully implemented a genetic platform for toxin-antitoxin (TA) identification based on two plasmids. Until date, we have described five new TA-systems encoded in MGEs of Anabaena. I have also started new national and international collaborations for further work on this project. In summary, I am developing this new research line which main aim is to implement new biological systems for the progress in the biotechnological applications of cyanobacteria.

Resumen del Currículum Vitae:

After my graduation in Biology (USE), I did my PhD under the supervision of Drs. Herrero and Muro-Pastor at the Instituto de Bioquímica Vegetal y Fotosíntesis (IBVF) in Sevilla. I worked on cyanobacteria, a group of photosynthetic Gram-negative bacteria that have global environmental and biotechnological importance. During my PhD, I acquired a broad range of technical skills in genetics, molecular biology and biochemistry. In 2011 I obtained a PhD degree in the USE with a Cum Laude mention. From this period I published 5 articles (3 of which as first-author).

In 2012, I joined Dr. Kirilovsky's lab for my first post-doc at the Commissariat à l'Énergie Atomique, Saclay (France). There, my interest in cyanobacteria focused on photoprotection and more specifically on the orange carotenoid protein, OCP. During this post-doc I acquired biophysics and leadership skills. From this period -of only two years- I published 6 articles all in Q1 (3 of which as first-author).

In 2014, I moved to Prof. Mazel's lab at the Institut Pasteur, Paris (France) for a second post-doc in Synthetic Biology. Here, I described an innovative method to kill specifically pathogenic and antibiotic resistant bacteria without the downfalls of traditional antibiotics. During this period of 4,5 years, I supervised my own work, the work of three graduate students and of a technician. Moreover, a European patent was filed (2018) and I published two articles, one as first-author in Nature Biotechnology (2019) that has already obtained special mentions.

After two post-doctoral stages abroad, I went back to Spain and from Dec-2018 I have been working with cyanobacteria at the IBVF, Seville. I was working in a project about tRNA genes in cyanobacteria and I am co-author of a manuscript published in NAR (2021).

Currently, I am working at the IBVF (USE) as a Young Investigator (2019 R+D+i Projects - JIN Modality). The main aim of this project is to develop new biological systems for the progress in the biotechnological applications of cyanobacteria. I am applying the capabilities and the knowledge that I have been acquired through my scientific career to work with cyanobacteria for improving their uses in biotechnology. During 2021, I have co-supervised a Master student that presented his results in a national congress (SEG). I have also obtained a contract to the Garantía Juvenil program from USE to hire a graduate student for two years. Currently, I am co-supervising an undergraduate student and a new Master student, and supervising the aforementioned Garantía Juvenil student. One of my last international collaborations has led to the description of a novel protein that mediates the assimilation of guanidine as N-source, which has been accepted in Nature. Finally, a new graduate student (Garantía Juvenil program - CSIC) will be hired soon and I will be her/his co-supervisor.

During my research career I have published 15 articles, participated in 20 presentations in national and international conferences, mentored 3 undergraduate students, 1 Master student and participated in 8 research projects. Additionally, I can communicate in three languages: Spanish, English and French, and moreover, I am currently learning Lengua de Signos Española . Finally, I obtained the prestigious prize of Medalla de la Ciudad de Sevilla in 2020 for the Research activity.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	RANSON , ADAM
Referencia:	RYC2021-032313-I
Correo Electrónico:	aranson@uic.es
Título:	Plasticity and function of neural sensory circuits
	•

Resumen de la Memoria:

Dr Ranson undertook doctoral training at Cardiff University in the UK in the groups of Kevin Fox and Frank Sengpiel funded by a MRC PhD fellowship. During his PhD thesis work he used in vivo brain imaging in rodents to elucidate key aspects of the molecular and mechanistic basis of developmental plasticity of visual cortical circuits. His contributions provided evidence that plasticity mechanisms vary significantly as a function of animal age and cell-type. During this time, he also undertook research stays at other world leading neuroscience research institutes including University of California San Francisco and Max Planck Institute of Neurobiology.

Dr Ranson next undertook postdoctoral training at University College London (UCL) in the group jointly headed by Matteo Carandini and Kenneth Harris in the Institute of Ophthalmology. At UCL he established the state-of-the-art technique of in vivo 2-photon microscopy in the lab, through which spiking activity of neurons can be recorded at cellular and subcellular resolution in awake behaving animals labelled with fluorescent genetically encoded calcium indicators. He used this approach to probe the mechanisms through which non-sensory factors, like animal movement, impact sensory coding in primary visual cortex. In particular, this research used data collected with this approach in vivo to develop a model of the manner in which different classes of cortical inhibitory neurons interact and modulate excitatory neuron output from primary visual cortex. Additionally, while at UCL Dr Ranson participated in a collaborative project to create a head fixed visual discrimination task which could be combined with the high-resolution brain imaging approaches described above.

Dr Ranson next undertook research work at the NMHRI of Cardiff University, first as a senior postdoctoral researcher on a Welcome Trust funded programme grant (DEFINE), and later as a research fellow and junior group leader having gained a Sêr Cymru European Commission / UK co-funded fellowship. During this period Dr Ranson led translational research projects which used two-photon microscopy to study the circuit basis of altered sensory processing in psychosis and motor deficits in autism spectrum disorder, and led basic science projects studying the stability of sensory representations in visual and retrosplenial cortex, and the recruitment of top-down cingulate circuitry during visually guided behaviours.

Since 2019, Dr Adam Ranson has been based between the Universitat Internacional de Catalunya where he is an Assistant Professor and leader of the Cortical Circuits Group, and Universitat Autònoma de Barcelona in the Institut de Neurociencies where he is an IVU Linked research group leader. Dr Ranson continues to be appointed as an Honorary Lecturer in the Cardiff University School of Biosciences. He currently oversees the work of a post-doctoral fellow and 3 PhD student (2 in UK, 1 in Spain) and has most recently been granted a Plan Nacional Grant. Dr Ranson s group s current work aims to understand the function and assembly of cortical circuitry through which sensory processing is influenced by non-sensory factors such as attention and motor activity, and the ways in which this circuitry may be impaired in neuropsychiatric disease and restored using neural prostheses and molecular interventions.

Resumen del Currículum Vitae:

Dr Ranson s PhD work was funded by a competitive MRC fellowship, and the studies which made up his thesis resulted in publications on the molecular and mechanistic basis of cortical developmental plasticity in Proceedings of the National Academy of Sciences (IF 9.74), Neuron (IF 13.97) and the Journal of Neuroscience (IF 6.75). These finding formed the basis of a successful BBSRC grant on which Dr Ranson was a Co-Investigator. Dr Ranson s subsequent post-doctoral research work was funded through participation in two large programme grants from the Welcome Trust at the post-doctoral level. The findings of this work resulted in publications on the inhibitory circuit basis of contextual sensory processing modulation, published in Neuron (IF 14.32), a novel visually guided head-fixed behavioural paradigm, published in Cell Reports (IF 8.03) and the mechanistic basis of hallucinatory activity in psychosis, published in Schizophrenia Bulletin (IF 7.58; corresponding author). Dr Ranson next established an independent research group through a Sêr Cymru European Commission / UK co-funded fellowship. Research conducted as PI under this and subsequent funding has resulted in publications on the stability of sensory representations, published in Cell Reports (IF 8.03; sole-author) and Cerebral Cortex (IF 5.04; senior/corresponding author), the neural basis of motor impairments in autism spectrum disorder, published in Translational Psychiatry (IF 5.18; co-senior/corresponding author) and most recently a study on the recruitment of top-down circulate circuits during visually guided behaviour (bioRxiv preprint; under revision at Cell Reports; senior/corresponding author). Dr Ranson has an h-index of 10 and 610 citations from 14 publications (includes 2 preprints under revision; 10 papers in Q1). Dr Ranson has extensively internationally presented his work including giving talks in the US, Japan, Spain, the UK and Belgium, and presenting posters at numerous national and international conferences.

Despite his relatively junior status, Dr Ranson has gained extensive leadership experience, having formally trained / supervised within his research group 3 x postdoctoral fellows (1 current), 4 x PhD candidates (3 ongoing, 1 complete), 2 research assistants and 1 senior research technician, while mentoring many more. The quality of this training is indicated by positions subsequently gained by trainees, both in academia (postdoctoral work Cambridge University, Bristol University, Universidade de Lusíada), government agencies (UK Office for National Statistics) and industry (in various data science companies). Dr Ranson s standing in the field is further indicated by his participation in grant evaluation for IRC, Polish National Science Centre, FWO Flanders and invitations to peer review for Journal of Neuroscience Methods, Nature Neuroscience and BMC Psychiatry.

Dr Ranson has been awarded more than 10 research grants worth in total approximately 994.000, including 648.355 as PI or co-I. This includes a highly competitive Sêr Cymru fellowship (UK; £226,834; Participation: PI), and a BBSRC grant (£370,340; Participation: Co-I), and was most recently awarded a project under the call "Proyectos I+D Generación de Conocimiento 2019" of the Spanish Ministry of Science and Innovation (142,780) which included an additional FPI call linked PhD studentship.





Área Temática:	Biociencias y biotecnología
Nombre:	PASCUAL GARCIA, ALBERTO
Referencia:	RYC2021-032424-I
Correo Electrónico:	alberto.pascual.garcia@gmail.com
Título:	Integrative Biology: A roadmap towards predictive Synthetic Ecology

Resumen de la Memoria:

My scientific trajectory is focused on multidisciplinary and interdisciplinary science, with a strong commitment towards the integration of biological processes across scales, and on the interplay between physical laws and natural selection. This is reflected by the different areas I have worked on, from protein structure evolution to theoretical population dynamics models, and on the different methodologies, from the development of complex networks tools or stability analysis of dynamical models to evolutionary studies or large-scale analysis of OMICS data.

In the last years, I have focused my research on microbial systems, where previous questions and methods naturally converge, and where I plan to develop my future research. My motivation is not only a practical one, I also feel that understanding and eventually controlling natural microbial communities in an increasingly pressing scenario of environmental change is an urgent task. I aim to encompass both theory and experiments, with a strong focus on establishing the physical principles of microbial organization. This will allow me to occupy a niche in the relatively new area of synthetic ecology. This is an optimal area of research to attract funding as it embraces different scales, from molecules to populations, diverse questions, and an immense scope of possible applications.

My research considers experiments in which natural communities are domesticated by growing them in standarized yet complex media, ressembling the conditions under which they will operate in the wild. The striking reproducibility of these experiments is allowing me to develop an integrative theoretical, computational and experimental framework aiming to dissect the different layers of organization (from the cell- to the community-level), to decipher physical, ecological and evolutionary principles. I am to find the best avenues to coarse-grain each level and to establish mechanistic linkages between them, creating models that are both scalable and predictive. The main topics covered include questions such as the relation between cell-level physiological trade-offs and bacterial ecological strategies, the identification of ecologically-imprinted genomic signatures, the inference of microbial interactions, or the development of predictable consumer-resources models. Along this process, I will generate deliverables such as new computational methods and an annotated library of synthetic ecosystems.

Resumen del Currículum Vitae:

I am a physicist with a MSc in Biophysics and a PhD in Molecular and Cell Biology that was awarded with the University Extraordinary Thesis Award. I spent 6 years working as Research Associate in Imperial College London (2yr) and ETH-Zürich (4yr) both institutions ranked among the 10 best universities in the world (QS). I participated in 6 research project which allowed me to develop an extensive network of collaborators in Spain, Europe and USA. In particular, I am currently a researcher in the Simons consortium on Principles of Microbial Ecology, a large collaboration involving 11 world-leading groups. At this stage, I applied for an ERC Starting Grant to be conducted at CNB, the institute in which I am planning to develop my research with the help of a RyC.

I published 31 items including: 21 peer-reviewed articles, 1 book edited (two volumes), 4 book chapters and 4 proceedings/pre-prints. In 21 publications I am first or corresponding author: In 3 articles and 4 book chapters I am single author, in 4 articles I am first and corresponding author, in 2 articles I am corresponding author and in 8 articles I am first author. I have 20 publications without my PhD. advisor. In total, I have more than 1450 citations (Google Scholar, H factor 10). The complete list of publications is available in my website. I am reviewer of projects for the Inception program (Institute Pasteur), the Ambizione program (Swiss National Foundation), and I ve peer-reviewed articles for 15 journals, including top journals such as PRL or Nature Communications. Last year, I ve been shortlisted for the Robert May Prize of the British Ecological Society. I participated in 29 conferences/seminars including 4 invited talks, 9 contributed talks and 11 contributed posters.

I earned a notable teaching experience at both secondary school level (public and private institutions) and university level. I ve been a lecturer at Universidad Autónoma de Madrid and at Imperial College London, coordinating two courses. I published my lectures in a peer-reviewed journal including two repositories with scripts to solve the exercises, and I coordinated and edited the first freely-accessible book of Bioinformatics for Spanish speakers comprising more than 500 pages and edited in two volumes, in which I further contributed to three chapters. I supervised 6 MSc Thesis, 2 Term Papers and 1 BSc Thesis. All my students had remarkable results (e.g. a L'Oreal prize for the best female MSc Thesis for Ms. K. Hidson) and I am preparing several papers from results obtained in these Thesis. I participated in the Evaluation Committee of 6 MS. Thesis and 3 PhD Thesis.

Beyond academic science, I am a Board Member of OpenScholar a non-for-profit organization advocating for the fair and transparent dissemination of science. Among other achievements, we contributed towards the development of an open peer-review module for CSIC. When the COVID-19 outbreak started, I created with other colleagues the scientific association Crowdfight, in which I am a Board Member, aimed at diverting scientific efforts towards COVID-19 research. More than 45K scientists joined us as volunteers and we successfully addressed hundreds of requests. I also collaborate with the Pax Syriana Foundation to develop epidemiology models to design feasible interventions to control the spread of infecti



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	UNZU EZQUERRO, CARMEN
Referencia:	RYC2021-033449-I
Correo Electrónico:	cunzu@unav.es
Título:	Development of AAV-based Gene Therapies for Patients with Liver Inborn Diseases
Resumen de la Memoria:	

I am an investigator with a hybrid academic-industry background on gene translational medicine with more than 10 years of experience in preclinical drug discovery and development of gene therapies for liver rare diseases.

I obtained my PhD in the Gene Therapy department of CIMA (Spain). My research was focused on the development of non-integrative viral vectors, Adeno-Associated Vectors (AAV) and Helper-Dependent Adenoviral vectors, for in vivo liver-directed gene therapy of Acute Intermittent Porphyria (AIP). This preclinical work laid the ground for a Phase I clinical trial in AIP patients and a patent on nucleic acid constructs for gene therapy.

During my postdoctoral training in Switzerland, I worked on ex-vivo liver gene therapy for Crigler-Najjar disease using liver stem cells and lentiviral vectors. The project was led by Dr. Wildhaber (Head of the Division of Pediatric Surgery, HUG) and Dr. Trono (EPFL Professor and world-class virologist who pioneered, together with others, the development of lentiviral vectors). As a result, I developed and patented a novel method to generate hepatic progenitors for ex-vivo liver applications and I was co-inventor in another patent on a method based on RNA sequencing analysis for assessing the quality of human cells. Both published in original research articles.

Next, I joined the Vandenberghe lab at MEEI/Harvard Medical School (Boston, USA) as Senior Scientist. My goal was to use ancestral AAV libraries as tools for capsid discovery to target rare genetic indications. I also coordinated strategic relationships and a team of research associates to support external preclinical programs for a variety of indications, from blindness or hearing loss disorders to inborn metabolic liver disease and muscular dystrophy. I made significant academic contributions included in manuscripts that are accepted, under review or in preparation, and I was co-inventor on a patent on Liver-Specific Tropism of AAVs.

My interest for new AAV technologies brought me to Apic Bio (Cambridge, USA), a biotechnology company that develops AAV-based gene therapies following a Silence and Replace approach. As Associate Director of Preclinical Research, I led a team of scientists to perform the preclinical studies for Alpha-1 Antitrypsin Deficiency (AATD) Dual Function gene therapy. AATD is a liver genetic disease that affects the SERPINA1 gene causing a dual lung and liver pathology. In this case of dual pathology, the only gene therapy approach that would cure the disease would be to express the healthy version of the protein but also silence the misfolded one. The program is currently in the IND-enabling stage. While the Silence and Replace AAV technology holds promise for AATD, there is still a number of AAV-related challenges that need to be tackled.

Therefore in January 2022, I joined the Gene Therapy department at the Center for Applied Medical Research (CIMA, Spain) as Principal Investigator. My research objectives are 1) Optimizing viral vectors to efficiently deliver nucleic acids to the liver with minimal immunogenicity, and 2) Studying the mechanisms of the adverse effects of AAV-mediated liver gene therapy in the clinic and evaluating their pharmacological modulation, with the longterm goal of developing safe gene therapies for patients with unmet needs.

Resumen del Currículum Vitae:

I am an investigator with a hybrid academic-industry background on gene translational medicine with more than 10 years of experience in preclinical drug discovery and development of gene therapies for liver rare diseases. My long-term research interests include the development of novel gene therapy approaches and clinical translation of personalized medicine.

I obtained my PhD at the Fontanellas lab in the Hepatology and Gene Therapy department of CIMA (University of Navarra, Spain). My research was focused on the development of non-integrative viral vectors (Adeno-associated vectors, or AAV, and helper-dependent adenoviral vectors) for in vivo liver-directed gene therapy of Acute Intermittent Porphyria (AIP). This preclinical work laid the ground for a Phase I clinical trial in AIP patients, and a patent. My work was recognized with the Outstanding PhD of The Year awarded in 2012 by the faculty of Sciences (University of Navarra).

During my postdoctoral training in Switzerland, I worked on ex-vivo liver gene therapy, where the strategy was to isolate hepatocytes from the host, genetically correct the disease by gene augmentation with an integrative lentiviral vector and transplant them back into the liver. As a result of my research, I developed and patented a novel method to generate hepatic progenitors for ex-vivo liver applications and I was co-inventor in another patent for developing a method based on RNA sequencing analysis for assessing the quality of human cells.

Next, I joined Dr. Vandenberghe at MEEI/Harvard Medical School (Boston, USA) as Senior Scientist to support and coordinate the translational efforts of the lab. Dr. Vandenberghe has an outstanding career and recognition in the AAV field, and his research is focused in developing synthetic AAVs and libraries for different applications. There, my goal was to use ancestral AAV libraries as tools for capsid discovery to target rare genetic indications. In addition, I coordinated strategic external relationships and managed a team of research associates to support the translational work in the lab. I made significant academic contributions included in manuscripts that are accepted, under review or in preparation, and I was co-inventor on a patent on Liver-Specific Tropism of AAVs.

My interest for new AAV technologies brought me to Apic Bio (Cambridge, USA), a biotechnology company that develops dual function AAV-mediated gene therapies for treating rare diseases based on a Silence and Replace approach. As Associate Director of Preclinical Research, I led a team of scientists to optimize the AAV vectors and perform the preclinical studies for Alpha-1 Antitrypsin Deficiency gene therapy.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

In January 2022, I joined the Gene Therapy department at the Center for Applied Medical Research (CIMA, University of Navarra, Spain) as Principal Investigator. My research objectives are 1) Optimizing viral vectors to efficiently deliver nucleic acids to the liver with minimal immunogenicity, and 2) Studying the mechanisms of the adverse effects of AAV-mediated liver gene therapy in the clinic and evaluating their pharmacological modulation.





Área Temática:	Biociencias y biotecnología
Nombre:	ORTEGA QUINTANILLA, GABRIEL
Referencia:	RYC2021-031074-I
Correo Electrónico:	gortega@cicbiogune.es
Título:	Nature-inspired biosensors for personalized medicine
Beaumon de la Mamori	

Resumen de la Memoria:

My research to date has focused on tackling problems at the intersection between fundamental natural sciences and applied technical sciences. In particular, I have pursued to explore the biophysical mechanisms that underlie biomolecular function, harnessing this fundamental knowledge to understand biological questions as well as to improve biotechnological applications. With these goals in mind, during my PhD I studied the biophysics of extremophile adaptation, the role of protein dynamics as an allosteric regulator of biomolecular recognition, the molecular mechanisms of rare diseases, and the structural determinants of protein electrostatics.

After obtaining my PhD, I joined the team of Prof. Plaxco at the University of California Santa Barbara, seeking to expand my expertise in bioengineering, bioanalytical chemistry and biosensors. During my postdoctoral research I pursued 3 main lines of research:

- Electrochemical aptamer-based sensors for personalized medicine: This sensing technology supports continuous, real-time molecular measurements directly in-vivo of some clinically and biologically relevant targets. My research has led to the development of new aptamer-based sensors for clinical biomarkers and metabolites, the implementation of strategies to improve the performance of these sensors, and their application in pharmacology and drug delivery.

- The biophysics of protein-surface interactions: Protein-surface interactions are ubiquitous in biology and in biotechnologies. However, our understanding of the biophysics that govern these important interactions is quite limited. In response, I have developed new methods to achieve the functional implementation of proteins on artificial surfaces. I have used this tool to discover new, unexplored aspects of the biophysics of proteins-surface interactions, showing how they can be very different from those traditionally observed in bulk solution. My research has thus opened a new field in protein biophysics, which will help better understand protein function in biology, but also to improve the implementation of proteins in biosensors and other biotechnologies.

- Allosteric control of biomolecular receptors: The ability to control binding will enable tailoring biomolecular receptors to specific applications in biotechnologies. To achieve this, I set to explore the thermodynamics of binding cooperativity. This fundamental knowledge enabled me to develop new models and designs to allosterically control biomolecular receptors, which I applied to improve the responsiveness and sensibility of biosensors.

Moving forward, my independent research will produce new concepts, theories and technologies towards advancing biosensing and personalized medicine. To that end, I will use analytical chemistry, molecular biophysics, and bioengineering, along with some Nature-inspired tools and designs, to develop a new sensing technology capable of performing continuous, real-time measurements; directly in-vivo in the veins and tissues of patients; and generalizable to a wide array of clinically and biologically relevant analytes. Such a sensing technology will bring personalized medicine to our daily life, improving our ability to monitor metabolism, as well as our ability to diagnose, prevent, and treat disease.

Resumen del Currículum Vitae:

I got my Bachelor in Chemistry at the Institut Quimic de Sarriá (Barcelona), and my Master in Molecular Biology and Biomedicine at the Basque Country University (Bilbao), for which I got a fellowship by la Caixa Obra Social Foundation. I obtained my PhD in Molecular Biology and Protein Structural Biology at Basque Country University and CIC bioGUNE (Bilbao) under the supervision of Dr. Óscar Millet. Fruit my PhD research, I published 11 articles in peer-reviewed journals, 5 of them as first author.

I then obtained a postdoctoral fellowship by the Basque Government to join the laboratory of Prof. Kevin Plaxco at University of California Santa Barbara, Department of Chemistry and Biochemistry, and Center for Bioengineering. During my postdoctoral research I have published 20 articles, 4 as first author, and licensed a patent.

After that, I recently secured an Ikerbasque Research Fellowship to join CIC bioGUNE (Bilbao) as an independent researcher, position that I currently hold. My overarching research goal is to expand our understanding of the biophysical mechanisms that underlie biomolecular function, harnessing this fundamental knowledge to understand biological questions and to improve biomedical and biotechnological applications. In particular, my independent research focuses on developing new biosensing technologies for personalized medicine.

Along my career I have demonstrated:

- Independent thinking and high productivity of high-quality research: I have published 31 articles in prestigious peer-reviewed journals and licensed a patent, accumulating over 680 citations (h-index 17). Of these, 10 as first author and 20 corresponding to my postdoctoral research. I have also been recognized with prestigious awards, such as the 2018 Extraordinary Thesis Award by the Basque Country University, the 2017 Best PhD Thesis in NMR Award by the Royal Spanish Society of Chemistry, and the 2016 Jose Tormo Award to the Best Publication in Structural Biology by the Spanish Society of Biochemistry and Molecular Biology, as well as other travel and conference awards.

- Capability to secure competitive funding: I have secured competitive funding from private and public entities for my Master, my PhD, a four-month research visit to Johns Hopkins University, my postdoctoral research at UC Santa Barbara, and currently for my independent studies as a Research Fellow at CIC bioGUNE.



- Leadership and management skills: During my tenure at the University of California I have actively engaged in mentoring and teaching, mentoring 3 graduate and 4 undergraduate students as part of their training in research, and independently organizing and teaching a Training Course on Programming.

- Communication and dissemination: I have presented my research at international and national conferences and universities, including nine times as an Invited Speaker.

- Mobility and collaborations: My research activity at Johns Hopkins University and at the University of California Santa Barbara has allowed me to establish solid collaborations with reputed international researchers.

- Outreach and community involvement: I was in the organizing committee of Eureka Cafe, a program of scientific outreach. I also volunteered with Red Cross Spain as a mentor of children aged 6 to 16 in risk of poverty and social exclusion to improve their academic performance.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	KOCHANOWSKI , KARL
Referencia:	RYC2021-033035-I
Correo Electrónico:	karl.kochanowski@irta.cat
Título:	Elucidating principles of metabolic regulation to combat infectious diseases in animals

Resumen de la Memoria:

My research focuses on elucidating the principles and mechanisms by which cells regulate metabolic pathway activity. In my PhD research in the laboratory of Uwe Sauer at ETH Zurich (Switzerland), I investigated how the bacterium E. coli coordinates the activity of its metabolic network across different nutritional conditions. My work identified several key mechanisms that contribute to this coordinated metabolic regulation and led to the development of several widely adopted approaches to identify protein-metabolite interactions. In my postdoctoral research in the laboratory of Lani Wu and Steven Altschuler at UCSF (USA), I examined how the behavior of cancer cells is affected by changes in metabolic environment and identified empirical growth laws that govern common cancer phenotypes.

Recently, I joined IRTA-CReSA, where I aim to elucidate the principles of metabolic regulation in pathogens infecting animals in two research lines that leverage my past research and the expertise present at my host institution. My first research line will focus on elucidating the metabolic interactions between bacterial pathogens and commensal microbiota, and how we can exploit such interactions to develop new antimicrobial strategies. My second research line will focus on elucidating the principles by which animal viruses remodel host metabolic state, and how we can exploit this knowledge to develop new antiviral metabolic interventions for animal production. I believe that these research lines will be highly valuable for the area of animal health in Spain and beyond.

My research output includes 20 peer-reviewed articles (10 as a first or co-first author) in high-impact journals including PNAS, Nature Biotechnology, and Cell, which have been cited over 1700 times since 2017 (h-index = 16, source: google scholar). Moreover, to date I have mentored more than 10 graduate students, including 3 master students, and I am currently co-supervising a PhD student. Finally, I have secured over 1.2 Mio of competitive research funding (in the form of research grants and fellowships) since 2017, illustrating my scientific leadership.

Resumen del Currículum Vitae:

My research focuses on elucidating the principles and mechanisms by which cells regulate metabolic pathway activity. My PhD research in the laboratory of Uwe Sauer at ETH Zurich focused on how the bacterium E. coli coordinates the activity of its metabolic network across different nutritional conditions. My work identified three key mechanisms: First, by using few intracellular metabolites to regulate transcription factor activity, cells tune transcriptional regulation to their current metabolic status. Second, to ensure the coordinated production of metabolic proteins, cells adjust the activity of the global expression machinery to match the current growth rate. Third, this simple transcriptional program is further adjusted locally through changes in metabolite concentration that affect enzyme saturation and activity.

In my postdoctoral research in the laboratory of Lani Wu and Steven Altschuler at UCSF (USA), I examined how the behavior of cancer cells is affected by changes in metabolic environment. Towards this end, I developed an in vitro platform to cultivate cells in large arrays of culture media with defined nutrient composition, allowing to externally tune growth rate in a constant genetic background. In a proof-of-concept study, I used this platform to systematically search for empirical growth relationships in common cancer cell phenotypes. To enable these research efforts, I secured two postdoctoral fellowships, as well as a competitive research grant in which I served as the principal investigator.

In May 2021, I joined IRTA-CReSA to elucidate the principles of metabolic regulation in pathogens infecting animals. My first research line will focus on elucidating the metabolic interactions between bacterial pathogens and commensal microbiota, and how can we exploit such interactions to develop new antimicrobial strategies. My second research line will focus on elucidating the principles by which animal viruses remodel host metabolic state, and how we can exploit this knowledge to develop new antiviral metabolic interventions for animal production. These research lines directly build upon my PhD and postdoctoral research and benefit from the unique combination of my expertise in systems biology approaches to study metabolism and my host institution s expertise in animal infectious diseases. To enable these research efforts, I recently co-authored a successful infrastructure grant to establish state-of-the-art live-cell imaging systems in the BSL-3 facilities of my host institution (funded by the Spanish Ministry of Science and Innovation). These imaging systems will be critical for my efforts to elucidate how changes in host cell metabolic state affect the ability of viruses to productively replicate.

My research output includes 20 peer-reviewed articles (10 as a first or co-first author) in high-impact journals including PNAS, Nature Biotechnology, and Cell, which have been cited over 1700 times since 2017 (h-index = 16, source: google scholar). Moreover, to date I have mentored more than 10 graduate students, including 3 master students, and I am currently co-supervising a PhD student. Finally, I have secured over 1.2 Mio of competitive research funding (in the form of research grants and fellowships) since 2017, which is testament to the innovative nature of my research lines and my scientific leadership.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Biociencias y biotecnologíaNombre:FAFIAN LABORA, JUAN ANTONIOReferencia:RYC2021-032567-ICorreo Electrónico:jfaflab@gmail.comTítulo:Undiscoveried molecular and cellular mechanisms in paracrine senescence through small extracellularvesiclesVesicles

Resumen de la Memoria:

Dr. Fafián-Labora obtained his PhD in 2016. The focused of his doctoral thesis was the influence of ageing on the capacities of mesenchymal stem cells and was during this period that he built up his expertise in ageing, extracellular vesicles (EVs), inflammaging and stem cells. His doctoral work was not only awarded the Premio Extraordinario de Tesis Doctoral but also generated 8 publications with him as first author in 5 of them, and co-author in another 3 (5 in Q1).

In 2017, he was granted with a fellowship from Junior Postdoctoral Programme from Xunta de Galicia (A modality). During this period, Dr. Fafián-Labora unveiled the molecular mechanism involved in the intercellular communication between senescent cells showing for first time that small EVs (sEVs) are part of the senescence-associated secretory phenotype (SASP) and participate in the transmission of senescence to proliferative cells. A total of 7 manuscripts (5 as first author and 1 as corresponding author) were published being 2 of them in high impact factor journals (Cell Metabolism, Trends in Cell Biology IF>20). His scientific work during this period was 2 times highlighted in journals and scientific societies for its originality (Nat Rev Mol Cell Biol, SEBBM). Alongside, he was involved as co-principal investigator in 1 international project (Barts Charity-QMUL) and as collaborator in 3 national (ProteoRed-ISCIII, CICA-UDC and Xunta de Galicia). This postdoctoral training consolidates his expertise in cellular senescence, rejuvenation, and small extracellular vesicles.

Currently, he is a Senior Postdoctoral Fellowship from Xunta de Galicia (B modality) in the Cellular Therapy and Regenerative Medicine Group (UDC) establishing his independent researcher line where he applied his knowledge in EVs and senescence to the development of senodrugs. His work has led to 3 publications as first author and 1 as corresponding author (Q1). In parallel, he participates in 6 projects, being in 3 of them principal investigator (ProteoRed-ISCIII, Xunta de Galicia, CICA-UDC).

During his scientific career, he had mentored and oversaw a total of 9 master students (1 in QMUL, UK and 8 in UDC, Spain), 3 medical doctors (QMUL, UK), and 1 PhD thesis (UDC, Spain). Moreover, since June 2019 he is an associate professor at UDC, teaching different master courses. He has also participated in 32 reviewed-before-acceptance international or national (conferences, talks).

Dr. Fafián-Labora is also a board editor, guest editor and a peer-reviewer in several scientific journals (most of them from Q1). He has published 20 JCR-publications. Number of publications in Q1: 13, in D1:3 (2 of them with IF>20. h-index: 10 (WOS) and 12 (Google Scholar). Total citations: 375 (WOS).

Finally, he accumulates extensive experience in appling and writing scientific grants. A total of 11 grants were obtained by him, securing more than 400K in fundings.

Resumen del Currículum Vitae:

He has published 20 JCR-publications. Number of publications in Q1: 13, in D1: 3 (2 of them with IF>20. h-index: 10 (WOS) and 12 (Google Scholar). Total citations: 375 (WOS). Supervision of one doctoral thesis currently and 12 end-off-degree and master thesis.

Education: 2016: PhD in Health Sciences (UDC); 2013: Master in Cellular, Molecular Biology and Genetics (UDC)(UDC); 2012: Bachelor s in chemistry (USC).

Experience: 2021-Currently: Senior Postdoctoral Fellowship from Xunta de Galicia (B modality) 2019-2020: Junior Postdoctoral Fellowship from Xunta de Galicia (A modality)

2017-2019: Junior Postdoctoral Fellowship from Xunta de Galicia (A modality)

2013-2016: PhD in Health Sciences. EMBO Fellowship Short-term. Fellowship from Diputación da Coruña.

Most important grants, awards and scholarships obtained: Finalist as Young Researcher in Extracellular Vesicles from Society of Extracellular Vesicles in United Kingdom. Travel grant for congress travelling expenses: SEBBM (2021), EuPA (European Proteomics Association) (2015); Short-term Fellowship from INDITEX-UDC (2015) declined by the candidate due to fellowship incompatibility Postdoctoral Fellowship from AECC 2021 (2021) declined by the candidate due to contract incompatibility. Extraordinary doctoral award (2017).

Supervision of PhD thesis, master and final year projects:

-PhD thesis: RMM (UDC, SPAIN, 2021-Currently)

-Master project: SMA (QMUL, UK, 2017), CGR (UDC, SPAIN, 2020), RMM (UDC, SPAIN, 2021), MPMQ (UDC, SPAIN, 2021), JLS (UDC, SPAIN, 2021), MSS (UDC, SPAIN, 2021), SLG (UDC, SPAIN, 2021-Currently), CFAV (UDC, SPAIN, 2021-Currently) and MEMQ (SPAIN, 2021-Currently) -Final year: MM (QMUL, UK, 2017), TSB (QMUL, UK, 2019), SJJ (QMUL, UK, 2019).

Teaching activities: 2019-Currently: He is an associated professor at 3 masters (Master in Assistance and Health Research, Master in Cellular, Molecular Biology and Genetics, Master in Advanced Biotechnology) at the Department of Physiotherapy, Medicine, and Biomedical Sciences in UDC. Commissions of Trust:

i) Guest Editor: special issue Extracellular Vesicles Research in Inflamm-Aging . Life. MDPI. (IF: 3.817. Q2) and Proteomics for the Study of Inflammatory Diseases . International Journal of Molecular Sciences. MDPI. (IF: 5.924. Q1)

ii)Reviewer: 8 scientific journals (5 in Q1) about cell biology, stem cells and gene therapy (Stem Cells & Therapy (Q1), Cells-MDPI (Q1), Cell Death and Discovery (Q2), Life-MDPI (Q2), Cancer-MDPI (Q1), Biomedicines-MDPI (Q1), Biologics-MDPI (Q3), Journal of Clinical Medicine-MDPI (Q1). iii)Jury of doctoral theses: UDC (2022)

Seminars and conferences: Invited speaker at IRYCIS, Hospital RyC, Madrid, Spain (2019), Blizard Institute, QMUL, London, UK (2020), virtual conference organized by ICSA in 2021. Seminars in the Rabdoud University (2015), INIBIC (2016) and Happy Hour (2021) organized by CICA-UDC-INIBIC grouped. Divulgation activities: Mentor in the Mentoring programme from Xunta de Galicia 2021, XCOUT Explorer 2022, INSPIRASTEM. His excellent work was mentioned in newspaper as La Opinión-A Coruña, website from Hospital Ramón y Cajal-IRYCIS, QMUL and CICA.



Área Temática: **Biociencias y biotecnología** Nombre: DIAZ-RUIZ RUIZ, JOSE ALBERTO **Referencia:** RYC2021-033751-I **Correo Electrónico:** alberto.diazruiz@imdea.org Título: Biology of Aging: Mechanisms and Interventions to promote Healthy Aging and Longevity

Resumen de la Memoria:

My academic/research career was carried out in Spain and United States and can be structured in 5 stages: 1- University stage [1 article]: I applied cellular and molecular tools at CNB-CSIC to characterize the putative RNA polymerase of infectious bursal disease virus.

2- Predoctoral Stage [6 articles | 2 as 1st author (PlosOne and Biochem. J) | 3 book chapters]: M. Sc. Veterinary Medicine and awarded with a FPI Spanish Program Fellowship to carry out my PhD in Sciences (2011, University of Cordoba). Also awarded with two research training fellowships at U.T Southwestern University (Dallas) and Stanford University School of Medicine (CA) supervised by Dr. Thomas C. Sudhof [2013-Nobel Prize in Medicine]. I explored mechanisms governing the secretory pathway in neurons and neuro-endocrine cells. We identified NECC1 and NECC2 as scaffold components of the Golgi matrix and caveolae, respectively, regulating secretory cargo a well as NGF- and insulin-mediated signaling. I also obtained two research associated contracts to study the biology of adipose tissue as a metabolically relevant endocrine organ.

3- 1st Postdoctoral Stage [10 articles | 1 as 1st author (Antioxidant&RedoxSignaling) | 2 book chapters]. Awarded with a Proyecto de Excelencia (Junta de Andalucía) for 2 years at IMIBIC, Cordoba, I deciphered underlying pathophysiological mechanisms of adipose tissue dysfunction in obesity through the application of proteomic techniques and bioinformatics.

4- 2nd Postdoctoral Stage [14 articles | 3 as 1st author in D1 (Cell Stem Cell, Aging Cell, JGBSA]. Awarded with a 5 years post-doc at the National Institute on Aging (NIA,NIH). I integrated whole-body physiological approaches and omic techniques to understand energy metabolism imbalances during aging and worldwide metabolic diseases (i.e obesity and NAFLD).

5- Head of Research Line in Aging, Longevity and Cancer: [9 articles | 1 as 1st (Nat Comm), 2 as last- (Cell Metabolism and Nutrients), and 2 as corresponding-author (Nat Comms and Nutrients)]: Granted with a Talent Program, 2019, Madrid , I lead an emergent research team of 6 members (post-doc, pre-doc, lab tech, 2 students and myself). I hold funds as PI for private and competitive public calls, including Plan Estatal, 2019 and funds to hire research personnel. We stand on the salutary benefits of fasting to identify fasting-mediated regulatory mechanisms with transferable potential into the clinic to decode aging and delay the onset of age-associated diseases including cancer.

Overall, I have co-authored 40 peer-reviewed articles [80% in Q1, h index 17], participated in 16 R&D projects and I have research-mentored students internationally (Doctoral, End of Degree, Master, Summer Internship). I am accredited as 'Profesor Contratado Doctor' by ANECA [+290hr at Univ. Level; average student evaluation of 4.15/5]. I was Associated Professor at UAM in 2021 and I am a Permanent Guest Professor and Course Coordinator at several Universities. I am a Grant Reviewer at the AEI, ad-hoc Journal Reviewer in D1 journals, Abstract Reviewer at conferences and I have participated as Evaluator in Scientific Committees. Frequently invited to conferences and highly active in dissemination activities for the general public including school visits and interviews for medical press media.

Resumen del Currículum Vitae:

CURRENT POSITION, 2019 present

- Tenure track (Talent Program, 2018, Madrid): Precision Nutrition and Aging Branch, IMDEA Food, Madrid
- Head of Research Line in Aging and Longevity, leading an emergent research team of 6 members (postdoc, predoc, lab tech, 2 students & myself) PREVIOUS AWARDED FELLOWSHIPS&POSITIONS
- Associated Professor, UAM, 2021
- Postdoctoral position, 2014-18: Translational Gerontology Branch, National Institute on Aging (NIA, NIH), supervised by Dr. Rafael de Cabo
- Postdoctoral position, 2012-14: IMIBIC, Cordoba, funded by Proyecto de Excelencia, Junta de Andalucía
- Research Associated Contract [2011 Plan Propio UCO]
- Research Associated Contract [2010 Grupo PAI BIO-139, UCO]
- Visiting Scholars (2007, 2008): UT Southwestern Medical Center (Texas) and Stanford University (CA), both supervised by Dr. Thomas Sudhof
- Predoctoral position, 2005-09, granted with FPI Fellowship: Dpt. Cell Biology, Physiology and Immunology, UCO, supervised by Dr. Maria del Mar Malagón
- Undergraduate Student, 2003: CNB/CSIC supervised by Dr. Jose Francisco Rodriguez PUBLICATIONS
- 40 peer-reviewed articles [80% in Q1, h index 17], 5 book chapters
- 7 first-author articles including Nat Comm, Cell Stem Cell, Aging Cell, JGBSA
- 2 last-author articles [Cell Metabolism, Nutrients]
- 2 corresponding-authorship [Nat Comm, Nutrients]
- **PRIZES & AWARDS**
- Fellows Award for Research Excellence (2017, NIH, USA)
- Scientific Communication Award (2014, CIBERobn, Spain)
- Young Investigator Award (2009, UCO, Spain)

R&D PROJECTS (16)

Secured grants as Tenure Track:

- Plan Estatal, 2019, Pl





- Talent Program, 2018, Pl
- PhD Recruitment Program, 2020, Madrid, PI
- Lab Tech. Recruitment Program, 2020, Madrid, Pl
- FIS, 2021, RT
- Proyecto de Excelencia, Junta Andalucía, 2019, RT
- Under Evaluation: HORIZON-2022-STAYHLTH (ID101080407), SemillaAECC2022 (2nd phase, PI), LabAEC2022 (PI)
+60 CONFERENCE PARTICIPATION
Lectures in 2021:
8th CIISE
XIX SEBC
XVII SEEDO
5th Ed. Liver Seminar
IV Congress AND
V GEIRLI
EIT Food KickOff
Workshop Inter-university UPV
AEEH (P)
8th ARRDD (P)
TEACHING&DISSEMINATION ACTIVITIES
- 2021, Associated Professor, UAM, 79hrs
- 2019, Accredited as 'Prof. Contratado Doctor', ANECA [student evaluation 4.15/5]
- 2018-present, Permanent Guest Professor, Masters (UAM, UV)
- 2005-11, UCO, 190hrs
- 2018-present: School Visits, Interviews (medical media), Social networks
RESEARCH-MENTOR
- Ongoing: Postdoc, Doctoral Thesis, Lab Tech, 2 students (End of Degree and Master)
- 2018-20: End of Degree (1) and Master (2)
- 2015-18: Doctoral Students [3 from UV, UCO, UAM]
- 2015-18: Summer Internship Mentor Program, NIA
CONFERENCE&COURSE ORGANIZER
- Aging Symposium, XVII CIISE, 2020
- Course Coordinator, Personalized Nutrition across life, Master, CEU Univ, 2022
- Course Coordinator, Biological Aging & Biomedical Application, Master, IMIBIC, 2022
REVIEWER
- Grant Reviewer, AEI (Agencia Estatal de Investigación)
- ad-hoc D1-Journal Reviewer [i.e Aging Cell, JGBSA]
- Congress Abstract Reviewer [i.e American Aging Association, SEEDO]
- Member of Committees [i.e CIISE, Doctoral Defenses]
EXPERIENCE IN INDUSTRY SECTOR
- Sponsored Research Agreement, Biosabor SA, 2019-20, PI
INTEREST
To decipher the biology underneath the aging process to promote healthy aging and longevity. The RyC Program will favor my definitive

establishment as a group leader





Área Temática:	Biociencias y biotecnología
Nombre:	BARROS RIOS, JAIME ANTONIO
Referencia:	RYC2021-034727-I
Correo Electrónico:	Jaime.Barros-Rios@unt.edu
Título:	Molecular mechanisms controlling lignin biosynthesis in plants

Resumen de la Memoria:

I started my scientific career with a PhD fellowship in 2007 under the supervision of Dr. Rosa Malvar at MBG-CSIC in Spain. Using maize as a genetic model organism, I studied the role of plant cell wall composition in pathogen resistance (Barros et al., Phytochemistry 2011), receiving my PhD in Plant Genetics and Breeding in 2012. After finishing my PhD, I decided to expand my expertise into basic plant biology and accepted a postdoctoral position in the laboratory of Dr. Edouard Pesquet at the Umea Plant Science Center in Sweden, where I worked with plant cell suspension cultures to better understand the cell biology of lignin formation in plants (Barros et al., Annals of Botany 2015). In 2013, I was awarded a postdoctoral fellowship in the laboratory of Dr. Richard Dixon, one of the world s leading experts in plant secondary metabolism. Since then, I have been working to better understand how plants synthesize lignin. This is important because lignocellulose is the most abundant biopolymer on earth and its utilization is a promising approach to rebuild a carbon cycle that bypasses fossil fuels.

Resumen del Currículum Vitae:

My main research line focuses on understanding the molecular mechanisms controlling lignin deposition in plant cell walls and the functional role of lignin as a plant stress tolerance factor. More broadly, I use plant biochemistry, genetics, molecular and cell biology and integrated omic approaches to investigate research questions about plant metabolism in major food crops. During the last four years, I have been leading two major collaborative research projects. In the first one, we characterized the first enzyme in the lignin biosynthetic pathway in grasses (Barros et al., Nature Plants 2016), and in the second one, we discovered a new biosynthetic enzyme central to the lignin pathway in plants (Barros et al., Nature communications 2019).



Área Temática:	Biociencias y biotecnología
Nombre:	GONZALEZ GRANDIO, EDUARDO
Referencia:	RYC2021-031223-I
Correo Electrónico:	eggrandio@gmail.com
Título:	Development of a revised plant synthetic biology toolkit (REPLANT)

Resumen de la Memoria:

Since the beginning of my career I have been fascinated by how plants, sessile organisms, adapt to fluctuating environmental conditions. During my research I have studied how plants sense external changes and respond adequately, and my main goal has been to develop new techniques to manipulate these processes to improve crop performance. With this aim, I have acquired experience in both basic and applied research, using a multidisciplinary approach that include bioinformatics, genomics and epigenomics, molecular biology and nanomaterial engineering.

During my Master s and PhD at the Spanish National Center for Biotechnology (CNB-CSIC), I focused on understanding how plants integrate different signals to decide when to develop new branches. I characterized the whole pathway from the light signal that induces expression of the transcription factor BRANCHED1, to the synthesis of abscisic acid, identifying a new function for this plant hormone: branch suppression in shade conditions. To broaden my understanding of how plants sense external signals and regulate gene expression, I moved to the Plant Gene Expression Center (UC Berkeley) to study the role of chromatin remodeling in the initial response to light of germinating plants. I measured, for the first time, changes in chromatin and real-time transcription in very early responses to light, and found that a specific histone modification is intertwined with the transcriptional regulation in this process (González-Grandío et al., 2022). My research in plant adaptation led to nine high-impact publications, five as first author, one of them also as co-corresponding author. Three of them, were considered of outstanding importance to the field in several reviews (González-Grandío et al., 2017). Furthermore, my work in the control of shoot branching led to a patent licensed by a multinational seed company.

After acquiring a deep understanding of plant behavior, my goal was to develop technologies to manipulate plants and enhance crop productivity. I joined the California Institute for Quantitative Biosciences (UC Berkeley) and worked in the development of a technique for biomolecule delivery, based on functionalized carbon nanotubes, which could be used to deliver genome engineering reagents to plants. I identified key components in the nanomaterials that produce adverse reactions in plants, and found more biocompatible formulations that will facilitate the use of these materials in plant biotechnology (González-Grandío et al., 2021a). I also started my own independent research line on plant synthetic biology, building a ratiometric luciferase reporter system to quantify transcription in plants (González-Grandío et al., 2021b).

As a multidisciplinary expert in plant biotechnology, I have devised an innovative project proposal aimed to develop a new plant synthetic biology toolkit, and demonstrate its biotechnological applications. Agronomy faces significant global challenges such as coping with climate change and the need for more sustainable practices. The novel toolkit to be developed in this project, which includes the latest advances in protein production and gene editing techniques along with a user-friendly interface, will greatly contribute to accelerate crop optimization and help solve the global challenges of sustainability and food security.

Resumen del Currículum Vitae:

I am a multidisciplinary expert in plant biotechnology with 13 years of experience. I graduated in biochemistry and I pursued a Master s degree in Biotechnology. During my Master s thesis project (with Honors qualification) I participated in the filing of a patent, what motivated me to start my career as researcher. I obtained a JAE fellowship to pursue my PhD in the laboratory of Dr. Pilar Cubas (CNB-CSIC), studying the genetic control of shoot branching. During my PhD, I authored five high-impact articles (three as first-author and two as second-author) and a book chapter. I also co-directed an undergraduate and a Master s research project and did two fruitful stays at prestigious international laboratories.

After finishing my PhD with cum laude qualification, I obtained a highly competitive EMBO Long-Term Fellowship to start my post-doctoral research with Prof. Peter Quail (PGEC, UC Berkeley). There, I studied how light affects chromatin remodeling in plants. After Prof. Quail retired, I independently managed the project with our collaborators to ensure its finalization. This work was recently published in a paper in which I am first and co-corresponding author. I also brought my expertise to Prof. Quail s lab and helped to advance other projects, contributing to two high-impact publications.

I pursued a second post-doctoral project at Dr. Markita Landry s laboratory (QB3, UC Berkeley), where I developed a biomolecule delivery technique based on carbon nanotubes. My research paved the way for the generation of biocompatible nanomaterials for their use in plant biotechnology and was published in five papers, one as first-author. At the beginning of the COVID19 pandemic, I developed a novel protocol for viral RNA extraction that is in consideration for patenting by UC Berkeley and was published in a high-impact journal. I also started my own independent line of research in plant synthetic biology, that lead to the recent publication of a paper in which I am co-corresponding author. During my postdoc at Dr. Landry s laboratory, I expanded my mentoring skills by independently supervising three undergraduate students.

To gain more insight in entrepreneurship and academy-industry collaborations, I was appointed as a Bakar Innovation Fellow and I participated in a joint project with BASF. I pursued the FORM+FUND Fellowship and I received a Bay Area I-Corps award for successfully building a Customer Discovery Plan for a green algae start-up. Moreover, I organized the Berkeley Science Fellows Program (collaborations between a start-up incubator and UC Berkeley) and became a scientific consultant for the start-up Nextbiotics, contributing to their first project. I also participated in outreach activities like the Mission Science Workshop and the Innovative Genomics Institute Ask a Scientist program. My multidisciplinary expertise has been recognized as I became an independent reviewer for several journals, and I have also reviewed grant proposals for the FFAR. Moreover, during my career I presented my research in several international meetings, two of them as invited speaker. I have recently co-founded a CRISPR-related start-up.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Currently, I am a researcher at the CNB-CSIC, where I am co-directing a PhD student. The Ramon y Cajal Fellowship will allow me to develop my own line of research.





Área Temática:	Biociencias y biotecnología
Nombre:	RIPOLL ROZADA, JORGE
Referencia:	RYC2021-033063-I
Correo Electrónico:	jorge_ripoll_rozada@hotmail.com
Título:	Biochemical and Structural studies for the development of new antithrombotics with clinilcal application
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Resumen de la Memoria:

I am a young scientist whose research career is motivated by the functional understanding of clinically relevant biological systems at the molecular level, with the ultimate goal of developing new therapeutics.

During my PhD with Dr. Elena Cabezón and Dr. Ignacio Arechaga (IBBTEC-Spain), I described various regulatory mechanisms and protein-protein interactions crucial for the correct functioning of bacterial Type IV Secretion Systems, macromolecular assemblies responsible for the spread of antibiotic resistance. To find new molecules to combat this process, I found that unsaturated fatty acids are bacterial conjugation inhibitors that specifically target one of the ATPases in these systems.

Since 2014 I have developed my career in Portugal, where I gradually achieved research independence. I joined the lab of Dr. Pedro J.B. Pereira, first at the IBMC and more recently as part of the Institute for Research and Innovation in Health (i3S), a top ranked R&D unit in the country. During this postdoctoral period, I gained experience in structural biology and several biophysical methods, complementing my previous skills in protein biochemistry and enzymology. I first investigated an unexplored mycobacterial pathway amenable to therapeutic intervention, and as a result of this work, the functional and structural mechanisms that mycobacteria use to produce complex polysaccharides essential for their cell envelope assembly were revealed.

Later on, I focused on the development of new antithrombotics with potential clinical application, which constitutes my main line of research. As a first approach, I explored the design of thrombin (FIIa) inhibitors based on anticoagulants from blood-feeding organisms. In this context, I found a new class of molecules amenable to tyrosine sulfation that bind both the active site and the exosite II region of FIIa, the latter through this post-translational modification (PTM). Moreover, this PTM strongly modulates the anticoagulant properties of these new bivalent binders. In collaboration with Prof. Richard J. Payne (The University of Sydney, Australia), this PTM was shown crucial for the potent activities of multiple anticoagulants from different hematophagous organisms in vivo. New mechanisms of FIIa recognition exerted by these anticoagulants as well as new chemical synthesis methods yielding functional molecules containing sulfations or sulfonate analogues were described. Hybrid variants engineered based on these sulfated scaffolds provided a novel class of functional trivalent inhibitors with improved potency. A second approach aims to develop new antithrombotics against unexplored players in blood clotting cascade using macrocyclic peptides. Recently, we demonstrated the utility of this valuable source of new drugs by identifying several potent and selective inhibitors of FXIIa, a potentially safer target for antithrombotic drug development. Nowadays, I am trying to extend these compounds to a completely different mechanism of intervention, where cyclic peptides target prothrombin (FII). This zymogenlevel intervention works by modulating FIIa levels in the blood, rather than directly blocking the mature enzyme. Since 2021, as Principal Investigator of a FCT-funded project grant, I lead a multidisciplinary team that pursues this scientific achievement.

Resumen del Currículum Vitae:

I am a scientific researcher highly specialized in the fields of structural biology, protein biochemistry and enzymology. Nowadays, I am developing my professional career in Portugal at the Institute for Research and Innovation in Health (i3S), a R&D unit classified as excellent according to the latest evaluation by the Portuguese Funding Agency for Science, Research and Technology (FCT). As Principal Investigator of a project funded by the FCT in 2021, I coordinate a multidisciplinary team of 8 members from the labs of Dr. Pedro J.B. Pereira (i3S) and Prof Richard J. Payne (The University of Sydney) and Dr. Sandra Macedo-Ribeiro (i3S) and Dr. Pedro M. Martins (i3S).

At various stages of my scientific career, I obtained funding through highly competitive individual calls, namely a predoctoral grant of the University of Cantabria in 2009, a postdoctoral grant in a call from the FCT in 2015, and a researcher assistant level contract funded by the FCT under the call to Scientific Employment Stimulus 4th Edition in 2022, which in some ways reflects the quality of my research career at their respective times.

To date, my work has originated a total of 19 publications in high-impact journals:

5 of them in D1 journals (Angew Chem Int Ed, 2021; ACS Cent Sci, 2018; Nat Chem, 2017; Chem, 2017 and FEMS Microbiol Rev, 2015). I am first or co-first author in 7 publications (Biochem Soc Trans, 2022; Cell Chem Biol, 2021; PNAS, 2019; Nat Chem, 2017; Mol Microbiol, 2016; J Bacteriol, 2013 and J Biol Chem, 2012) and corresponding author in 1 of them (Biochem Soc Trans, 2022). 4 publications have been selected as cover issues and 1 publication as hot paper by the Editorial Board.

My work has contributed to 8 project grants (3 developed in Spain and 5 in Portugal) and 26 congresses including oral communications at prestigious international events. I have mentored students at different stages of their careers and served on various academic evaluation boards. I have some experience in organizing scientific events and I am regularly involved as an invited lecturer in an advanced course belonging to the PhD Program in Molecular and Cell Biology at the University of Porto.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	HERNANDO PEREZ, MERCEDES
Referencia:	RYC2021-030929-I
Correo Electrónico:	chikiayllon@gmail.com
Título:	Physical principles of protein nanocages: a single molecule approach.

Resumen de la Memoria:

The characterization of the physical properties and structure of viruses is crucial for understanding their application in biotechnology and biomedicine. My research lays in studies of viruses using single-molecule biophysical techniques. I developed my career from a new perspective, with a marked multidisciplinary character at the frontier of biology, physics, and chemistry, in contrast with the classic structural biology approach.

My PhD, under the supervision of Dr. P.J. de Pablo (pioneer in the use of Atomic Force Microscopy -AFM- on viruses description), centred in the interdisciplinary field of Physical Virology. I focused on the study of mechanical properties and stability of viral capsids to understand the relationships between physical properties, structure, and biological functions. As a result, four unprecedented approaches were fully developed and characterized: 1) first exhaustive physical description and characterization of the viral capsid stability along maturation (Nat Commun 2014; Nanoscale 2014). 2) development, test and description of novel AFM scanning methods and theory approximations to reveal physical properties of viral shells (Nanoscale 2013; Ultramicroscopy 2012). 3) pioneer measurement of the internal pressure of viral capsids directly with AFM (Small 2012), stablishing a new standard in single particle measurement techniques. 4) the first time the charge of different viruses is quantified at the single particle level (Nanoscale 2015).

As a postdoc, I moved to Prof. B. Dragnea s lab (Indiana University, USA) leader researcher at the forefront of the field of physical virology - where I led projects involving also biophysical techniques and, resulting in three novel contributions: 1) first validation of the mechanical properties of icosahedral capsids as a function of the chemistry of the environment in which they are immersed (J Phys Chem B 2016; Phys Rev Lett 2017). 2) pioneer unravelling plasticity signature in viral particles (ACS Nano 2019). 3) comprehensive description of the physicochemical properties of bioadhesives from bacteria (mBio 2018).

In the next step, I joined the group of Dra. C. San Martin (CNB-CSIC), holding two Juan de la Cierva contracts (Training and Incorporation), where I learned and applied techniques such as cryo-Electron Microscopy and Fluorescence Spectroscopy, as well as viruses purification. My project focused on the structure and physical properties of human adenovirus type 5 (HAdV-C5) mutants (NAR 2019; PNAS 2020, Sci Adv 2021), contributing to keep the group at the forefront of adenovirus structure studies. Besides managing the Juan de la Cierva grant funding, I was PI of a project funded by INSTRUCT-ERIC to access European structural biology facilities (2017-2018).

At present, I am Profesor Ayudante Doctor at UAM where I am establishing a new line of research focus on nanoparticles characterization for nanotechnology, biotechnology and biomedical applications. I am PI of the project SI3/PJI/2021 (44k) and building an AFM combined with TIRF for the characterization of nanoparticles.

During the progress of my research stages, I have learned and developed new techniques and approaches, designed long-term experimental plans, gained autonomy and independence to develop new research lines and establish international collaborations, bringing relevant results.

Resumen del Currículum Vitae:

Jun. 2005: Graduated in Physics (Solid State Physics) UAM .

Jul. 2006: Master of Biophysics (UAM), Postgraduate Diploma in Education (CAP) UCM.

Apr. 2007- Aug. 2014: PhD in Condensed Matter Physics and Nanotechnology, (Department of Condensed Matter Physics, UAM). My thesis "Characterization of the mechanical properties of bacteriophages by atomic forces microscopy" was supervised by Dr. Pedro. J. de Pablo and awarded with Sobresaliente Cum Laude score. I did short stays in 2 prestigious Universities in USA (Purdue University and Carnegie Mellon University). Publications: 14 peer-reviewed articles and 2 JOURNAL COVERS.

Sept. 2014- Sept. 2016: I was a postdoctoral researcher in the laboratory of Prof. Bogdan Dragnea (Indiana University, USA). I lead 2 projects which aimed to understand changes in the mechanical and physicochemical properties of 2 different biological systems: viral icosahedral cages and bioahesives. Publications: 4 peer-reviewed articles.

Jan. 2017- Jan 2021: I joined the group of Dr. Carmen San Martín (CNB-CSIC) under Juan de la Cierva 2015 (Training) and Juan de la Cierva 2017 (Incorporation) contracts. I carried out a project focused on the characterization of the structure of the core and the stability of human adenovirus type 5 (HAdV-C5) mutants by cryo-EM and biophysical techniques. I have been PI of the project funded by INSTRUCT-ERIC (2017-2018). Publications: 6 peer-reviewed articles and 3 book chapters.

Jan. 2021- present: I am Profesor Ayudante Doctor at UAM where I am establishing a new line of research focus on nanoparticles characterization and building an AFM combined with TIRF

to characterize nanoparticles for nanotechnology, biotechnology, and biomedical applications. I am PI of the project SI3/PJI/2021-00216 (44k).

I have developed a wide scientific network of international collaborations with world leading experts in different fields. I collaborated Nanotec Electrónica S.L contributing to implementing new functionalities in the most used software for SPM: WSxM (Ultramicroscopy 2012).

I have participated in 10 competitive R&D projects: 5 national and 5 internationals. I have developed a wide scientific network of international collaborations with world leading experts in different fields.

Scientific dissemination:

I have given 8 talks in international conferences (CMD2020GEFES, Physical Virology GCR2015 among other).

Talks for a general audience, on the "Día Internacional de la Mujer y la Niña en la Ciencia" in collaboration with the 11febrero.org initiative. Workshops in collaboration with the Apadrina la Ciencia association. Coauthor of scientific dissemination articles by invitation (Gazette of the UAM and Telecinco Media set).

Training of Young Researchers:



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I have co-supervised 1 End of Master project (TFM) in 2020/2021. This year I am supervising 1 TFM and co-supervising 1 TFM. I trained PhD students with AFM.

Teaching experience:

ANECA accreditation for Profesor Contratado Doctor.

The period 2012-2014 I assistant at UAM. The periods 2018-2019 and 2019-2020 Honorary Professor at UAM. At present, I am Assistant Professor at UAM.

Indicators of Quality:

I have published 25 peer-reviewed articles in high-impact international journal and 3 book chapters. My research has been cited 554 times (WOS), 786 (GS) with an H-index of 14(WOS), 16 (GS). 20 publications are Q1 (80%) and 13 are D1(52%).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	MOLINA MONTERRUBIO, RAFAEL
Referencia:	RYC2021-030916-I
Correo Electrónico:	rafael.molina@cpr.ku.dk
Título:	Bacterial Pathogenesis and Molecular Scissors for Genome Modification

Resumen de la Memoria:

Structural Biology allows visualization at atomic level of the molecular machines involved in all cellular functions, providing information about how the chemical reactions are carried out in the living cell. Hence, I decided to accomplish my PhD in Structural Biology in the group of Prof. Juan A. Hermoso (Institute Rocasolano, CSIC, Madrid, Spain) where I was strongly trained in X-ray Crystallography, Molecular Biology and Biochemistry, by mainly studying Bacterial Pathogenesis. My main PhD research project focused on structural characterization of pneumococcal surface proteins, key players both in virulence processes and in the development of novel combat strategies against antibiotic resistance. Thus, I obtained a major breakthrough by the characterization of the modular protein CbpF (Molina et al., EMBO Reports, 2009), which revealed its key role in fratricide regulation, a central virulence mechanism in Streptococcus pneumoniae. During this PhD period, I did a long stay in the group of Prof. Richard Kahn (Institute of Structural Biology, Grenoble, France), where I characterized a novel series of Gd complexes and develop a new phasing protocol based on the SAD technique (Molina et al., Acta Cryst. Sect. D., 2009).

After my PhD I gained interest in the genome editing field, which lead me to move in 2010 from CSIC to CNIO to focus my research in the study of two types of Molecular Scissors for Genome Editing: Homing Endonucleases (HE) and Transcription Activator-Like Effector Nucleases (TALEN) (project awarded with Juan de la Cierva funding). The engineering of protein DNA interactions in these protein scaffolds has shown the potential of these approaches to create new specific tools for the inactivation or repair of certain target genes. In that sense, I dissected the mechanism of target discrimination by the HEs I-Crel (Nucleic Acids Res., 2012) as well as I visualized, for the first time, all the reaction steps occurring during the DNA cleavage as snapshots revealing the catalytic mechanism of the HE I-Dmol (Molina et al., Nat. Struct Biol., 2015). These studies allowed us to redesign new enzymes for therapeutic and biotechnological applications (Molina et al., ACS Chem. Biol., 2016; Molina et al., JBC, 2015). Concerning the novel TALEN systems, I characterized a novel DNA binding domain TALE-related for genome modification: BuD (Molina et al., Acta Cryst. Sect. D., 2014).

In 2016 I moved as a Senior Postdoctoral Scientist to CSIC to work on the Bacterial Cell-Wall Recycling Processes Coupled to Antibiotic Resistance managed by the group of Prof. Shahriar Mobashery (University of Notre Dame, USA). During this time, I deciphered a mechanism of intramolecular communication key for bacterial resistance (Mahasenan, Molina et al., J. Am. Chem. Soc., 2017).

In 2018, I was appointed as Associate Professor at University of Copenhagen where I am developing my own research line on the Characterization of CRISPR Systems. As a result of this research, I have obtained a very important breakthrough by revealing the basis of RNA decay in Type III-B CRISPR-Cas by the protein Csx1 (Molina et al., Nat. Commun., 2019) and controlled by its Ring Nucleases (Molina et al., Nucleic Acids Res., 2021). In addition, along this last 4 years I have been extensively trained in Cryo Electron Microscopy broadening my structural biology techniques portfolio.

Resumen del Currículum Vitae:

CURRENT POSITION Associate Professor (NNF-CPR. University of Copenhagen)

METRICS

h-index: 18 (Google Scholar, December, 2021) Total number of articles: 39 Total number of citations: 534; Citation per year (average during postdoctoral period): 67; Citations 2020: 104

PUBLICATIONS

Corresponding author (5): Nucleic Acids Res.; Sci. Rep.; J. Comput. Aided Mol. Des.; Acta Cryst. Sect. F. (2).

First author (16): Nat. Struct. & Mol. Biol.; Nat. Comm.; Nucl. Acids Res. (2); EMBO Rep.; Curr. Opin. Struct. Biol. (2); ACS Chem. Biol.; JBC. (2); Acta Cryst. Sect. D. (2); Biochemistry; Acta Cryst. Sect. F. (2).; eLS.

Co-author (19): J. Am. Chem. Soc.; Nat. Comm.; Drug Resistance Updates.; Crit. Rev. Biochem. & Mol. Biol.; Comput. Struct. Biotechnol. J.; JMB. (2); JBC.; FEBS Journal.; ; Acta Cryst. Sect. D. (2); Microb. Drug. Resist.; Int. J. Med. Microbiol.; Biopolymers; Acta Cryst. Sect. F. (2); PEDS; Arch. Biochem. Biophys.; Appl. Environ. Microb.

ACADEMIC & RESEARCH EXPERIENCE

2018-Present Associate Professor (NNF-CPR. University of Copenhagen)

- 2016-2017 Postdoctoral Senior Scientist (Spanish National Research Council, CSIC)
- 2015 Postdoctoral Senior Scientist (Spanish National Cancer Research Centre, CNIO)
- 2012- 2014 Juan de la Cierva Postdoctoral Senior Scientist (Spanish National Cancer Research Centre, CNIO)
- 2010-2011 Postdoctoral Fellow (Spanish National Cancer Research Centre, CNIO)
- 2007-2009 Associate Scientist (Repsol-YPF Energy Company, R&D Dept.)
- 2003-2007 FPI PhD Fellow (Institute of Physical-Chemistry "Rocasolano", CSIC and Institut de Biologie Structurale Jean-Pierre Ebel, IBS)

DEGREES

2009 Doctorate summa cum laude in Biochemistry and Molecular Biology (Complutense University of Madrid) 2005 Master Degree in Biochemistry and Molecular Biology (Complutense University of Madrid) 2002 Higher Degree in Biochemistry (Complutense University of Madrid)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

FELLOWSHIPS AND AWARDS

2012 2015 Juan de la Cierva Excellence Programme Fellowship from the Spanish Ministry of Science and Innovation. Molecular Scissors for Genome Modification (project awarded: JCI-2011-09308).

CONFERENCES

I have been invited as speaker to 16 scientific meetings (i.e., Conference on Genome Engineering at Cold Spring Harbor Laboratory, NY, USA; Conference at MAX IV Synchrotron, Lund, Sweden; SEBBM Congress, Granada, Spain; Conference on Biology and Synchrotron Radiation, Hamburg, Germany)

PARTICIPATION IN RESEARCH AND INDUSTRIAL COLLABORATIONS

- I have participated in 19 projects (in some of them as PI, see CVA)

-Between 2010 and 2015, I participated in industrial innovation as Associate Researcher for Genome Editing Leader Company Cellectis (Paris, ile de France, France). Projects: Meganucleases Design and "Genome Editing using TALEN technology"

SUPERVISION/MENTORING OF DISSERTATIONS AND/OR FINAL PROJECTS I have supervised 9 master student in their laboratory projects. Last selected projects/researchers supervised:

2021. Structural basis of cyclic oligoadenylate degradation by ancillary Type III CRISPR-Cas ring nucleases. Master Student: Javier Marchena-Hurtado. University of Copenhagen, Denmark.

2020. Molecular Basis of Type III-B CRISPR-Cas Ring Nucleases from S. islandicus. Master Student: Anne Louise Grøn Jensen. University of Copenhagen, Denmark.



VESTIGACIÓN

Área Temática:	Biociencias y biotecnología
Nombre:	SANCHEZ LUQUE, FRANCISCO JOSE
Referencia:	RYC2021-031920-I
Correo Electrónico:	sanchezluquefj@ipb.csic.es
Título:	Molecular Genetics of Retrovirus and Mobile DNA

Resumen de la Memoria:

My research trajectory has been focused on the study of replicative genetic entities that invade and exit our genome, including infectious agents like retroviruses and endogenous elements like retrotransposons. They coincide in the use of an RNA molecule intermediate that is reverse transcribed into DNA and inserted in the cellular genome. Retroviruses are able to propagate this RNA intermediary within their virions into other cells, causing infections (i.e. HIV), while retrotransposon activity spreads new copies within the host cell causing insertional mutagenesis both somatic and heritable. During my PhD research at Dr. Berzal-Herranz lab in the Institute of Parasitology and Biomedicine Lopez-Neyra (IPBLN, Granada/Spain), I screened for therapeutic targets among the structural domains located at the HIV-1 genomic RNA. I developed inhibitors based on antisense RNAs, ribozymes and RNA aptamers to destroy and/or interfere with their function. Most significantly, we develop an HIV-1 inhibitor small RNA aptamer suitable for industrial synthesis that was subject of a patent (Sanchez-Luque et al. Sci. Rep. 2014). In 2010, I moved to the Lopez & Thomas lab (IPBLN) and investigated retrotransposons of human parasitic protozoa causing Chagas disease and leishmaniosis. I described a hepatitis delta virus (HDV)-ribozyme and a tRNA-like structure involved in the generation/stability and translation of retrotransposons intermediate RNA (Sanchez-Luque et al. NAR 2011). Notably, these motifs dispersed by mobile DNA appear to have been repurposed to gene regulatory elements by the host protozoa.

In 2014, I joined Prof. Faulkner lab at the Mater Research Institute (MRI, Brisbane/Australia) for a 4-year postdoc involving an international collaboration program (EC 7FP Marie-Curie International Outgoing Fellowship) between MRI and the Centre for Genomics and Oncological Research (GENYO, Granada/Spain). I investigated the impact of the insertional mutagenesis caused by human L1 retrotransposons in somatic cells (such as healthy neurons) and cancer, describing the strategies of specific L1 copies to evade epigenetic silencing, and cause somatic genome mosaicism in the brain and drive cancer progression (Sanchez-Luque et al. Mol. Cell 2019; Salvador-Palomeque*, Sanchez-Luque*co-1st et al. Mol. Cell Biol. 2019).

In 2018, I joined Dr. Garcia-Perez lab at GENYO (Granada/Spain) and the Institute of Genetics and Cancer (IGC, Edinburgh/UK) dual location, where I investigated the epigenetic regulation of L1 in stem and pluripotent cells, and the impact of L1 insertional mutagenesis on certain genetic diseases affecting DNA repair pathways (Fanconi anaemia). I also initiated active collaborations with Prof. Faulkner, Dr. Ewing (MRI) and Prof. Jackson (IGC), establishing my own research network. I contributed to the development of an Oxford Nanopore Sequencing approach to investigate retrotransposons, and performed clinical and research work in SARS-Cov2.

In 2022, I returned to the IPBLN (Granada/Spain) as an EMERGIA Group Leader (research grant + salary award, Andalusian Gov. program to start an independent lab). I will investigate the mechanisms silencing foreign DNA in our genome (mobile DNA, viruses, exogenous DNA), and how to modulate them to safeguard genome integrity (i.e. regenerative therapies) and interfere with viral cycles (i.e. HIV-1 latency).

Resumen del Currículum Vitae:

I completed my BS degree at the University of Cordoba (UCO) in 2003, including a 3-year UCO teaching assistant appointment and a 2-month internship in the Teixido lab at the Centre of Biological Research (CSIC, Madrid). I performed my PhD research at the Berzal-Herranz lab in the Institute of Parasitology and Biomedicine Lopez-Neyra (IPBLN-CISC, Granada), funded by the competitive FPU program (including a 3-month stay in Berkhout lab; Academic Medical Centre, Netherlands). We collaborated with Dr. Briones (Centre of Astrobiology, Madrid) in the development of anti-HIV RNA inhibitors that led to a patent. I combined this work with scientific dissemination activities in secondary schools as part of AIDS International Day (2006, 2011). After completing my PhD work, I moved to the Lopez & Thomas lab at the IPBLN, where I discovered a catalytic RNA motif dispersed throughout Trypanosomatid genomes by L1Tc/ingi retrotransposons.

I performed my first international postdoc (4-year) at the Faulkner lab at the Mater Research Institute (MRI; Brisbane, Australia), where I secured a Martín Escudero and a Marie-Curie International Outgoing fellowships. I co-developed several custom high-throughput sequencing techniques to study retrotransposons biology using experimental reagents designed in liaison with Roche Nimble Gen, allowing the breakthrough for discovering factors involved in their epigenetic silencing and setting the bases for the associated proposal. I helped supervise the research work of 2 PhD students (Nguyen et al. Cell Rep. 2018; Salvador-Palomeque et al. Mol. Cell. Biol. 2019) and the training of 3 research assitants, and I mentored 2 high school All Hallows students in the Mater Research Immersion Program (similar to Proyectos Pisa ; 2015).

In 2018, I joined the Garcia-Perez lab at the Pfizer-University of Granada-Andalusian Gov. Centre for Genomics and Oncological Research (GENYO, Granada), and I was posted for ~3.5 years as a senior visiting postdoc at the Institute of Genetics and Cancer (IGC, Edinburgh, UK) through Dr. Garcia-Perez dual PI appointment. Notably, during the 2019/20 lockdown, I joined the Test-ED team at the IGC as volunteer academic staff to implement a Covid-19-testing facility to support the National Health Service (NHS) Lothian (Scotland), ultimately developing a homemade SARS-Cov2 qPCR test that was approved by NHS Lothian (UK) and is currently used at the IGC for periodic staff testing (Innovation Award from the College of Medicine and Veterinary Medicine, as part of the Test-ED team). I participated in further dissemination activities, including the Biomedicine and Health Interviews Tournament organised at the IES Martin Rivero secondary school (Ronda, 2020).

I currently collaborate with Prof. Faulkner in investigating the somatic genome mosaicism in other primates, and Dr. Ewing (MRI, Australia) in developing new tools for studying retrotransposons using Oxford Nanopore Sequencing. I have published the book Mobile Genetic Elements: The Indomitable Genome for the Series in Biosciences of the UCO publishing service (specialised lecturing material for university students), and qualified as PhD, associate PhD and private university lecturer by ANECA. Finally, in 2022, I joined the IPBLN as Group Leader through the 4-year EMERGIA program from the Andalusian Gov. (research grant + salary award).





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Área Temática:	Biociencias y biotecnología
Nombre:	ELIAS VILLALOBOS, ALBERTO
Referencia:	RYC2021-033728-I
Correo Electrónico:	aelivil@gmail.com
Título:	Principles of assembly and regulation of multifunctional transcription complexes

Resumen de la Memoria:

During my scientific career I have acquired a strong background in the regulation of gene expression by transcription factors and chromatin modifying enzymes.

I did my PhD in the laboratory of Dr. José I. Ibeas (CABD, Seville; 2 fellowships of 1 and 4 years, CSIC). My main project aimed deciphering the roles that transcription and chromatin factors play in the virulence of the pathogenic fungus Ustilago maydis. I performed 2 short term stays in Germany and I published an article in PLoS Pathogens as first author. In parallel, I extensively contributed to the study of protein glycosylation in U. maydis (2 Plant Cell, 1 Plant Sig. & Behav. 1 Fungal Gen. & Biol. as second author and 1 other contribution in PLoS Pathoge.).

After my PhD, first in Dr Ibeas lab and then in Dr. Helmlinger s lab (CRBM, Montpellier, France), I developed a project characterizing the roles of histone deacetylases in U. maydis. I published, as first and co-corresponding author, an article in PLOS Pathogens, a comment in Microbial Cell and a bioinformatic study in Fungal Genetics and Biology.

I then switched to Schizosaccharomyces pombe as a model system, in which I have studied the assembly of multimeric complexes, including SAGA, NuA4 and TOR complexes (supported with 2 years FRM grant in Dr. Helmlinger s lab). These works have been published in Nature Communications, Biochemical Society Transactions and Cell Reports; in all of which I am first author. Additionally, I have an article under review in STAR Protocols, in which I am first and co-corresponding author.

My research program aims to decipher the rules of assembly and regulation of multifunctional complexes in response to changes in physiological conditions, with a special focus on meiosis, for which I joined the laboratory of Dr. Valérie Borde (Institut Curie, Paris), a leading expert in the field. Defects in protein complex assembly result in the accumulation of misfolded or unassembled subunits, which generates proteotoxic stress and affects cellular homeostasis. My research line envisions to understand how cells coordinate the expression, maturation and assembly of individual subunits. In the long-term, deciphering how protein complexes assemble opens the possibility for the in vitro reconstitution of protein complexes with desired activities of therapeutic interest. To pursuit my scientific career I have been recently awarded with a María Zambrano grant.

Along my career I have also mentored undergraduate, master and PhD students in every laboratory in which I have worked, I have taught at the university, and I have had various collective responsibilities. I have led my projects and have several publications as co-corresponding author. Altogether, my scientific path, independence and maturity guarantee my succeeding as a group leader in the near future.

Resumen del Currículum Vitae:

I did my PhD in the laboratory of Prof. Dr. José I. Ibeas (CABD; Pablo Olavide University), awarded with an I3P-Postgrado (1 year) and an I3P-Predoctoral (4 years) fellowships from CSIC. I worked on two topics. My main PhD project concerned the regulation of gene expression by transcription and chromatin modifying factors during the infection process of the plant pathogenic fungus Ustilago maydis. In parallel, I extensively contributed to study the role of protein glycosylation in phytopathogenesis. These works resulted in 1 original article as first author (1 PLOS Pathog.), 2 as second author (2 Plant Cell), 2 reviews (1 Plant Sign. & Behav., 1 Fungal Gen. & Biol.) and 1 other contribution (1 PLOS Pathog.). During my PhD I also taught genetics at the University (420h) and I did 2 stays abroad (3 months each), at the MPI for Terrestrial Microbiology (Marburg, Germany; EMBO fellowship), and at the Institute for Applied Biosciences (Karlsruhe, Germany). These stays allowed to accomplish a main technical achievement: the full setup of U. maydis as a model system in a S. cerevisiae lab (Dr. Ibeas). My PhD was awarded by 2 prizes (1 prize of Excellence-University, 1 prize to best PhD thesis-Seville City Hall).

After my PhD, I initially (2012) worked on the role of histone deacetylases in U. maydis. In 2013, I moved to the laboratory of Dr. Dominique Helmlinger (CRBM, Montpellier, France) to improve my technical skills and project. RT-qPCR and ChIP experiments allowed me to discover how Hos2 histone deacetylase controls U. maydis virulence. These results, among others, led to 3 publications in which I am first and co-corresponding author (1 PLOS Pathog., 1 Microb. Cell, 1 Fungal Gen. & Biol.).

Then I moved to the fission yeast Schizosaccharomyces pombe to handle more fundamental questions in biology (awarded with a FRM 2 years grant). I studied how multifunctional protein complexes assemble, and the impact of assembly in complex functionality. This work has led to 3 publications as first author (1 Nat Commun, 1 Bioch Soc Trans, 1 Cell Rep) and an additional manuscript under review in STAR Protocols, in which I am first and cocorresponding author. The main technical challenge in this period was the setup of tandem affinity purifications of very different protein complexes (SAGA, NuA4, TORC1, TORC2, TTT) and the establishment of new techniques in the lab, such as RNA-IP.

Because my research program aims to decipher the rules of assembly and regulation of multifunctional complexes in response to changes in physiological conditions, such as during mitosis to meiosis switch, in 2020 I joined the laboratory of Dr. Valérie Borde, an internationally recognized scientist in the meiosis field, at the Institut Curie. My 16-moths stay in her lab has allowed me to acquire the intellectual and technical knowledge to fully develop my research project independently. Finally, I have been recently awarded with a María Zambrano grant to join the team of Dr. Sebastián Chávez de Diego and Dr. María de la Cruz Muñoz Centeno (IBiS-Seville University) to pursuit my scientific career in the transcription and assembly fields.

During my career I have participated in different projects, favoured international collaborations, contributed to several international meetings, mentored students of different levels and had distinct collective responsibilities.





Área Temática:	Biociencias y biotecnología
Nombre:	VIEITEZ MANRIQUE, CRISTINA
Referencia:	RYC2021-033994-I
Correo Electrónico:	cristina.vieitez@gmail.com
Título:	Systematic study of Protein Posttranslational Modifications and their crosstalk
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Resumen de la Memoria:

Throughout my scientific career, I have been passionate about understanding how Posttranslational Modifications (PTMs) regulate protein function and, consequently, all biological processes within our cells. During my PhD, I studied the role of histone PTMs in transcriptional regulation upon stress. My doctoral research led to the observation that the histone residues essential for transcription are personalized for each gene type and / or stress condition. This result challenges the dogma of One PTM- one function and shows the importance of taking the environment and chromatin context into account when studying histone PTMs. Furthermore, I discovered a new phosphorylation site in histone H4 with a repressive role in transcriptional regulation upon heat stress. My PhD work was published in Nucleic Acids Research (first author) in Molecular Microbiology (second author) and fueled several ongoing projects in the lab.

During my PhD, I became interested in studying the function of histone PTMs at scale, rather than one by one, and the lack of methods to do so made me jump into the Systems Biology field. For my postdoc, I joined the computational group of Pedro Beltrao at the European Molecular Biology Laboratory- European Bioinformatics Institute (EMBL-EBI) and the group of Nassos Typas at EMBL-Heidelberg. I led the development and application of the first method to study the function of phosphorylation sites at scale in yeast. Furthermore, I proved that my data in yeast could be transferred to study human phosphosites. Thanks to my experience in cell culture (from my master), I actively participated in the experiments that led to finding a function for human RPS14 phosphosites in resistance to treatment with nickel and a function in neuronal differentiation for phosphosites in the SWI/SNF chromatin-remodelling complex. This work was published in Nature Biotechnology: Vieitez C, Nat Biotech 2021 (first author) and Ochoa D, Nat Biotech 2019 (3rd author).

Having established that the function of PTMs can be systematically studied using high-throughput screening approaches and that the knowledge can be transferred from yeast to human cells, I am uniquely positioned to exploit the power of these methods to study chromatin regulation by protein PTMs and their crosstalk. I have been leading this project since the end of my postdoc at EMBL and brought it with me to ETH Zurich, where since January 2022, I have been a Senior Scientist in the computational group of Pedro Beltrao. I am expanding and supervising the experimental side of the group.

In summary, I have proved that I have contributed to scientific breakthroughs in the Protein Phosphorylation and Histone PTMs fields. I have been at the forefront of biotechnological development and have a solid international network from my six years at EMBL. During my postdoc, I have set up and led a group of 3 people (Postdoc, Research tech and undergrad student) and managed international collaborations. I am currently receiving additional funding from the prestigious Christiane Nüsslein-Vollhard Foundation Award for Excellent Female Scientists in Germany (2021-2022). I believe the Ramon y Cajal is an excellent opportunity to return to Spain and stay at the forefront of scientific progress.

Resumen del Currículum Vitae:

After studying Biology at Universidad de León and one international research year at University of Uppsala (Sweden), I was awarded the Master's Fellowship from La Caixa Foundation (2008-2009). I joined C. Solà and J. Serratosa s group at IIBB-CSIC, where I gained hands-on experience working with mouse derived cells and cell lines and participated in the establishment of a neuron-microglia co-culture system which led to one publication. To follow my passion on cell signalling and epigenetics, I joined the lab of Francesc Posas and Laia de Nadal at University Pompeu Fabra for my PhD (2009-2014). The most exciting observation from my PhD work was that the histone residues required for transcritpion depend on the type of gene and/or stress; they are personalized for each chromatin context. These results challenged the dogma of "one histone PTM one function" and highlighted the importance of taking the environment into account when studying PTMs. Furthermore, I mechanistically characterized H4T30 as novel histone phosphorylation with a repressive role in transcription upon heat stress. This work was published in Nucleic Acids Research and fueled several mechanistic projects currently on going in the lab. After my PhD, my research dream was to study the function of protein PTMs at scale, and for that, I joined the groups of Pedro Beltrao at EMBL-EBI (UK) for my postdoc (2015-2021). Pedro was just awarded an ERC Starting Grant and an empty lab space at EMBL-Heidelberg to study phosphorylation sites experimentally. I joined his group as the first experimental lab member and set up and managed the laboratory at EMBL-Heidelberg. During my postdoc I lead the first approach to functially study phosphorylation sites at scale in yeast and I proved that my data in yeast is useful to study the function of human phosphosites. My postdoc work has been published in Nature Biotechnology and has fuelled functional studies in the group leading to other 5 publications (Science, Nat. Commun, Nat. Biotech, Mol Sys Biol and Cell Rep) with me as co-author. I have communicated my scientific achievements in 1 national and 7 international conferences. I also trained and supervised A. Jawed (undergrad) and M. Shahraz (research tech), establisehed and managed collaborations with 3 scientific groups at EMBL (Steinmetz, Noh and Savitski). In 2021, I received the prestigious Christiane Nüsslein-Vollhard Foundation Award for Excellent Female Scientists in Germany. Also, I was one of the 20 awardees of the EMBL LEAP Programme, which aims to train and support the next generation of female group leaders in Academia. Since January 2022, I am Senior Scientist at ETH Zurich, where I am expanding and supervising the experimental team within Pedro Beltrao s computational group. Since 2021 (end of the postdoc at EMBL) I started my scientific emancipation leading a project on Histone PTMs crosstalk for which I already have promising results.


AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	NADAL RIBELLES, MARIONA
Referencia:	RYC2021-033520-I
Correo Electrónico:	mariona.nadal@gmail.com
Título:	Untangling the structure of gene regulatory networks during adaptation

Resumen de la Memoria:

I did my PhD in Barcelona in the Department of Life and experimental Sciences (Universitat Pompeu Fabra, UPF) under the supervision of Prof. Francesc Posas and Prof. Eulàlia de Nadal (2008-2013) as a FIS fellow. The focus of my thesis was the characterization of the transcriptional response during osmoadaptation in yeast. During my PhD, I conducted a wide variety of projects: i) I characterized novel enzymatic activities required for osmoresponsive transcription ii) I applied genome-wide approaches to profile the chromatin associated factors regulators of the transcriptional response iii) I applied unbiased transcriptome analysis using to identify a novel class of functional stress responsive IncRNAs. My thesis was recognized with the PhD extraordinary award from the UPF. My training provided extensive background in experimental genetics made it obvious to me that bulk measurements cannot resolve transcriptional heterogeneity.

As an EMBO-Long term postdoctoral fellow, I joined Dr. Lars Steinmetz group (Stanford University) to tackle the challenge of developing a sensitive method to profile transcriptomes of individual yeast cells (yscRNA-seq) (Nadal-Ribelles et al., 2019 Nature Microbiology; BioProtocols), which was not available at that time and allowed me to gain bioinformatic skills. With the aim to combine my expertise in single cell development and apply it to my own research, I decided to join Dr. Posas Lab as a Maria de Maeztu fellow at UPF (2017-2019) and later as a La Caixa Junior Leader (2020-current) at the IRB Barcelona. Here, I have focused in developing a genome-wide single cell genetic screen under normal and stress conditions to address the central question as to how variability at the molecular scale reflects onto phenotypic variation/cell fate decisions using yeast and mouse embryonic stem cells.

I aim to combine my molecular biology and bioinformatics training to establish my own research by applying transcriptomic technologies to uncover regulators of cellular heterogeneity and its interplay with cell fate. I firmly believe that my experimental/computational background together with my international experience and research network provide a solid groundwork to undertake the next step in my career.

Resumen del Currículum Vitae:

My research expertise focuses on the development and implementation of single cell omics technologies to understand the mechanisms of eukaryotic adaptation to extracellular insults.

I obtained my doctoral degree in Biomedicine in 2013 at the Universitat Pompeu Fabra under the supervision of Dr. Francesc Posas and Dr. Eulàlia de Nadal characterizing the molecular mechanisms by which MAPK regulate gene expression during stress adaptation EMBO J.(2011), Science(2011), Genome Biology (2012), Molecular Cell (2014), Nucleic Acids Research (2015). During these years, I performed two short stays in Dr. Sebastian Chavez (Universidad de Sevilla) to assess nucleosome positioning and Dr. Hentze (EMBL, Germany) to assess the high-throughput protein-RNA interactome. The work was graded as Excellent cum laude and distinguished with as PhD thesis extraordinary award (2014).

After I joined the Systems genetics and personalized medicine group at a Stanford University as an EMBO Log-term postdoctoral fellow under the supervision of Dr. Lars Steinmetz. During my stay, I switched research topics to focus my on the development of highly sensitive single cell RNA-seq methodologies. To this end, we developed a yscRNA-seq , which is nowadays the most efficient, and sensitive scRNA-seq method for yeast (Nadal-Ribelles et al., Nature Microbiology (2019) and Nadal-Ribelles et al., Bioprotocol (2019).

Since 2018 I joined Dr. Posas group as a Maria de Maeztu Postdoctoral Fellowship with a joint appointment between the Universitat Pompeu Fabra and the Institute for Biomedical Research in Barcelona (IRB Barcelona). From January 2021 I was awarded a La Caixa Junior Leader Postdoctoral Fellow in the Dr. Posas group in the single-cell characterization of adaptive response across eukaryotes using yeast and mouse embryonic cell lines as models. My research focuses on: i) understanding the fundamental principles of eukaryotic adaptation and ii) the identification of the underlying molecular mechanisms that promote adaptive responses and, in the development-application of single cell RNA-seq combined with genetic screens to dissect the molecular mechanisms underlying transcriptional heterogeneity throughout this process. Research highlights:

1) Identification of novel enzymatic activities required for osmoadaptation: Sole et al., 2011 EMBO J; Nadal-Ribelles et al., 2015 NAR).

2) Genome-wide characterization of the transcriptional landscape during osmoadaptation: Nadal-Ribelles et al., 2012 Genome Biology; Nadal-Ribelles et al., 2014 Molecular Cell; Latorre, Boetcher, Nadal-Ribelles et al., Nucleic Acids Research Genomics and Bioinfomatics, (in press 2022).

3) Development of single cell RNA-seq tools: Nadal-Ribelles et al., Nature Microbiology 2019, Nadal-Ribelles et al., 2019 Bioprotocols.

During my scientific career, I have published 11 articles all of them corresponding to international journals indexed in SCI and with a total of 561 citations (Google scholar), as well as one review and one book chapter. The number of publications belonging to the first quartile (Q1) is 9, index h of my scientific career is10 (Google Scholar as of February 2022). I have participated in the co-supervision of MS students and the mentoring/training of undergraduate and graduate students all the groups that I have been in, particularly in Dr. Posas group.





Área Temática:	Biociencias y biotecnología
Nombre:	PIÑEIRO UGALDE, ALEJANDRO
Referencia:	RYC2021-031776-I
Correo Electrónico:	a.p.ugalde@pm.me
Título:	Molecular Mechanisms Underlying the Hallmarks of Cancer and Aging

Resumen de la Memoria:

My research career has been mainly focused on the study of the molecular mechanisms that regulate gene expression and the impact of their deregulation in aging and cancer.

During my PhD studies, I participated in several important studies aimed at deciphering the molecular basis of aging, finding that premature aging activates a systemic adaptive stress program that becomes deleterious due to its sustained over activation. When I gained more independence, I started a new research line to explore the contribution of miRNAs to aging, which resulted in the characterization of two aging-associated miRNAs, miR-1 and miR-29, that control the longevity pathways of IGF-1 and p53, respectively.

After completing my PhD studies, I started my postdoctoral studies at the division of gene regulation at the NKI (The Netherlands). There, I developed a deep sequencing approach to study the regulation of gene expression by alternative cleavage and polyadenylation in human heart failure and how this process interacts with the regulation by miRNAs and the termination of transcription. In addition, I contributed to the study of the role of another regulatory class of non-coding RNAs (IncRNAs) in the process of oncogene-induced senescence. In the last part of my postdoctoral studies, I focused my research on the study of gene expression regulated by enhancer elements. Specifically, I designed and carried out genetic screens using CRISPR-Cas9 to identify functional enhancers that regulate cancer-associated pathways such as YAP1, ER-α and p53 signaling and the oncogene-induced senescence. In addition, I have contributed to the study of the regulation of protein translation in cancer using a deep sequencing approach called ribosome profiling.

In 2018, I returned to the University of Oviedo, where I am trying to build my own research group and to continue contributing to the field of noncoding RNAs and gene regulation in the context of cancer and aging. Since then, I have been co-director of a doctoral Thesis that described an unexpected role of the miR-29 miRNAs in cardiac function using animal models and I am now co-supervising follow up studies on these mice. In parallel, I joined an ERC project aimed at deciphering the molecular basics of aging using CRISPR-Cas9 screens. Since the outbreak of SARS-CoV-2, I have codirected a project where I used my experience in genome editing to screen for host genetic factors that contribute to SARS-COV-2 pathogenicity. In addition to these works, my research strategy includes an ambitious project aimed at systematically studying the functional relevance in cancer of a type of non-coding RNAs called snoRNAs, through the use of CRISPR-Cas9 genetic screens.

Resumen del Currículum Vitae:

I am a molecular biologist with 17-year experience in the study of the molecular basis of cancer and aging. My scientific career started at Carlos López-Otín s laboratory as an FPU-granted PhD student. During my first years, I participated in several important studies aimed at deciphering the molecular basis of physiological and pathological aging (progeria), which resulted in contributions in high impact journals such as Nature Medicine. When I developed more independence, I started a new research line in the laboratory, focused on exploring the emerging field of miRNAs in the context of aging. This project was the subject of my PhD Thesis (outstanding Thesis awarded) and resulted in the characterization of two aging-activated miRNAs, miR-1 and miR-29, that control the longevity pathways of IGF-1 and p53, respectively (works published in EMBO Journal and PNAS). After my PhD, I continued working in the University of Oviedo for one year as ad-hoc assistant professor, teaching Biochemistry to students from

Biology and Medicine Bachelor¿s degrees. Then, in order to gain more experience in the study of gene expression regulation in normal and pathological conditions, I moved to the laboratory of Reuven Agami (NKI-AVL, Amsterdam) - supported by an EMBO and then a HFSP long-term fellowships -. During this stage, I made significant contributions regarding the gene regulation by alternative cleavage and polyadenylation, the characterization of long non-coding RNAs, the study of enhancers and chromatin organization through CRISPR-Cas9 genetic screens and the study of amino acid vulnerabilities in cancer.

In 2018, I returned to the University of Oviedo through the repatriation program of the HFSP fellowship, where I am trying to apply the knowledge and maturity gained during my postdoctoral studies to build my own research group and continue contributing to the field of gene regulation in the context of cancer and aging. Since then, I have been co-director of a Doctoral and a Master Thesis that described an unexpected role of the miR-29 miRNAs in cardiac function using animal models, and I am now co-supervising another PhD student and a Master student who are doing follow up studies on these mice. In parallel, I joined an ERC project aimed at deciphering the molecular basics of aging using CRISPR-Cas9 screens. Since the outbreak of SARS-CoV-2, I have co-directed a project that has uncovered more than 60 human genes that participate in viral entry through CRISPR-Cas9 genetic screens. Lastly, in December 2021, I have been funded by the Government of the Principally of Asturias to develop my research career as junior PI. During my career, I have contributed with 23 research articles in top-ranked international journals (20 in Q1, 1 as corresponding author and another one in revision in EMBO J.) to the study the molecular basis of aging and cancer and the regulation of gene expression by non-coding RNAs and chromatin interactions, which together accumulate more than 1900 citations and yield a H-index of 20. I have a broad and strong background in Molecular and Cellular Biology techniques, and important skills in animal studies and Bioinformatics. In addition, I have contributed to knowledge transfer by training newly incorporated students, collaborating in the teaching plan of my department (more than 390 hours), elaborating 3 book chapters and 4 reviews, and co-directing 4 end-of-year projects, and a Master and a Doctoral Thesis.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	HERNANDEZ VEGA, AMAYRA
Referencia:	RYC2021-031779-I
Correo Electrónico:	neska1981@gmail.com
Título:	Tau Function and Tau Transition into Solid Fibers
Desument de la Manadia	

Resumen de la Memoria:

My long-term research goal is to understand mechanistically tau contribution to neuronal degeneration in Alzheimer s Disease (AD). Due to their morphology, neurons are particularly susceptible to traffic jams or any other defect that alters cargo supply to synapses. Indeed, enlarged endosomes and pile up of transported organelles in swelling axons are an early hallmark of AD, but how they relate to tau function/dysfunction is unresolved.

During my postdoctoral research in the laboratory of Anthony Hyman at the MPI-CBG I have contributed to better understand tau function and its pathological transition. I would like now to apply the knowledge and tools generated during this time, to uncover tau role in AD. In brief, I found that tau is able to undergo liquid-liquid phase separation (LLPS) in vitro. Tau condensates concentrate tubulin and locally nucleate microtubule (MT) bundles (Hernández-Vega et al., 2017, Cell Reports). With this work, we proposed that LLPS could be relevant in the neuronal context to regulate MT bundles formation. In a follow up project, we found that tau can also form dynamic cooperative assemblies along single MTs (tau islands). These structures shield MTs from katanin-2 severing action (Siahaan et al., 2019, Nature Cell Biology, co-corresponding author). Both articles have attracted the attention of the AD community (Alzforum news and 2017 research highlights) and I have been invited to present this work at the 2020 Gordon Research Conference on Intrinsically Disordered Proteins.

In a parallel project, I have collaborated with Bradley Hyman (Wegmann, et al., 2018, EMBO J) and Simon Alberti (unpublished) to understand tau transition into solid fibers. During this work, I realized that we have limited information on how tau transition from its physiological conformation(s) in neurons (bound to axonal MTs) into these solid inclusions. Therefore, I decided to focus my future research on this. Tau is a highly dynamic protein and its solid transition can be easily monitored by fluorescent recovery after photobleaching (FRAP). With this in mind, using CRISPR-Cas9 technology I have fluorescently-tagged endogenous tau in both human iPSCs and mice. In parallel to the in vitro work, during the last years I have been analyzing tau dynamics and its solid transition in neurons from these two models.

As an independent researcher, I will combine in vitro reconstitution with neurons in culture to uncover tau role in AD. We will focus our research on: (1) understanding how tau solid transition affects axonal transport using a seeding strategy; and (2) investigating age-related stressors that triggers this transition in AD. Overall, I hope this innovative combined approach will significantly advance our understanding of neuronal degeneration in AD.

Resumen del Currículum Vitae:

I started my scientific career in the laboratory of Keith Brennan at the University of Manchester (UK) for a master research. In his laboratory, I obtained a solid background on both Molecular and Cell Biology techniques. For the PhD, I joined the laboratory of Enrique Martín-Blanco at the IBMB (CSIC) in Barcelona to investigate the mechanics and cellular mechanisms involved in a morphogenetic process, zebrafish epiboly. In a parallel project, I collaborated with Carolina Minguillón, at the IBMB, and Lilianna Solnica-Krezel, at Vanderbilt University (Nashville, US), where I spent 9 months of my research, generating and characterizing new zebrafish transgenic lines. My PhD work resulted in 4 first/co-first author publications (EMBO Journal, Dev. Dyn, Cell Cycle, and Front. Cell. Dev. Biol.). I was selected to present this work at prestigious conferences in its field (International and European zebrafish meetings) and I obtained financial support from different research agencies for this work (MEC, EMBO, The Boehringer Ingelheim Fonds and the Company of Biologists). During this period, I led the establishment of the IBMB zebrafish facility and implemented the tools and methods to work with this new model organism in the laboratory. In addition, I had the opportunity to: supervised the master thesis of Andreas Ritter; introduced other students to bench work; and teach practical courses of zebrafish transgenesis (University of Barcelona). For my postdoctoral research, I wanted to continue working at the interphase between Physics and Biology. At the time, the concept of liquid-liquid phase separation (LLPS) and its relevance for cellular compartmentalization was just emerging and I joined the laboratory of Anthony Hyman at the MPI-CBG (Dresden, Germany) to work on this new concept. I have been studying tau condensates and tau transition into solid fibers in his group for the past 6 years. During this time, I have published one 1st author publication (Cell Reports), 1 co-corresponding author publication (Nature Cell Biology), as well as participated in an article from a collaborator (EMBO journal). My postdoctoral research has been cited 466 times (WOS) and I have been invited to present this work at the prestigious Gordon Research Conference on Intrinsically Disordered Proteins (IDPs). My work is increasingly acknowledged in the AD field. My research was featured as one of the main discoveries in 2017 by ALZ forum (main research news website and information resource in AD field) and highlighted by F1000Prime to be of special interest for its field. During this period, I have established independent collaborations with: Stefan Diez (B-Cube, Dresden) and Marcus Braun (BIOCEV, Czech Republic) on tau-MTs interactions; and Simon Alberti (BIOTEC, Dresden) and Bradley Hyman (Harvard Medical School, US) on tau LLPS and its solid transition. Together with Simon Alberti and in collaboration with Jared Sterneckert (CRTD), Thomas Gasser (University of Tübingen), and the company Lead Discovery Center GmbH (Dortmund), we obtained a consortium grant to work on tau condensates and its solid transition using in vitro reconstitution and human iPSCs (BMBF, PDdementia, 01EK1606). During my postdoctoral research, I have also: been a committee member on a PhD thesis defense; and organized scientific and gathering activities at the MPI-CBG.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
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Título:	Subcellular compartments as signalling hubs controlling cell physiology and metabolism

Resumen de la Memoria:

I am a cell biologist with expertise in immunology and lysosomal biology, leading my own independent research focused on the crosstalk between the immune system and the lysosomal compartment since 2018.

In 2012 I obtained my PhD at the University of Seville working with Prof. De la Rosa. During my PhD I elucidated the role played by Cc during apoptosis in mammals beyond its function as apoptosome activator. Furthermore, I was able to elucidate the elusive role of Cc during plant programmed cell death. This work led to 3 first author papers, 1 first author review and 1 book chapter. Furthermore, it was the beginning of a highly productive research line that still constitutes the focus of Prof. De la Rosa s lab, leading to high impact publications that highlight the relevance of my pioneering work in the field. In 2012 I moved to Prof. Watts lab (University of Dundee) one of the world leading experts in lysosomal biology and immunology as a postdoctoral researcher trying to elucidate the physiological role of the lysosomal protease AEP. This work led to a first and corresponding author paper (Nature Commun 2018) and two contributing author papers (Blood 2017, Immunity 2018), allowing me to obtain an independent position as Senior Research Associate (SRA) in which I developed my own research. As SRA I published 2 first author, 1 corresponding and first author, and 2 contributing author papers. Furthermore, I am co-first author of a manuscript under review (Science), corresponding author of an invited mini-review (FEBS Open BIO, submitted) and corresponding author of two manuscripts in preparation based on the data I independently generated as SRA. During my career I have established an excellent network of collaborators that will allow me to explore lysosomes from different angles.

I am a member of FEBS Open Bio Editorial Board and serve as guest editor for their next special issue. Furthermore, I am a member of the organising committee of the IUBMB/FEBS Workshop 2022 (Seville), serve as reviewer in several journals and have been invited to give several talks, highlighting the relevance of my work and allowing me to increase my internationalisation. I have also been involved in the organisation of several outreach activities, both in Spain and in the UK. I have supervised undergrad and PhD students both in the UK and Spain and been involved in teaching activities (ES and UK) (1000-hours of teaching).

Becoming a Ramon y Cajal fellow would give me the opportunity to continue my career as an independent investigator trying to answer two essential, unanswered questions in lysosomal biology: 1. how cytokines modulate the immune response through the regulation of the lysosomal compartment and 2. elucidate the extralysosomal targets of the lysosomal proteases, allowing us to unveil their regulatory role in physiological processes outside the lysosome (mitosis, cell adhesion and migration, etc). My ample experience working in lysosomal biology, cytokines, and immunology, combined with my expertise in proteomics and genomics and my exceptional network of collaborators make me the perfect candidate for the elucidation of these two critical questions in lysosomal biology, that could have huge implication in human health due to their role in the regulation of the immune response and the onset of several human pathologies.

Resumen del Currículum Vitae:

I currently am a Marie Sklodowska-Curie IF researcher at the University of Seville (USE) carrying my own, independent research focused on lysosomal biology.

During my scientific career I have worked in several projects both at national and international level, published 12 scientific articles in high-impact factor journals (i.e. Immunity, Blood, Nature Comm, Cell Reports, eLIFE, etc) and 1 book chapter, presented my work at 22 national and international conferences, been invited to give several talks at international conferences and been awarded several fellowships (Undergraduate Student Fellowship, FPI Fellowship, MSCA IF).

My research over the years has been multidisciplinary, ranging from programmed cell death to lysosomal biology and cytokines (5 first author, 2 corresponding and first author and 4 contributing author papers and 1 review article).

During my Postdoctoral work I independently came to the idea that led to the characterisation of a novel STAT3-mediated pathway of lysosomal homeostasis in which I designed and executed all the experiments, leading to a first and corresponding author paper (Nature Commun 2018). Furthermore, I contributed to the publication of two other high-impact factor papers (Blood 2017, Immunity 2018). This allowed me to secure a position as Senior Research Associate (SRA) in which I developed my own line of research. As SRA I published 2 first author, 1 corresponding and first author, and 2 contributing author papers. Furthermore, I am co-first author of a manuscript under review (Science, minor revision), corresponding author of an invited mini-review (FEBS Open BIO) and I am preparing two manuscripts as corresponding author based on the data I independently generated as SRA.

Importantly, my stay in the UK has allowed me to establish collaborations with some of the world leading experts in Immunology (Colin Watts (UK), Doreen Cantrell (UK), Suman Mitra (FR)), Lysosomal biology (Thomas Reinheckel (DE), Valeria Poli (IT)) and bioinformatics (Angus Lamond (UK), Majid Kazemian (USA)). This excellent network of collaborators will be essential in the development of my scientific career, allowing me to explore lysosomal biology from different scientific angles.

I have recently started my own, independent research as a MSCA IF researcher (IIQ, cicCartuja). I have been invited to submit a review to FEBS Open Bio and to serve as guest editor for their next special issue and I am member of their Editorial Board.

During my scientific career I have been directly involved in the organisation of outreach activities, both in Spain (2008-2010, in the Science Fair event) and the UK (2015-2019, in the organisation of the Incredible Immunology event).

During my stay in the UK, I supervised the Honours Project Thesis of two undergrad students, and I am currently supervising a TFM student and a PhD student at the USE. This is allowing me to improve my supervising skills and highlighting my leadership skills and independent thinking. I am a member of the organising committee of the IUBMB Focused Meeting / FEBS Workshop 2022 (Seville), peer-reviewed manuscripts for several journals (FEBS Open BIO, Journal of Plant Research, Frontiers in Immunology, Journal of Clinical Medicine, etc) and been invited to give several talks, highlighting the relevance of my work, and allowing me to increase my internationalisation.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biociencias y biotecnología
Nombre:	CHACON RODRIGUEZ, MARIOLA
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Título:	Chromosome movement and segregation in meiosis.

Resumen de la Memoria:

Early in my career I realized that I was interested in all biological phenomenon where movement is involved. Thus, during my master student period I followed the colonization of tomato roots by a filamentous fungus in vivo, later in my PhD I studied the trip of the axons of hippocampal neurons and during my postdoctoral period I analyzed the effect of movement in the and pairing and segregation of homologues chromosomes. I am amazed how the physical phenomenon of movement can orchestrate biological phenomenon. Indeed, half of my postdoctoral period I studied chromosome movement from a biophysical perspective in fission yeast. Later I realized that I would like to do a research line closer to human models and I continued my studies in chromosome dynamic during meiosis in mice oocytes. Chromosome segregation is essential to avoid aneuploidy, yet in mammalian oocytes it progressively fails in an age-dependent manner. The ageing population and the increasing age of parenthood are leading to a declined fertility. Proteins contributing to correct chromosome segregation and oocyte ageing are therefore of central interest. In my recent work, we report a key role of CENP-V in occyte spindle formation and chromosome segregation in mouse oocytes. These findings in mice became the bases for my future career as independent researcher: role of CENP-V in meiosis and ageing in human oocytes. In a next step I would like to explore the role of CENP-V in the force balance of meiotic spindle and applied the biophysical approach that I learned during my first postdoctoral period.

I am currently hosted by Dr. Tatiana Garcia-Muse at CABIMER. Muse lab works in C.elegans. I am getting familiar with the worm. Since human eggs will come always in a low number of cells, I will use the worm to elucidate basic mechanisms and use human oocytes to test the clinical significance of my findings. I already set a collaboration with an in vitro fertilization clinic to carry on the project in human eggs

Resumen del Currículum Vitae:

I started my career working on the interaction between fungus and plants. The work Microscopic and transcriptome analyses of early colonization of tomato roots by Trichoderma harzianum was my first-author publication. It was a must-reading in the biotechnology field at that time and 105 times cited. As a very unexperienced but very creative scientist, I developed for the first time an assay to follow the colonisation of plants by T. harzianum using in vivo microscopy. Later, I left home and went to the Institute of Neuroscience of Alicante to do my PhD on axon guidance with Prof. Rico. I had a very fruit full PhD, two publications as first author and a commentary without my PhD supervisor. Since I was the first PhD student in Rico s lab, I optimised and set every single experiment and during her maternal leave I was the person in charge of the lab. I learned very novel techniques at that time, which are worth to mention for the current proposal ACTIN injection in neuron cells supported by the EMBO short time fellowship at Columbia University, NY, with Prof. Richard Vallee. While performing Fluorescence recovery after photobleaching (FRAP) in Fak-/- growth cones of pyramidal neurons I discovered a novel mechanism by which FAK controls filopodia formation during axonal development. After my PhD I moved to the Max Planck Institute of Cell Biology and Genetics in Dresden, Germany where I joined the biophysics lab of Prof. Iva Tolić. This five years work resulted in four publications relevant in both fields, biology and physics. I was focused on chromosome movement and on the mechanism of kinetochore-microtubule capture in the fission yeast during meiosis from a biophysical perspective. I showed that meiotic nuclear oscillations are necessary to avoid mis-segregation. In collaboration with Dr. Vasily Zaburdaev from the Max Planck for Physics and Complex System we propose a theory of pulled polymer loops to quantify the effect of drag forces on the alignment of chromosomes. Methodologically wise I performed state of the art life imaging experiments and data analysis using softwares like MATLAB, Imaris and Fiji and I was awarded with a Marie Curie Intra-European Fellowships (IEF). This period of my career is a key of the expected success of the work packages related to spindle movement to the cortex and in vivo microscopy in the current proposal. I always wanted to work in mammalian models that are more relevant to humans and I moved to the group of Prof. Rolf Jessberger at the Technical University of Dresden. There I studied the role of CENP-V during meiosis in mouse oocyte. I describe for the first time the role of this protein in oocyte meiosis and its interaction with the spindle microtubules. The work has been recently published in Nature Communications (Nabi et al.2021) where I am senior corresponding author. I led the project from the beginning and supervised a PhD student. During this work I set up a collaboration with Prof. Diez (TUD/Max Planck Dresde) to perform TIRF microscopy and study microtubules dynamic in vitro what it open a great door of studies about the interaction of CENP-V and microtubules that cannot be perform in vivo. Most recently, I was awarded in a competitive call from the Technical University of Dresden with the The MeDDrive programme 2020 with 20.000 euros for consumables to start my own lab.





Área Temática:	Biomedicina
Nombre:	GONZALEZ RODRIGUEZ, PATRICIA
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Correo Electrónico:	patrigonzalezrodriguez@gmail.com
Título:	Bioenergetic and metabolic dysfunction as drivers of neurodegenerative diseases

Resumen de la Memoria:

My ultimate goal as a scientist is to understand better the pathophysiology of Parkinson's disease (PD) and contribute to the development of novel therapies that will improve the life quality and expectancy of PD patients.

I graduated in Biology from the University of Seville (US), Spain. When I started my Ph.D. (2006-2012), I also initiated my career in electrophysiology, under Castellano Orozco's mentorship at the Dept. of Medical Physiology and Biophysics, US, Spain. I focused my research on the molecular and physiological mechanisms underlying acute O2 sensing by arterial myocytes and cardiomyocytes, a long-standing issue with high clinical impact. Additionally, during my Ph.D. training, I had the opportunity to be mentored by internationally recognized scientists: Kenneth Weir (Minneapolis, USA) to learn electrophysiological recording in arterial myocytes and cardiomyocytes and Ralf Schneggenburger, EPFL (Lausanne, Switzerland) to initiate myself in neurophysiology techniques and study the factors underlying vulnerability of dopaminergic neurons in PD.

Since I was a Ph.D. student, investigating the connection between physiological phenotype and metabolism has been my passion. With that goal in mind, I joined López-Barneo Lab as a postdoctoral fellow (2012 2016) at the Institute of Biomedicine of Seville (Spain). I focused on the mechanisms of acute oxygen sensing necessary to activate rapid, life-saving, compensatory respiratory and cardiovascular reflexes (e.g., hyperventilation) and the role of metabolic dysfunction in this process. These results significantly advanced the knowledge in this field, as demonstrated by the original research publications and invited reviews on the topic in top scientific journals.

In 2016, I joined Surmeier group (Northwestern University, Chicago, USA), a world-renowned basal ganglia department as a Senior Researcher. I focused on characterizing the mechanisms underlying the emergence of motor deficits in a new PD mouse model that I developed. This mouse fills a necessity in the research community since it provides a progressive model of human PD and our investigation reveals unprecedented data on the pathogenesis of PD (Nature, 2021). I have performed top research in PD using a battery of complementary cutting-edge approaches and my goal now is to implement it in Spain.

This year, I became a Distinguished Researcher and Junior PI at the University of Sevilla, with a new line of research: "Bioenergetic and metabolism in Parkinson's disease" I have a solid educational background in physiology, mitochondrial function, metabolism, electrophysiology, and neurodegeneration. The innovative essence of my work is reflected in the quality of my scientific production. At each stage of my formation, from different countries, I have published in top journals demonstrating that I am able to attain excellence under different circumstances. My ability to design/execute experiments permitted me to function independently. The interdisciplinary nature of my work gives me a unique perspective to collaborate effectively with scientists from different areas. I believe that the achievement of my goals as independent research should provide fundamental new insight into the mechanisms underlying the progression of PD and lead to novel therapeutic strategies for restoring function in symptomatic PD patients.

Resumen del Currículum Vitae:

Neuroscientist and physiologist, Distinguished Researcher and Junior PI with a new line of research: "Bioenergetic and metabolism in Parkinson's disease" at Univ. of Seville. I did my training in 4 prestigious research institutes across 3 different countries: EPFL (Switzerland), Northwestern Univ. (Chicago, USA), Univ. of Minnesota Medical Center (Minneapolis, USA) and Univ. of Seville (Spain) 22 papers published and h-index =15.

Understanding the complexity of physiological systems has been my passion since I was Ph.D. student (2006-2012) with A. Castellano Orozco (Dept. of Medical Physiology and Biophysics, Sevilla). I described new mechanisms involved in Ca2+ sensitization-dependent contraction (Circ. Res. 2010, 1st author) and a novel regulatory mechanism of T-type Ca2+ channels by hypoxia (J. of Physiology, 2015, 1st author).

I became fascinated by the connection between physiological phenotype and metabolism, essential to understanding complex diseases. After earning my Ph.D. in Physiology, I joined J. López-Barneo (IBIS, Sevilla) as postdoctoral research (2012-2016). I described the role of mitochondrial complex I on the molecular mechanisms of acute oxygen sensing. These findings significantly advanced the knowledge in this field, demonstrated by the original research publications (as first author; Cell Metabolism, 2015 and 2018) and reviews on the topic in top scientific journals (author of 5).

During this postdoctoral stage, I first became interested in how mitochondrial function and energy metabolism can drive neurodegenerative diseases like PD. This is a fundamental question that has been driven my subsequent research as an independent scientist. With this goal in mind, I joined the Dept. Neuroscience (Northwestern Univ., USA) as Senior Research (2016-2022); I have led my research line about bioenergetics in dopaminergic neurons and PD. I developed a new progressive PD mouse model, the first and only, that recapitulates the staged, 'axon-first' pathology seen in humans. Here, I published (as first author): Nature 2021, 2 books chapters (2020, 2022), and 1 review as corresponding author (2022).

I have successfully planned and executed cutting-edge science in a highly collaborative manner (I published 9 papers as a result of national/international collaborations, 4 papers as Ph.D. and 5 papers as postdoc), getting the most competitive funding in every step of my career (Fellowships/Awards >10; Grants as a PI -John Flanagan Young Investigator Grant and Northwestern University-, Grants as Junior PI of ASAP consortium and grant as a collaborator (ERC, NIH or Spanish government). Moreover, I have gained experience in mentoring and supervising co-workers (students, TFG and Ph.D. students). I have dealt with the publishing process (rebuttal/communication with the editor) of the most highly demanding journals like Nature. In addition, I got 2 patents (first inventor) in USA: (1) MCI-Park mice and (2) Gene therapy for PD. As proof of the translational relevance of my research line, we are starting a new clinical trial related to my patent number 2. Invited peer reviewer >10 international journals (Elife, Neuron). I have presented my research at >20 national/international conferences, and I have been invited as speaker to several national/international research institutes. I successfully coordinated MJFF conferences since 2019 (USA), University teaching (5 credits/year), outreach activities and media coverage of my research.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	GARCIA MARTIN, RUBEN
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Título:	Underlying mechanisms of metabolic disorders
Posumon do la Momoria	

I have dedicated my research career (14 years, 12 abroad) to the fields of metabolism and inflammation.

My major research interest is the understanding of the different mechanisms by which tissues communicate to each other to orchestrate a coordinated response to the various metabolic stimuli that organisms face for adaptation and survival. Their dysregulation can contribute to the development of major metabolic disorders such as obesity, diabetes, fatty liver, lipodystrophy and cardiovascular diseases. During my career, I have tried to answer several smaller parts of this big question.

I initiated my scientific career at Dr. Barja s lab (Complutense University of Madrid, 2008/09), where I investigated the distinct effects that amino acids from the diet can have on mitochondrial function and aging.

Later on, in Dr. Woo's lab (University of Toronto, Canada; 2009/10) I focused on the role of hepatic JAK2 in the development of fatty liver, inflammation and insulin resistance.

During my PhD studies at Chavakis lab (Dresden University of Technology, Germany; 2010/16), I uncovered HIF2 as a protective proangiogenic factor against the development of obesity, inflammation and insulin resistance.

In my stage at Dr. Kahn s lab (postdoc and now faculty member at Joslin Diabetes Center/Harvard Medical School, USA; 2016 to present), I am studying the mechanisms of cargo sorting into exosomes/extracellular vesicles and how the manipulation of this system can be used to regulate distant cells, which has enormous potential for gene therapy treatments. Besides, I studied effects of exosomal miRNA on HIV-induced lipodystrophy and the use of cell-type-specific exosomal markers to predict tissue-of-origin of metabolic alterations. These studies were recently published in Nature, Cell Reports and JCI Insight and they are the basis of a patent.

In the future, I want to focus my own lab s research on the study of the role of exosomes in the development of diabetes, obesity and cardiovascular diseases, and the application of my recent findings on cargo sorting mechanisms to treat models of these diseases.

Resumen del Currículum Vitae:

I studied Biology at Complutense Univ. of Madrid (2004-09) obtaining a mark of 2.96 out of 4 (~9 in a 1-10 scale, Sobresaliente). During my studies I collaborated in Dr. Barja's lab thanks to a Collaboration Grant (Spanish Ministry of Education). We studied how different amino acids can regulate mitochondrial function in the context of aging. Thanks to this work, I got my first publication and the highly competitive (only 6 fellowships for the whole country) National Grant of Research-II by Ibercaja Foundation that supported a one-year research abroad, in my case in Dr. Woo's lab (Ontario Cancer Institute/Univ. of Toronto, Canada).

In Dr. Woo s lab, I studied the role of JAK2 in hepatic metabolism and development of fatty liver. My findings were published in JBC as my first firstauthor publication. During my stay in this lab (2009/10), I learnt how to carry out my own-project research, a wide range of techniques, to write a paper, to establish scientific collaborations and present my data in local and international meetings.

Later on, I moved to Germany to pursue my PhD in Dr. Chavakis' lab (Dresden Univ. of Technology) and in the prestigious DIGS-BB PhD program (located in the Max Planck Institute). During these years (2010-16), I studied how HIF2 mediates important metabolic adaptations to hypoxia in various cell types in vivo (adipocytes, macrophages, endothelial cells, hepatocytes and myotubes). I obtained my PhD in Metabolism in 2015 with a summa cum laude (maximum grade). Part of my thesis work was published in MCB. During this time, I also published a review in Sem. in Immunology and contributed to seven publications, many as second and third author (published in Nature Immunology, Stem Cells, Int. J of Cancer, Hepatology, PNAS, Thromb. and Haemostasis and J. of Immunology). I gained unvaluable expertise in metabolism and inflammation and learned very useful techniques. I was awarded with several honors such as Diabetes Research School, Int. Conf. on Immunometabolism and DIGS-BB PhD awards.

Thanks to my achievements, I obtained a prestigious DFG fellowship awarded by the German Research Foundation to support my postdoctoral work, covering my salary and some budget for research. With this, I joined the lab of the world-leading expert in metabolism, Dr. C. Ronald Kahn (Joslin Diabetes Center & Harvard Medical School, USA) in 2016 as postdoctoral fellow. Here, I have studied the mechanisms of sorting of miRNAs into exosomes and how the manipulation of this system can be used to regulate gene expression in distant cells, which has enormous potential for gene therapy treatments. This work was published in Nature in 2022. In addition, these findings were the basis of a patent that I published in 2020. I published two additional first-author studies on the exosomal proteome as predicting tool for the tissue of origin of metabolic diseases, and the role of human exosomal miRNAs in HIV-associated lipodystrophy. From 2022, I am Instructor in Medicine/Faculty member of Harvard Medical School. Overall, my scientific output consists of 19 publications (6 first-author) in high-impact journals that have gathered 1,471 citations, and h-index of 14. During a big part of my career, I have worked highly independently with full capacity to explore my own ideas and projects, manage my own funding and supervise other lab members.



Área Temática:	Biomedicina
Nombre:	GIRALDEZ JIMENEZ, MARIA DOLORES
Referencia:	RYC2021-033237-I
Correo Electrónico:	giraldezjimenez@hotmail.com
Título:	Developing new precision medicine approaches for prevention, (early) diagnosis and personalized
treatment of colorecta	l cancer

Resumen de la Memoria:

My PhD studies at the Gastrointestinal and Pancreatic Oncology group of IDIBAPS focused on evaluating genetic and epigenetic approaches for the prevention and (early) diagnosis, of digestive malignancies, especially colorectal cancer (CRC). During that time, I contributed to: (i) defining the role of MSH6 and MUTYH mutations in early-onset CRC (Giraldez MD et al. Clinical Cancer Research 2010); (ii) evaluating the implication of common genetic variants in early-onset CRC (Giraldez MD et al. Carcinogenesis 2012); (iii) identifying a gene expression signature to predict response to 5FU based chemotherapy in CRC, and; (iv) assessing the diagnostic value of circulating microRNA in CRC (Giraldez MD et al. Clinical Gastroenterology Hepatology 2013). In addition, my research work resulted in a National Research Award (Cordoba Medical Association 2011), and a patent (EP20150158185. Plasma miRNAs for the Detection of Early CRC) that was licensed to the company Amadix.

I continued my research as a visiting scientist in the Fred Hutchinson Cancer Research Center (Seattle, USA) for ten months as part of a Rio Hortega Fellowship. My research there focused on exploring new strategies and technologies to optimize the detection of circulating microRNAs. I contributed to developing a strategy to stimulate the release of tumor microRNAs into the circulation in vivo as a method to enhance the detection of cancer biomarkers in plasma. Next, I completed a 5-year postdoc at the University of Michigan. My work there was aimed at exploring extracellular RNAs as cancer biomarkers. I contributed to demonstrating the utility of a novel single-molecule kinetic fingerprinting methodology to quantify cancerassociated microRNAs in blood plasma in situ (i.e. even without RNA extraction), which is unique in the field of circulating nucleic acid biomarkers (Nature Biotechnology 2015. Second author). I led a multicenter study aimed at evaluating and improving the performance of next generation sequencing technologies for the quantification and profiling of small RNAs in biofluids. (Giraldez MD et al Nature Biotechnology 2018. Corresponding author). Finally, I reported a new approach called phospho-RNAseq that allows to unravel previously undetected mRNAs and lncRNAs making them accessible as biomarkers (Giraldez MD et al. EMBO J 2019).

I returned to Spain in 2019 as a Juan Rodes physician scientist at the Institute of Biomedicine of Seville (IBiS). To become an independent researcher I have obtained: (i) funding as principal investigator in 4 competitive grants (PI19/00258 from the Carlos III Health Institute (171.820); PI-0041-2021 from the Regional Ministry of Health of Andalusia (120.000), Research Project associated to Emergia program (140,000) and Gonzalo Miño Award from the Andalusian Society for Digestive Diseases (10,000)); (ii) human resources in competitive calls (2 predoctoral students); (iii) An Emergia contract (Research talent recruitment program funded by Junta Andalucia; EMERGIA20_00373). As a result, I have being able to create my own group (OncoDigest, CTS-10780) to carry out research focused on improving our understanding of digestive malignancies and developing new approaches for cancer prevention, (early) diagnosis and personalized treatment (Giraldez MD et al. Nature Reviews Gastroenterology & Hepatology 2021, Verwilt et al. PNAS 2020).

Resumen del Currículum Vitae:

I joined the Gastrointestinal and Pancreatic Oncology group of IDIBAPS led by Dr. Castells (Barcelona, Spain) to pursue a PhD in August 2007 after completing my medical residency training in Gastrointestinal and Liver Diseases at Hospital Reina Sofia of Cordoba (July 2007). My predoctoral research focused on evaluating genetic and epigenetic approaches for the diagnosis and prevention of digestive malignancies, especially colorectal cancer (CRC). During this period, I enjoyed a research contract as part of an R&D agreement between Siemen and Hospital Clinic, obtained a Rio Hortega Fellowship, defended my doctoral thesis (University of Barcelona 2012 Clinical and molecular characterization of early-onset CRC), and participated in establishing a new research line in the center (i.e., role of circulating miRNAs in digestive malignancies). My predoctoral research work resulted not only in multiple peer-review publications (Clinical Cancer Research, Carcinogenesis, Clinical Gastroenterology & Hepatology and International Journal of Cancer) but also in a National Research Award (Cordoba Medical Association 2011), and a patent (EP20150158185. Plasma miRNAs for the Detection of Early CRC) that was licensed to the company Amadix.

Next, I moved to the USA as a visiting scientist at the Fred Hutchinson Cancer Research Center (Seattle, USA) for 10 months (Mar 2013-Dec 2013) as part of the Rio Hortega program and obtained a competitive Martin Escudero postdoctoral fellowship (Jan 1014-Jan 2019) to pursue a postdoc in the USA. I completed a 5-year postdoc at the University of Michigan, where I gained expertise in the use of precision medicine (NGS) technologies and joined the NIH-funded Extracellular RNA Communication Consortium. My postdoctoral work resulted in publications in high impact journals, including two papers in Nature Biotechnology (Impact Factor: 31.8), one of them as a second author, and the other with a role of both first and corresponding author, and a paper in EMBO J as first author (IF: 11.02). Moreover, I obtained funding in the USA to lead my own project in the field of Precision Oncology (Precision Health Scholar Award 2018, 80,000\$).

I joined IBIS with a Juan Rodes contract in Jan 2019 with the goal of continuing my research in Spain as an independent researcher. I have recently obtained an Emergia contract (a new research talent recruitment program funded by the Regional Government of Andalusia) and established my own research group (OncoDigest CTS-10780). I am the director of the Doctoral Thesis of 2 predoctoral students, one of them joined the group in January 2021 thanks to a Predoctoral contract for Training in Health Research (PFIS; IF20/00128) and the second in February 2022 with a predoctoral grant from the Junta de Andalucía (PREDOC_01034). I am currently coordinating the organization of the First International Conference FEBS-IUBMB-ENABLE for young researchers that will take place in Seville in November 2022.

As a result of my research, I have participated so far in 16 research projects (principal investigator in 5), presented my work in 70 scientific meetings, and co-authored 32 publications (24 of them Q1, including 16 D1), being the first author of 14 of them (10 in Q1; including 8 in D1) and corresponding author in 2.

I have not suffered research interruptions/breaks but during the current COVID-19 pandemic my clinical duties have increased significantly in the wave periods.





Área Temática:BiomedicinaNombre:STIK , GREGOIREReferencia:RYC2021-032384-ICorreo Electrónico:gregoire.stik@crg.euTítulo:Identifying the role of the biophysical properties of the chimeric E2A-PBX1 transcription factor on 3Dgenome alteration and pathogenesis of B-ALL leukemia

Resumen de la Memoria:

As part of the Ramón y Cajal program, I envisage to lead new research lines to explore the molecular mechanisms driving nuclear organization of cancer cells, focusing on chimeric transcription factors generated by chromosomal translocation and its impact on 3D genome organization and pathogenesis. The analysis of preliminary data suggests that the chimeric protein E2A-PBX1 associated with one of the most frequent B-acute lymphoid leukaemia (B-ALL) translocations, has liquid-liquid phase separation (LLPS) properties that could drive the 3D genome organization and the oncogenicity. Therefore, I will combine and integrate multi-omics experimental and computational approaches encompassing state-of-the-art technologies (chromatin conformation capture, NGS, CRISPR/Cas9 genome editing, degron system, optogenetic) to elucidate the role of the chimeric protein E2A-PBX1 on 3D chromatin organization and B-ALL malignancy. Understanding how translocation can affect biochemical properties of protein and alter the genome organization and the gene expression will offer potential new biomedical applications for the treatment of haematological malignancies. The development of the proposed research project will allow me to become a leader in the field of gene regulation and molecular mechanisms associated with genomic disorders in blood cancers.

Resumen del Currículum Vitae:

My main research interest focuses on the molecular mechanisms that regulate transcription and cell fate decisions in health and disease. I started to be interested in the mechanisms of gene regulation in disease during my PhD in the laboratory of Pr. Denis Rasschaert (UMR1282, Tours). My works showed how oncogenic herpesvirus uses cellular transcription factors to express microRNAs essential to induce lymphoma (Stik et al., 2010 RNA; Stik et al., 2013 Journal of Virology). I moved then to the laboratory of Dr. Thierry Jaffredo (CNRS, UMR7622, Paris) as a postdoctoral fellow where I focused on studying the mechanisms controlling the hematopoietic stem cell fate (Stik et al., 2017 Journal of Cell Biology). In fall 2016, I join the laboratory of Dr. Thomas Graf (CRG, Barcelona). As a Marie Skłodowska-Curie postdoctoral fellow first and then as Research Associate, I started to create the ground for an independent career and developed new research lines to explore the role of 3D genome organization on gene regulation during differentiation, oncogenesis and inflammation (Stik et al., 2020 Nature Genetics, co-corresponding; Soochit et al., Nature Cell Biology co-first author). During this time, I established fruitful collaborations with several lab (Dr. S. Pfeffer, IBMC, Strasbourg, Dr R. Stadhouders & Niels Galjart, Erasmus MC, Rotterdam; Dr D. Hnisz, MPI, Berlin; Dr M. Marti-Renom, CRG, Barcelona; Dr P. Cramer, MPI, Gottingen, Spain) that significantly broadened my knowledge and strengthened my scientific maturity. Beyond the technical and theoretical skills, I acquired scientific leadership, networking and independent thinking required to achieve my goal to establish myself as an independent and recognised researcher.

Since 2009, I supervised 8 master students, 3 technicians and co-supervised 1 PhD student. I also gave lectures to master and PhD students at the university (UFR Tours, UPMC Paris, CRG Barcelona). Since 2017, I am ad hoc reviewer for Stem Cell Report, Nature Genetics, Cell Reports and Nature Communications. Since 2020, I am also working as expert for the evaluation of the Marie Skłodowska Curie Individual Fellowships of the European Commission. I received several distinctions as a best presentation awards or a travel grant and my last first author paper published in Nature Cell Biology has been highlighted in an article published in Developmental Cell (Wang and Corces, 2021).

Overall, I acquired the professional maturity for a successful independent scientific career with: (1) a significant track record of publications in high impact journals, including several articles as Corresponding Author; (2) capacity to obtain funds independently, (3) a strong scientific expertise, (4) international recognition exemplified by invitations to conferences, to write reviews and to participate in the peer-review process of scientific content, (5) strong international collaborations and (6) proven leadership capacity to recruit and train junior researchers.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	SOLER ARTIGAS, MARIA
Referencia:	RYC2021-032076-I
Correo Electrónico:	maria.soler@vhir.org
Título:	Deciphering complex diseases/ disorders through genetic and omics approaches
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Resumen de la Memoria:

The main research lines I have pursued in my research career have focussed on the study of the genetic bases and biomarkers of complex diseases/disorders and co-occurring traits, as well as of the inference of potential causal relationships between them, through the implementation of cutting edge methodologies. My work initially focused in lung function and COPD, moving then to Psychiatry and Mental Health-related traits, having generated relevant knowledge in both fields. I am co-author of 71 published scientific papers and my h-index is 32, with around 9035 citations.

I hold a degree in Mathematics and an MSc in Biostatistics (distinction). During my PhD (University of Leicester, UK, 2015, no corrections) my main achievements were to identify new genetic associations for lung function and chronic obstructive pulmonary disease (COPD) bringing new insights in their aetiology and publishing this work, with first authorships, in very high impact journals (Am J Respir Crit Care Med 2011, Nature Genetics 2011 & 2014, Nature Communications 2015).

Since 2016, I belong to the Group of Psychiatry, Mental Health and Addictions at the Vall d'Hebron Research Institute (VHIR), where I focus on the study of neurodevelopmental disorders, particularly attention-deficit hyperactivity disorder (ADHD), and I have increasing gained independence and leadership, while maintain a high level of internationalization. I have led studies which identified new loci and methylation signatures for ADHD (NPP 2020, Transl Psychiatry 2020, corresponding author) and I have received funding as a PI from Instituto de Salud Carlos III (PI19/01224;123.420) to study the effect of gene expression data on risk of ADHD. I also started a research line, which has established a causal relationship between ADHD and a range of additions (Mol Psychiatry 2019, first and corresponding; Am J Med Genet B Neuropsychiatr Genet 2020, senior and corresponding). Additionally, I am part of international consortia: Psychiatric Genomics Consortium and International Multi-centre persistent ADHD CollaboraTion , and play a role in four European Commission (H2020) grants (667302;728018;848228;2020604).

I have successfully supervised one PhD (09/2020) and one MSc project (2020) and currently supervise two PhD students, I teach at the MSc on Translational Biomedical Research at VHIR and I am an associate lecturer at the University of Barcelona since 2019.

Resumen del Currículum Vitae:

Currently I am a senior researcher at the Psychiatry Genetics Unit in Vall d'Hebron Research Institute and an associate lecturer at the University of Barcelona. I hold a degree in Mathematics, an MSc in Biostatistics and a PhD focused on the genetic epidemiology of complex traits (awarded with no corrections and a College Prize for Excellent PhD Performance, 2015). Work from my PhD identified new genetic associations for lung function and COPD bringing new insights in their aetiology and was published, with first authorships, in very high impact journals (Am J Respir Crit Care Med 2011, IP= 11.81, Nat Gen 2011, IP= 35.53; Nat Gen 2014, IP= 29.35; Nat Commun 2015, IP= 11.33), I was invited to present some of these results at the XIII COPD SYMPOSIUM, in Barcelona. Part of this work was also selected to take part in the Royal Society Summer Science Exhibition 2012, in London, an exhibition for the general public, which showcases the most exciting cutting-edge science and technology research.

Since 2016, I am focused on the study of neurodevelopmental disorders, particularly ADHD, through large-scale analyses of genome wide and related omics data. During this time I have supervised work that has led to 8 senior authorship publications, which is 20% of the papers I have published in last 5 years. One of them, where I am also first author, showing evidence of a causal effect of ADHD liability on cannabis consumption (Molecular Psychiatry 2019) was the scientific paper with most media impact out of those published in CIBERSAM in 2019, was selected for a platform presentation at the World Congress of Psychiatric Genetics 2018 and at the 5th EUNETHYDIS International Conference 2018, where I was awarded the J-EUNETHYDIS Prize. I have also been awarded a Juan de la Cierva (IJC2018-035346-I, score:99,10/100) and a Sara Borrell (CD19/00192) fellowships.

During my career I have participated in 9 national and international projects. Currently I participate in PERIS (SLT006/17/287) in four European Commission (H2020) grants (667302, 728018, 848228, 2020604; 2,489,131 in total) and I am PI for another project founded by Instituto de Salud Carlos III (PI19/01224; 123.420). I have supervised theses for one PhD (Paula Rovira Lorente, cum laude 09/2020) and one MSc student (Natàlia Pujol Gualdo, 9.6/10) and currently supervise two PhD students. With 71 scientific publications overall my h-index is 32, with around 9035 citations.



Área Temática:	Biomedicina
Nombre:	MAGRI , GIULIANA
Referencia:	RYC2021-031642-I
Correo Electrónico:	gmagri@imim.es
Título:	Role of B cells in In

Correo Electrónico:gmagri@imim.esTítulo:Role of B cells in Inflammation, Infection and Cancer Immune Surveillance: From Systems Immunology toAntibody Discovery and Engineering

Resumen de la Memoria:

I am a researcher with more than 14 years of experience in human immunology and mucosal immunity. During my PhD at UPF, I provided new insight on the way NK cells respond to HCMV-infected myeloid cells, contributing to the overall understanding of innate immune system-HCMV crosstalk (Magri et al, Blood 2011). In 2011, after finishing my PhD, I joined the B cell biology laboratory led by Dr. Cerutti at IMIM (Barcelona). Here I switched to the B cell biology field and this henceforth become the main focus of my following research. My first postdoctoral study demonstrated that a unique subset of innate lymphocytes (ILC3), previously described only in mucosal tissues, could regulate T-independent antibody responses in the spleen (Magri et al. Nat Immunol 2014). After this initial study, I moved to the challenging field of mucosal immunity and host-microbiota interaction. My second postdoctoral work shed light on the ontogeny of secretory IgM in human intestine, revealing the existence of a previously unrecognized repertoire of gut IgM memory B cells. Moreover, we demonstrated a regulatory role of secretory IgM in the maintenance of highly diverse commensal communities in the gut mucus layer (Magri et Al, Immunity 2017, myself as first and corresponding author). During this challenging project, I set up different -omics technologies for the characterization of B cells in human tissues and for the analysis of host-microbiota interactions, switching from reductionist studies to a more integrated approach. My past and current research has provided a framework for understanding how our immune system, through the production of mucosal antibodies, shapes the microbiota composition to maintain gut homeostasis (Cheng K, Magri et al, Nat Rev Immunol 2020).

To complete my training, in 2017 I have been visiting scientist at the Cancer Immunotherapy group led by Prof Merad at MSSM (NY, USA) and in 2019 at the laboratory of Prof Spits at AMC (Amsterdam, NL). These stays, that already resulted in published collaborative studies (Leader et al, Cancer cell 2021 and Heesters et al, JEM 2021), strengthened my skills in single cell biology and antibody engineering, and allowed me to open new lines of investigation and initiate independent collaborations.

Since January 2020, I am an independent Miguel Servet researcher at IMIM where I am continuing investigating the role of B cells in the context of host-microbiota interaction, anti-tumoral immunity and infection. I am currently principal investigator in three projects, two granted by the Instituto de Salud Carlos III aimed at evaluating the role of B cells in anti-tumoral immunity and response to anti-TNF treatment in IBD and one granted by the Generalitat de Catalunya aimed at developing human SARS-CoV-2 neutralizing antibodies.

Since April 2020, I devoted large part of my research to COVID-19. We have characterized B cell responses in COVID-19 patients and vaccinees, providing new insights into the complexity of the immune response dynamics to SARS-CoV-2 infection and mRNA vaccination (de Campos-Mata et al. Clin & Transl Immunol. 2021; Tejedor Vaquero et al. Front Immunol 2021, me as last and corresponding author). Moreover, we have generated several humanized SARS-CoV-2-neutralizing monoclonal antibodies, for which we are currently drafting a patent application.

Resumen del Currículum Vitae:

CURRENT POSITION: Since January 2020 I am an independent Miguel Servet researcher at IMIM where I am continuing to explore the role of B cells and antibodies in chronic inflammation, infection and cancer immune-surveillance by combining wet-lab omics tools with computational techniques. EDUCATION: PhD in Biomedical research from Pompeu Fabra University (2011); Master degree in Biomedical research from Pompeu Fabra University (2007) and Medical Biotechnology degree from University of Milan (2003)

COMPETITIVE FELLOWSHIP: I have successfully obtained continued funding during my PhD (Marie Curie training Network grant) as well as during my post-doctoral training (Juan de la Cierva from 2012 to 2014, Sara Borrell from 2015 to 2017, Peris contract from 2018 to 2019 and Jose Castillejo grant for mobility stay abroad in 2019). in 2020 I was awarded a Miguel Servet contract from the Instituto de Salud Carlos III.

SCIENTIFIC AWARDS: I received several travel awards to assist international congress (including the Keystone Symposia). In 2014 I received the Bio-Techne Poster Award and in 2017 we received the Best Idea Award from Diario Medico for our study on Immunity.

SCIENTIFIC CONTRIBUTION: Along my scientific career I authored 3 book chapters and 30 publications in peer-reviewed journals. My list of publications comprises 9 as first author (including original research articles in Blood, Nat Immunol and Immunity as well as review articles in Nat Rev Immunol and Curr Opinion Immunol) and 4 as last or corresponding author (in Immunity, Front Immunol and Clin & Transl Immunol). My work has been cited ~1600 times (Scopus). We recently generated several humanized SARS-CoV-2 neutralizing mAbs with potential therapeutic use.

RESEARCH PROJECTS: Since 2020, I received funding in national competitive calls for developing my research. I am currently principal investigator in three different projects (Miguel Servet Grant, FIS and COVID-19 call; total budget: 418.500).

TRAINING CAPACITY: During my postdoc, I co-directed a PhD thesis and, as a PI, I supervised one post-doctoral researcher and I am currently cosupervising one PhD and one master student.

RECOGNITION BY SCIENTIFIC COMMUNITY: I have been selected to present my works in prestigious international congresses (EMBO, Keystone, among others) and in national meetings. More recently, I was invited speaker at Lydia Becker Institute of Immunology (Manchester, UK), at Gothenburg University, Karolinska Institute and Nantes University.

INTERNATIONAL MOBILITY AND COLLABORATIONS: Along my scientific career, I established multiple collaborations with international scientists all over the word and I have made several short and long stays in different international laboratories. Overall, as a post-doctoral fellow, I spent more than 1 year and 4 months in internationally renowned laboratories in the immunology field (RIKEN-JPN, MSSM-USA; IFOM-IEO-ITALY, AMC-NL).

REVIEWING ACTIVITY AND OTHER: since 2019 I am serving as external reviewer for science funding agencies (ERC, MINECO), as review editor for Front Immunol and as ad hoc reviewer for several peer-reviewed scientific journals (Nat Commun, iScience, JEM, Immunity, among others). Moreover, I am member of EFclif (European Foundation for the Study of Chronic Liver Failure) Scientific advisory board.





Área Temática:	Biomedicina
Nombre:	BREA LOPEZ, DAVID
Referencia:	RYC2021-031113-I
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Título:	Brain-immune system connection in the context of stroke
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Resumen de la Memoria:

From the beginning of my career, I have been working at the interphase of Neurosciences and Immunology, specially in the context of stroke and cerebrovascular diseases.

During my PhD I started a project to decipher the role of the innate immune system, specifically the role of Toll-like receptors, in brain ischemia, demonstrating that innate immune system activation is associated with the outcome of stroke patients. With a deep interest and curiosity on the immune system and its role in nervous system, I developed as postdoc researcher, a study of the endogenous immunosuppressor mechanisms, and the potential use of these mechanisms for neuroprotection. Thus, I made use of one of the most immunosuppressor cells (Regulatory T cells) to demonstrate that cultured regulatory T cells (Treg) can be used to reduce the infarct size in animal models of stroke (J Cell Mol Med 2014).

With an increase interest in understanding how the immune system affects stroke pathophysiology I moved to Cornell University where I was able to co-lead a project where we demonstrated for the first time that intestinal microbiota affects stroke outcome through the mediation of different populations of intestinal immune cells. Briefly, we were able to demonstrate that intestinal dysbiosis induce an increase in Treg cells. Then, Treg cells modulate another immune cell type, namely gamma-delta T cells, that, in the context of stroke, migrate to the brain and affect stroke pathophysiology (Nat med 2016). My experience on analyzing intestinal immune cells in the context of cerebrovascular diseases was useful on a collaborative project where we analyzed intestinal immune cells in the context of high-salt rich diet. My participation on this project was essential to demonstrate that high salt diet induces the expansion of IL17-producing Thelper lymphocytes (Th17 cells) in the small intestine, resulting in a marked increase in plasma IL17. The consequences of this increase in plasma IL17 levels are endothelial dysfunction and cognitive impairment. These findings revealed a new gut-brain axis linking dietary habits to cognitive impairment through an adaptive immune response initiated in the gut and compromising brain function via circulating IL-17 (Nature neuroscience 2018).

During these projects I made a curious observation: stroke affects intestinal immune cells. This observation was the starting point of a new project where I analyze how stroke affect peripheral immune cells. To develop this project, I moved to Champalimaud Foundation (2019) and I started working completely independent to decipher how brain signals influence the immune system. I have been able to observe that stroke induce a remodeling on the immune system in the small intestine and the visceral adipose tissue that may be related with post-stroke complications during the acute phase (infections) and the chronic phase (stroke recurrence and post-stroke dementia) of the disease. These preliminary data have allowed me to get my first grant as Principal Investigator and being invited to write a News & Views paper (Nature 2022).

Resumen del Currículum Vitae:

I started my research on 2005 as PhD Student at the University of Santiago de Compostela. During this stage I was able to obtain competitive grants from Xunta de Galicia (Ayudas para tercer ciclo) and from the Spanish Ministry of Health (Ayudas predoctorales de Formación en Investigación-Instituto de Salud Carlos III). After a short period as postdoctoral researcher in the same research group, I obtained a highly competitive Sara Borrell fellowship from the Instituto de Salud Carlos III of the Spanish Ministry of Health (and I moved to Research Institute Germans Trias I Pujol of the Germans Trias i Pujol University Hospital (Badalona, Spain) under the supervision of Prof. Antonio Dávalos. In 2013 I started a new postdoc at the University of Cornell (New York, USA, under the supervision of Prof. C. Iadecola, a very reputed scientist in the field of inflammation and immunology in Neuroscience, that culminate in 2017, after publishing a paper in Nature medicine, being promoted to Instructor in Neurosciences. In 2019 I joined the Champalimaud Foundation (Lisbon, Portugal) after wining a competitive FCT Investigador Asociado , that allowed me to work independently on my research line focused on understanding how stroke-induced brain signals affect peripheral immune system.

From the beginning of my career, I have been able to obtain financial support in the form of competitive grants in every different stage (pre and postdoctoral fellowships) and I have been collaborating in the obtaining of financial support for my research projects, having participated in 14 competitive national and international projects. Notably, I have participated in two NIH grants that guarantee the financial stability of our laboratory (>1 million \$/year x 5 years), and recently (2021) I got my first grant as a Principal Investigator, awarded by the Portuguese Ministry of Science with 250.000 .

As a result of my participation in these projects, I achieved an extensive record of publications and conference communications (44), in addition to one international patent. I have accumulated a total of 50 published papers in peer-reviewed journals (including Nature, Nature medicine, Nature neurosciences), 16 as first author, and the last 2 as corresponding author. I accumulate a total impact factor of more than 200 points and my H-index is 29. My papers have been cited a total of 3513 times.

Other highlights of my career are:

- PhD Extraordinary Award for my European PhD thesis from the University of Santiago de Compostela (in 2013).
- Appointed as Associated Editor of BMC Neurology (2013-Currently).
- Reviewer for the Spanish ANEP (Agencia Nacional de Evaluación y Prospectiva) since 2016.

Besides to my development as researcher, I have been involved in teaching activities as collaborating teacher (colaborador docente) at the Department of Medicine of the University of Santiago de Compostela from 2008 to 2014. I was also co-director of an Academic Tutored Grade Work, presented in July 2009 in the University of Santiago de Compostela, I was invited in 2011 to be a member of a PhD thesis committee at the University of Santiago de Compostela, I was invited in 2011 to be a member of a PhD thesis committee at the University of Santiago de Compostela and I am currently supervising a PhD student at Champalimaud Foundation. In addition, I actively participate in events of science divulgation with radio and newspaper articles.



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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	MAYORCA GUILIANI, ALEJANDRO ENRIQUE
Referencia:	RYC2021-032984-I
Correo Electrónico:	Alejandro.mayorca@bric.ku.dk
Título:	Deconstructing and reconstructing the cell niche using the extracellular matrix

Resumen de la Memoria:

Understanding the principles behind the organization of cells into organs is a central goal of bioengineering. The structure that provides physical support and shape to that organization is the extracellular matrix (ECM), an acellular edifice made of ~1300 proteins and glycans, of which ~300 are interwoven in a complex structural network. My contribution to science is the conception and development of technologies to isolate, map and use the ECM from mammalian tissues, opening the way to characterize it and leverage its three-dimensional structure to model disease (Nature Medicine 2017, Nature Protocols 2019, Advanced Healthcare Materials 2022).

During my clinical training I was involved in therapies based on the modification of tissue structure (osteogenic distraction) to coerce cells into creating new specialized tissue (International Journal of Oral Maxillofacial Surgery, 2005). This interest in structural change led to a Monbukagakusho PhD Fellowship in Ehime, Japan, where I explored pre-metastatic modifications preceding cancer invasion in lymph nodes. My findings detected that a specialized form of vascular growth, vasculogenesis, was driven by ECM-associated proteins produced by cancer cells acting simultaneously in the bone marrow and lymphatic system (Oral Oncology, 2005).

These results led to a postdoc fellowship in Copenhagen, Denmark. Early in my postdoc, animal experiments showed oral tumors to be more metastatic than subcutaneous tumors, and to retain a memory of their aggression upon transplantation to a different site. I hypothesized that tissue-specific ECM could store that memory. I designed microsurgical operations to decellularize tumors without altering their architecture, optimized 3D imaging and ECM mass spectrometry and became the first to isolate and map the cancer-associated ECM, effectively completing the deconstruction of tumor tissue and confirming the different, organ-specific organization of the metastatic cell niche (Nature Medicine, 2017).

Upon realizing that ECM maps were unavailable for all tissues I drove a technical expansion that resulted in the decellularization of 33 organs and, in collaboration with international researchers, the location of 35 ECM proteins in 3D (Nature Protocols, 2019), creating a tool to map ECM structure in sub-micron detail.

Later, in collaboration with a biotech company (Ebers Medical, Spain) I designed a bioreactor (Advanced Healthcare Materials, 2022) that provides conditions for cell culture and microscopic monitoring. In this bioreactor cells from different genetic origins can interact against the background of a complex ECM. This system has experimental flexibility impossible in vivo or in vitro. I applied it to mimic the lung metastatic niche, proving that ECM structure is modified by cancer cells, and that this structure in turn directs kinase phosphorylation across the kinome, imitating in vivo metastasis cell signaling.

More recently, I have built a collaboration with Copenhagen University Hospital to map the ECM of human lungs. I recurred to the Graphical Analysis Unit at the Technical University of Denmark to design a machine-learning tool that recognizes alterations of ECM structure and predicts disease. These results are now submitted to a high-quality journal.

Resumen del Currículum Vitae:

I am interested in determining the influence that tissue architecture wields over disease progression, and whether it is possible to replicate cellstructure interactions experimentally. My goal is to set up a lab that builds on the technology I have developed to analyze the extracellular matrix (ECM) and collaborates with a network of institutions to guarantee an innovative approach to crucial problems of human pathophysiology.

During my clinical training at Toulouse University Hospital, I became familiar with surgically induced changes to the cell microenvironment (International Journal of Oral Maxillofacial Surgery, 2005) and later, during my PhD in Ehime University (Prof. Hiroyuki Hamakawa s lab), I completed those skills with scientific training that I applied to explore how oral cancer tumors accelerate lymphatic invasion (Oral Oncology, 2012).

As a postdoc in the Biotech Research and Innovation Center of the University of Copenhagen (Prof. Janine Erler s lab), I detected a knowledge gap concerning the 3D structure of the ECM in healthy and diseased tissues. I synthesized my microsurgical and scientific expertise to focus on specific questions (the 3D topography of the ECM, modelling metastasis ex vivo) and found original solutions. I was the first to isolate the ECM from tumors, completing their deconstruction (Nature Medicine, 2017), and confirming the organ-specificity of ECM structure. Later, I expanded these methods to enable whole body 3D ECM mapping in high resolution (Nature Protocols, 2019), providing a replicable tool for ECM researchers. Next, I designed a bioreactor to model metastasis in a controllable system, where cells mimic both the in vivo anatomical cancer niche and kinase signaling profile (Advanced Healthcare Materials, 2022).

More recently, I built a collaboration with the Technical University of Denmark and Copenhagen University Hospital, to combine my technology with machine learning (ML) and resolve the 3D structure of human ECM in health and disease. Our results, now submitted, can evolve into new tools for ML-based diagnosis and therapy design.

I have supervised 1 undergrad student, 2 MSc Students and 1 PhD Student. My students completed their degrees and participated in high-quality, peer-reviewed publications, thus gaining an experience that served as a platform for their careers. Since 2017, I have taught human pathology to medical and PhD students. To improve my teaching skills, I completed the course Introduction to university pedagogy in 2021.

I have been invited to present my research in several meetings, made films of my techniques and issued press releases that attracted attention from social media and the press. My technology has been repeatedly referenced as a fundamental technique in publications like Nature Reviews Cancer and Nature Cell Biology.

I am a reviewer for several scientific journals and member of the evaluation committee for a EU program at Lund University. As a member of the Board of the Danish Society for Matrix Biology I collaborated in the organization of several national and international scientific meetings.

This research has been funded with competitive grants from Japan, Denmark and the EU. My decellularization technology is the basis for an ERC Consolidator grant and I have worked in an innovation grant developing clinic-based cancer models.



Área Temática:BiomedicinaNombre:MUÑOZ RUIZ, MIGUELReferencia:RYC2021-034348-ICorreo Electrónico:Miguel.Munoz-Ruiz@crick.ac.ukTítulo:Development and function of gamma-delta T cells as the prototype of unconventional innate-like T cells andits implications in immunopathology

Resumen de la Memoria:

I started my PhD studies in the laboratory of Prof. JR Regueiro; Faculty of Medicine of the Complutense University of Madrid (UCM), awarded with competitive grants -UCM PhD Fellowship and EFIS-Short Term Fellowship. The research work was completed in collaboration with Prof. Silva-Santos at Instituto de Medicina Molecular (iMM) in Lisbon where I was Visiting PhD Researcher for nine months and gained a two-month contract (Postdoctoral Orientation Period). We proposed a revised model of the impact of T Cell Receptor (TCR) signal intensity on the development of effector gamma-delta (gd) T cells. (Nat Immunol 2016 and Trends in Immunol 2017, 1st author in both).

During this time, eight research articles were published in the highest impact journals in the immunology field, four of them as 1st author.

After the PhD (Cum laude with European mention) in Immunology (2016), I joined as a research associate at the laboratory of Adrian Hayday; King s College London (KCL) and Francis Crick Institute, UK London (awarded with a Postdoctoral-EMBO Long-Term Fellowship). I have contributed to the understanding of tissue immunosurveillance by innate-like gd T cells, I have generated the first model for conditional deletion of TCRgd; (CRISPR-Cas) and I have developed a key tool to track T cell immunodynamics in a variety of immune-settings (international collaboration with Prof F. diRosa, Rome with 3 publications). In 2020, I launched the first common immune signature in the blood of patients with COVID-19 by leading the analysis of T cells and in 2021 the first immune-efficacy study of COVID-19 vaccine for cancer patients.

As a postdoc, I produced twelve research articles, four of them as 1st or co-1st author and one as Co-last author, with the findings being published in highest impact journals (e.g., Nat Med 2020 co-1st author, Lancet Oncol 2021 co-1st author, Cancer cell 2021 co-1st author and J Autoimmunity 2020 1st author).

Results were presented at international conferences -European Congress of Immunology, International Thymus meeting, International gd T cell conference, selected speaker in all of them.

Thanks to my expertise in T cells, I am co-supervisor of a PhD Thesis that will be defended in 2023 (Rebeca Fernandez Megino-UCM) and I have also been involved in high education teaching at UCM, KCL and University College of London (UCL). In 2020 participated as an invited speaker in an international congress. Furthermore, I won the distinction of 2020 Sir David Cooksey Prize in translation in recognition of efforts in response to Covid-19.

Resumen del Currículum Vitae:

I completed a Master in Biochemistry, Molecular Biology and Biomedicine (BMBB) and developed a PhD in Immunology (Cum laude with European mention, 2016. UCM). I acquired critical skills in immunology, molecular biology, and genetics with international expertise (Adv Exp Med Biol 2012 & BMC Immunol 2013, 1st author). As Visiting PhD Researcher at Instituto de Medicina Molecular (iMM) in Lisbon (9 months), I achieved a highly relevant outcome in relation to gamma-delta (gd) T cell development (Nat Immunol, 2016, 1st author). B Silva-Santos (iMM, Lisbon) and JR Regueiro (UCM, Madrid) were co-directors of this work. Conferred with competitive grants to develop this project (UCM-PhD Fellowship, EFIS-Short Term Fellowship), with The Extraordinary Doctorate Award by the UCM and the Award for the best doctoral thesis: Doctora Menéndez-L.A.I.R.

Two-month contract (Postdoctoral Orientation Period, 2017) with B Silva-Santos lab, Lisbon. A high-impact scientific review was written (Trends Immunol, 2017. 1st author).

In 2017, I signed as a Research Associate in the Department of Immunology, at King s College London (KCL), UK. Currently completing a Postdoctoral Training Fellow at the Francis Crick Institute, London UK, in Adrian Hayday s Lab, and Visiting Research at KCL.

Awarded in 2018 with a competitive Postdoctoral EMBO Long-Term Fellowship. I integrated skills in gd immunosurveillance and gene editing (CRISPR-Cas, two mice line generated and established) with an outstanding international interaction (e.g., J Autoimmun, 2020 1st author, collaboration with F di Rosa, Institute of Molecular Biology and Pathology, Rome and Semin Cell Dev Biol, 2019 Co-last author, collaboration with JR Regueiro (UCM)).

In 2020, we launched the first common immune signature in the blood of patients with COVID-19 (Nat Med 2020 co-1st author), where I led the analysis of T cells. In 2021, we developed the first immune-efficacy study of COVID-19 vaccine for cancer patients (Lancet Oncol 2021&Cancer Cell 2021, co-1st author). As a result, I was invited to an international congress (Invited Conference, 2020) and to worldwide events e.g., Coronavirus Webinar Series LabRoots . Moreover, I won the distinction of 2020 Sir David Cooksey Prize in translation for the efforts in response to Covid-19.

I have generated 20 research articles (8 of them as a 1st or co-1st author and one as a co-last author) in the highest impact journals in the immunology and medicine fields. H-Index (Scopus): 10. These findings were selected for several international oral and poster presentations.

I published a scientific book chapter (1st author) and open access publications (LymphoSignJ.2015, Inmunología 2009&2013).

I acted as Thesis Committee Board member in 2017 at UCM and I was three times an external evaluator of a UCM-European Thesis. Since 2021, I am Review Editor on the Editorial Board of Immunological Memory (section of Frontiers in Immunology).

I have supervised a master s Thesis of BMBB program (UCM), an Immunology master s program (FAU Erlangen, Germany) and a Master's Thesis MSc Immunology (KCL, UK). I am European PhD Thesis Co-supervisor which will be defended in 2023 (R. Fernandez Megino-UCM). I have started my own line of research; I am supervising a research scientist at The Francis Crick Institute (Line supervisor of A. Mavrigiannaki). Also, I have achieved experience as a University Teaching Assistant at UCM (60h), KCL (20h) and UCL (20h, Honorary Research Fellow).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:BiomedicinaNombre:LAGUNA TUSET, ARIADNAReferencia:RYC2021-032947-ICorreo Electrónico:ariadna.laguna@vhir.orgTítulo:El eje cerebro-cuerpo en la enfermedad de Parkinson: de la fisiopatología a los biomarcadores y enfoquesterapéuticos

Resumen de la Memoria:

Mi carrera científica se ha centrado en comprender los mecanismos subyacentes a las enfermedades humanas que afectan al sistema nervioso central, tanto de etiología del neurodesarrollo como neurodegenerativa. Durante los últimos 13 años, me ha interesado comprender la fisiopatología de la enfermedad de Parkinson (EP) para contribuir al desarrollo de biomarcadores y terapias modificadoras de la enfermedad para mejorar el diagnóstico y el tratamiento de esta enfermedad neurodegenerativa común actualmente incurable.

Me he formado en diferentes laboratorios de destacados centros de investigación de excelencia en España y Suecia. Durante mi doctorado en el Centro de Regulación Genómica (Barcelona), contribuí a dilucidar el papel del desequilibrio gen-dosis en el desarrollo del sistema nervioso central y en el control de la homeostasis de las células madre neurales, publicando artículos seminales en el campo del síndrome de Down y la biología del gen DYRK1A. Como investigadora postdoctoral en el Karolinska Institutet (Estocolmo), estudié el papel de los factores de transcripción en las neuronas dopaminérgicas y su contribución a la patología de la EP, publicando artículos en relación a las funciones de los genes LMX1A/B, NURR1, SOX6 en la funcionalidad de las neuronas postmitóticas. Finalmente, como científico sénior e investigadora principal en el Institut de Recerca Vall d'Hebron (Barcelona), estoy participando en elucidar los mecanismos por los cuales el pigmento neuromelanina contribuye a la patogénesis de la EP y cómo la modulación de la acumulación del pigmento puede representar una nueva estrategia terapéutica para la EP. Además, durante los últimos 5 años he sentado las bases para una carrera independiente y he iniciado nuevas líneas de investigación con un enfoque especial en la interacción entre el cerebro y el resto del cuerpo y su contribución a los síntomas motores y no motores de la EP.

A lo largo de mi carrera, he combinado mis actividades científicas con actividades de comunicación científica y de participación ciudadana y de pacientes. Además, he sido madre en tres ocasiones.

Mi investigación durante los próximos años se centrará en la etiología de los síntomas no motores de la EP, en particular, la disfunción autonómica y el papel del eje intestino-cerebro en la EP con un abordaje multidisciplinar y combinando la investigación fundamental con la investigación translacional. Mediante el estudio de muestras biológicas (es decir, suero, líquido cefaloraquídeo, heces, orina, saliva y tejido cerebral post mortem) utilizando técnicas ómicas de última generación y estudios funcionales con modelos preclínicos in vitro e in vivo bien establecidos (es decir, células derivadas de pacientes y modelos de roedores), espero contribuir a i) describir marcadores clínicos y moleculares que puedan ser utilizados para la predicción, diagnóstico y pronóstico de la EP, ii) clarificar el papel de la microbiota en el inicio y progresión de la EP, y iii) contribuir al desarrollo de estrategias terapéuticas basadas en la modulación de la microbiota y sus funciones. El objetivo a largo plazo es poder identificar a los individuos en los que la enfermedad se ha iniciado de forma incipiente y poder hacerles un seguimiento personalizado para empezar a tratarlos lo antes posible, idealmente con terapias modificadoras del curso de la enfermedad.

Resumen del Currículum Vitae:

Actualmente soy investigadora principal del Grupo de Investigación en Enfermedades Neurodegenerativas del Institut de Recerca Vall d'Hebron (VHIR, Barcelona) desde diciembre de 2016, primero financiada por un contrato Jóvenes Investigadores del Ministerio de Economía y Competitividad de España (MINECO) y actualmente por un Contrato Junior leader de la Fundación Bancaria La Caixa. Mi equipo actual está formado por 3 estudiantes de doctorado y una investigadora postdoctoral.

Tras licenciarme en Biología, especialidad en investigación biomédica, por la Universidad Pompeu Fabra (UPF, Barcelona), realicé un doctorado en el Centro de Regulación Genómica (CRG, Barcelona) bajo la supervisión de la Dra. Mariona Arbonés y con una beca de la Generalitat de Catalunya, estudiando en el paper del gen DYRK1A en las alteraciones neurológicas en el Síndrome de Down. A continuación, realicé una estancia postdoctoral en el laboratorio del Profesor Thomas Perlmann en el Karolinska Institutet (KI, Estocolmo, Suecia), con una beca europea Marie Curie, trabajando en factores de transcripción y su papel en la enfermedad de Parkinson (EP). Posteriormente, me reincorporé al sistema de investigación español mediante una beca Beatriu de Pinós de la Generalitat de Catalunya para trabajar en el grupo del Profesor ICREA Miquel Vila en el VHIR, estudiando los mecanismos moleculares que subyacen la enfermedad de Parkinson.

Mis publicaciones incluyen trabajos en prestigiosas revistas como Nature Neuroscience, Cell Stem Cell, Science Translational Medicine, Nature Communications, Developmental Cell, Autophagy, PNAS y NPJ Parkinson s Disease, entre otras (19 publicaciones, índice de impacto medio 9.1 (JCR 2019), 53% en D1 y 82% en Q1, h-Index 11 (Scopus)). A lo largo de mi carrera he conseguido de forma regular financiación para cubrir los gastos asociados a mi salario (6 becas/contratos), así como financiación solapante desde 2014 para cubrir los gastos asociados a mi investigación mediante la obtención de proyectos competitivos en agencias y fundaciones nacionales e internacionales (6 proyectos como IP).

En 2018 obtuve la acreditación de profesorado universitario por la Agencia de Calidad Universitaria de Catalunya (AQU) y soy profesora asociada en el Máster de Medicina Traslacional del VHIR. Pertenezco a la Red Española de Centros de Investigación Biomédica en Enfermedades Neurodegenerativas (CIBERNED), y soy miembro de la Sociedad Española de Neurociencias (SENC), de la Sociedad Catalana de Biología (SCB), de la Asociación de Mujeres Investigadoras y Tecnólogas (AMIT), y de la Sociedad Internacional de Trastornos del Movimiento (MDS).

Finalmente, participo activamente en actividades de formación/tutoría (estudiantes de doctorado, estudiantes de maestría, comités de tesis y el programa Young and Science para estudiantes de secundaria); participando regularmente en actividades de divulgación para promover la conciencia científica (entrevistas de prensa, podcasts de radio, seminarios dirigidos al público general y a escuelas) y en la promoción de la conciencia sobre la enfermedad de Parkinson como Embajadora Científico de la Coalición Mundial de Parkinson y a través de colaboraciones con distintas asociaciones de pacientes de Parkinson.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	PEREZ GUIJARRO, EVA
Referencia:	RYC2021-034893-I
Correo Electrónico:	evaperezg16@gmail.com
Título:	Dissecting the role of melanoma plasticity in metastasis and immunotherapy resistance
D	

Resumen de la Memoria:

I have an extensive research career of more than a decade investigating melanoma biology, in particular the mechanisms of metastatic progression and therapeutic resistance. Metastatic melanoma is a devastating disease, leading cause of skin cancer-related deaths as therapeutic options are still limited and overall survival rates insufficient. During my PhD at the Spanish National Cancer Research Centre (CNIO), I tackled this question by identifying previously unknown vulnerabilities related with post-transcriptional regulation of melanoma lineage-specific factors. My postdoctoral research at the National Institutes of Health (NIH) established a unique panel of metastatic mouse models that resemble the etiology and therapeutic response of human melanomas. This preclinical platform proved to have unprecedented translational value as it allowed the discovery of a new predictor of clinical benefit from immunotherapies that was associated with melanoma plasticity.

As an independent investigator my vision is to understand the role of melanoma plasticity in immune evasion by interrogating intratumor heterogeneity dynamics at primary and metastatic sites. I aim to expand the knowledge of this critical process employing a multidisciplinary approach that will include the generation of single-cell multi-omics mouse data sets, development of computation tools and comparative analysis of patient cohorts, gene inactivation and drug screens in co-culture systems and preclinical therapeutic studies. My ultimate goal is to discover potential targets that improve patient care and overall survival.

In summary, my research interests and goals have high translational potential that I anticipate will impact and improve patient health and care. My experience working with multidisciplinary teams and my research approach will solidify collaborations with national and international investigators. And my mentoring experience and leadership, together with my strong commitment to create an inclusive and diverse laboratory that promote scientific excellence, will serve to form future generations of scientists.

Resumen del Currículum Vitae:

I am Research fellow at the National Cancer Institute (NIH, US) where I investigate the mechanisms of immunotherapy resistance in mouse models of melanoma. I have an extensive track record of performing high impact research as demonstrated by my 13 peer-reviewed publications in top-tier journals (Total citations= 1206 and H-Index=11 by Google Scholar), including Nature Medicine (first author), Science, Nature, Cell, Cancer Cell (3) and Nature Communications (3, 1 first author).

I obtained my Biology and Biochemistry degrees, Master in Biomedicine and Doctoral degree in Molecular Biosciences at the Universidad Autónoma de Madrid. My PhD research at the Spanish National Cancer Research Centre (CNIO) was funded by an Ayuda Predoctoral de Formación de Personal Investigador from the Ministerio de Ciencia e Innovación and yielded 1 first author publication (Nat Commun, 2016), recognized with a Director s List Awards for Excellence in Research by PhD students (CNIO), and 3 co-author publications (Cancer Cell, 2009, 2014 and 2019).

In 2016 I joined the renowned Visiting Fellow postdoctoral program of the NIH and, since then, I have raised additional funding for my research by obtaining three highly competitive intramural awards: 2018 NCI Director s Innovation Award (\$10K), 2019 CCR FLEX Synergy Award (\$1.2M) and 2020 CCR Excellence in Postdoctoral Research Transition Award (\$25K). I have presented my work at 10 International Conferences and Meetings and was invited to give oral presentation at 4 of them. The relevance of my research was recognized internationally, and I also received the Society for Melanoma Research (SMR) Travel Award at the 16th International Congress of the SMR and a 2021 NIH Fellows Award for Research Excellence (FARE) by the Office of Intramural Training and Education. In addition, I was selected as CCR-FYI Outstanding Postdoctoral Fellow Finalist in 2020.

During my postdoc I have successfully mentored 7 fellows from the College Summer Enrichment Program (winning an NIH Summer Research Mentor Award), the Medical Research Scholar Program and the Postbaccalaureate IRTA/CRTA Program. All my mentees internships have resulted in their coauthorship in at least one peer-reviewed publication, and they have been well placed at the next level of their chosen professional career (PhD and/or MD programs). I have also served as ad hoc reviewer for noteworthy journals (including Nature Communications, Nature Reviews Cancer, PLoS Genetics, Oncogene and Pigment Cell and Melanoma Research) and FARE abstract judge.



Área Temática:BiomedicinaNombre:RUANO GALLEGO, DAVIDReferencia:RYC2021-031342-ICorreo Electrónico:druanogallego@gmail.comTítulo:Type III Secretion System effector networks: artificial intelligence applied to study intestinal bacterialinfections

Resumen de la Memoria:

I am a Molecular Microbiologist currently working at the Centro de Astrobiología as a Retorno de Talento Fellow (Comunidad de Madrid, since 2020). Previously, I have been a Research Fellow for 4 years at Imperial College (UK) after completing my PhD thesis at the Centro Nacional de Biotecnología (CNB-CSIC). I have been awarded 11 fellowships from Spanish and European organizations including EMBO short-term and Personal Investigador de Apoyo fellowships.

Throughout these years I have acquired wide experience in bacterial intestinal pathogens, a cause of diarrheal diseases and food contamination. Because of the rise of antimicrobial resistances and their effect on the microbiome, alternative approaches to antibiotics are urgently needed. To establish infection, many bacteria use a Type III Secretion System to inject virulence factors (effectors) into the host cells cytoplasm. For many years, effectors were studied as individual proteins, describing their function and interaction partners. However, this approach has limited impact for in vivo analyses. In the past few years, I have made a series of ground-breaking discoveries that are changing the way these pathogens are studied, by applying synthetic biology approaches and artificial intelligence (Ruano-Gallego et al., Science 2021). I observed that the effectors establish an intracellular interaction network to promote infection, and that the immune system adapts to contain infections of strains expressing different combinations of effectors. This new paradigm implies the joined action of a specific combination of effectors for a successful infection.

In my independent career, I will undertake a critical question: how can we unravel this network of interactions? To break down this question, I will untangle how the nodes (effectors) and edges (interactions with other effectors or the cellular partners) are connected by refining and completing the information of the effector network of C. rodentium, determining the relative contribution of the effectors for an effective infection. By modelling T3SS effector networks of relevant intestinal pathogens like Salmonella, Shigella or Vibrio, which share effector homology, I will learn about the connections among the effectors of different pathogens and get a deeper insight into the evolutionary origin of the network. This global network will help to predict the infectivity of strains with new combinations of effectors. I will further examine how the genotypic background of the host influences the success of the infection. These studies will facilitate the design of vaccines and non-antibiotics-based therapies.

My recently acquired experience in molecular testing (Ruano-Gallego er al., Microb Biotechnol. 2021) has inspired a new research line focused on developing methods for the surveillance of the health of astronauts, with the aim of monitoring specific biomarkers during space travel, especially related to dysbiosis in the microbiome.

Resumen del Currículum Vitae:

I am 13 years experienced microbiologist (including 2 breaks for paternity leave) in the fields of Biotechnology, Infectious Diseases and Immunology. I obtained my PhD in December 2014 under the supervision Prof. Luis Ángel Fernández (CNB-CSIC). My thesis focused on two biotechnological projects. Firstly, I generated a commensal bacterial chassis assembling a functional Type 3 Secretion System (T3SS), to be used as a tool to inject therapeutic molecules into human cells. Secondly, I selected and produced a recombinant antibody that inhibits the infection of Enterohemorrhagic E. coli, which could be used as immunotherapy, alternatively to antibiotics, for bacterial intestinal infections.

I then moved as a Postdoctoral Researcher to the laboratory of Prof. Gad Frankel (Imperial College London), an internationally recognized expert in infectious diseases. There, I started my research line on how Citrobacter rodentium, a surrogate in vivo model for the infection of pathogenic E. coli, manipulates the intestinal environment for colonization. I analyzed the effect of >200 combinations of T3SS effector genes in the infectivity of the pathogen and demonstrated that the effectors collaborate as a flexible and robust network and that the immune response adapts to the counteract each combination. I developed an artificial neural network to predict the behavior of new effector combinations and with the potential to anticipate the infectivity of other pathogenic strains. This work, published in Science as first author, has been followed by an opinion article as corresponding author.

Since 2020, I am enjoying a Retorno de Talento Fellowship (Government of Madrid) at the laboratory of Prof. Víctor Parro (CAB, INTA-CSIC). I have led the generation of a serology test based on protein microarrays to detect antibodies against the SARS-CoV2 virus. With my new research, based on the same technology, I plan to monitor the health status of travelling astronauts that may suffer infections, or diseases related to changes in the microbiome. As part of a team, I have also designed and received funding to develop a project applying artificial neural networks to the field of astrobiology.

During this time, I have also gained experience as a lecturer at the Universidad Autónoma de Madrid and Imperial College London. I am Fellow of the Higher Education Academy (UK) and accredited as "Profesor titular" (ANECA). Since 2019, I lecture at Universidad Francisco de Vitoria in the BSc of Pharmacy. Additionally, I have been involved in scientific outreach, organizing the V International Symposium of SRUK (2015), or the cycle of Junior Seminars at the CNB-CSIC (2009-2012).

All this has meant participating in 11 research projects, 17 peer-reviewed publications (2 as corresponding author) and 16 conferences; and 11 grants have supported my independence in research (e.g. EMBO Short Term). I have supervised 3 undergraduate students and 1 master student and, currently, I am co-directing a PhD student. I am an expert in techniques such as including qPCR, cytometry, cell culture, animal work, proteomics or



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

protein purification. Through collaborations, I have established connections with Jyoti Choudhary (Institute of Cancer Research), Stephanie Schüller (Quadram Institute Bioscience), or Tal Pupko (Shmunis School of Biomedicine and Cancer Research), among others.



Resiliencia AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	CALVO ENRIQUE, LAURA
Referencia:	RYC2021-034520-I
Correo Electrónico:	taisabaky@yahoo.es
Título:	Beyond nociceptive neurons
Resumen de la Memor	ia:

My PhD studies at the Institute of Neuroscience of Castilla y León (INCyL - Spain) described a new role for Bex3 protein in the regulation of TrkA neurotrophin receptor in mouse nociceptive neurons. I have described that Bex3 controls trkA mRNA levels by regulating TrkA promoter activity. That work resulted in 1 publication as first author and allowed me to gain expertise in a wide range of techniques, mainly related with biochemistry as well as cellular and molecular biology, while gaining intellectual independence. During my PhD studies, I did a short-term stay at the Weill Medical College (Cornell University, NYC) where I learnt several mouse behavioral techniques that were essential to allow me to be involved in a European project focused on the study of a mutant mouse generated at Juan Carlos Arévalo¿s lab (INCyL) which presented hypersensitivity to thermal and inflammatory pain related with the NFG/TrkA signalling. Within this project I had international collaborations and I started gaining multidisciplinary expertise. In 2016, I joined Prof. Patrik Ernfors¿ group at Karolinska Institutet (Sweden), where my main project concerned the role of a cell type in the skin called terminal glial cells. These cells were discovered in 1970 and ignored since then. The dogma that sensory neurons alone transduce mechanical stimuli has been challenged, by the work I did, describing that cutaneous glial cells (which we named nociceptive Schwann cells) are sensory receptor cells which initiate the sense of pain in mice. Less than a year ago, I have returned to Spain with a postdoc position funded by Junta de Castilla y León. During this short time back in Spain, I have succeeded to obtain funding from a private foundation (Fundación en Memoria de D. Samuel Solórzano) and I have started to co-supervise a Master¿s student with a project based in nociceptive Schwann cells.

Resumen del Currículum Vitae:

I graduated in 2007 in Pharmacy and few years later in Biochemistry, both at the University of Salamanca (Spain). I obtained my PhD in Neuroscience, funded by a competitive fellowship, at the Institute of Neuroscience of Castilla y León (INCyL) University of Salamanca at the end of 2013. My PhD main project resulted in 1 publication as first author (Calvo et al., 2015) and allowed me to gain expertise in a wide range of techniques of cellular and molecular biology. Besides my principal project, my collaborative work with other lab members bore fruit to other 4 publications, one of them as first co-author (Yu, Calvo et al., 2014). During my PhD studies, I was funded to do a short-term stay at the Weill Medical College (Cornell University, NYC) where I learnt several rodent behavioral techniques. After defending my thesis with summa cum laude distinction, I worked in a collaborative European project (2014-2015) in the same lab where I did my PhD. In 2016, I joined Prof. Patrik Ernfors¿ group at Karolinska Institutet (KI - Sweden), where I have been the main responsible of a project that investigated the role of a cell type in the skin called terminal glial. I successfully developed the project to the extent that the results were publish in a very high journal. This discovery has fundamentally changed the pain field and transformed how we look at initiation of somatosensation in the skin. After that publication, I started a collaboration with Gary R. Lewings lab at Max Delbrück Center (Germany) to pursuing my research in terminal glial cells and the paper of which I am co-first author is currently under consideration at Nature Communications. Moreover, during my postdoc in Sweden I have participated in different projects within the Ernforse group that led so far to other 3 publications, one of them also in a very high journal. During my postdoc I have been challenged with learning a number of new methods and significantly expanded my knowledge in absolute cutting-edge technologies, including single cell RNA sequencing and single molecule in situ hybridization. My results have been presented in almost 20 research meetings. Also, I have participated in dissemination activities by giving several invited talks within the KI and the INCyL. Just after obtaining my PhD, I won a prize for the best talk at the VIII Cajal Winter Conference (2014). Importantly, since I returned to Spain less than a year ago, after obtaining a position as postdoc at the INCyL, I have succeeded to obtain funding from a private foundation (Foundation Memoria de D. Samuel Solórzano). Additionally, I have started to co-supervise a Master¿s student with a project based in nociceptive Schwann cells. Also, I have participated in teaching activities at the University (I also did it when I was PhD student) and I have participated as member of a thesis defense committee.



Área Temática:	Biomedicina
Nombre:	MARIN BEJAR, OSKAR
Referencia:	RYC2021-032129-I
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Título:	Targeting non-genetic cancer evolution to prevent therapy resistance
Decumendo la Memoria	

Resumen de la Memoria:

My main research interest is to study the study of non-genetic tumor evolution to prevent resistance to anticancer drugs focusing on cancer biology and understanding intratumor heterogeneity. During my career, I have been involved in several projects in the context of international networks and collaborations. As a result, most of my publications combine next-generation-sequencing approaches to study the transcriptional regulation in cancer progression and drug resistance.

I studied Biology and Biochemistry (University of Navarra) and in the last year of my Bachelor training I was granted with a European regional development fund to work in the laboratory of Dr Odero at CIMA-University of Navarra to study the role of the EVI1 gene and its epigenetic regulation in AML. Since that moment, I was intrigued in the understanding how the non-coding genome and chromatin biology alters the transcription. For that reason, I joined Maite Huarte s lab, a pioneer researcher in the field of IncRNAs, as a PhD student. My project was focused on the identification and characterization of a p53-induced non-coding transcript. During this period, I established collaborations with clinicians and world-leading experts in bioinformatics and noncoding genome regulation These results were included in several international research publications (7 articles, 2 first-author). Furthermore, I had the opportunity to present my work both in national and international conferences, where I met who was my principal investigator during my international postdoctoral research experience.

In February 2015, I joined the group of Dr. Chris Marine, a world leading expert in mouse genetics and cancer biology, to combine an exhaustive Patient Derived Xenografts profiling with single cell technologies to study melanoma biology at minimal residual disease. Here, I have developed a strong interest to understand the cancer cell plasticity and the underlying transcriptional mechanisms. During my postdoc I needed to expand the experience acquired in my PhD in next-generation-sequencing approaches and develop in vivo models to mimic human melanoma pathological features. The combination of exhaustive Patient Derived Xenografts profiling with single cell technologies led to identifying melanoma cell vulnerabilities, proposing a completely novel perspective in cancer treatment, to target the non-genetic mechanisms of drug tolerance to eradicate the cancer cells. Resulting in a second authorship on an article published in Cell (Rambow et al, 2018) and a first-author publication in Cancer Cell (Marin-Bejar et al, 2021).

Moving forward I aim to establish a novel research program that will capitalize on the recent development of single cell transcriptome and epigenome profiling techniques with the aim of during cancer progression and therapy resistance.

The principal objectives of my future research as independent researcher will be:

- Elucidate the non-genetic reprogramming that govern drug-tolerant, de-differentiated cell states by studying minimal residual disease.
- Understanding the transcriptional adaptation rewiring of cancer cells to overcome stresses (changes in the tumor microenvironment, cancer progression and/or drug pressure).
 - Identify the vulnerabilities of the persister cells by single cell transcriptomic profiling.

Resumen del Currículum Vitae:

I am a MSCA senior postdoc at the Regenerative Medicine program of IDIBELL (Barcelona) where I lead the single cell GATA2 track research project. I currently aim to understand the contributions of the oncogenic addiction and the epigenetic regulation during the GATA2 deficiency syndrome. I am particularly interested in how transcriptional rewiring is occurring during the MDS/AML transition to identify cancer cell vulnerabilities for future precision medicine approaches.

I obtained my Ph.D. in July 2015, training as a RNA biologist focused in the understanding of the on-coding genome under the supervision of Dr. Maite Huarte, expert in chromatin regulation and RNA biology. Through my Ph.D., I published 2 studies as a first or co-first author in well-recognized journals in the genome biology field, I also contributed to several collaborations resulting in 4 publications (Nature Communication, Molecular cell, Journal of Cell Biology and Neurooncology). In addition, I was the first PhD in the student in the Dr Huarte laboratory as meaning that I set up many of the lab protocols and I was actively involved in the training of the newcomers, giving me essential soft skills very early in the scientific career for my future as a independent investigator.

After the Ph.D. defense, I had a short and fruitful postdoc to finalize one of the PhD projects, resulting in my second first-author publication in Genome Biology journal. Meanwhile, I applied for postdoctoral fellowships to join the lab of an internationally recognized expert in non-coding RNAs and cancer biology, Dr. Chris Marine (Center of Cancer Biology VIB/KUL). I got a highly competitive fellowship (Incoming FWO-Pegasus2) cofounded by MSCA program to explore melanoma intratumor heterogeneity using single cell top-notch technologies.

During this process, I have been able to establish a scientific network of outstanding researchers and medical oncologists such as Keith Flatherty (Massachusetts General Hospital), Mitch Levesque (University of Zürich), and many others. The results of my research were published Cancer Cell journal (a first-author publication), honored with a comment of Professor Grant McArthur (PeterMac, Melbourne), a world-leading physician in the field of targeted therapeutics and personalised medicine, highlighting my results in the same issue of Cancer Cell, and a second-authorship in wideinterest generalist journal, Cell, which has astonishment been recognized by the cancer biology community (304 citations on January 2022 since mid-2018, Google Scholar). I also contributed to several collaborations resulting in 4 publications (Nature, two EMBO Molecular Medicine and Genome research).

Throughout these years I have also supervised 8 research projects carried out by 1 PhD student, 4 MsC students and 3 undergraduate students. Remarkably, all the master student under my supervision are doing the PhD in renown laboratories.

Since I started my career, I have been independently funded, including prestigious postdoctoral fellowships as I mentioned before. Additionally, I recently got the European Hematology Association Kick-off Grant, to support early career researchers, which will allow me to test a high-risk but potentially high impact idea to generate preliminary data, to develop my own research.





Área Temática:	Biomedicina
Nombre:	MILLAN ZAMBRANO, GONZALO
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Título:	Chromatin: a regulator of genome function in space and time.
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Resumen de la Memoria

I have devoted my entire research career to studying how chromatin structure regulates DNA based-processes. To do so, I have exploited the power of genetics in combination with biochemical approaches.

During my PhD studies at the University of Sevilla (Spain), I was focused on understanding the impact of chromatin structure on transcription. My major contributions to the field during this period include the identification of the prefoldin complex as a new transcriptional elongation factor, and the development of a refined method to study nucleosome positioning genome-wide.

During my post-doctoral studies at the University of Cambridge (UK), I independently leaded an exciting project to identify and characterize novel histone post-translational modifications (PTMs). On one hand, I found phosphorylation of histone at threonine 80 (H4T80ph) to be the first histone PTM specifically involved in DNA damage checkpoint inactivation. On the other hand, I identified mono-methylation of histone H3 at lysine 37 (H3K37me1) as a crucial regulator of replication origin licensing. Working at the University of Cambridge broadened the scope of my research, giving me important insights into different fields of study.

In 2021, I obtained a Junior Group Leader position at CABIMER (Spain). In my laboratory, we study how chromatin modifications regulate genome function, both temporary and spatially, and their involvement in cancer. In this regard, while recent technological advances have enabled the characterization of histone PTMs at the genomic level, little is known about how their locus-specific deposition is precisely regulated in a cell-type, environment, and development stage-dependent manner. Using complementary state-of-the-art genomic and proteomic approaches, we aim to understand the mechanisms that govern targeted histone PTM deposition and maintenance, which is essential to preserve cell identity.

I believe that the basis of my success in each of my scientific career steps has been my capacity to approach scientific problems from an imaginative and unconventional perspective. Having always secured my own funding in each of these steps supports this consistent originality in my conceptual approach to science.

Resumen del Currículum Vitae:

During my PhD at the University of Sevilla, I was awarded an FPU fellowship to study the role of chromatin dynamics during transcription. My major contributions include:

-The identification of the prefoldin complex, so far involved in the cytoplasmic assembly of actin and tubulin, as a new transcriptional elongation factor (Millán-Zambrano et al, PLOS genetics 2013). This study was highlighted in SGD (https://www.yeastgenome.org/blog/a-glamorous-new-role-forprefoldin), the most popular international yeast scientific database, and was selected for a talk in a plenary session of the 26th International Conference on Yeast Genetics and Molecular Biology. To uncover the molecular mechanism of action of prefoldin, I was awarded an EMBO short-term fellowship to visit Prof Carey laboratory at UCLA (USA) for 3 months.

-The development of a new method to study genome-wide nucleosome positioning (Gutierrez* and Millán-Zambrano* et al, Epigenetics & Chromatin 2017; *Joint first authors). My PhD was awarded with Mencion Doctorado Internacional and Premio Extraordinario de Doctorado .

During my post-doctoral studies in the University of Cambridge (UK), I was awarded an EMBO long-term fellowship and independently leaded a project to uncover the role of novel histone modifications:

-As first and co-corresponding author, I identified phosphorylation of histone H4T80 as the first histone modification specifically involved in DNA damage checkpoint inactivation (Millán-Zambrano et al, Molecular Cell 2018).

-As co-first author I identified methylation of histone H3K37 as a new regulator of the DNA replication program (Santos-Rosa* and Millán-Zambrano* et al, Molecular Cell. 2021 *Joint first authors).

In addition, I was involved in an international study to explore genome stability in the yeast knockout collection (Puddu et al, Nature 2019) and I also participated in an ERC (European Research Council) funded project in which we investigated the crosstalk between chromatin and RNA modifications (Sayou et al, Molecular and Cellular Biology 2017). We identified METTL3 N6-methyladenosine (m6A) RNA methyltransferase as an essential gene for maintenance of acute myeloid leukemia (Barbieri et al, Nature 2017). We licensed data sets and knowledge relating to targeting METTL3 for Acute Myeloid Leukemia treatment to Storm Therapeutics in July 2018. Importantly, subsequent studies led to the identification and characterization of STM2457, a highly potent and selective catalytic inhibitor of METTL3, that will enter clinical trials during 2022.

In 2018 I was awarded an AECC investigador postdoctoral fellowship and joined Cortes-Ledesma laboratory at CABIMER to study how DNA topology regulates chromatin architecture and its impact on the estrogen transcriptional response. As a result of all my merits, I was awarded "Premio Jóvenes Investigadores de la Real Maestranza de Caballería de Sevilla (2019)" and obtained "Acreditación contratado Doctor (2020)". Later on, I was awarded Juan de la Cierva Incorporación (2020).



Finally, I was awarded La Caixa Junior Leader Retaining in 2021. This last grant has finally allowed me to set up my own laboratory at CABIMER to study how chromatin modifications regulate genome function, a topic about which I have just written a review (Millán-Zambrano et al, Nature Reviews Genetics 2022).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	ALVAREZ RODRIGUEZ, MAITE
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Título:	Immunotherapeutic strategies to improve NK cell-based cancer therapies
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Resumen de la Memoria:

During her Ph.D. studies (2009) Dr. Alvarez was actively involved in the development of research projects that implicated the study of NK cell biology and the exploitation of NK cells to improve anti-tumor responses during hematopoietic stem cell transplantation (HSCT). These studies lead to the discovery of several key elements of NK cell biology that had and still have direct impact in the therapeutic use of this promising immune cell. Some of these findings include: 1. A dual functional role of NK cell inhibitory receptors Ly49G2 an NKG2A; 2. The in vivo evidence for the preferential role of licensed NK cells in the rejection of donor-derived cells during allogenic HSCT; 3. The function of host-derived unlicensed NK cells in the promotion of donor engraftment; or 4. A dual regulatory role of NK and CD8 T cells during immunotherapeutic strategies that trigger the expansion of both cell types. The work done in this area was key for the award and followed renewals of a RO1 grant lead by Dr. Murphy (HL089905) funded by the National Institute of Health (NIH).

During her post-doctoral appointment (2013), Dr. Alvarez main line of research involved an thorough analysis of the process of NK cell exhaustion (NCE) during sustained stimulation. The results of this research demonstrated that NCE was indeed an intrinsic regulatory mechanism mediated by the activation of the DNA damage pathway, which could be targeted to increase the functional in vivo activity of NK cells against cancer. This work was partially funded by the Millennium Fellowship in Lymphoma Research awarded to Dr. Alvarez (15-40-38-ALVA) by the American Association for Cancer Research (AACR). In addition, Dr. Alvarez demonstrated the therapeutic use of host unlicensed NK cells in HSCT non-myeloablative conditioning settings with promising results. This work was funded by the New Investigator Award grant awarded to Dr. Alvarez by the America Society for Blood and Marrow Transplantation and this research contributed to the renewal of a PO1 grant lead by Dr. Negrin from the NIH (PO1 CA049605).

In early 2018, Dr. Alvarez joined the department of immunology and immunotherapy from the Center for Applied Medical Research (CIMA)/University of Navarra with a the highly competitive Marie Sklodowska-Curie Action Fellowship in a project that involved the exploitation of NK cells to advance cancer immunotherapy for hematological and metastatic cancers (746985). Currently, Dr. Alvarez is funded by the 2019 investigator grant given by the Spanish Association Against Cancer (AECC) to explore the immunotherapeutic efficacy of intratumorally delivered NK cells to enhance anti-tumor response exploiting cDC1-CD8 T cell cross-priming. Additionally, she is evaluating, in collaboration with the Spanish Pharmaceutical company Highlight Therapeutics, the local and systemic anti-tumor efficacy of BO-112 when given intratumorally in combination with other immunotherapeutic agents. A synergistic effect has been found between BO-112 and a STING agonist, further enhanced by anti-PD-1 therapy, that provides new avenues to improve BO-112-based clinical implementation which results, although promising, have been limited to a local anti-tumor response. The results from this project were important for the award of a I+D+i Pruebas de Concepto 2021 (PDC2021-121769-C21), a patent, and a research contract.

Resumen del Currículum Vitae:

Dr. Alvarez research career has been mainly carried out abroad, both Ph.D (University of California, Davis) and post-doctoral (Stanford University) studies. She was also a visitor research scholar at the University of Nevada, Reno (USA) and at the University of Perugia (Italy). Dr. Alvarez has lead the discovery of key NK elements important for the implementation of NK cell-based therapies for cancer treatment. She has participated in a total of 45 publications in high-tier journals, 15 of which are as a first author (five also as a corresponding author) and one as a lead author. Her 2016 publication in Blood (PMID: 26738538) was highlighted by the worldwide NK cell expert Dr. Miller (PMID: 26941391), which shows the relevance of her work in the NK cell biology/immunotherapy. Her last research paper (Alvarez, 2021, JITC) was also highlighted on JITC. She has been involved in 14 research projects, six as PI. Her average impact factor is 11.061 and the H value is 16. Her research has also been presented as oral communications (four) and/or posters (22) in many international conferences (ECI, AAI, BBMT, AACR). During her career, she has received several competitive international and national grants/fellowships to carry out successfully several projects as a PI (AACR- Millennium Fellowships, ASBMT-investigator award, MSCA-fellowship and AECC Investigator grant). The highly competitive Marie Skłodowska-Curie Action Fellowship gave Dr. Alvarez the opportunity to return to Spain and allowed a transfer of knowledge between USA and Spain. She is currently funded by the AECC Investigator grant that provides independent funding for a project involving intratumoral cellular therapy to foster her career development towards a more independent role. In addition, she is also a key element in the development of translational projects lead by Dr. Melero that involves therapeutic strategies to implement promising BO-112-derived therapies in the clinic and she has been granted research contracts with Spanish pharmaceutical co





Área Temática:	Biomedicina
Nombre:	GARCIA MACIA, MARINA
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Título:	La importancia del reciclaje celular en la salud: mecanismos celulares y moleculares de la autofagia
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Resumen de la Memoria:

My scientific interests are closely tied to autophagy, the main recycling system of the cell. The connection between autophagy and disease captured my attention because as a scientist my final goal is the understanding of pathologies to pave the way for effective treatments.

During my PhD, I studied the wide-ranging effects of autophagy in several models, such as aging, tenderization of commercial meat, and the Harderian gland. I comprehended how physiological adaptations, like lipophagy, provide energy and favor survival preventing disease. Later, I sought to expand my knowledge in lipophagy with Rajat Singh at Albert Einstein College of Medicine (NY). We found how the brain regulates liver peripheric metabolism through lipophagy. This fact, highly relevant for diseases such as obesity, built the foundation for my scientific vision. Human health is an intricate set of connections, amongst which the axis between the brain and peripheral organs is key.

Later, I joined a world leader lab in liver diseases, the Fibrosis lab (Newcastle) led by Professor Derek Mann. We found a connection between epigenetics and fibrosis, a process associated with most chronic liver diseases. I also developed my own project: mTOR role in lipid droplet biogenesis to understand fatty liver diseases, the results of which have been published in the journal Hepatology. Since continuous learning and dissemination is crucial for science, I established a collaboration to lead, as the PI, a Wellcome Trust Small Grant with a project entitled Implications of autophagy in cardiac myopathies.

In January 2019, I joined the Neuroenergetics and Metabolism lab, led by Prof. Bolaños, with a Sara Borrell postdoctoral contract (CD18-00203). I am contributing to several projects funded by Ramon Areces, BBVA, and MICINN, with a co-first authorship paper recently published in Nature Communications. I am also in charge of the project Dissecting neuron-to-liver crosstalk to modulate lipid metabolism in Batten disease. The preliminary results of this project have been published as a proceeding in the 3rd ranked journal in the field, Alzheimer s & Dementia (IF 21.566), amongst abstracts in other international conferences. In sum, as a result of this Sara Borrell postdoctoral fellow, I have published 6 papers and I got funds to help start with a new stage of my scientific career.

Since January 2022, I became a young PI after obtaining grants from the Francisco Cobos Foundation (to cover my current salary) and Eugenio Rodriguez Pascual Foundation to boost my career as an independent researcher to develop my own research line on the implication of liver lipophagy in lysosomal storage disorders. In this period, I published a paper as a senior author in a D1 journal (Antioxidants).

Resumen del Currículum Vitae:

1.- PhD studies in Cell Biology (cROS lab). September 2008-October 2014. University of Oviedo (Spain). I studied roles of autophagy in several models (aging, tenderization of commercial meat and Harderian gland), published 17 papers in peer-reviewed journals (Q1, two as a corresponding author) and 2 intellectual-property registries. I obtained a PhD fellowship from the Instituto de Salud Carlos III (PFIS FI10-00065). 6 months stays: A) University of Leon (Spain) with Prof. A. Lopez-Fernandez. B) Albert Einstein College of Medicine (USA) with Dr. R. Singh.

2.- Postdoc in Autophagy and Lipid Metabolism (Singh s lab). November 2014-December 2015. Albert Einstein College of Medicine (Yeshiva University), New York (US). I studied lipophagy regulation. I contributed to 2 Cell Metab papers. Col: Prof. V. Schuster (Albert Einstein College of medicine) publication in bioXriv

3.- Research Associate in Autophagy and Lipid Metabolism (Singh s lab, Newcastle branch). January 2016-December 2016. Newcastle University (UK). I helped to set up this new lab branch. Grant as a PI: Autophagy and lipid metabolism (C0120R3166) . Cols: Dr J Oliver (IPBLN-CSIC, Spain) manuscript in Cancers, Prof. F L Marlow (Icahn School of Medicine at Mount Sinai, NY, USA) manuscript in Plos Gen. Dr. V Korolchuk (Newcastle University, UK) manuscript in Hepatology.

4.- Research Associate in the Fibrosis lab. January 2017-December 2018. Newcastle University (UK). I lead different projects. One about the connection between epigenetics and fibrosis through MeCP2, published in Gastroenterology (co-first author). My own project about the role of mTOR and Plin3 in lipophagy (Hepatology, corresponding author). My expertise in Seahorse helped to understand defective macrophage polarization in cRelKO mice (second author, Nat Metabol) and was crucial to set up an ex vivo system for human liver slices (Hepatology). Grants as a PI: mTOR role in lipid droplet biogenesis (C0245R4032) and Implications of autophagy in cardiac myopathies (BH182173) . Cols: Dr. A. Santos-Ledo. Prof F Oakley and Prof Q Anstee in the context of a very important European funded grant (EPoS) to understand NALFD etiology.

5.- Senior Postdoc in the Neuroenergetics and Metabolism lab. January 2019- December 2021. Sara Borrell postdoctoral contract (CD18-00203) and member of CIBEFES. I contributed to several projects funded by Ramon Areces and BBVA foundations and MICINN. So far, I have published 11 manuscripts, I am co-first author in a manuscript in Nat Comms and I lead the project Dissecting a neuron-to-liver crosstalk to modulate lipid metabolism in Batten disease , which first results are published as proceedings in Alzheimer s & Dementia, where I am the corresponding author. Cols.:Prof. Diego Medina in TIGEM, Italy with a paper published in EMBO Mol Med and Prof. Tristan McKay in Manchester Metropolitan University, UK. I mentored two BSc students, master student, Erasmus+ student and am co-directing a PhD student (thesis in 2022).

6.- Young PI in IBSAL. January 2022-now. IBSAL (Spain). First manuscript as a senior author in Antioxidants. Grants as a PI from Francisco Cobos (salary) and Eugenio Rodriguez Pascual foundations. Cols: Dr. Nabil Eid (United Arab Emirates University, UAE), Dr. Miguel Marcos, patients cohort (Salamanca hospital), Prof.Reynisson (Keele University). Editor guest for 2 journals.





Área Temática:	Biomedicina
Nombre:	PEREZ POTTI, ANDRE
Referencia:	RYC2021-034576-I
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Título:	Multifunctional nanomaterials for the design of novel immunotherapy
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Resumen de la Memoria:

Since 2012, I have been focusing on understanding the immune system at different levels with the perspective of developing towards the biomedical field and being able to carry out translational research. I have had experience with the innate immune system by analysis of the activation of the complement cascade by NPs, or the interaction with innate cell receptors (toll-like receptors), however, I have focused much of my research on understanding adaptive effector responses. At CBNI I focused on the differential generation of humoral immunity by activating B lymphocytes and analysis of BCR rearrangements and clonality, resulting in great experience on proteomics, RNA-Sequencing, and data analysis. My experience in bionano science has provided me the knowledge to deeply understand the wide range of possibilities that synthetic chemistry offers to produce nanostructures in controlled ways as well as how to study and understand downstream interactions with living systems. This work provided me the knowledge and basic tools to develop my own approaches, which I envisage to pursue immunomodulation by developing smart nanomaterials (e.g., functional liposomes or cell-derived biomimetic particles). At KI, I aimed to gain a deeper understanding of adaptive immunity focusing on T cells. More fundamental knowledge on T cell biology would help in the smart design of therapeutic strategies by understanding effector and memory T cell development and regulation for immunotherapy. During my time at KI, I focused on depicting cellular immunity in a wide range of contexts, not only in various viral infections but also at different anatomical locations, therefore, acquiring a broad landscape of the functional and phenotypic heterogeneity of cytotoxic (CD8+) and helper (CD4+) T cells. Given the highly collaborative and interconnected character of the department, we were highly involved in other groups' research, including different subsets of immune cells. Such an environment was encouraging to enlarge the T cell vision to a more complex cell-cell communication network, resulting in the final effector response. Overall, the combined experience has provided me with a solid background to develop independent research in the fields of bio-nanotechnology and immunology. By combining elements from both fields, I expect to advance in the design of smart devices and understand their interactions with the immune system. I am nowadays interested in developing translational research that takes advantage of the state-of-the-art of multifunctional materials (for example functionalized liposomes, exosomes, or cell-derived vesicles) that present in their surface specific motifs that can engage with specific immune cells to deliver specific cues (i.e., blocking of inhibitory receptors and/or binding to stimulatory and co-receptors) combined with the capabilities to encapsulate specific cargoes for intra- and pericellular delivery of messenger molecules (nucleic acids).

Resumen del Currículum Vitae:

I graduated in Biology at the University of Vigo (UVigo, 2012) and did my Master's at University College Dublin (UCD, Ireland, 2012) in bio-nano interactions, under the supervision of Prof. Kenneth Dawson. I continued as a Ph.D. (2014) at the same lab focusing on the understanding of interactions of state-of-the-art ultra-small (Scientific Reports, 2021) and anisotropic nanomaterials (ACS Nano, 2017) with biological systems. The main objective was to understand the immunological aspects of molecular and cellular recognition of surface motifs that could be engineered or naturally occurring, towards nanoparticle-based vaccine formulations. A link between nanoparticle shape and immune modulations was established by analysis of memory B cells from rats' in vivo (ACS Nano, 2021). I was responsible for the immunological aspects (B cell receptor (BCR) Next Generation Sequencing and data analysis, and IgG/IgM profiling). The work was funded by the EU FP7 programs FP7- NMP-2013-LARGE-7, FP7-NMP-2012-LARGE-6, and FP7-NMP-2009 LARGE-3. I was actively involved in generating results and reports. Project mid-term reviews were passed in which I contributed with presentation and discussion of results. I was the liaison between UCD and Mario Negri Institute in Milan, coordinating the in vivo activities (periodic visits and development of the research). Following this, I started working (2019) at Karolinska Institutet (KI) for 2 years as a Postdoctoral Fellow in the group of Prof. Marcus Buggert studying cytotoxic T cell functions and heterogeneity in health and disease. Comparative studies between circulating vs tissueresident memory (Trm) T cells were pursued. We developed the Immunology Human Organ ProgramE (IHOPE) that involved the study of T cells from human organ donors. Heterogeneity of human CD8+ T cells in healthy individuals in contrast to acute and chronic viral infections was depicted (Science Immunology, 2020) and differential functionalities between blood and tissues were established (Cell, 2021). Initiating such projects set the baseline that was applied to understand SARS-CoV-2 immunity, being one of the first groups worldwide to deeply characterize specific responses in a large cohort of patients (Cell, 2020; Nature Immunology, 2021). The job has been cited more than 500 times (Scopus) since October 2020. We developed the COVID-19 Immune Atlas (https://covid19cellatlas.com) with the rest of the collaborators from the KI workgroup. I personally transmitted the findings to the press and other colleagues through different interviews with national media, data reports, and presentations. I supervised 2 visiting master students and was involved in the development of the research from QualityNano visiting researchers at UCD including planning, and executing parts of the research. I have done over 300 hours of teaching for undergraduate chemistry students in practical and tutorial lessons. I supervised the final year research project of the undergraduate researcher Ciara Cassidy (2017). As a postdoc, I supervised 2 Ph.D. projects at UCD and Karolinska including Ph.D. thesis correction. I am periodically a peer reviewer from high-impact factor journals such as ACS Nano, Science Immunology, etc.





Area Temática:	Biomedicina
Nombre:	CUARTERO BETRIU, SERGI
Referencia:	RYC2021-033018-I
Correo Electrónico:	scuartero@carrerasresearch.org
Título:	The role of cohesin and 3D genome organization in acute myeloid leukemia

Resumen de la Memoria:

My main research interest focuses on elucidating the molecular mechanisms that link the three-dimensional (3D) organization of the genome to the regulation of gene expression. In particular, I am interested on understanding how defective genome folding may promote myeloid leukemia. After completing a PhD at IRB Barcelona and IBMB-CSIC, a 5-year postdoc at Imperial College London and a 1-year postdoc at the Centre for Genomic Regulation (CRG), I now lead my own independent research group at the Josep Carreras Leukaemia Research Institute (IJC). During my PhD at the Chromatin Structure and Function lab (IRB Barcelona/IBMB-CSIC), supervised by Dr M^a Lluisa Espinàs, I acquired a strong background in epigenetics and chromatin biology. At the time of starting the PhD, there were very few known proteins involved in 3D genome organization. By performing a systematic characterization of architectural protein complexes, I characterized two previously unknown proteins (IBF-1 and IBF-2), identified their DNA binding motifs and showed an essential role in regulating Hox gene expression. From 2013 to 2018, through my post-doctoral training in the lab jointly led by Prof. Matthias Merkenschlager and Prof. Amanda Fisher, I investigated the role of cohesin mutations in acute myeloid leukaemia (AML). Cohesin is a master regulator of 3D genome organization and is very frequently mutated in AML. I generated a thorough molecular characterization of the transcriptional deregulation of cohesin-mutated cells, which uncovered new and unexpected cohesin-dependent pathways that can potentially be therapeutically targeted. This work resulted in a first-author publication in Nature Immunology. I then moved back to Barcelona, in Thomas Graf s laboratory at the Centre for Genomic Regulation (CRG), as a step to transition towards independence. Currently, as an independent researcher at the IJC, I have obtained independent funding as a principal investigator, which allows me to continue the study of the role of 3D genome organization in myel

Resumen del Currículum Vitae:

I hold a Degree in Biology (2006) by the University of Barcelona (UB), which included one year of undergraduate training at the University of Toulouse (2007), where I continued the research project that I started during the undergraduate training. The following year I was awarded an FPI fellowship to carry out the PhD at the Chromatin Structure and Function Lab (IBMB-CSIC and IRB Barcelona), supervised by Dr M Lluisa Espinàs. The main focus of my PhD was to investigate the proteins and genomic elements involved in transcriptional regulation by enhancers and insulators. I purified insulator-binding complexes and identified two previously uncharacterized proteins (IBF-1 and IBF-2). I finished the PhD degree in 2013 with a qualification of Excellent Cum laude. It resulted in 3 publications, 2 of them in high-impact journals. I then moved as a postdoc to Matthias Merkenschlager s lab at Imperial College London/MRC London Institute of Medical Sciences (2013-2018). I identified a new role for cohesin in the regulation of inducible gene expression. This role is linked to a defective activation of inflammatory gene expression, which renders cohesin-deficient hematopoietic progenitors more resistant to differentiation and provides an explanation to the high frequency of cohesin mutations in acute myeloid leukemia (AML) (Cuartero et al Nat Immunol 2018). I then moved as a senior postdoc for one year at Thomas Graf s lab, at the Centre for Genomic Regulation (Barcelona). I am now a group leader at the Josep Carreras Leukaemia Research Institute (IJC), where I lead an independent research line. I have obtained national (La Caixa Junior Leader, Retos Investigación) and international funding (Jerome Lejeune Foundation, Leukemia Resarch Foundation). I currently lead a group of 3 PhD students, one postdoc and one undergad student. Our main interests are understanding the control of normal and malignant hematopoiesis by cohesin and CTCF, and the link between expression of different CEBPa isoforms and AML.



Área Temática:	Biomedicina
Nombre:	RUIZ VILLALBA, ADRIAN
Referencia:	RYC2021-034611-I
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Título:	Cell-to-cell interaction in cardiac fibrosis

Resumen de la Memoria:

My scientific career started in 2004 as an undergraduate student. After several years working in the private sector, I returned to the academy to perform research on the cardiovascular development field in 2009. After the defense of my PhD thesis (2014), I enjoyed two postdoctoral stays (Amsterdam and Pamplona) for a total of 6 years, which were partially funded by Marie Curie and Juan de la Cierva-Incorporación programs. Until now, I have published 25 papers in prestigious journals (Development, PNAS, FASEB J, Clin Chem, Acta Biomat) and 4 book chapters. From them, I would highlight 3 articles due to their relevance in both my career and the field: 2 published as first author (JACC, 2015 IF=17.75; Circulation, 2020 IF = 29.69) and 1 as corresponding author (Marin-Sedeño et al, 2021). In parallel, I have also participated in the training of 9 people, including my first PhD student that has recently defended her thesis (December-2021).

My research line focuses on the study of cardiac fibroblasts (CF), an important cell type involved in multiple cardiac diseases by sustaining fibrosis. Most of my studies have heavily relied on the use of tools for gene expression analysis which I combined with cell tracing approaches. Recently, this research has been funded by 3 different projects, up to a total amount of 285.500 . In 2021, I obtained a Retos-JIN grant from the Spanish Plan Estatal de I+D+i as PI to study the interaction between CF and bone marrow-derived cells (BM-DC) in the context of myocardial infarction (MI). To tackle this goal, I am using Spatial Transcriptomics and single-cell RNAseq in combination with several transgenic mouse lines and biopsies from patients. The ultimate goal of this grant is to describe new, specific therapeutic targets to minimize the size of the post-MI fibrotic scar or even promote its regression. To test my candidate molecules, I will use a drug repurposing strategy to modulate the activity of the specific subpopulations of BM-DC that interact with CF during the post-MI ventricular remodeling.

Resumen del Currículum Vitae:

My scientific career has mainly developed in the cardiovascular field. I started my doctoral thesis in 2009 in the Cardiovascular Development and Disease group (DeCA, CTS-488), at the University of Málaga (UMA). My thesis focussed on the cellular and molecular mechanisms that mediate the contribution of the epicardium (epithelium that covers the cardiac surface) to the cardiac interstitial cell fraction, with a special interest on the study of cardiac fibroblasts (CF). My results were published in 7 prestigious international peer-reviewed journals, such as Development, JACC, or PNAS. During this period, I also published a book chapter and communicated my work in 8 scientific congresses. In addition, I enjoyed 2 stays in international, prestigious research centres, such as the HGU-MRC (Edinburgh, UK) and the Academic Medical Center (AMC)-University of Amsterdam (The Netherlands). This second stay was funded by a competitive, EMBO short-term fellowship. During this period, I also committed to the training of several students and research technicians.

My first postdoc, funded by the Marie Curie programme, took place at the AMC-University of Amsterdam. Along this period, I studied the molecular bases of the cellular diversification of cardiac cells from their embryonic precursors. At the same time, I initiated a set of studies related to the qPCR. During this post-doc I published 6 papers (2 as first author), 1 book chapter, participated in 10 congresses, and supervised my first master¿s student (Laura van Os Galdós, currently working as embryologist -IVF, Alicante, Spain-).

My second postdoc (2015-2019) was carried out at Centro de Investigación Médica Aplicada-CIMA (Pamplona) and was partially funded by the Juan de la Cierva-Incorporación programme. In this phase of my career, I took the responsibility of leading a research project I had pondered for years: the study of cardiac fibroblasts heterogeneity in the context of pathologic ventricular remodelling after MI. I undertook this task taking advantage of last-generation transcriptomic tools (single cell RNA-Seq and ATAC-Seq) and moved towards more translational research that included large animal preclinical models (pig) and biopsies from patients. Results from this research were published in Circulation, ranked #1 in the cardiovascular field (IF=29.69, 2020). During this period, I communicated my scientific results in 12 scientific congresses, got funded my first project as PI, supervised an undergraduate and a post-doc student (Silvia Hernandez, currently working at New York), and collaborated with 2 companies (Viscofan; Servier) in the context of a H2020-European project.

In 2020, I returned to the DeCA group at UMA aiming to establish my own research group and find a stable position. In this period, I have got a postdoctoral fellowship and 3 projects as junior PI for a total amount of 285.500 . In addition, I have published 6 papers (1 as corresponding author, a second is under revision), 3 book chapters, and supervised 2 master students and 1 doctoral thesis. My research has also been communicated by different media and credited with a prize from the Biomedical Research Institute of Malaga (IBIMA)-Divulga (2021).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
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Título:	TGF-b fine-tuning in human disease

Resumen de la Memoria:

Following my education in Biochemistry in the University of Cordoba (Spain), I enrolled in my PhD studies at the Department of Cell Biology, Physiology and Immunology. During this period, I investigated the signal transduction pathways activated by pro-inflammatory cytokines, and identified novel (semi)synthetic compounds and cellular factors modulating inflammatory signalling, using HIV as a model system. After defending my PhD in December 2010 (Cum Laude), I moved to The Netherlands to join the lab of Prof. Peter ten Dijke (Leiden University Medical Center, NL), where I studied the role of Transforming growth factor (TGF)-b signaling under inflammatory environments, particularly in the case of musculoskeletal and cardiovascular diseases. Much of my research line was focused on endothelial cell plasticity in human disease, and how gene mutations in TGF-b signalling components disturb endothelial functionality, and how pharmacological fine-tuning of TGF-b signalling can be exploited to treat patients. This growing interest in stem cell biology led me to move to the group of Prof. Marie-José Goumans in the same institution, where I also expanded my research network in The Netherlands, but also internationally, and started to build my own group. Currently, I lead a team using rare TGF-b monogenic human diseases (i.e., Fibrodysplasia ossificans progressiva, Pulmonary arterial hypertension) as models to interrogate signal transduction pathways that modulate cell plasticity. We achieve this through the development and combination of novel drug screening methods, patient-derived in vitro models, complex cell culture 3D platforms (organ-on-chip) and disease animal models. Through pharmacological fine-tuning of TGF-b signaling, I aim to develop novel molecules with application as biomarkers, therapies, druggable targets and tissue engineering catalyzers, with translational application in human disease including fibrosis, cancer, cardiovascular disease and musculoskeletal disorders.

Resumen del Currículum Vitae:

After my BSc and MSCs studies in in the University of Cordoba (Spain), I developed my PhD studies in the Department of Cell Biology, Physiology and Immunology in the same University, awarded with Cum Laude in December 2010. Next, I started my postdoctoral studies in The Netherlands, where I rapidly obtained my own funding to develop my own research line, as part of the Dept. of Cell and Chemical Biology of the Leiden University Medical Center. Currently, my team includes three PhD students (one more is being recruited now), one technician and three undergraduate students. In my career I have accumulated an extensive publication record (h index 24; 282,305 accumulated IF), including first/second (26) and second last/last (8) author manuscripts. I have published 43 scientific manuscripts, 2 editorials, 1 book/thesis, 2 book chapters, 1 press release, 1 newsletter and I have hosted one Special issue as guest editor. I am an advisory editorial board member of Current Pharmaceutical Biotechnology. I have obtained my own funding (over 1M), through personal awards, competitive grant programs and biotech service fees and collaborative agreements. I have accumulated several prizes, including major international recognition awards (i.e., AO Berton Rahn Research award, elected member of the European Calcified Tissue Society Young Academy ECTS, 1st Marshall Urist young BMP investigator award) and presentation prizes at conferences. I belong to different scientific societies and consortia, through which I have established my own research network with academic, clinicians, corporate partners and patient associations all over the globe. I have followed supervision and management training and hold broad supervision experience (9 PhD students, 7 MSc students, 4 BSc students, 4 undergraduates and 2 technicians). I have two PhDs awarded as co-promotor and I have been solicited as PhD thesis committee member of 2 theses. I perform educational duties in the LUMC and I have been invited lecturer for external courses in NL and abroad. I am reviewer of national and European grant agencies. I am regular reviewer of scientific journals and a member of the LUMC-CCB Scientific Committee, assessing grant applications from the within my department. I am (Bio)medical advisor for AEFOP (FOP Spain Association, since 2017) and IPSEN Pharma SAS (in the FOP field, since 2021). Finally, I participate in dissemination activities through my twitter account (@DrEndMT), where I briefly introduce and discuss recent publications in the field of BMP signaling and advertise related events. I also participate in FOP patients gatherings where I give lectures in a lay-understandable manner.



AGENCIA ESTATAL DE ENTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: malformations Biomedicina DELGADO , IRENE RYC2021-033228-I idelgado@cnic.es

Proximo-distal specification and pattern in limb development through the study of congenital

Resumen de la Memoria:

I began to develop my scientific career at Dra. Marian Ros¿ lab at Universidad de Cantabria where I acquired my interest for developmental biology. My main interest at this time was to understand the molecular pathways that specify limb proximo-distal (from shoulder to digits) pattern and identity. In this regard, I had the opportunity to be involved in different projects which focused on elucidating this question. The main project of my PhD consisted in understanding the underlying molecular events causing phocomelic phenotypes which are characterized by the lack of the limb proximal bones. Traditionally, these phenotypes had been explained as disruption in the specification process of the three main skeletal parts of the limb. We demonstrated, however, that the specification and identity was early established, and that it was rather a defect in progenitor cell survival and differentiation of the proximal parts. This study represented a change of paradigm to explain phocomelic phenotypes and was published in Nature.

During my PhD I got the skills in chick embryo manipulation and was this expertise the reason why I was invited twice to join Dra. Cheryll Tickle¿s lab (Bath, England). We demonstrated that distal mesenchymal cells intrinsically time Hoxa13 expression, cell cycle parameters and the duration of the overlying apical ectodermal ridge.

At this moment I was also interested in the distal ectodermal structure of the developing limb called apical ectodermal ridge. Sp6 and Sp8 are transcription factors expressed in this structure and we demonstrated that are essential for limb formation. Upon their deletion mice completely lacked limbs.

In 2012 I moved to Centro Nacional de Investigaciones Cardiovasculares (CNIC) to continue my research in limb development by joining Dr. Miguel Torres¿ lab with a 3 year¿s Juan de la Cierva contract. Here, I got expertise in Meis transcriptions factors by studying their knock-out phenotypes. I demonstrated that Meis is required for limb initiation and antero-posterior (AP) pattern. When Meis is eliminated before the limb bud is established, the embryos develop in the absence of limbs because the essential Fgf8-10 feedback-loop is not established. Moreover, the AP pre-patterning leading to Shh activation is also perturbed. Later I was awarded a Juan de la Cierva-incorporación which allowed me to continue my research. To further explore Meis role in limb development I characterize Meis distribution along the growing limb bud and interestingly found that was distributed in a proximo-distal gradient. This gradient paralleled the limb distalization schedule along developmental stages, including Hoxa11 and Hoxa13 activation. Hox genes are key in a variety of developmental processes and the understanding of Hox and Meis regulation represent an important finding in the field. I also demonstrated that Meis gradient was established by and inhibitory opposite FGF signaling being absent upon Fgfs deletion.

Now I am focused on the understanding of cells¿ polarity acquisition in the chondrogenic condensations and long bone formation by analyzing a mouse model for the human Nievergelt Syndrome. Through this project my career will evolve from pure basic research towards the application of my findings to the understanding of a rare disease affecting limb development.

Resumen del Currículum Vitae:

From the beginning of my research trajectory, I have been interested in understanding the mechanisms regulating limb development from its initial start as a protrusion from the flank of the embryo to a complete developed limb with a correct skeletal pattern. I did my PhD under Marian Rosa supervision at University of Cantabria where I acquired the knowledge in limb development mainly focusing on the specification and patterning of the proximo-distal axis of the limb and apical ectodermal ridge function. My thesis obtained the Cum Laude nomination and I was awarded the Extraordinary Thesis Award. The resulting article from my thesis was published in Nature and studied the cause of thalidomide phenotypes by using an X-ray induced- phocomelia model in the chick embryo. This work was performed in collaboration with Cliff Tabin (Harvard), an authority in the field. Apart from the main subject of my PhD I also worked with murine models which also resulted in two publications.

During my PhD I did two short stays in the lab of Cheryll Tickle (Bath, England), eminence in the developmental biology field. This collaboration not only allowed me to obtain the European PhD but also had as a result two publications, one in Nature Communications, in which I started the pivotal experiments. I also did one short stay at Brian Harfe's lab (Florida, USA) during my first year of postdoc.

As a postdoc I later moved to the Centro Nacional de Investigaciones Cardiovasculares (CNIC) to join Miguel Torres lab. This group has a broad background on limb development and has numerous publications with important relevance in the field (publications in Nature and Science among others). Here I got the expertise in TALE homeobox transcription factors mainly focusing on Meis phenotypes in the limb. From these firsts years of my postdoc I have two publications. Furthermore, we were invited to write two reviews in the limb field. By joining CNIC I have had the opportunity to work in an international recognized research center with leading technical units. I have recently published a Science Advances and Nature Communication papers in which crucial achievements for the field and for this proposal are developed.

During these years I have also supervised an undergraduate student within CICERONE -CNIC programme and have collaborated with other lab students training. Moreover, I have participated during 9 years in Master programme practical courses from Universidad Autónoma de Madrid Master in Molecular Biology and Development.

Lately I have been invited to be guest editor in Frontiers in Cell and Developmental Biology (ongoing) and I have been contacted to review articles in Development, Developmental Dynamics and Frontiers in Cell and Developmental Biology.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Concerning dissemination, I was invited to record a podcast in Hablando con Científicos , a program in a web of science dissemination (https://cienciaes.com).

All along my scientific career I have attended to national and international congresses in which I have had the opportunity to share my work in scientific posters and oral presentations with some of the most prestigious researchers in the field.

I am highly motivated to pursue an academic research career and I believe I have obtained the expertise to transition into a more independent position.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	PONTEL , LUCAS BLAS
Referencia:	RYC2021-032395-I
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Título:	The role of metabolism in disease aetiology

Resumen de la Memoria:

The main goal of my research is to understand how cells and organisms cope with toxic metabolites derived from nutrients and from the environment. I started my career in 2000 to work on how organisms detect and control toxic levels of essential metals. First as undergraduate and later as PhD student, I discovered novel Salmonella-specific factors involved in the protection against copper toxicity (Pontel and Soncini, Mol Micr, 2009; Pontel et al, Mol Micr 2007, etc). I continued as postdoctoral researcher obtaining a prestigious ASM fellowship for a short-research stay at McClelland s lab (University of California at Irvine). At the beginning of 2012, I moved to Cambridge, UK, to work on DNA repair and metabolism. Initially, I took the lead to reveal the genotoxic consequences of phagocytosis in the amoeba Dictyostelium (Pontel et al., J Cell Sci, 2016, co-corresponding author). Working at Prof. KJ Patel s lab, I demonstrated that formaldehyde-counteracting systems prevent cancer and hematopoietic stem cells death in mice (Pontel et al., Mol Cell, 2015). I further contributed to the discovery that toxic formaldehyde can feed nucleotide biosynthesis (Burgos-Barragan, et al., Nature, 2017) and to the identification of patients carrying mutations in formaldehyde-metabolizing enzymes (Dingler, et al. Mol Cell 2020). After being selected in an international call, I joined IBioBA-MPSP (Buenos Aires, Argentina) in April 2017 to establish my research laboratory on metabolic sources of cellular damage and their role on disease aetiology. Since 2017, I have supervised two MSc and three PhD students, established national and international collaborations. As result, we have identified a novel cytotoxic mechanism of endogenous formaldehyde (Umansky, et al 2022, Nature Communications, in press). Last year, I joined the Josep Carreras Leukaemia Research Institute (IJC, Barcelona, Spain) to continue working on metabolism and disease aetiology.

Resumen del Currículum Vitae:

I hold a BSc. In Biotechnology (2004) and PhD in Biological Sciences awarded in 2010 (both awarded by National University of Rosario, Argentina). I have performed several post-doctoral stays including a first one (2010-2012) at IBR-CONICET, Rosario, a short stay at Prof. McClelland s lab (2010 -3 months), and a postdoctoral stay at Dr. Patel s lab (LMB-MRC, Cambridge, UK 2012-2017). In 2017, I was awarded a Group Leader position at IBioBA-MPSP (Buenos Aires, Argentina) and more recently I have started an international collaborative project (PCI) funded by AEI at Josep Carreras Leukaemia Research Institute, (IJC), Barcelona, Spain (2022-2024).

During my career, I have reached 1039 citations on the 28.01.2021 (Google Scholar), an h-index of 12, and a total of 17 published articles, 1 preprint and 1 article in press in Nature Communications (not yet at Google Scholar). I have played a major role in most of my publications, 7 as first author and 5 as corresponding author. A breakthrough discovery in Salmonella research (two-author 2009 Mol Micr paper,105 citations). The uncovering that endogenous formaldehyde drives cancer and stem cell toxicity in mammals (Pontel, et al, 2015, Mol Cell, 227 citations). A highly cited review (64 citations since 2018) as corresponding author in a Q2 journal (C. Op of Tox, 2018) and a manuscript in press in Nature Communications as corresponding author. In addition, I have been invited to present my work at several National (Argentina) and International Conferences, showing an increasing international visibility in my research area.

I have attracted funding during my all career. As PhD student: two PhD fellowships by the Argentina Research Agency and Council, CONICET (2005-2008, and 2008-2010). 2) As postdoc: Fellowship by CONICET (2010-2012); American Society for Microbiology (ASM) Fellowship (2010); Travel Grant (AVES Program) from National University of Rosario (2010); Career Development Fellowship (Medical Research Council (UK) 2012-2017). 3) As PI: (A) Group Leader position with start-up funding from the Max Planck Society and CONICET at IBioBA, Argentina (2017-2021). (B) Proyecto de Colaboración Internacional funded by MCI/AEI-EU NextGenerationEU /PRTR at IJC, Spain. (C) PhD studenships by CONICET awarded to students under my supervision (see projects at CVA). In addition, I have established international collaborations with researchers from Germany (CECAD, Cologne; University of Giessen, Giessen); from UK (LMB-MRC, Cambridge); and national collaborations in Argentina (see CVA for details).

I have also actively participated in training and supervision, accounting for 3 PhD students and 2 MSc. students as supervisor. And others as as cosupervisor. Moreover, I am actively involved in evaluation of grants and revision of manuscripts from journals such as Nature Communications, Redox Biology, among others.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: intervention

Biomedicina PALOMER VILA, ERNEST RYC2021-031713-I e.palomer@ucl.ac.uk

Studying the role of H4K20 methylation and methyltransferases in AD; new targets for therapeutic

Resumen de la Memoria:

I have been fascinated by brain physiology and pathology since my undergraduate studies. Through my trainings I got interested in molecular mechanism underling memory decline associated to ageing and neurodegeneration. In particular, my research focuses on how epigenetic mechanisms regulate memory in the healthy and diseased brain. In other words, how external stimuli and environmental factors impact gene transcription, in turn modulating memory formation/retention.

Studies of Alzheimer s disease (AD) have shown that genetic variants and changes in gene expression could underlie AD onset and its progression. In fact, targeting epigenetic regulation of gene expression has proven sufficient to improve memory deficits in AD models.

Histone post-translational modifications (PTMs), or histone marks, are major epigenetic regulators. Histone acetylation is linked to transcription, while histone methylation can be both activating or repressive, depending on the residue modified. Interestingly, different studies have reported that both increasing histone acetylation or decreasing repressive histone methylation rescues memory deficits in AD models. In addition, a phase IIa trial aiming to increase an activating histone methylation has shown promising results in AD. Therefore, new studies on histone methylation may provide novel targets for AD therapies.

Several facts suggest that the repressive tri-methylation of lysine 20 of histone H4 (H4K20me3) and its methyltransferases (KMT5s) are candidates to study in AD: (i) I found increased RNA levels of KMT5s in AD human brain and (ii) H4K20me3 is the only repressive methyl-histone mark reported to be increased in AD human brain. In addition, (iii) my results show that KMT5s are targetable in AD, as their inhibition reduced H4K20me3 to WT levels in an AD in vitro model. Altogether, the data positions H4K20me3 and KMT5s as druggable targets for AD treatment, but the mechanistic details remain unexplored.

I hypothesised that targeting the repressive H4K20me3 will provide novel avenues for AD therapy. To test my hypothesis, I will first examine genomewide H4K20me3 changes by Chromatin immunoprecipitation (ChIP)-sequencing in a cohort of human post-mortem AD brains. Next, I will validate my findings in a second human cohort and in an AD mouse model by ChIP-qPCR. Next, I will study KMT5s interactome and recruitment to chromatin in AD using two unbiased approaches; (i) transcription factors will be identified from the ChIP-seq and (ii) new interactors will be identified using proteomic approach. Subsequently, I will study whether KMT5s levels at the chromatin are increased in AD and if different PTMs known to modify KMT5s chromatin localisation occur in AD. Identified KMT5s interactors and PTM effectors will be functionally studied AD cellular models, narrowing down the number of candidate to target. Finally, I will attempt to revert aberrant H4K20me3 and ameliorate AD. I will first perform in vitro studies in hippocampal organotypic cultures from the AD mouse model and target a number of candidates. The rescue will be evaluated at the molecular level (H4K20me3 and RNA) and synapse number. Finally, selected candidate(s) will be tested in vivo at the molecular and functional level (behaviour/electrophysiology). Altogether, my research will position KMT5s, or their interactors, as targets to ameliorate AD.

Resumen del Currículum Vitae:

My initial lab experiences were as an undergraduate and master s student at the Molecular Physiology lab at Universitat Pompeu Fabra (Barcelona) with Dr. Francisco J. Muñoz. During my placements I developed my interest for cell and molecular biology mechanisms of memory in healthy ageing and in Alzheimer s disease (AD). My interest for gene regulation led me to carry out my PhD at Prof Carlos Dotti s Lab at Centro de Biología Molecular Severo Ochoa (Madrid). In particular, I became interested in how external stimuli and factors lead to the transcription of memory gene through epigenetic mechanisms and how these mechanisms are dysregulated in healthy ageing. I then joined Prof Patricia Salinas lab at University College London (London) for my postdoc, bringing in my expertise on epigenetics, which I then applied while learning about synapse biology. I have been awarded the prestigious Marie Curie fellowship and a research grant for Alzheimer s Research UK to conduct my postdoctoral research on how epigenetic changes occur in AD, in turn modulating the expression of Wnt signalling genes.

My work led to the publication of 21 research outputs: 19 original research papers and 2 reviews, of which 66% are published in Q1 journals. I am first author for my PhD papers published in Nat. Comm and Cell Reports, as well as for my postdoctoral preprint available at bioRxiv and accepted for publication in Mol. Psychiatry. I am the last and corresponding author in a paper published in Scientific Reports describing, for the first time, how to deploy and quantify single RNA molecules in the healthy human brain and in AD. Altogether, my work has been cited 554 times and my H-index is 14. In addition, I have disseminated my work at national and international conferences by giving 5 talks and presenting 7 first author posters and being co-author in 22 posters. Moreover, I have reviewed manuscripts for various journals and been a guest editor for Frontiers in Pharmacology/Oncology. Throughout my career I have passed on my knowledge from the wet lab perspective, and also during my postdoc I taught undergraduate and masters students. Specifically, I have co-supervised 1 BSc, 3 MSc, 1 MRes and 1 PhD rotating student and have been teaching in the Developmental Neurobiology and in the Cell Signalling in Health and Disease modules by giving lectures, tutorials and journal clubs, as well as a journal club in the Neurosciences Master in Sciences.

Finally, I have also been involved in disseminating the work of others and reached broad audiences through public engagement. I have conceived, coorganised and co-chaired an online symposium aiming to promote young researchers' work in the field of neuronal epigenetics and transcriptomics (Y-NET), which had over 179 attendees world-wide. In addition, I have given a lecture to final year biology students at my high school and been involved in ARUK Public Engagement Events at UCL.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	SORIA LANNES, FEDERICO
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Título:	Matrix-microglia interactions in health and disease

Resumen de la Memoria:

My PhD thesis at the laboratory of Carlos Matute (Bilbao) focused on extracellular glutamate homeostasis in rodent models of brain ischemia and multiple sclerosis. This work demonstrated the importance of glutamate release coupled to cystine uptake in pathology (Soria et al., 2014, J Clin Invest). During my postdoc at the laboratory of Dr. Erwan Bezard in Bordeaux, I co-developed a super-resolution methodology based on single-molecule tracking of carbon nanotubes in live tissue, to create the first nanoscale diffusional maps of the extracellular space in pathology. We showed that the matrix is altered in the parkinsonian brain, and described how these alterations have an impact on molecule diffusion and microglia homeostasis (Soria et al., 2020, Nat Commun, selected into the Editors Highlights). Interestingly, we discovered a bi-directional feedback loop between the hyaluronan matrix and microglia with consequences on neurodegeneration, which could be exploited in other models as a disease modifying strategy.

The concepts and tools derived from this study are the founding stone for my current work at UPV/EHU and Achucarro Basque Center for Neuroscience, where I have been developing my own research line since 2019, with independent funding as principal investigator since 2020, a PhD and a master student. Using my skills on fluorescence microscopy, I have set up in Achucarro two-photon time-lapse imaging of microglia dynamics ex vivo, where we can manipulate the matrix experimentally. In addition, I have developed genetic tools for matrix labelling and manipulation, super-resolution STED microscopy of matrix structures, and various software tools for image analysis. We are also currently developing scaffolding protocols for human iPSCs-derived brain organoids as 3D-cultures with modifiable stiffness, to study mechano-transducing properties of the human neural matrix and how microglia respond to these. All these methodologies converge towards a main goal: to explore the functional interaction between matrix-microglia in the young and aging brain, a stepping-stone in the long-term effort towards understanding and mitigating neurodegeneration.

Resumen del Currículum Vitae:

I am a Joven Investigador (2021-2023) at the University of the Basque Country (UPV/EHU) and Achucarro Basque Center for Neuroscience, Spain. My research is focused on the interplay between the extracellular matrix and glial cells in animal models of aging and brain pathology. I use advanced fluorescence microscopy techniques, script-assisted image analysis and other analytical tools in in vivo, ex vivo or 3D-in vitro paradigms, where one can modify the matrix and or neuroinflammation experimentally.

I obtained my PhD in Neurosciences in 2013 (Universidad del País Vasco, Spain). My doctoral thesis in the team of Dr. Carlos Matute studied glutamate homeostasis in animal models of brain ischemia and multiple sclerosis. These results rendered two important publications in Journal of Clinical Investigation (Soria et al., 2014) and Glia (Soria et al., 2016). During my postdoctoral journey (2014-2018) at the team of Dr. Erwan Bezard in Bordeaux, I co-developed super-resolution imaging techniques to analyze the extracellular compartment in animal models of Parkinson s disease. These results, reported in Nature Communications (Soria et al., 2020, selected into the Editor Highlights), unraveled the nanoscale organization of the extracellular space in the parkinsonian brain and described an unknown feedback loop between the extracellular matrix and microglia in pathology. This work, and the tools developed here, set the founding stone for my current research at UPV/EHU and Achucarro, focused on the glia-matrix interplay in healthy, aging and pathological brain.

With more than 10 years of experience in the field of Neurobiology of Disease, I have published 18 papers, 8 as first author and 1 as corresponding author. I have also published image analysis software for optical microscopy. During my career, I was awarded with a predoctoral fellowship from the Fondo de Investigación en Salud from the ISCIII (2009-2013), a postdoctoral fellowship from the Basque Government (2017-2019) and a Juan de la Cierva-Incorporación contract from the Spanish Ministry of Science and Innovation (2019-2021). Human-resources wise, I have supervised two Master students (UPV/EHU and Univ. Complutense de Madrid) and I am currently supervising 2 PhD thesis (UPV/EHU). I teach at the Master of Neuroscience (UPV/EHU, 0.3 credits) and at the Master of Molecular Biology and Biomedicine (UPV/EHU, 0.5 credits). I have active scientific collaborations in the Basque Country region (Amanda Sierra, Mazahir Hasan at Achucarro, Unai Silván at BCMaterials), in Spain (Miquel Vila, Barcelona) and abroad (Erwan Bezard, France). I have participated in 7 research projects (4 in Spain and 1 in France), in 2 of them as the Principal Investigator (PI). My latest grant as PI, Retos de la Sociedad-JIN (Jóvenes Investigadores), from the Spanish Ministry of Science, will co-fund my research for the next 3 years. I also participate as a Key Collaborator in an international consortium led by Dr. Miquel Vila to study PD progression mechanisms, recently funded with a 9.7 million euros grant from Alligning Science Across Parkinson (EEUU).



Área Temática:	Biomedicina
Nombre:	SOTILLO GALLEGO, JAVIER
Referencia:	RYC2021-032443-I
Correo Electrónico:	javier.sotillo@isciii.es
Título:	Understanding host-parasite interactions for the development of novel control and diagnostic approaches
Bosumon do la Momo	

Resumen de la Memoria:

During my career, I have used a multidisciplinary approach, including proteomic, immunology and molecular biology techniques, to study host-parasite relationships in order to i) understand the mechanisms how helminths develop a parasitic existence; and ii) to develop new tools against these devastating diseases.

During my PhD at University of Valencia as an FPI fellow, I analysed the immunological factors leading either to the early rejection of helminths or to the development of chronic infections in a model of intestinal helminthiases. During this time, I stayed 3 months at Queen s University of Belfast and participated in several research projects as a team member.

During my early postdoctoral stage (2012-2018) I studied the key factors involved in host-parasite interactions by characterizing the tegumental proteomes, secretomes and extracellular vesicles from different helminths using novel proteomic approaches combined with parasitological and molecular biology methodologies. All this work aimed to develop new diagnostic tools and control strategies against some of the most important tropical diseases in the world. During my postdoctoral stage, I took a senior role supervising 4 PhD students and obtaining grants as a PI, including a grant funded by the National Health and Medical Research Council (NHMRC; Australia).

During the last 3 years as a Miguel Servet Researcher at ISCIII I have raised my own funding including a grant as PI from (AES). Thanks to this, I further investigate on 1) characterising molecules targets for vaccine development (now using gene editing tools such as CRISPR); and 2) understand the immunomodulatory effects from helminths and use this knowledge to develop novel treatments against human autoimmune diseases.

Overall, I have published 88 publications in high-quality journals (18 as first author and 16 as senior/corresponding author - including top-tier journals such as Lancet Microbe, Journal of Extracellular Vesicles and PLoS Neglected Tropical Diseases). I have also edited 1 book, am currently editing a special issue for the journal Parasitology and am also participating in the elaboration of a clinical guide for physicians on Schistosomiasis. Up-to-date, I have supervised (main supervisor) 4 PhD students to completion, 2 Master s students, several undergraduates and 2 on-going PhD students. My work still focuses on the characterisation of key molecules targets for vaccine development. All this work has been recognised by different awards and the invitation to present my work (fully funded by organisers) at different meetings.

Resumen del Currículum Vitae:

In 2006 I was awarded a FPI fellowship (Ministerio de Educación y Ciencia) to conduct my PhD studies in the Department of Parasitology at the University of Valencia, and, in 2011, I was awarded my PhD with the European mention and with the qualification of summa cum laude. During my PhD I determined the factors involved in the generation of chronic helminth infections in humans. During these years I published a total of 11 papers (7 as first author) and participated in different projects from Ministerio de Educación y Ciencia and Generalitat Valenciana.

In 2012 I moved to Australia, where I started my early postdoctoral stage at the James Cook University and the Australian Institute of Tropical Health and Medicine as a Postdoctoral Research Fellow. In 2015, I was promoted to Research Fellow, which allowed me to start my own research group and obtaining my first grants as a junior PI. During this time, I studied the factors involved in host-parasite relationships, characterizing the proteomes and the extracellular vesicles secreted by different helminths of human importance. These studies aimed at developing novel control (mainly vaccines) and diagnostic approaches against some of the most important neglected tropical diseases. During my early postdoctoral stage (2012-2018), I published 50 papers in journals such as Journal of Extracellular Vesicles, Nature Genetics and PLoS Neglected Tropical Diseases (10 as first author and 11 as last or corresponding author). Furthermore, as I was advancing through my postdoc, I took a senior role supervising PhD students and obtaining grants, including a grant funded by the National Health and Medical Research Council (NHMRC; Australia).

Recently (2018), I obtained a senior postdoctoral contract Miguel Servet I to start my own research group at the Centro Nacional de Microbiología (ISCIII). During the last 3 years, I have recruited a lab technician and I am supervising two PhD students working on different projects; and, in 2019, I obtained my first AES grant as a PI (2019-2022). Since 2019 I have published 24 papers and 3 book chapters (3 as first author and 11 as senior or corresponding author) in journals such as Lancet Microbe, eLife and Cell Host Microbe.

During my career I have supervised 4 PhD students to completion and am currently supervising 2 PhD students at ISCIII. I have also supervised Masters (one international student from University of Vienna) and Bachelor students (5 students in total) and have mentored students from different universities.

Among other merits, I would like to highlight my role in the Editorial Committee (associate editor) of top tier journals such as PLoS Neglected Tropical Diseases, Parasites & Vectors and International Journal for Parasitology. I have also acted as an Editor for one book series (Methods in Molecular Biology) and I am currently editing a special issue for the journal Parasitology. Since 2021, I am a Board Member of GEIVEX group (Spanish group for Extracellular Vesicles). Furthermore, I regularly review grants for funding agencies such as ANEP, BBSRC (UK) and NHMRC (Australia), and participate in peer-review for journals such as Lancet, PNAS o PLoS Pathogens. In total, as research output, I have published a total of 88 papers and book chapters, receiving 4,861 citations since 2006 and I have an h-index of 24 (Scopus as per 24/01/2022).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	NIETO TORRES, JOSE LUIS
Referencia:	RYC2021-032836-I
Correo Electrónico:	jlnietorres@gmail.com
Título:	Mechanisms of Aging and Inflammation: Role of Non-canononical Autophagy
Resumen de la Memoria:	

Aging is a major risk factor for the onset of devastating diseases such as cancer and neurodegeneration. Also, the elderly are especially susceptible to some infectious diseases, as sadly evidenced by the current COVID-19 pandemic. Interestingly, age-related diseases and lethal diseases caused by coronaviruses, such as COVID-19, share deleterious proinflammatory pathways (in a chronic or acute fashion, respectively), yet their molecular basis remain to be characterized.

Autophagy is a conserved process that promotes homeostasis and longevity via the degradation of surplus or damaged cellular components and also invading pathogens. Interestingly, emerging reports indicate that the autophagy machinery plays additional non-canonical roles, including in unconventional secretion of cellular materials and key inflammatory mediators. The regulation of such non-canonical functions is poorly understood, and its role in aging is unknown.

My recent work has characterized a novel molecular pathway that controls the degradative functions of the autophagy machinery and also may regulate its non-canonical secretory functions. Importantly, my latest studies revealed that these non-canonical secretory functions may be specifically active in senescent (aged) cells, whose proinflammatory secretome is detrimental to health. I aim to characterize mechanisms of aging and inflammation, with a special focus on the relevance of the autophagy machinery regulation and its non-canonical functions. Furthermore, aided by my skillset acquired as a graduate student on the inflammation-related molecular pathogenesis of coronaviruses, I will explore these molecular pathways and their interplay with aging in COVID-19.

As a researcher, I have shared my findings in multiple scientific publications as well as international specialized meetings. Furthermore, in my pathway to become an independent investigator, I have established a strong network of collaborators, secured several sources of independent funding, actively participated in peer review, and developed my mentoring, teaching, and leadership skills through specific courses and supervising and supporting lab personnel. My goal is to become an independent investigator in Spain and make relevant discoveries that ultimately can impact people's lives. Also, another goal of mine is to communicate my findings and the benefit of research to students and the lay public, an aspect in which I am actively engaged.

Resumen del Currículum Vitae:

I obtained my Ph.D. in molecular biology at the National Center of Biotechnology in Madrid, Spain, under the supervision of Professor Luis Enjuanes. My studies revealed a SARS-CoV protein with an ion-channel activity that promotes uncontrolled inflammation, disease, and lethality, and pointed out this viral protein function, as well as exacerbated inflammation, as targets for therapeutic interventions, valid also for COVID-19 pandemic. My projects were framed within international research networks financed by the NIH, USA, and the European Commission. I enjoyed contracts from the aforementioned entities and a "Junta de Ampliación de Estudios" fellowship for my graduate studies. My research lead to five first-author publications and another 13 as a co-author, and I communicated these findings at several national and international conferences. In addition, I received the highest grade and an extraordinary prize from the Autonomous University of Madrid, for my Thesis defense. I frequently participated in peer-reviewing and acted as an Ad-hoc reviewer for the journal Virus Research. I also engaged in the co-mentoring of three junior graduate students and co-directed the Ph.D. thesis of a student in the lab, which consolidated my goal of becoming an independent scientist.

Fascinated by the impact that inflammation and aging have on the lethality of the diseases caused by coronaviruses and many devastating diseases associated with the elderly, I joined the lab of Professor Malene Hansen, in La Jolla, CA, USA. I have been working on the regulation of autophagy, a crucial degradative process with important roles in age-related diseases. My studies, firstly supported by a distinguished Fundacion Ramon Areces postdoctoral fellowship and NIH grants, unraveled a molecular pathway that controls the canonical degradative functions of the autophagy machinery and potentially also recently described non-canonical secretory functions whose impact on aging and inflammation is only starting to be elucidated. I have shared my discoveries in five first-author articles and several international meetings. To pursue these new exciting lines of research and become an independent investigator, I secured a prestigious K99/R00 "pathway to independence grant" (\$1.1M) awarded by the Institute on Aging from the NIH. Also, I started being co-mentored by Professor Peter Adams (La Jolla, CA), a renowned expert on aging-related diseases and cellular senescence, areas that I plan to explore. In the USA, I have established a world-class set of collaborators and continued mentoring students (two) and research assistants (four), two of which I also supported financially. I also engaged in peer review of articles and grants for the European Commission and developed my grant writing, responsible conduct of research, leadership, and communication skills through multiple specific courses and activities. I am proud of my participation in science communication events to promote the importance of research to the general public, supported by a Fishman Fund Award (\$10K).

I believe I am in an optimal place to apply for the prestigious Programa Ramon y Cajal, which would facilitate my goal to become an independent investigator in my home country. Once there, I want to make discoveries relevant to age-related diseases with a high impact on the scientific community and people's lives.



Área Temática:	Biomedicina
Nombre:	NOVOA CARBALLAL, RAMON
Referencia:	RYC2021-032344-I
Correo Electrónico:	nitneb3@gmail.com
Título:	Polysaccharide synthetic polymer hybrids for drug delivery and regenerative medicine
Decumenta de la Mana	

Resumen de la Memoria:

My PhD was in the University of Santiago de Compostela (USC) supervised by R. Riguera and E. Fernandez-Megía. I developed PEG grafted chitosan (CS-g-PEG) with bioactive molecules at the end of the PEG for targeted drug delivery in collaboration with M.J. Alonso group. This approach's success resulted in 12 publications where CS-g-PEG facilitated the delivery of peptides and DNA. My PhD was interdisciplinary. I also described NMR methods for polymer mixtures and pitfalls in the NMR characterization of chitosan copolymers. In a related investigation, I applied NMR relaxation and saturation transfer difference experiments to understand the aggregation and flexibility of chitosan and dendrimers. I performed the work on dendrimers at the Univesrtiy of Stockholm (Giran Widmalm) where I improved my skills in NMR.

After my PhD I moved to Germany to A. Muller's group. This group was, at this time, a world leader in the research in block copolymer nanostructures having described, for example, Janus Nanoparticles or the hierarchical assembly of patchy Nanoparticles. Here I designed my independent research line since I am the corresponding author of the articles. I described the oxime click chemistry for the synthesis of polysaccharide diblock copolymers. These polymers are aimed to obtain nano-sized drug delivery systems. I published the formation of nano-interpolyelectrolyte complexes with a PEG corona or a polysaccharide corona.

After my time in Bayreuth, I received a postdoctoral contract (USC) to work at the 3bs research group (Univ. of Minho). This group develops biomaterials for regenerative medicine. Here I followed the research line started in Germany, using the oxime chemistry to prepare new polymeric structures useful for regenerative medicine. I am preparing diblock copolymers of PEG and a glycosaminoglycan (GAG) that encapsulate growth factors (essential proteins for the stem cell culture). We have also observed an enhanced anticoagulant activity of PEGylated heparin (patented in 2021). Simultaneously I am preparing star and brush-like GAG copolymers to obtain gels and fibres that mimic the organization of the extracellular matrix. These copolymers demonstrated that the biological effect is preserved thanks to end-on modification (that maintains the bioactive groups intact). These copolymers aim to prepare a new generation of hydrogels for tissue engineering. Compared to current cross-linked GAG or collagen gels, a much closer mimic of the ECM nanostructure is achieved.

In 2016 I started a research line to discover new GAG and GAG-like polysaccharides of marine origin in collaborations with the CSIC in Vigo, the spinoff Pacific Biotech. We are looking forward to using these polysaccharides to develop drug delivery and regenerative medicine systems. In parallel, I keep collaborating with Alonso's, Fernandez Megia and Muller's group (publications in 2019 and 2022). I am also directing a PhD student (end in 2022) studying how surface nanotopography (block copolymer films) determines cell adhesion and antibacterial properties. In 2020 I joined an entrepreneurial project as a cofounder. We will develop environmentally friendly cosmetics and have obtained an IAPMEI Start-up Voucher for 2021. In 2021 I started a collaboration with another spin-off, Licbiotech, to prepare aptamer-PEG block copolymers.

Resumen del Currículum Vitae:

-2002: degree in Chemistry (Univ. of Santiago de Compostela (USC) with Erasmus in Germany, Jena) -2004: Master in Organic Chem (USC). -2009: PhD. degree in Chemistry (USC, granted by FPU). Highlighted publications (pub.): Biomacromolecules 2007, 8, 833 Biomacromolecules 2010, 11, 2079 Bioconjugate Chem. 2005, 16, 1503 (264 citations) J. Controlled Release 2006, 111, 299 (261 cit.) Carbohydr. Polym. 2005, 61, 155 (96 cit.) J. Neurosci. 2009, 29, 13761 (144 cit.) J. Am. Chem. Soc. 2007, 129, 15164-15173 Physical Chemistry Chemical Physics, 2010, 12, 6587,

-2010: postdoc in Germany (Barrie de la Maza, 18 months). Contract by the German government (6 months). Highlighted pub.: Chem. Commun. 2012, 48, 3781 Soft Matter 2013, 9, 4297 Polymer Chemistry 2013, 4, 2278-2285 Carbohydr. Polym. 2013, 92, 1234-1242 J. Colloids and Surfaces A, 2016, 489, 311. Macromolecules, 2021, 54, 5774 5783

-2013: Postdoctoral contract from Xunta de Galicia (2 years abroad + 1 year in USC) at the 3bs research group (Univ. of Minho). 2015: contract from the Portuguese "Fundaçao para a Ciencia e Tecnologia" (FCT) as assistant researcher (5 years). 2018: contract from I FCT again as an assistant researcher (6 years). Highlighted Pub: Patent of PEGylated Heparin (2022, submitted to Portuguese office) Journal of Colloid and Interface Science, 2022, 608, pp. 1608 1618 Polymers, 2022, 14(1), 16




AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Acta Biomaterialia 2020, 112, 174-181. US Patent, 2020262937A1, 2020-08-20 J. Controlled Release 2019, 294, 154-164. Chemical Science 2019, 10 (8), 2385-2390. Carbohydr. Polym. 2019, 210, 302-313. Patent, WO2019064231, 2019-04-04 Chemistry a European Journal, 2018, 24-1434 Journal of Controlled Release, 2019, 294,154 Carbohydr. Polym. 2019, in press J. Am. Chem. Soc. 2015, 137, 576 Journal of Materials Chemistry B 2014, 2, 4177 Anal. Chim. Acta 2015, 885, 207 Carbohydr. Polym. 2017, 157, 31

Projects as P.I:

FCT 2015-2020, 50.000 euros, Ref IF/00373/2014/CP1212/CT0013 FCT 2018-2021, 239.000 euros Ref. PTDC/QUI-POL/28117/2017

Scientific indicators h-index 22 (scopus), 49 pub. and 3 patents 16 pub. as the first author 10 pub. as the corresponding author 2 pub. as last author 2 pub. with more than 260 cit. 4 pub. them with more than 140 cit. 2 pub. in the top Journal of Drug Delivery (Journal of the Controlled Release Society). 5 pub. in the top Journals in general chemistry (JACSx2, Chem. Comm, 1 Chem. Sci, 1 Chem-Euroan Journa) 2071 total citations (Scopus) 4 pub. in the top journal of polysaccharides and the third in Polymer Science (Carbohydrate Polymers) I spent more than 9 years in institutions of Europe and obtained funding for my independent research from Sp

I spent more than 9 years in institutions of Europe and obtained funding for my independent research from Spanish and Portuguese private and public agencies. I supervised 2 postdocs and I am directing 1 PhD in Portugal. I have instructed 385 hours in Spain, Germany and Portugal. I presented more than 60 contributions to international conferences (5 oral). I was invited as a speaker in 1 meeting and 1 school. I collaborate with several research groups and one spin-off (research network below). Research network:

E. Fernandez (USC), M.J. Alonso (USC), M. Martin (USC), A. Müller (U. Mainz), Pacific Biotech (France), J. A. Vazquez (IIM-CSIC, Vigo), M. Coimbra (U. Aveiro), A. Gonzalez (CINBIO, Vigo), S. Lecommandoux (U. Bordeaux), J. Pasulusse (U. Twente) and M.J. Vicent (CIPF, Valencia), J. Ruiz, Lincbiotech (Spain).



Área Temática:BiomedicinaNombre:BRIZ HERREZUELO, VICTORReferencia:RYC2021-031395-ICorreo Electrónico:victorbrizherrezuelo@gmail.comTítulo:Gene-environment interactions as risk factor for synaptic dysfuntion in neurodevelopmental and cognitivedisorders.

Resumen de la Memoria:

I have long-term interests in understanding the molecular and cellular mechanisms on brain function, both under physiological and pathological conditions. As an undergraduate and graduate student at the Cajal Institute of Neuroscience and at the Department of Pharmacology (UAM), respectively, I conducted my first research projects that allow me to gain expertise in neuroscience and pharmacology and also to develop fundamental technical skills in cellular and molecular biology as well as electrophysiology.

During my PhD studies, I designed and developed several research projects to study the effects of long-term exposure to environmental contaminants such as organochlorine pesticides on GABAergic and glutamatergic neurotransmitter systems in primary cultured neurons. I also explored the effects of the contaminants as endocrine disruptors on signaling mediated by estrogen and other neurosteroids. As a result, I published 3 articles and 2 conference papers as first author in high-ranked international journals in the fields of toxicology and endocrinology, and I wrote a methodological book chapter and a book in Spanish based on my thesis work, which was published by Editorial Publicia.

During my first postdoctoral stage in Michel Baudry s lab in Pomona (California, USA), I focused my research on the molecular mechanisms of synaptic plasticity underlying learning and memory. In particular, I investigated the regulation of protein homeostasis and actin cytoskeleton reorganization by BDNF and estrogen during plasticity events. In only 3 years, I published 9 papers (6 of them as first author and 2 as second author) in high-impact factor journals such as The Journal of Cell Biology and Nature Communications, and moreover I got a patent filed.

In my second postdoctoral stage in Claudia Bagni s lab at VIB-KU Leuven (Belgium), I studied the role of non-coding RNAs in synaptic structure and function as well as in animal behavior in the context of intellectual disabilities and autism. I was also involved in several other projects to study gene-environment interactions in animal models of autism and schizophrenia. In just 18 months, I got a first author paper in Nature Communications and another one as co-author.

In 2017, I was one of the 9 awarded candidates in the Intertalentum postdoctoral program (UAM-UE, Marie Curie Cofund). In 2019, I was one of the two awarded candidates of the Eduardo Gallego postdoctoral fellowships from Fundación Francisco Cobos. Currently, I am principal investigator of a research line within the lab of Jose Esteban at CMBSO (UAM-CSIC) focused on studying the association between exposure to environmental contaminants, synaptic dysfunction and memory-related disorders, and I have a PhD student and a master student under my supervision. Over the last few years, I have also been collaborating with the laboratories of Dr. Dolores Ledesma at CBMSO and Prof. Isabel Pérez Otaño at Instituto de Neurociencias de Alicante. During this period, I have published one paper as co-author in eLife and another one as corresponding and last author in Cell Biology and Toxicology.

In the near future, I plan to further explore the relationship between genetic and environmental factors both in health and disease, with a special focus on neurodevelopmental disorders such as autism and intellectual disabilities.

Resumen del Currículum Vitae:

Bachelor Degree in Chemistry (UAM, 2004) and Biochemistry (UAM, 2007).

International Master Degree in Neurosciences (University of Barcelona, 2007).

PhD in Biomedicine (University of Barcelona, 2011) with Excellent-Cum Laude.

Research Experience

(2017-present) Principal Investigator at CBMSO (UAM-CSIC), Madrid, Spain.

(2015 2016) Postdoctoral fellow at VIB-KU Leuven, Belgium.

(2012 2015) Postdoctoral fellow at Western University of Health Sciences, CA, USA.

(2007 2011) PhD student at Instituto de Investigaciones Biomédicas de Barcelona (IDIBAPS-CSIC).

(2006 2007) Graduate student at Department of Pharmacology, UAM.

(2005 2006) Undergraduate student at Cajal Institute of Neuroscience (CSIC).

Teaching and mentoring activities

Teaching assistant in Projectpracticum II for 3rd year bachelor students of Biomedical Sciences (KU Leuven, Belgium, academic year 2015-2016). Supervisor of 5 Master and 1 PhD Thesis: Jolan Chou (Western University of Health Sciences, Pomona, CA, 2014); Richa Asija (Western University of Health Sciences, Pomona, CA, 2014); Richa Asija (Western University of Health Sciences, Pomona, CA, 2015); Frone Vandewiele (KU Leuven, Belgium, 2016); Irene Varela (UAM, 2018): Esperanza López (UAM, 2019 and current PhD student).

Bibliographical analysis and patents

20 publications in international peer-review journals (14 as first author, 2 as second author and 3 as co-author and 2 as corresponding author) including 14 original papers, 2 reviews, 2 book chapters and 2 conference papers, as well as one scientific book based on my thesis work. My publications have been cited over 650 times in the literature. H index= 12.

One patent filed (US 61/856,246; 19/07/2013).

Grants and awards

-Intertalentum postdoctoral program, as principal investigator. Amount: 133,800 euro. Co-funded by UAM and EU (Marie-Curie actions). June 2017-June 2019.

- Eduardo Gallego postdoctoral fellowships, as principal investigator. Amount: 24,000 euro. Funded by Fundación Francisco Cobos (CSIC). June 2019.

-PhD fellowship, funded by IDIBAPS (Barcelona, Spain). February 2007-December 2010.

4 travel grants to attend conferences and courses:

-Course in Health risk assessment, Marie Curie Actions, Karolinska Institute, Stockholm (Sweden), April 2008.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

-Bregenz Summer School on Endocrinology, Bregenz (Austria), July 2008.

-12th INA Meeting, Jerusalem (Israel), June 2009.

-SfN Meeting, San Diego (CA), November 2016.

Presentations, seminars and other merits

I have performed 11 oral presentations and 9 poster presentations in national and international scientific meetings. I have also been invited to give conferences in reputed research centers like National Centre for Biotechnology (CNB, Madrid), Cajal Institute of Neuroscience (Madrid) and Institute of Neuroscience (Alicante) as well as in science communication events to the general population (Brussels, Belgium).

I am founding member of Científicos Españoles en Bélgica (CEBE), a non-profit organization dedicated to scientific outreach, science communication and to promote collaborations between Spanish and Belgian institutions.

I am regular ad-hoc reviewer for international journals such as Science Translational Medicine, Cerebral Cortex, Hippocampus, Journal of Physiology, Neuropharmacology, PloSOne. Also, I was recently invited by Agencia Estatal de Investigación to become an expert reviewer of the BECA agency for the evaluation of scientific projects and grants.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	MENDEZ LUCAS, ANDRES
Referencia:	RYC2021-032057-I
Correo Electrónico:	amendezlucas@hotmail.com
Título:	TUMOUR METABOLISM

Resumen de la Memoria:

My research spans the areas of metabolism and pathogenesis of disease, and I use pre-clinical models, metabolomics, and both basic and translational science to help design new therapeutic options for cancer treatment. I have a deep and practical understanding of cancer metabolism. My current contributions to these areas include describing how tumour cells adapt to resist therapies targeting metabolism, uncovering new nutrients for cancer cells, and the use of diets as coadjuvant for cancer therapy. These are crucial aspects to fight resilient tumours.

After obtaining degrees in Veterinary (UAB), and Biochemistry (UB), and 6 years of experience in veterinary hospitals, I joined the group of Dr. JC Perales (UB) with an FPI predoctoral fellowship. My Ph.D project focused on the role of gluconeogenesis in the context of diabetes and cancer. This stage resulted in two first-author manuscripts, together cited 226 times (145+81: Google Scholar), several collaborative papers, two very productive stays at the University of Texas (US), and considerable University teaching experience.

In 2013, I joined Mariia Yuneva s Lab at The Francis Crick Institute (London, UK), as a career development fellow, where I also helped supervising and mentoring phD, master, and summer students. My postdoc focused on the application of genetics and stable isotope-based metabolomics in vivo with mouse models, to investigate the metabolism of tumours, to uncover biological targets for therapeutic intervention. In one sentence, I investigate how tumours feed to starve them. I acquired an extensive set of skills which include in vivo isotopic labelling in mice coupled to metabolomics analysis in GCMS and NMR, generation of mouse models of liver (with in vivo genome editing) and breast cancer, PDX s, 3D organoids, organotypic cultures.

These projects are translating into three first-author papers, and some collaborative manuscripts. A project focused in battling the plasticity of tumour metabolism, that allows tumours to resist treatments. I identified and targeted several compensatory mechanisms arising from the inhibition of metabolic pathways in tumours, finding new efficient therapeutic combinations for cancer treatment.

I also show for the first time how tumours use alcohol as a nutrient. By using in vivo isotopic tracing with 13Cethanol in more than 10 mouse models of liver, lung and breast cancer (and PDX's) we show a key enzyme that allows alcohol to feed the Krebs cycle. We link alcohol to increased metabolism, resistance to therapies, and tried to contribute to guidance for cancer patients on alcohol use.

In 2021, I joined the Faculty of Medicine of the University of Barcelona, and IDIBELL institute, as "profesor lector" and group leader (https://cancermetab-lab.wixsite.com/amImetab). In 2021 I applied for grants, directed a Master thesis, a final degree thesis a Erasmus Student, and I am currently recruiting a phD. I have setup our methods at the UB, stablishing the metabolomics workflow and performing labelling in cancer models for my group and collaborators. I use a multidisciplinary approach that combines in vivo experiments in mice with molecular biology techniques and patient samples. My present projects aims to uncover new anticancer treatments and study the role of alcohol in cancer progression.

Resumen del Currículum Vitae:

I obtained a degrees in Veterinary Medicine (UAB-2002), and Biochemistry (UB-2005), and I worked in different veterinary clinics from 2001 to 2006. I then obtained an FPI predoctoral fellowship (Ministerio de Educacion y Ciencia) to perform my PhD at the laboratory of Dr. JC Perales (UB). I published two first-author manuscripts in Journal of Hepatology (2013) and JBC (2014) (which sum more than 200 citations), a second author paper in Diabetes (2008) and six more collaborative papers (International journal of endocrinology 2011, Journal of lipid research 2012, JBC 2013, Molecular & Cellular Proteomics 2013, Faseb journal 2015, and Journal of physiology and biochemistry 2017. I also obtained FPI funding for two short stays at the University of Texas (US) at Shawn Burgess Lab.

In 2013, I started my position as postdoc (career development fellow) in Mariia Yuneva s Lab at The Francis Crick Institute (London, UK). I there published 2 first author papers in Cancer Research (2017) and Nature Metabolism (2021) and a third one soon to be submitted to Cell. Besides I participated in collaborative papers in Nature (2019), BJC (2019), another under revision in Nature Metabolism, and 2 more soon to be submitted. I have presented posters and given talks in multiple national and intenational meetings and participated in Public engagement activities.

Since 2021, I am a Professor Lector and group Leader at the Faculty of Medicine of the University of Barcelona, and the Bellvitge Institute for Biomedical Research (IDIBELL), (https://cancermetab-lab.wixsite.com/amlmetab). I teach biophysics, gene therapy, amongst other subjects. During this year I have tutored a Master Thesis (Genis  Núñez UB-10/09/2021) a Final Degree Thesis (Manuel J. Sánchez - UB - 16/07/2021) and another ongoing final Degree Thesis (Rowin Vander Avoird Avans University - The Netherlands). I frequently review papers for diverse journals, and I have reviewed for the Austrian Academy of Sciences (grant and PhD fellowship). Moreover, I wrote a preview article published in Cell (Méndez-Lucas A, and Yuneva M, 2021, Cell (doi.org/10.1038/s41586-021-04049-2) on anticancer diets.

I recently have applied for the Ministry of Science Grant (Retos del Conocimiento). I have also obtained a Material Transfer Agreement with the University of Utah ensuring access to 50 Patient Derived Xenografts, 8 of which we already have stored. I obtained the permission for animal experimentation and developed the required genomic tools. Thus, we stand ready to perform frontier research. My program constitutes a novel line of research that nicely complements the current existing lines of research at the institution, and that could lead to potential collaborations with other groups and partner institutions.



Área Temática:	Biomedicina
Nombre:	SERRA MAQUEDA, AIDA
Referencia:	RYC2021-030946-I
Correo Electrónico:	aida.serra@imdea.org
Título:	Systems biology and clinical proteomics for the study of neurodegeneration and abnormal intercellular
communication mediat	ed by extracellular vesicles

Resumen de la Memoria:

I have an h-index of 26 and a total citation record of 2164 derived from 57 scientific publications published in journals indexed by the Journal Citation Reports, three book chapters published in prestigious academic editorials and an edited book. I performed my PhD at the University of Lleida (UdL) (2009-2012) focused on the study of the metabolism and pharmacokinetics of nutraceuticals combining the application of pharmacokinetics and targeted mass spectrometry. After graduation from my PhD, I was appointed as Research and Scholar Fellow by the Nanyang Technological University (NTU) in Singapore (Jan 2013). At NTU, I was vastly trained in clinical proteomics and scientific and academic mentoring by working actively in multiple national/international collaborations and multidisciplinary projects. My research at NTU focused on the implementation of unbiased discovery-driven shotgun proteomics to investigate the molecular basis of major human diseases, such as dementia and Alzheimer s disease, and to investigate the role(s) of extracellular vesicles (EVs) in the intercellular communication. Additionally, part of my research was focused on proteomics and systems biology method development. From NTU, during these almost 7 years, I published a total of 32 research publications with international affiliation. From these works I participated as leading author in nine of them, from which four were published in D1 journals and four in Q1 journals. In June 2019, I joined IMDEA Food & Health Sciences Research Institute through the Atracción de Talento Excellence Program (Modality 1) as Senior Researcher to lead the newly created +Pec Proteomics team. +Pec Proteomics, under my lead, received in 2020 its inclusion within the Instituto de Investigación Carlos III National Network in Proteomics (PROTEORED). Additionally, since my return to Spain as Senior Researcher, I have been awarded as principal investigator (PI) with two publicly funded competitive research projects. The multicentric project PID2020-114885RB-C21, funded in 2021 by the Ministry of Science and Innovation in the 2020 «Retos de Investigación» call, in which I am PI coordinator, is aimed to understand the role(s) of EVs mediating intercellular communication between the oral microbiome and the brain in Alzheimer s diseases; and the project 2018-T1/BIO-10633, funded by the Community of Madrid 2018, is aimed to explore the potential of EVs obtained from industrial by-products as nanocarriers for the biomedical and biotechnology fields. As leader of +Pec Proteomics, I have published two scientific articles and a systematic review as senior & corresponding author in 1st Decile (D1) journals, a research article as leading author in a 1st Quartile journal and I edited a scientific book for Frontiers Media S.A, among other publications. From +Pec Proteomics in 2021, I also registered the European patent EP21382983.1. During this period, I have supervised and trained a postdoctoral researcher and two PhD students. Besides, I am adjunct professor at University Oberta of Catalonia, Valencian International University and Autonomous University of Madrid. Finally, throughout my scientific career, I have presented my research in 19 international and national conferences, and I have conducted multiple oral scientific talks by invitation in national and international scientific events.

Resumen del Currículum Vitae:

CURRENT POSITION
Senior Scientist. Atracción de Talento (Modality 1). Fundación iMdea Alimentación. Madrid.
Adjunct Professor Universitat Oberta de Catalunya (UOC)
Adjunct Professor Universitat Internacional de Valencia (VIU)
Adjunct Professor Universidad Autónoma de Madrid (UAM)
PREVIOUS POSITIONS
07/01/13 - 05/04/2019. Research & Scholar Fellow. Nanyang Technological University (NTU). Singapore
22/01/11 - 21/04/2011. Visiting PhD student. Jean Mayer USDA Human Nutrition Research Center on Aging. Tufts University. USA
01/04/09 - 18/09/2012. Predoctoral researcher. Universitat de Lleida (UdL), Spain
01/06/08 31/03/2009. Master Student under the CENIT program. UdL
EDUCATIONS
18/09/12. PhD UdL
16/09/09. Master of Science. UdL
08/07/08. Bachelor UdL
22/11/06. Technical Engineering. UdL
PUBLICATIONS
Total: 60 (51 scientific articles [2 as senior&corresponding (S&C), 21 as 1st author, 8 as 2nd author], 1 editorial, 4 review articles [1 as S&C], 3 book
chapters, 1 edited book).
Published as senior researcher: 2 D1 scientific articles (BMC Biology and Alzheimer Res Ther), 1 D1 systematic review as S&C (Critical Reviews in Food
Science and Nutrition) and 1 Q1 scientific article.
Total with international affiliation: 31 (10 as 1st author, 2 book chapters, 19 as co-author)
PROJECTS AS PRINCIPAL INVESTIGATOR
- 2018-T1/BIO-10633. PI. Comunidad de Madrid. 198.000 . 01/06/19-31/05/23
- PID2020-114885RB-C21. PI coordinator. Proyecto Retos de Investigación 2020. Ministerio de Ciencia e Innovación. Total 302,500 (157.300
Subproject 1). 01/09/21-31/08/24.
DATENTS





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

№ of application: EP21382983.1. Inventors: A Serra (40%); et al. Entities: iMdea/IISPV-HUIPM/CIBER. Date of register: 02/11/21. **PROFESSORSHIP ACCREDITATIONS** -Prof. Contratada Doctor. ANECA. 25/01/21. -Prof. Agregat. AQU. 04/11/21. **FELLOWSHIPS** 2019 Curr Atracción de Talento (Modality 1). Comunidad de Madrid. 2010 Predoc Internship fellowship. BE-DGR 2010 BE1 00560 2010 Predoc fellowship. FI-DGR. AGAUR. 2009 Personal predoc 2009. UdL TEACHING -2017 Curr. Adjunct Prof. UOC. -2021 - Curr. Adjunct Prof. VIU. -2020- Curr. Researcher in the Biology doctoral program. Universidad Autonoma de Madrid (UAM) -2014-17. Bachelor of Science. NTU. SUPERVISION OF DOCTORAL THESIS AND MASTER FINAL YEAR PROJECT (MFYP) Thesis ongoing 1 (UAM); Thesis finished 1 (NTU); MFYP students: 27 (UOC, VIU, NTU, UDL) AWARDS Best Poster Award. Royal Society of Chemistry. EXTECH 2015, China. Press release. Springer-Nature Editorial Office. 2015. 3rd Prize. Innovative Product Contest TROFELIA-2011. CONFERENCES Total 19; 18 International, 1 national. ORGANIZATION OF INTERNATIONAL CONFERENCES Total 4; Seventh Asia-Oceania Mass Spectrometry Conference 2017; 2nd peptides and protein symposium 2016; International Peptide Symposium 2015; Natural Products and Health 2013 **REVIEWER IN INTERNATIONAL CALLS** Marie Sklodowska-Curie Actions. Martí-Franquès COFUND Fellowship 2017-18. EDITOR IN SCIENTIFIC JOURNALS 1. Front. Nutr. Guest Associate Editor. 04/20-10/21; 2. Int. J. Mol. Sci. MDPI. Topic Editor. 01/21; 3. NeuroSci MDPI Guest Editor. 01/03/21; 4. Cells MDPI Guest Editor. 03/21; 5. Biomolecules MDPI Guest Editor. 03/21. SCIENTIFIC DISSEMINATION ACTIVITIES

-Dissemination articles (1): Research Outreach -Guest speaker (2). 1. Academia Joven de España. Jóvenes, conocimiento y agenda 2030. Madrid, 21; 2. Sesión s



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	BENEDICTO ESPAÑOL, IGNACIO
Referencia:	RYC2021-033805-I
Correo Electrónico:	ignacio_benedicto@hotmail.com
Título:	Epithelial polarity and endothelial angiocrine signaling in health and disease
Designed and the Manual of	

Resumen de la Memoria:

During my PhD and early postdoctoral period at Hospital Universitario de la Princesa (Madrid), my main interest was to study how hepatocyte cell polarity and intercellular tight junctions (TJs) are affected by hepatitis C virus (HCV) infection. I showed that HCV infection alters the localization of the TJ-associated protein occludin and that occludin interacts with the HCV envelope protein E2. This discovery prompted me to study whether occludin is required for HCV entry into hepatocyes, hypothesis I was able to confirm. I also described how 3D culture and hepatocyte-like polarization affect HCV properties. Focusing on HCV assembly and exit, I reported the role of clathrin and APOE in HCV egress and cell-cell HCV transmission, respectively. During that period, I also participated in a number of collaborations to study various aspects of HCV and hepatitis B virus infection and to analyze the immune response in different contexts. My main side project during my PhD, also related to disease-associated alterations of the epithelial polarity, was to study the epithelial-to-mesenchymal transition (EMT) of peritoneal mesothelial cells during peritoneal dialysis, which induces fibrosis and eventually leads to treatment discontinuation.

During my postdoctoral period at Weill Cornell Medicine (New York, 2013-2018), I started an independent line of research studying whether retinal pigment epithelium (RPE) TJs, a key component of the outer blood-retina barrier, are regulated by paracrine factors provided by adjacent choroid endothelial cells (ECs). I characterized for the first time the transcriptome of developing and adult choroid ECs, and showed that during terminal retinal differentiation they become enriched in transcripts encoding extracellular matrix-related proteins. I demonstrated that ECs release factors that fine-tune the biomechanical properties of RPE basement membrane, which in turn modulates RPE TJs via an outside-inside mechanism involving extracellular matrix stiffness, β1-integrin signaling, and Rho GTPases. Aside from my principal line of research, I had a main role in the development of several projects related to the establishment of epithelial polarity and RPE pathophysiology.

In 2018 I joined Centro Nacional de Investigaciones Cardiovasculares (CNIC) in Madrid as Senior Postdoctoral Researcher to develop independent lines of research focused on studying tissue-specific endothelial heterogeneity and the impact of endothelial aging on organ regeneration, immune regulation, fibrosis, and cardiovascular disease. I pioneered single cell RNAseq studies on the eye choroid and performed comparative bulk RNAseq analyses using ECs from different tissues. I showed that choroid ECs express unique sets of angiocrine factors that regulate immunomodulatory aspects of a newly discovered population of choroidal stem cells. I am also Senior Postdoctoral Supervisor of several projects studying vascular premature aging associated to Hutchinson-Gilford progeria syndrome.

Resumen del Currículum Vitae:

I studied Biochemistry at Universidad Complutense de Madrid, and spent my last undergraduate year at Aarhus University (Denmark) funded by an Erasmus fellowship. I carried out my PhD at the Molecular Biology Unit of Hospital Universitario de la Princesa (Madrid) under the Biochemistry, Molecular Biology and Biomedicine doctoral program from Universidad Autónoma de Madrid. I obtained an FPI fellowship from the Spanish Ministry of Science and Technology to carry out my PhD thesis studying how hepatocyte cell polarity and intercellular tight junctions (TJs) are affected by hepatitis C virus (HCV) infection. During that period, I completed short research stays at national and international laboratories (University of Virginia, USA; Université de Lyon, France; Centro de Investigación en Medicina Aplicada, Pamplona). My PhD thesis was finalist for the Doctorate Extraordinary Prizes from Universidad Autónoma de Madrid.

In 2013 I joined Weill Cornell Medicine (New York) as Postdoctoral Fellow, where I started an independent line of research and discovered a paracrine mechanism of epithelial TJ regulation by endothelial cells (ECs). In 2018 I obtained an Atracción de Talento Modalidad 1 4-year grant (Comunidad de Madrid) and joined Centro Nacional de Investigaciones Cardiovasculares (CNIC, Madrid) as Senior Postdoctoral Fellow to continue my independent research focused on tissue-specific heterogeneity of ECs and endothelial aging. I pioneered single cell RNAseq analyses of the eye choroid and showed that ECs are key for the maintenance of choroidal immune homeostasis by modulating a previously unknown population of mesenchymal stem cell-like cells. I am also investigating the impact of endothelial aging on ocular, hepatic, and cardiovascular pathologies.

Up to date, I have coauthored 32 peer-reviewed articles (78% Q1, 34% D1, 11 as first or corresponding author) in top journals such as Hepatology (1st author), Nature Communications (1st author), Journal of Experimental Medicine (corresponding author), Circulation, PNAS, EMBO Molecular Medicine, Journal of Hepatology, Gut, etc. My publications have received >1300 citations, and I have an h-index of 19. I have established productive collaborations with multiple international research groups and the private sector, and I am co-inventor of a patent. I have been awarded 3 grants as PI valued in >560,000 to develop independent lines of research, which I have presented at numerous international meetings and teaching seminars. I have supervised 6 students including 1 ongoing PhD thesis and 1 completed Final Degree project. I am Guest Editor for International Journal of Molecular Sciences to coordinate a special issue about tissue-specific ECs, and I have participated in dissemination actions aimed at facilitating mobility of Spanish researchers between Spain and USA.



Biomedicina
BETANCOR QUINTANA, GILBERTO JOSE
RYC2021-032674-I
gobetancor@gmail.com
Infection, immunity and antiviral mechanisms in pandemic viruses

Resumen de la Memoria:

Pandemic viruses such as HIV-1 and SARS-CoV-2 illustrate the threat to human health of viral outbreaks, and the need to understand the cellular processes underpinning viral replication. My research interests focus on the characterization of determinants governing the immune response against viral infection, and the cellular mechanisms supporting viral replication.

I completed my PhD at the laboratory of Prof Menéndez Arias (Centro de Biología Molecular Severo Ochoa) studying the effect of HIV-1 reverse transcriptase (RT) mutations on resistance to RT inhibitors. Through several articles I demonstrated the importance of RT subdomains distant from the catalytic site in the development of antiretroviral drug resistance.

Intrigued by the tug-of-war between viral infection and cellular immunity, I obtained a Research Associate position at the laboratory of Prof Malim (King s College London), a world leading expert on HIV-1 biology. Here, I have contributed to the understanding of how the interferon-induced immune response operates to restrict viral infection, primarily through the characterization of the interferon-induced protein myxovirus resistance 2 (MX2). In a series of publications, I unravelled several of the molecular and cellular processes governing the MX2 antiviral activity, including the interaction with the HIV-1 capsid and with nuclear pore proteins. Determined to establish my own line of research (when promoted to Research Fellow), I have since begun to characterize the modulation of MX2 functions by post-translational modifications and its impact in the innate immune response to HIV-1. I have identified several residues subjected to phosphorylation, with some of them blocking the protein antiviral activity, and others enhancing it. Importantly, these hypermorphic variants inhibit viruses not sensitive to wild type MX2, demonstrating how protein phosphorylation remodels MX2 in a pan-antiviral factor.

Finally, I have gained interest in SARS-CoV-2 research, where I have made important contributions describing the antibody response to viral infection, or the emergence and spread of new viral variants (mostly as member of The COVID-19 Genomics UK Consortium). Currently, my lines of research are focused on the regulation of cellular innate immunity by viral proteins, and the modification of cellular pathways involved in lentivirus-based vectors synthesis, with the goal of improving human health.

Resumen del Currículum Vitae:

I am a researcher with interests in virology and immunology committed to better understand viral pathogenesis. I obtained my PhD in 2013 (FPU fellowship) from Universidad Autónoma de Madrid, with a thesis studying the impact of HIV-1 reverse transcriptase (RT) mutations on resistance to antiretroviral drugs, awarded with the Faculty Prize. In 2014 I joined the laboratory of Prof Michael Malim at the Department of Infectious Diseases, King s College London, to study the modulation of HIV-1 infection by the innate-immune response. I was promoted to Research Fellow in 2019, starting my own line of research, characterizing the post-translational modifications of the cellular protein MX2, a potent HIV-1 inhibitor. Additionally, I am heavily involved in SARS-CoV-2 research, including the development of new virus detection methods and the characterization of viral variants.

During my PhD and in 4 articles, I showed how mutations distant from the RT catalytic site promote resistance against RT inhibitors. As a post-doc, I have contributed to the characterization of the main two factors driving the interferon-imposed block to HIV-1 infection: MX2 and Trim5𝛼 (Dicks, Betancor et al., PLoS Pathog, 2018; Betancor et al., Cell Reports, 2019; Jimenez-Guardeño et al., Nat Microbiol, 2019). Currently, as a Research Fellow I have revealed the complex regulation of MX2 by phosphorylation, identifying residues whose modification inhibits or enhances its antiviral activity (Betancor et al., Nat Microbiol, 2021; Betancor et al., bioRxiv 2022/PLoS Pathog under review).

My work on SARS-CoV-2 has included the development of new diagnostic tools (collaborating with companies such as Oxford Nanopore Technologies) and characterization of the antibody response to infection (Pickering, Betancor et al., PLoS Pathog, 2020; Seow et al., Nat Microbiol, 2020), and as member of the COVID-19 Genomics UK Consortium (COG-UK), I have made critical contributions to understand the pathogenicity of viral variants, resulting in 8 papers in journals such as Cell and Nature.

My research studies have been funded by over 20 grants, awards and contracts, of which I am PI on 3, and have contributed to a recently awarded Welcome Trust award (£2M). I am author of 27 articles, including 24 in Q1 and 15 in D1. I am 1st author in 9 of them and corresponding author in 2 (Nat Microbiol and PLoS Pathog (under review)). In addition, I account over 450 h of teaching experience and have supervised 5 BSc students during their TFG, 2 MSc students (TFM) and 2 Academic Foundation Doctor Fellows. I hold several technical positions at KCL, such as post-doc representative for the containment level 3 lab. My contributions to KCL were awarded in 2021 with the distinguished Pay Recognition award, which recognises outstanding contributions to School and University .

I am member of the American Society for Microbiology and have attended the Cold Spring Harbour meeting in retroviruses yearly from 2016, gaining 2 conference fund awards. As a recognized figure in my field, I have served as reviewer in journals such as PLoS One, PLoS Genetics or PLoS Pathogens. In summary, I have become an independent investigator, with high impact (>1850 citations), and the ability to attract funding and produce quality outputs. My CV is proof of my upward trajectory, indicating my suitability to become a Ramon y Cajal awardee.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	LOPEZ ISAC, ELENA
Referencia:	RYC2021-034816-I
Correo Electrónico:	eisac.csic@gmail.com
Título:	Genomic characterization of human complex traits, pleiotropy and comorbidity

Resumen de la Memoria:

My research career has been mainly devoted to the study of the genetics of complex traits. It started when I was an undergraduate student. In 2010 I was awarded with a JAE-INTRO Fellowship from the Spanish National Research Council (CSIC), and with a Collaboration to Research Fellowship (2010-2011). I developed strong interest in Human Genetics and Biomedicine. I graduated in Biology at the University of Málaga in 2011. I undertook a MSc in Immunology (2012) at the University of Granada (UGR) and started my PhD in the Instituto de Parasitología y Biomedicina López-Neyra (IPBLN) supported by the Formación de Profesorado Universitario (FPU) Program (FPU12/05117) (2013-2017). My research focused on the genetics of systemic autoimmune diseases, especially systemic sclerosis (SSc), achieving a high productivity and showing an incipient leadership in all the projects I was involved in. I obtained my PhD degree in Biomedicine in 2017 (Summa Cum Laude, International Award), and subsequently I got the Outstanding Doctorate Award (UGR).

In my first postdoc period (2017-2019) I continued working in the genetics of SSc. I leaded the analysis and publication of the largest meta-GWAS in SSc (26,679 individuals). This study represents the largest analysis in the field of SSc genetics and was possible thanks to a large international collaborative project that involved researchers and physicians from ten different countries and several consortiums all over the world.

In early 2019 I was hired by the University of Manchester as Research Associate in the Centre of Excellence for Genetics and Genomics Versus Arthritis. My research focused in elucidating the genetic basis of juvenile idiopathic arthritis (JIA). I co-coordinated the analysis of a new JIA GWAS along Dr. J. Bowes. I continued expanding my skills in bioinformatics and biostatistics and implemented new methodologies. I also started a new research line focused on the study of pleiotropic factors and comorbidity in autoimmunity.

In March 2021 I joined Dr. Rivera group as Juan de la Cierva-Incorporacion Research Fellow (UGR). Dr. Rivera s research line focuses in the genetic and environmental factors of psychiatric disorders, and their comorbidity with physical conditions. I am currently co-leading the line focused on the shared genetic component between major depression and obesity. I would like to highlight that my scientific productivity has been considerably high in every step of my career, as reflected in my curriculum vitae.

Resumen del Currículum Vitae:

I have worked in the genetic basis of complex traits since the beginning of my scientific career, especially in autoimmune diseases (ADs), and more recently I expanded my research to the field of psychiatric disorders. Most of my trajectory focused on the genetics of systemic sclerosis (SSc). I have been working in this research line since 2010 under the supervision of Prof. Javier Martin. I performed my PhD (2013-2017) and my first postdoctoral stage (2017-2019) in this team. My work led to the identification of tens of new risk factors for SSc, highlighting new molecular mechanisms. My contribution is reflected through a high scientific productivity (see my ORCID profile). In addition, I led the analysis and publication of the largest genetic study in SSc performed to date (2019). In conjunction with Prof. Martin, I coordinated an international collaborative project and recruited genome-wide genotyping data for 27,000 individuals. This project also gave me the opportunity to collaborate with Prof. H. Chang (University of Stanford), a worldwide recognized researcher that heads a pioneered group on the development of new methods to decipher the regulatory information in the human genome. Our results were published in the prestigious journal Nat. Communications (I am first and corresponding author) and were highlighted in Nat Rev Rheumatol

In early 2019, I joined the Centre of Excellence for Genetics and Genomics Versus Arthritis, at the University of Manchester (UoM) under the supervision of Prof. W. Thomson. I co-leaded, along Dr. Bowes, a new genetic study in juvenile idiopathic arthritis (JIA) that identified 5 new risk factors for the disease, which was published in Ann Rheum Dis (I am listed as first author) and highlighted in Nat Rev Rheumatol. In this period, I continued expanding my skills in bioinformatics and biostatistics and implemented new methodologies. I also started a new research line focused on the study of pleiotropic factors and comorbidity in autoimmunity. Shortly after (2021), I was awarded with a Juan de Ia Cierva-Incorporación Fellowship and came back to Spain to join Dr. Rivera s group, who heads a team working on the genetic and environmental factors of psychiatric disorders and their comorbid physical conditions. Since them I am co-leading the line focused on the shared genetic component between major depression and obesity.

I would like to highlight that my scientific productivity has been considerably high in every step of my career. I have acquired wide experience in the field of molecular genetics, computational biology and biostatistics and had a major role in the development of all the research lines I was involved in. I also have actively participated in 11 research projects, I have received 6 competitive grants, and participated in dissemination activities (see C.4). I have also become reviewer at several scientific journals (see C.4).

As a brief summary of my teaching and supervision activities, I have lectured at both under- and postgraduate levels (supervision of Lab training lectures; Master lectures). Also, throughout my scientific journey, I have been responsible for training new members of the teams, both under- and post-graduate students and new postdocs as well. I am specially developing this role in this latest stage as I am the single postdoc of the team, training PhD and Master students.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	MITJANS NIUBO, MARINA
Referencia:	RYC2021-033573-I
Correo Electrónico:	mmitjansn@gmail.com
Título:	Genetic, environmental and epigenetic factors in neuropsychiatric phenotypes
Bacuman da la Mama	rio.

Resumen de la Memoria:

Along my scientific career I have been involved in different topics all related to neuropsychiatric genetics. My PhD at the Department of Animal Biology of the University of Barcelona (2011-2014) was focused on pharmacogenetics investigating genetic variability contributing to psychotropic drug treatment response. I performed two stays abroad to develop my projects, one at Psychiatry Department, University of Bologna (1 month, Italy) and Max-Planck Institute of Experimental Medicine (5 months, Germany).

After my PhD I joined the Max-Planck Institute of Experimental Medicine, Göttingen, Germany as postdoctoral researcher (Feb 2015-June 2018). During that time, I focused my research on the contribution of genetic variants, environmental factors and epigenetic factors in schizophrenia and associated phenotypes. My results were published in 4 publications as first/co-first author (Molecular Psychiatry, Nature Communications, Translational Psychiatry, Journal of Clinical Research) and 9 publications as co-author including Nature Medicine, Molecular Psychiatry, Journal of Clinical Investigations and EMBO Molecular Psychiatry.

Afterwards, I was awarded a competitive postdoctoral contract "Junior AGAUR" at the Department of Evolutionary Biology, Ecology and Environmental Sciences, UB (July 2018 Aug 2020). I was mainly involved in the study of genetic, environmental and epigenetic factors in suicidal behaviour which lead to a first author paper (Journal of Affective Disorders) and two other papers as a first-author and corresponding author (submitted). During that period, I took a 5-months maternity leave.

In 2018 I was awarded a Juan de la Cierva Incorporación but I resigned since, at the same time, I was awarded a Marie Sklodowska-Curie Individual Fellowship. Since September 2020, I am postdoctoral Marie Sklodowska-Curie fellow at the Department of Genetics, Microbiology and Statistics of the UB working on shared genetics between Autism Spectrum Disorder (ASD) and Attention Deficit/Hyperactivity Disorder (ADHD) and evolutionary genomics in ASD.

I have co-authored 44 scientific publications (11 first-author) including high impact journals (Nature, The Lancet, Cell, Nature Medicine, JAMA Psychiatry, Nature Communications, Molecular Psychiatry, Journal of Clinical Investigations, EMBO Molecular Medicine) and 1 book chapter. From the 44 publications, 38 in Q1 [8 first-authored including 1 Molecular Psychiatry (IF:13.204), 1 Nature Communications (IF:11.878), 2 Translational Psychiatry (IF: 4.730), 1 Journal of Psychiatric Research (IF:3.917) and 1 Journal of Affective Disorders (IF:3.892)]. My publications have been cited 2325 times and I have an H-index=23 and an i-10-index=38 (Google Scholar).

I have been funded by competitive personal grants (APIF, personal DAAD grant, Marie Sklodowska-Curie IF) and I have officially participated in 11 national and international R&D projects funded through competitive calls (1 as Principal Investigator - EEUU, 7 as team member, 3 as hired personnel). I am member of the CIBERSAM, a Consolidated research group (SGR) and two international consortiums: ConLiGen and PGC.

Resumen del Currículum Vitae:

Experimental Biology (2010), Formación del profesorado de Secundaria Obligatoria y Bachillerato (2011) and Neuroscience (2012). From 2011 to 2014, I performed my PhD at the Animal Biology Department of the UB financed by contracts as hired personal in 3 national projects and an APIF grant. My PhD dissertation was qualified with Excellent summa cum laude and obtained the European PhD Quality Mention. During my PhD, I made 2 research stays: Psychiatry Department at the University of Bologna (Italy) and Clinical Neuroscience Department at the Max-Planck Institute (MPI) of Experimental Medicine (Germany, funded by a personal grant DAAD).

After my PhD I joined the MPI of Experimental Medicine (Germany) as post-doctoral researcher (Feb 2015-June 2018). I combined my position at the MPI with an adjunct lecturer position at the UB (Oct 2016 Feb 2017). In 2017 I obtained the tenure-track 1 lecturer accreditation (AQU). Afterwards, I was awarded a junior post-doctoral fellowship through a competitive call at the UB which I combined with a guest-contract at the MPI (July 2018 - August 2020). During that period, I took five-months maternity leave.

In 2019 I was awarded a Juan de la Cierva Incorporación fellowship but I resigned since I was awarded, at the same time, a Marie Sklodowska-Curie Individual Fellowship. Since September 2020, I am postdoctoral Marie-Curie research fellow at the Department of Genetics, Microbiology and Statistics of the UB working at the Neurogenetics group led by Prof. Cormand.

I have co-authored 44 scientific publications in ISI journals (11 as a first/co-first author) including high impact journals like Nature (IF:42.78), The Lancet (IF:47.83), Cell (IF:38.64), Nature Medicine (IF:30.64), JAMA Psychiatry (IF:15.30), Nature Communications (IF:11.88), Molecular Psychiatry (IF:12.38), Journal of Clinical Investigations (IF:12.78), EMBO Molecular Medicine (IF:9.29). From the 44: 35 in Q1 [8 as a first/co-first author, including 1 Molecular Psychiatry (IF:13.20), 1 Nature Communications (IF:11.88), 2 Translational Psychiatry (IF: 4.73), 1 Journal of Psychiatric Research (IF:3.92) and 1 Journal of Affective Disorders (IF:3.89)]; 4 in Q2 (2 as a first author); 1 in Q3; 1 in Q4 (1 as a first author). My publications have been cited 2325 times and I have an H-index=23 and an i-10-index=38 (Google Scholar). I have also co-authored 1 book chapter.

I have been awarded by competitive personal grants as a PhD student and as a Postdoctoral Researcher. I have officially participated in 11 national and international R&D projects funded through competitive calls (1 as Principal Investigator (EEUU), 7 as team member, 3 as hired staff). I am member



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

of the CIBERSAM and I belong to a quality research group of the Direcció General de Recerca, Comissionat per a Universitats i Recerca of the Generalitat de Catalunya, to the PGC and ConLiGen Consortiums.

I have also been involved in 358 official teaching hours at the University of Barcelona (Bachelor and Master). I am currently co-supervising 1 PhD thesis and I co-supervised 1 Bachelor s thesis, 6 Master s theses (1 ongoing) and 4 Lab-Rotations.





Área Temática:	Biomedicina
Nombre:	GUERRERO LOPEZ, ANA
Referencia:	RYC2021-034046-I
Correo Electrónico:	anaguerrero2985@gmail.com
Título:	Cellular senescence in ageing and neurodegenerative diseases
Resumen de la Memoria	

My research focuses on the roles of cellular senescence in health and disease.

During my PhD, I studied the role of cerebral cavernous malformation 3 (CCM3) protein in endothelial cells. Most brain cavernomas are sporadic, but people harbouring mutations in CCM3 are more prone to develop this vascular malformations. I unexpectedly found that the lack of CCM3 prevented the senescence response in primary endothelial cells (Guerrero, 2015, Aging Cell). Fascinated with that finding, and to expand my knowledge on senescence, I joined the lab of J. Gil (Imperial College London, UK) as a visiting PhD student first and, years later, as a postdoc.

At J. Gil lab, I set up a small molecule high-throughput screening platform aimed at identifying new modulators of senescence. As a result, I demonstrated that both cardiac glycosides and galactose-modified prodrugs can be exploited as senolytics i.e. drugs that selectively eliminate senescent cells (co-inventor patent application PCT/GB2018/051437; Guerrero, 2019, Nat. Metabolism; Guerrero, 2020, Aging Cell). In parallel, I led a project to search for compounds alleviating senescence and successfully identified 3-deazaadenosine, an epigenetic modifier (Guerrero, in review).

The next milestone in my career towards independence was to establish my research niche. I identified a gap in the knowledge realising that cellular senescence, which is a hallmark of ageing, could play a role in the inflammation observed in neurodegenerative disorders such as Alzheimer's Disease (Guerrero, 2021, Trends in Neurosciences). Following that idea, I joined B. De Strooper lab (University College London, UK) that has provided me with the freedom to explore my own hypothesis. In consequence, I have conceived, designed and secured funding for my research plan, being recently awarded my first two international competitive grants as Principal Investigator (UK DRI Pilot Studies Programme, 2021; Alzheimer's Association Research Fellowship, 2021, US).

My research programme explores the contribution of cellular senescence to age-related deterioration and neurodegeneration. The Ramon y Cajal grant will allow me to consolidate myself as an independent researcher, lead my own research lab, and enthusiastically train the next generation of biomedical scientists.

Resumen del Currículum Vitae:

After completing my B.S. in Biology, I obtained a X. Galicia and a FPU fellowship to do my PhD with J. Zalvide and C. Pombo (U. Santiago Compostela), focused on the role of cerebral cavernous malformation 3 (CCM3) in the development of vascular malformations:

· I developed techniques novel to the lab (e.g. 3D culture of endothelial cells, angiogenesis assay) that brought me to the observation that the lack of CCM3 impairs senescence in endothelial cells (Guerrero, 2015, Aging Cell).

· Fascinated with that finding, I organized a stay in J. Gil lab (Imperial College London) to further my knowledge of senescence.

· I contributed to other projects in the lab (Exp Cell Res, 2011; JBC, 2012; Diabetologia, 2017), supervised junior students, and served as teaching assistant (Basic Techniques in Biology and Comparative Animal Physiology courses).

· PhD defence Dec 2013 (summa cum laude).

As I took a keen interest in senescence, I decided to do a postdoc with J. Gil (UK). At the time, eliminating senescent cells for therapeutic benefit was an emerging idea. With lots of determination and persistence, I set up a small molecule high-throughput screening platform to identify compounds selectively ablating senescent cells, senolytics. This highly successful project led to:

 \cdot A patent application and a research collaboration agreement with industry.

 \cdot Recognition for my contribution: MRC End of Year Award 2017.

• A highly cited first-author article (Guerrero, 2019, Nat. Metab.; 110 citations, Google Scholar) where we described the potential of cardiac glycosides as a new class of senolytics - great press attention: research highlight in Nat. Rev. Drug Discovery, 2019; featured in a Nat. Aging 2020 collection of papers on Aging, longevity and age-related diseases.

• Two more first-author articles: exploring the senolytic potential of galactose-modified prodrugs (Guerrero, 2020 Aging Cell) and repurposing my high-throughput system to screen for drugs preventing senescence (in review).

• International collaborations that also yielded publications in Q1 journals (Nat Comm, 2017; Br J Pharma, 2021).

The suggestion of a causal link between senescence and tau sparked my interest about exploring the role of senescence in Alzheimer's Disease (AD). Despite having joined B. De Strooper lab (UCL, UK) in the challenging period when the COVID-19 pandemic struck, I have a record of achievements that place me on a strong upward trajectory:

• Two competitive grants as PI (UK DRI Pilot Study; Alzheimer's Association, US) that account for more than 200,000 in funding.

• A first-author Review where I discuss the current knowledge on senescence and AD (Guerrero, 2021, Trends in Neuro) - highlighted by the publisher and chosen for the cover page in Sep 2021 issue.

· Invited speaker at the Connectome 2021 (UK DRI).

· Supervisor of a Master student.

· Invited by Frontiers in Aging to lead an article collection as guest editor.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

· Ad hoc reviewer: The FEBS Journal, J. of Exp. Neurology, Mech. of Ageing and Development.

My CV indicates that I have successfully planned and executed cutting-edge science, while securing competitive funding in every step of my career. The background acquired over these more than 7 years of international experience, alongside the support from my network of collaborators, provide a solid ground to launch my own lab and make it succeed.



Área Temática: **Biomedicina** Nombre: FERNANDEZ ANTORAN, DAVID Referencia: RYC2021-030918-I **Correo Electrónico:** df336@cam.ac.uk Título: Cell competition and cancer evolution Resumen de la Memoria:

-PhD: 4 publications, 3 as first author (2 in Journal of Immunology and Critical Reviews in Immunology) and 1 as co-author in EMBO Reports.

-Postdoc: publication in Cell Stem Cell (IF=24.63) First Author. Outcompeting p53-mutant cells in the normal oesophagus by redox manipulation With this work I have shown for the first time, that p53 mutant cells can be depleted from tissues by redox manipulation and showing that external interventions can be used to alter the mutational landscape of an aging tissue and reduce the risk of cancer. Fernandez-Antoran, et al., 2019 Cell Stem Cell. Selected one of the best 10 papers of the year in Cell Stem Cell by readers. Prize awarded at Max Planck Institute for best talk on this work. Coauthor of 4 articles in Nature, Cancer Discovery, Nature Commun and HemaSphere.

-Development, optimisation, and implementation of cutting-edge in vitro 3D primary culture of mouse and human epithelial tissues, (briefly described in Fernandez-Antoran et al., 2019, Cell Stem Cell and manuscript in preparation to be sent for publication by mid-2022).

-Independent research, funding, and supervision as Principal Investigator. As Principal Investigator at the Gurdon Institute-University of Cambridge, where I have obtained my own independent funding, (Cancer Research UK- RadNet: 1,423,680 ; Wellcome Trust Institutional Strategic Support Fund-ISSF: 110.000 for the purchase of an ionising radiation equipment (CX3 Xstrahl cabinet); Isaac Newton-Wellcome Trust ISSF: 78.000 In vitro responses of normal epithelial tissues to ionising radiation ; Wellcome Trust-The Gurdon Institute: 115.200 , University of Cambridge-Sunway University, Malaysia: 120.000 Study of the effect of ultra-low radiotherapy doses in human nasopharyngeal carcinoma).

-International collaborations and project management. Most valuable and fruitful national and international collaborations I have established/being involved: Radiotherapy and Drug-Combinations, Emerging Radiotherapy Technologies (I am organiser and co-chairing together with Prof. Karen Kirkby from University of Manchester), - Early/Mid-career Researchers group, Gurdon-Sunway University in Malaysia, Cambridge Biorepository for Translational Medicine-Addenbrookes Hospital-Sanger Institute.

-Teaching experience. Supervisor and thesis director of two PhD students, funded by CRUK-RadNet and Pathology department: Inês Sofia dos Santos Rodrigues Ferreira. Thesis title Epithelial cell competition in the early stages of oral squamous cell carcinoma, and Ritika Nara, Thesis title "Novel treatments to shape cell competition in breast cancer patients". Member of Depart Pathology with teaching duties during two university terms. Lecturer at Physiology, Development and Neuroscience (PDN) and Zoology departments at Cell Differentiation & Organogenesis" course.

Healthy adult epithelial tissues progressively accumulate clones of cells carrying mutations implicated in cancer and some mutations can promote the growth of clones at the expenses of the non-mutated normal adjacent cells in a process of clonal competition. Treatments can act as selective pressures that affect this process of clonal competition, The main goal of my lab is to elucidate the effects of radiotherapy and chemotherapy on the competitive fitness of normal and mutant progenitor cells in both normal and tumour tissues.

Resumen del Currículum Vitae:

After completing my BSc in Biology (University of Seville), I did my PhD in Molecular Biology and Immunology at the Spanish National Centre for Biotechnology (Universidad Autonoma

de Madrid, Ignacio Moreno de Alboran s lab, Summa Cum Laude. 4 publications, 3 as first author, describing the role of the proto-oncogene c-Myc and its partner Max in B cell development and differentiation in vivo).

In 2013 I moved to Cambridge, UK to do my postdoc in Prof. Phil Jones lab (MRC-CU-University of Cambridge and Sanger Institute, Precance r and somatic mutations studies). Here I published 5 relevant articles, one as first author in Cell Stem Cell (where I described how environmental factors such as radiotherapy treatments can expand oncogenic mutations in normal tissues and increase cancer risk. I also demonstrated for the first time, that these mechanisms can be manipulated by external interventions to deplete mutations from tissues which opens a new window in cancer treatments. Selected one of best 2019 papers in the journal) and four as co-author in Nature, Cancer Discovery, Nature Commun and HemaSphere), where I contributed to understand the role of somatic mutations in normal tissues and early carcinogenesis.

I am also first and co-corresponding author of another article (manuscript in prep) where I characterise cell competition mechanisms during radiotherapy treatments. I have been external reviewer for Nature Genetics. I have developed and implemented a cutting-edge 3D-culture system of primary mouse and human epithelial cells to generate and maintain long-term, homeostatic 3D-cultures for drug screening, live imaging, cell competition, CRISPRCas9 and regeneration studies (manuscript in preparation as first author).

In 2020 I was awarded with a 1.500.000 Cancer Research UK-RadNet grant and appointed Group Leader at the Gurdon Institute-University of Cambridge where I lead the Cell Competition and Radiation Biology lab (Antoran lab: 2 PhD students, 2 postdocs and 1 research assistant). In our lab we try to understand the effects of radiotherapy and chemotherapy in tumours and normal tissues and to design novel treatments that . I have also been awarded with the Isaac Newton/Wellcome Trust grant (78.000) and the Wellcome/CRUK/Gurdon Institute grant (115.000). As member of Depart. Pathology, I lecture at the University of Cambridge (Cell Differentiation & Organogenesis). I have been able to develop and being involved in an extensive network of national and international collaborations (e.g., CRUK-RadNet, Gurdon-Sunway University in Malaysia, Radiotherapy and Drug-



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Combinations, Emerging Radiotherapy Technologies, Gurdon-Sanger-NHS Addenbrookes hospital) that helps me to achieve outstanding projects, gain visibility and increase my options of getting access to several sources of funding such as 2023 ERC consolidator program.



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	MEREU , ELISABETTA
Referencia:	RYC2021-032359-I
Correo Electrónico:	emereu@carrerasresearch.org
Título:	Targeting inflammation in the era of single-cell genomics
Descussion de la Massa	•

Resumen de la Memoria:

I hold a Master of Science in Mathematics (2009, University of Cagliari, Italy) and PhD degree in Statistical Genetics at the Microcitemico Pediatric Hospital within the same university (2015).

In 2016, I joined the Spanish Centre for Genomic Analysis (CNAG-CRG), where I spent almost 5 years as postdoc of Dr. Holger Heyn, a pioneer in the implementation of single-cell genomics. My postdoctoral research focused on the analysis of gene measurements coming from individual cells, with the aim to understand regulatory mechanisms driving the cellular diversity of complex tissues. To address biological questions, I apply and develop machine learning methods and other computational tools specifically designed for single-cell data. As an example, I developed matchSCore2, one of the first reference-based classifiers for the automatic annotation of cell-types. I worked on a wide range of projects in collaboration with national and international consortia, such as the Human Cell Atlas (HCA). As a member of the HCA, I led the computational analysis of the largest multicentre benchmarking of single-cell platforms. I am now extending this work on multimodal sequencing technologies to evaluate reproducibility and complementarity across these methods. I am also an active member of the Human Pancreas Atlas, where I am leading the analysis for the generation of the first Pancreas Atlas.

During my postdoc, I published more than 15 articles, 4 as a first author, in high-ranked scientific journals including Nature Biotechnology, Cell Stem Cell, Genome Biology. My postdoctoral work has also been recognized with the prestigious Juan de la Cierva-Incorporation Grant.

Since 2021 I am the leader of the Cellular Systems Genomics Group at the Josep Carreras Research Institute of Barcelona, where I also support the Single Cell Unit in the design of new experiments and data analysis. As a group leader, I aim to advance the clinical management of patients and identify novel targets for drug development in autoimmunity and other inflammatory disorders. By adopting a single-cell perspective and a multidisciplinary approach, we strive to offer new analytical frameworks and creative uses of single-cell multiomics to discover new regulatory mechanisms underlying complex inflammatory processes.

I strongly believe that my experience as a researcher together with my multidisciplinary background will give immediate and transformative benefit to biomedical research, resulting in a more creative and innovative way to tackle clinical and biological questions.

Resumen del Currículum Vitae:

Elisabetta Mereu
URL for web site: https://www.carrerasresearch.org/en/cellular-systems-genomics_169432
EDUCATION
2015 PhD in Statistical Genetics
Microcitemico Pediatric Hospital, University of Cagliari, Italy.
Graduated with "excellent" degree.
2009 MSc in Mathematics
Graduated with "cum laude" honours.
University of Cagliari, Italy.
2007 BSc of Mathematics
University of Cagliari, Italy.
2021 Group Leader
Cellular Systems Genomics Group, Josep Carreras Leukemia Research Institute, Badalona, Spain.
PREVIOUS POSITIONS
2016 2020 Postdoctoral Fellow
Single Cell Genomics Team, National Centre for Genomic Analysis (CNAG-CRG), Barcelona, Spain.
2014 2015 Visiting PhD student
Baranzini Lab, Department of Neurology, University of California San Francisco (UCSF), USA.
2013 2015 PhD student
Institute of Genetics and Biomedical Research, National Research Council (IRGB-CNR), Monserrato, Italy.
2012 2015 PhD student
Department of Medical Genetics, Microcitemico Pediatric Hospital, University of Cagliari, Italy.
2011 Data Analyst
Institute of Population Genetics, National Research Council (IGP-CNR), Li Punti, Italy.
2004-2005 Undergraduate Erasmus program student
Department of Mathematics, Louis Pasteur de Strasbourg University, Strasbourg, France.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

FELLOWSHIPS AN	ID AWARDS
2020 Juan de	la Cierva Senior Postdoctoral Fellowship.
2017	Award for the best selected abstract at "Statistical Challenges in single-cell biology" Workshop, Monte Verità, Ascona,
Switzerland.	
2012 2015	PhD Scholarship, Department of Medical Genetics, University of Cagliari, Italy.
2004 2005	Scholarship, Department of Mathematics, Louis Pasteur de Strasbourg University, Strasbourg, France.
	GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS
2021 Supervis	sion of 4 PhD students and 2 bioinformaticians
TFACHING ACTIVI	ITIFS
2020. 2021	Workshop - Introduction to the analysis of Single Cell Genomics data. Master in Bioinformatics and Personalized Medicine. Spanish
National Cancer C	Centre (CNIO), Madrid, Spain.
2020 Worksh	op - Single Cell Genomics, Master in Bioinformatics, University Pompeu Fabra, Barcelona, Spain.
2017 Worksh	op - Single Cell Genomics, Course for PhD students, Centre for Genomic Regulation (CRG), Barcelona, Spain.
ORGANISATION O	OF SCIENTIFIC MEETINGS
2022 Co-orga	inizer of the 1st Single Cell Genomics Symposium of Barcelona, 150 participants.
INSTITUTIONAL R	ESPONSIBILITIES
2021 PhD The	esis committee member, University Pompeu Fabra Barcelona (UPF), Barcelona.
2020-2021	Reviewer Panel Member, Postgraduate Program in Biomedicine, University Pompeu Fabra (UPF), Barcelona, Spain.
Reviewe	er of several scientific journals: Nature Riotechnology Nature Communications, Genome Riology, el ife, Rioinformatics, NAR
Keviewe	er of several sciencing journals. Nature biotechnology, Nature communications, Genome biology, etire, bioinformatics, NAR.
MAJOR COLLABO	RATIONS
- Muzz Ha	aniffa - Newcastle University, Wellcome Sanger Institute, UK.
- Maria K	asper - Karolinska Institute, Stockholm, Sweden.
- Salvado	r Aznar - Institute of Biomedical Research of Barcelona (IRB), Spain.
- Holger H	Heyn - National Centre for Genomic Analysis (CNAG-CRG), Barcelona, Spain.
- Joshua L	Levin - Broad Institute of MIT and Harvard,Cambridge, MA, USA.
- Christian	n Conrad - Berlin Institute of Health (BIH) and Charité, Germany.

- Maria Londoño - August Pi i Sunyer Biomedical Research Institute (IDIBAPS), Barcelona, Spain.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	
Nombre:	
Referencia:	
Correo Electrónico:	
Título:	

Biomedicina WRIGHT , RONI

RYC2021-030923-I roni.wright@crg.es

Validación de la activacion de NUDT5/NFkB en la angiogénesis del cáncer de mama metastásico.

Resumen de la Memoria:

Con más de 10 años de experiencia postdoctoral previa (CRG, Barcelona) y luego como científico de plantilla (CRG) y profesor colaborador (UIC, Barcelona), he publicado artículos científicos en las revistas de mayor impacto del mundo, he sido ponente invitado en congresos internacionales y obtuve premios por mis artículos científicos publicados y habilidades de presentación. Mi investigación se centra en comprender el mecanismo de la progresión agresiva del cáncer y la metástasis con la esperanza de desarrollar nuevos objetivos terapéuticos para los pacientes. Descubrí un mecanismo novedoso en el que la fuente de energía de la célula (ATP) se genera en el núcleo de las células cancerosas independientemente de las mitocondrias. Este trabajo fue, y es, un cambio de paradigma y tardó más de 2 años en publicarse en Science, lo que demuestra mi determinación y fortaleza como investigadora. Me apasiona buscar una posición independiente, con ideas propias nuevas y perspicaces y con este apoyo podré continuar el trabajo que he comenzado. Continuaré con mis colaboraciones internacionales (grupos en el Instituto Karolinska, MIT, CNIO y Universidad de Harvard). Creo firmemente dada mi trayectoria; asesorando y gestionando los proyectos de 12 estudiantes de pregrado que tengo el potencial y las habilidades necesarias para sobresalir como líder de grupo. Ahora más que nunca, los investigadores deben ser conscientes no solo de la ciencia, sino también de las implicaciones para la sociedad y la comercialización. Además de la excelencia científica, también pasé 2 años trabajando en la transferencia de tecnología durante mi carrera, donde obtuve el conocimiento de la protección de la PI, las estrategias de comercialización y las oportunidades de financiamiento que me darán una ventaja como líder de grupo junior. Participo regularmente en actividades de divulgación científica para el público. Como madre de tres niños pequeños, sé y entiendo la importancia de la gestión del tiempo y el trabajo eficiente y ahora más que nunca siento la importancia de retribuir a la sociedad. Mi propuesta de investigación se basa en mis hipótesis y líneas de investigación, y en pruebas preliminares convincentes utilizando modelos validados de células madre de cáncer. El objetivo es estudiar el papel de NUDT5 y su efecto sobre la expresión del gen diana de NFkB en la angiogénesis. Este trabajo puede proporcionar información sobre el mecanismo de progresión del cáncer metastásico para ayudar a los pacientes con cáncer en el futuro.

Resumen del Currículum Vitae:

Después de mi doctorado, trabajé como postdoctorado y luego como científico de planta en el laboratorio de Miguel Beatos (CRG), donde mi trabajo se centró en examinar el posible papel de PAR en la activación transcripcional inducida por hormonas. Descubrí que la progestina induce la fosforilación de la polimerasa PAR (PARP1) mediada por CDK2, lo que da como resultado un aumento rápido en los niveles de PAR nuclear. (Genes y Dev 2012). Esto allanó el camino hacia un avance verdaderamente importante en nuestra comprensión de la fuente de ATP nuclear para satisfacer las grandes demandas de energía de la activación de la transcripción. En un artículo histórico publicado en Science en 2016. Este mecanismo inesperado para la generación local de ATP en el núcleo celular resultó ser esencial para una respuesta rápida a los estímulos y la generación de células madre cancerosas (Wright et al 2019, Pickup et al 2019) y también abrió oportunidades para la intervención en el cáncer. De hecho, los fármacos inhibidores de NUDIX5 y enzimas relacionadas pueden comprometer el crecimiento de células de cáncer de mama, un área en la que me gustaría seguir trabajando activamente con mi proyecto de investigación propuesto, pero también a través de mis colaboraciones con biólogos estructurales y químicos en Barcelona y en el Instituto Karolinska (Nature Com 2018 y Cánceres 2019) y con Jaoquin Pastor en el Programa de Terapéutica Experimental del CNIO (Madrid). Desempeñé el papel principal en estos importantes hallazgos y desarrollos posteriores, que han abierto una nueva área de investigación con muchas ramificaciones. No solo soy un diseñador y ejecutor de experimentos dedicado y riguroso, sino una fuerza intelectual clave detrás de mis proyectos con la capacidad de formular hipótesis y probar nuevas ideas.

Durante mi carrera de posdoctorado, he sido mentor de varios estudiantes de pregrado y maestría, lo que resultó en publicaciones de primer autor para los estudiantes y la autoría correspondiente para mí. Estos estudiantes han ganado puestos de doctorado en excelentes centros de investigación, espero que con la ayuda de las habilidades científicas y de enseñanza que les he dado. Además, he impartido clases de Microbiología, Inmunología y más recientemente Biología Humana en la UIC.

A medida que crecía mi proyecto sobre NUDT5, fui muy consciente del aspecto traslacional del trabajo y, dado esto, solicité y obtuve el puesto de transferencia de tecnología durante 2 años en el CRG. Puesto voluntario donde trabajé para la unidad de transferencia de tecnología, evaluando nuevos descubrimientos en todo el CRG en términos de potencial de comercialización. Investigar el espacio potencial para un producto, el nivel de posible protección de la propiedad intelectual e identificar, reunirse y presentar propuestas a KOL e inversores potenciales. En cuanto a la financiación me concedieron el Commercialization Gap Fund financiado por CRG (dos veces) para apoyar mi proyecto (75.000Euros), la beca MIT-Caixa (con el laboratorio de William Thilly en el MIT), la beca Producte-AGAUR (100.000Euros) y yo era el científico principal en la subvención ERC Proof of Concept. Como presentador ganador de un premio, he utilizado estas habilidades para retribuir a la comunidad científica, impartiendo cursos sobre habilidades de presentación oral, gestión del tiempo y desarrollo profesional. Me apasiona la actividad de divulgación científica y participar en actividades de participación





Área Temática:	Biomedicina
Nombre:	ESTERAS GALLEGO, NOEMI
Referencia:	RYC2021-034267-I
Correo Electrónico:	noemiesteras@hotmail.com
Título:	Mitochondrial signalling in tauopathies
Resumen de la Memoria:	:

My main scientific interest is the study of the molecular mechanisms leading to pathology in neurodegenerative disorders (NDDs), and particularly in the ones where tau protein plays a role (tauopathies), such as Alzheimer's disease and frontotemporal dementia. To date, no cure is available for most NDDs, therefore understanding their pathogenesis is crucial to find biomarkers for an early diagnosis and effective treatments.

In my PhD (2008-2012), carried out in the Centre for Biological Research (CIB-CSIC) in Madrid holding a competitive JAE-Predoctoral Fellowship, I studied the role of cell cycle alterations as triggers for neurodegeneration in Alzheimer's disease (AD), and explored the signalling pathways that control cell cycle progression and survival in this disorder. I used as main cellular model peripheral cells (lymphocytes) from AD patients and transgenic mice, validating the use of this tissue to find biomarkers, and proposing a major role for Ca2+/calmodulin pathway in the pathogenesis of AD; and calmodulin itself as a specific biomarker.

The research work done in my PhD showed the altered pathways controlling cell cycle in AD converged at three major pathways: mitochondria, oxidative stress and calcium signalling. In 2014 I joined Prof. Andrey Abramov s lab in the UCL Queen Square Institute of Neurology in London as a postdoc, funded by a competitive Martin-Escudero Postdoctoral Fellowship, to delve deeper in the study of the interaction of these pathways in the pathogenesis of neurodegeneration. During these years, I have developed an expertise in live-cell imaging and other state-of-the-art techniques such as the generation of iPSC-derived neurons from patients as models of disease. In recognition of my merits, in 2019 I was promoted to Senior Research Associate by the UCL Faculty of Brain Sciences.

My work with different models of NDDs such as amyotrophic lateral sclerosis, tau-related frontotemporal dementia or Parkinson s disease has proved that the mechanisms leading to mitochondrial dysfunction and its consequences are disease-specific, thus allowing tailored therapeutic approaches. I am especially interested in the pharmacological activation of the Nrf2 pathway as a therapeutic target for NDDs, with a particular emphasis on its recently recognized role in metabolism and mitochondrial bioenergetics.

A central part of my research in the last years has focused on tau pathology, exploring the role of both extracellular and endogenous tau protein in mitochondrial and calcium signalling dysfunction. My latest works have shown that mitochondrial ROS are a key event in the mechanism of neurodegeneration induced by tau, and that, through them, mitochondria are able to modulate glutamatergic signalling in neurons (Esteras 2017, Redox Biology, IF 11.8; Esteras 2021, Alzheimers Dement, IF 21.56). In addition, in a study where I am co-senior author, we have described for the first time that tau is able to alter mitochondrial calcium homeostasis in both neurons and astrocytes by inhibiting mitochondrial calcium efflux through NCLX (Britti et al., Cell Calcium 2020, co-senior author, IF 6.82). These works, which I have led, indicate my potential to conduct independent research and serve as the basis for my future research plan, in which I aim to consolidate my current knowledge and line of work.

Resumen del Currículum Vitae:

In 2007 I graduated in Pharmacy with first-class Honours from Complutense University (Madrid, Spain), obtaining an Extraordinary Degree Award Abilio Rodriguez-Paredes . During the degree, I was awarded with an Excellent Academic Performance Scholarship and a Research Collaboration Scholarship, which allowed me to come in contact with scientific research as an intern in the Department of Biochemistry and Molecular Biology.

In 2008 I gained a competitive JAE-CSIC Predoctoral 4-year Fellowship to carry out a PhD in the Centre for Biological Research (CIB-CSIC, Madrid) under the supervision of Dr. Angeles Martin-Requero. My work focused on understanding the role of cell cycle alterations as triggers of neurodegeneration in Alzheimer s disease. My thesis earned an Extraordinary Thesis Award Fundación Rafael Folch given by the Faculty of Pharmacy of the Complutense University to the best theses that year. In 2014 I joined Prof. Abramov s group in UCL Queen Square Institute of Neurology, London. The first twoyears of my postdoc were funded by a competitive Martin-Escudero Postdoctoral Fellowship. In 2019 I was promoted to Senior Research Associate by the UCL Faculty of Brain Sciences. As part of my training, I have also done international short stays, in 2010 in Weill Cornell Medical College and in 2018 in NYU College of Dentistry, both in New York.

My line of work focuses on studying the interplay of mitochondrial dysfunction, oxidative stress and calcium deregulation in the pathogenesis of neurodegenerative disorders. My publication record shows a consistent scientific production throughout the years, with 33 original research articles, most in Q1 (12 first author, 10 second author, 1 co-senior author, 6 corresponding), 4 reviews (3 first author, 1 second author) and 1 book chapter, and an H-index of 16. Publications as first author include journals with a high impact such as Cell Death & Differentiation, Redox Biology or Alzheimer s & Dementia. Most of my research has involved critical cross-disciplinary international collaborations and I have taken part in several collaborative projects independently. I have participated in 11 International Conferences since 2014, being selected for oral presentations in 2 of them. Additionally, I was invited to the Second Russian International Youth Forum Science of the Future in Kazan, Russia, in 2016; and to present my work and coordinate a workshop in the Junior Leaders session of the Mitochondrial and ROS signalling Training School in Kuopio, Finland, in 2018.

I have also trained and co-supervised undergraduate, master students, and visitor PhD students, leading to the publication of several articles, one of them as a co-senior author. In addition, I have contributed to the functioning of different intra-departmental and cross-departmental facilities, being the manager of the Tissue Culture and Confocal Microscopy Facilities for the last years.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I participate regularly as a reviewer in journals such as Febs Journal, Molecular Neurobiology or Medicinal Research Reviews and as an Evaluator for La Caixa Foundation since 2019.

I am the main researcher in an ongoing UCL-industry collaborative project with a USA-based industry partner, REATA Pharmaceuticals, that started 6 years ago, and have been a participant in national (5) and EU competitive projects (H2020-EU Innovative Medicines Initiative).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	OLLER PEDROSA, JORGE
Referencia:	RYC2021-033343-I
Correo Electrónico:	jorge.oller@csic.es
Título:	New biomarkers and targets in cardiovascular diseases

Resumen de la Memoria:

During his PhD. Jorge, has published as first author two different prestigious papers, in Molecular and Cellular Biology in 2015 (Impact Factor: 4.427); and in Nature Medicine in 2017 (Impact Factor: 32.621). Moreover, in this period of time, Jorge has published as co-author in 4 different papers (Baggot et al. ATVB 2014 (Impact Factor: 6.0); Kurusamy et al. Heart 2014 (IF: 5.532; Baggott et al. Heart 2014 (IF: 5.532); De Carcer et al. Nat Med. 2017 (IF: 32.621)). Currently, during this two years of Post-doc training; has three papers as co-author in Science (Second author, IF: 41.037), ATVB (IF:8.31) and FEBS letters (IF: 2.675) and one under second revision in Sci Adv (IF 14.41). Furthermore, in an aim to stablish his own research line and based in his experience and the background of Dr. Mittebrunn lab; he is addressing the role of the vascular metabolism in different aortic aneurysm diseases. This results give rise to a new manuscript that Jorge signs as first author and co/corresponding (Circulation, 2021 IF: 29.69) and another one under second revision, Jorge sings as first and co/corresponding author (ATVB2022). Moreover, Jorge have just received a project as PI from V-Ayudas a la investigación, Muévete por los que no pueden and a adward Premios PNIP al major artículo científico del 2021 by his paper in Circulation.

His wide experience in technology transfer approaches is reflected by the fact that both during his PhD and now during this two years of postdoctoral period give rise to two different patents (US20210363501, PCT/ES2021/070638). During this time, he has obtained his teaching skills, corroborated by the co-direction of 5 students (2 master students; marked with 10/10, 2 undergraduates, 1 doctorate thesis) during their degree projects. Moreover, Jorge has been involved as a docent in two consecutive years in four different subjects, from the degrees of Biology, Biochemistry and Food Science and Technology at UAM.

The summary of general quality indicators of his efficient scientific research productivity; are:

ORCID ID: 0000-0002-2224-2954 Scopus Author ID: 56327113600 Total publications: 10; 2 more under revision Sum of times cited: 352 Average citations per item: 35,2 Principal Author in 3 publications; 1 more under revision as co-corresponding 8 in Q1 2 in D1 6 authinations in Tan2 Journal in their respective extension

6 publications in Top3 Journal in their respective category.

Resumen del Currículum Vitae:

Jorge studied Biochemistry (2005-2010) and Biology (2005-2011) degrees at the Universidad Autónoma de Madrid. In 2007, he was granted by a "JAE-Summer Program" fellowship from the Consejo Superior de Investigaciones Cientí ficas Ramón y Cajal (CSIC). Jorge carried out his Final Degree Project under the supervision of Dr. Marcos Malumbres in Centro Nacional de Investigaciones Oncológicas, CNIO, Madrid, Spain; obtained the highest mark. In 2010, he received a "Summer Program" fellowship awarded on the bases of academic grades to work in the Centro Nacional de Investigaciones Cardiovasculares, Madrid, Spain. Later on, his PhD was carried out by a grant FPI from Ministerio de Ciencia e Innovación. In 2017, he obtained his PhD degree by Universidad Autónoma de Madrid obtaining the highest mark Sobresaliente Cum Laude . The results from his doctoral thesis give rise to two original articles Oller et al., MCB 2015, and Oller et al., Nat Med 2017. The relevance of the Nature Medicine article, is reflected in the fact that was highlighted by Science. Moreover, these results led to a technology transfer activity formalized in the patent requested in 2016. In collaboration, Jorge has published two additional articles published in ATVB (Baggot et al. 2014) and Nature Medicine (De Carcer et al. 2017). His collaborative spirit allows him to establish collaborations with different international groups of excellence such as the Centro Nacional de Investigaciones Cardiovasculares (CNIC), the Centro Nacional de Investigaciones Ongológicas (CNIO); Hospital Universitario Fundación Jiménez Díaz in Spain, Texas University in Houston, USA; and Wolver Hampton University in the UK. He has remarkable communication skills as corroborated in an invited national and international conferences organized by ECCR and Sociedad Española de Aterosclerosis in UK and Madrid 2020-21, Max Plank Institute in Germany 2016 and International Vascular Biology Meeting in Kyoto, Japan 2014. Dr. Jorge Oller joined the Immunometabolism and Inflammation lab at the Centro de Biologia Molecular Severo Ochoa (CBMSO). In November 2018, Jorge was granted by the competitive Postdoctoral -grant Juan de la Cierva Formación. During this two years, Jorge has make important contribution to two different research lines. First, assessing how manipulating immunometabolism could improve clinical interventions in inflammation and agerelated pathologies. This work give rise to a manuscript that is published in Science, and in which Jorge appears as a second co-author (Desdin-Mico et al., Science 2020) and a review article (Soto-Heredero G. et al. in FEBS letters Journal). Second, he started his own research line aim at addressing the role of vascular metabolism in aneurysm diseases. These results give rise to a new manuscript (Oller et al. 2021, Circulation) and Oller et al. ATVB as co-correponding author. In addition, due to the therapeutically potential of these results, the procedure to get a patent has been already started while the manuscript is in revision. Recently, Jorge have just received a project as PI from V-Ayudas a la investigación, Muévete por los que no pueden and a adward Premios PNIP al major artículo científico del 2021 by his paper in Circulation. Dr. Jorge have obtained the competitive Postdoctoral Juan de la Cierva Incorporacion in 2021.





Área Temática:	Biomedicina
Nombre:	TEJEDOR VAQUERO, JUAN RAMON
Referencia:	RYC2021-031799-I
Correo Electrónico:	juanramon.tejedor@gmail.com
Título:	Multi-omics approaches to unravel the molecular vulnerabilities of human diseases

Resumen de la Memoria:

I am a biochemist who has dedicated his scientific career to the development of state-of-the-art molecular approaches to better understand human health and disease. I have been fortunate to have great mentors and collaborators throughout my career at leading international institutions (CRG: Juan Valcarcel; CNIO: Francisco X. Real & Nuria Malats; CSIC: Mario F. Fraga) who have provided me with a solid, multidisciplinary background in molecular, cellular and computational biology respectively. During my Ph.D at CRG I developed two important high-throughput molecular screening platforms for the discovery of regulators of alternative splicing in cell proliferation and apoptosis. Motivated by the rapidly evolving trend of science towards multidisciplinary biology, I complemented my postdoctoral formation at CNIO, where I gained bioinformatic and epidemiologic skills on the molecular diagnosis of human cancer. Since 2017 I secured two highly competitive postdoctoral positions (JdCF, JdCI) at the Cancer Epigenetics lab (ISPA/FINBA/IUOPA/CINN-CSIC) and worked at the crossroads of aging and cancer to unravel the existing connections between the epigenome and the transcriptome, aiming to identify therapeutic and diagnostic targets of multiple malignancies. These strategies have proven useful in determining tumor subtype specific signaling pathways, which constitutes one of the cornerstones of personalized medicine nowadays.

My current research line aims to identify molecular vulnerabilities of human disorders at multiple levels (genomic, epigenomic, transcriptomic and proteomic) through integrative analyses of multiple -omic layers and the use of elegant high-throughput screening strategies, with special emphasis on cancer research. In particular, I will pursue the following goals:

1. Step-wise identification of molecular vulnerabilities in the adenoma to carcinoma sequence through human organoid based models as a paradigm of tumor initiation.

2. Identification of molecular biomarkers with diagnostic potential on difficult to diagnose human cancers.

The results of my research activity (21 manuscripts, 11 as lead author) have been published in flagship journals of multiple disciplines (Mol cell, Aging Cell, Blood, J Clin Invest, Mol Biol Evol, Mol Metab, Int J Cancer) and have stimulated important scientific discussions at top-tier international conferences (CSHL, EURASNET, ISEH), including the participation on fruitful international collaborations (ERC & NextGenerationEU funded), demonstrating the relevance and the impact of my work. In addition, I obtained competitive funding from public and private sources (ISCIII, Jannsen) and contributed to the supervision of trainees (7), master (3) and Ph.D students (1). These leadership skills represent an ideal soil for developing cutting-edge science as independent RyC fellow and achieving ambitious discoveries to counteract human disease.

Resumen del Currículum Vitae:

I studied biochemistry at the University of Oviedo (2002-2007) and obtained my Ph.D in Biomedicine from the Pompeu Fabra University (2008-2014) for work carried out at the CRG (Juan Valcarcel s lab), where I contributed to the alternative splicing (AS) field with two remarkable high-throughput screen methodologies. These works described in unprecedented detail the functional entanglement between components of the core spliceosome machinery (25482510), disclosed a novel method for the genome-wide identification of factors involved in the modulation of AS events associated with human disease (25482508), and secured a European patent (EP3029149B1).

Motivated to translational research, in 2016 I joined the labs of Dr. Francisco X. Real and Dr. Nuria Malats at CNIO, where I gained further experience in epidemiology and the molecular diagnosis of human cancer. This interlude aroused my enthusiasm for the field of cancer research and in 2017 I joined the laboratory of Prof Mario F. Fraga (FINBA - ISPA) to gain further insights into the epigenomic regulation of tumor cells. Since then, I have made a significant effort to profile the epigenetic alterations that occur in aging and cancer in multiple tissues (29504244) and I have also explored the extent of conservation of these processes in humans and mice (33871658), providing a rationale for the discovery of therapeutic targets of human cancer / age decline (28590035). I have also participated in a fruitful international collaboration (ERC) to decipher the molecular mechanisms involved in the development of infant BCP-ALL (29620943, 31221673). Using integrative multi-omic approaches, we have revealed some cancer cell vulnerabilities that may be exploited to treat patients with dismal prognosis (33983906). These studies have set up the basis for the development of my emergent research line, which is focused on the generation of state-of-the-art molecular tools to unravel the role of different epigenetic marks in the control of gene expression, as well as the integration of NGS technologies to infer functional connections and support the discovery of novel biomarkers in human diseases.

My research trajectory has been deeply influenced by important associations of cancer patients (AECC, Galban) and I am currently leading a research line focused on the identification of functional epigenomic alterations in cancer (Jannsen). In 2019 I joined CIBERER as an Associate researcher (U766), where I give support to explore the multi-omic aspects of rare diseases. Since the COVID19 outbreak, I had the opportunity to obtain competitive funding and joined the PTI Salud Global Initiative (CSIC). Given my previous knowledge as a biochemist, I am collaborating in the development of novel diagnostic tools for the identification of viral pathogens (ISCIII and FG-CSIC).

To date, I have authored 21 papers (11 as lead author / co-first author at top-tier journals), and have supervised a total of 11 students (3 TFG, 3 TFM and 1 Ph.D student). Of these, 8 are currently doing their Ph.D at prestigious national institutions (UNIOVI, CNAG-CRG, FISABIO-UV, IRB) and 3 are working at biotech companies. In addition, I also participate in international peer-review activities for the journals Brain, NAR genomics and bioinformatics, Frontiers (Immunology, Oncology, Molecular Biosciences), Cell Commun Signal and Sci Rep.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:BiomedicinaNombre:VAQUERO RODRIGUEZ, JAVIERReferencia:RYC2021-034121-ICorreo Electrónico:javiervr84@hotmail.comTítulo:New approaches to understand and target the intercommunication between tumor and stromal cells incholangiocarcinomaVacues and target the intercommunication between tumor and stromal cells in

Resumen de la Memoria:

Liver cancer includes hepatocellular carcinoma (HCC) and cholangiocarcinoma (CCA), which are important causes of cancer-related death worldwide. Although surgery is potentially curative for patients with localized disease, these tumours are often in an advanced stage at the time of diagnosis, when surgery is no longer the recommended approach. Palliative treatments with targeted therapies (sorafenib) for HCC or traditional chemotherapeutic agents (gemcitabine and cisplatin) for CCA show very low efficacy and normally no relevant survival benefit is obtained. This high refractoriness is due to the interaction of very complex and diverse mechanisms of chemoresistance that usually act synergistically to protect tumour cells from the chemotherapeutic challenge.

Cancer is no longer considered as a unique cellular entity composed only by tumour cells. In this line CCA is characterized by a prominent desmoplastic stroma, which is mainly composed of canceras-sociated fibroblasts (CAF) that had been linked to poor prognosis in patients. Furthermore, approximately 30% of the tumour cells express cancer stem cell (CSC) markers in CCA. Most of these CSC express epithelial and mesenchymal features and display expression of epithelial to mesenchymal transition (EMT) markers, justifying CCA aggressiveness and resistance to therapeutic agents.

During my period as a postdoctoral researcher at Saint-Antoine Research Centre (CRSA) in Paris (France), I have demonstrated that CAF from CCA are able to promote resistance to targeted therapies by providing tumour cells with the necessary soluble factors to activate key signalling pathways involved in the maintenance of a highly chemoresistance EMT/CSC state. In this line, I have shown that invalidation of the master EMT inducing transcription factor, ZEB1, in stromal fibroblasts, hampers the secretory ability of these cells, impairing CCA progression, and sensitizes them to current therapeutic drugs, such as gemcitabine and cisplatin.

When I moved back to Spain in 2019 after a long postdoctoral stay, I chose the TGF-beta and Cancer group at IDIBELL (Barcelona), where I am currently principal investigator, because it provided me with the perfect opportunity to put to use all my interests and previous expertise. It offers me a rich environment with an empty niche focused in CCA research, and the TGF-beta-NOX4 axis, a rather understudied signalling pathway in CCA with important ramifications at the tumor cell and stroma level. More importantly, once its role in CCA progression is properly understood it may impact patient care thanks to its targetable character and available inhibitors.

Resumen del Currículum Vitae:

My scientific trajectory started in 2005 when I entered the group led by Dr. J.J.G. Marin at University of Salamanca (Salamanca, Spain) as an interim student to then perform my PhD Thesis, that I obtained in 2013. During this period, I started my path in the study of the mechanisms of chemoresistance of liver tumours by investigating the role of FXR and its isoforms in the activation of response mechanisms to chemical aggression by genotoxic compounds.

Due to my interest in chemoresistance and liver physiology, in 2014 I move to the laboratory of Dr. Laura Fouassier at Saint-Antoine Research Centre (Paris, France) for a postdoctoral stay, to improve my technical skills and broaden my thinking. During this time, I specialized myself in the study of cholangiocarcinoma (CCA), a very aggressive and desmoplastic liver tumor derived from the biliary tree. My research demonstrated that cancer associated fibroblasts (CAF) from CCA are able to promote resistance to targeted therapies by providing tumour cells with the necessary soluble factors to activate key signalling pathways involved in the maintenance of a highly chemoresistance EMT/CSC state. Furthermore, I started a research line focused on studying the role of the EMT inducing transcription factor ZEB1 in the crosstalk between tumor cells and CAF, showing that these factors have important roles in all cells inside the tumor and may have a role in reprograming the entire stromal compartment through regulating the expression of soluble signals in late stages of cancer to help tumour growth, dissemination and chemoresistance.

In 2019 I moved to the TGF-beta and Cancer group at IDIBELL (Barcelona, Spain) with the intention of taking a further step in my career by becoming an independent researcher and, in the future, establish my own group. I am currently a principal investigator working in understanding the role of the TGF-beta-NOX4 signalling axis in the interaction of tumor and stromal cells and how this interaction affects to CCA progression and chemoresistance.

During these years I have published 29 articles (18 original articles, 7 reviews 4 editorials/commentaries), accumulating 1677 references and h-index of 17 and i-index of 22; I have directed 1 PhD student (another one is ongoing) and 6 Bachelor/Master Students (3 more are ongoing); I have participated in 13 research projects (2 as principal investigator); and I have established international collaborations thanks to my participation in the European Network for the Study of Cholangiocarcinoma (ENS-CCA).



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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	REGLERO REAL, NATALIA
Referencia:	RYC2021-031221-I
Correo Electrónico:	nregleroreal@gmail.com
Título:	Imaging the Molecular Processes of Inflammation: Novel roles for Autophagy Pathways

Resumen de la Memoria:

I am fascinated by the power imaging methodologies provide to answer complex biological questions. Throughout my career, I have applied cuttingedge microscopy techniques to unveil the molecular mechanisms regulating the process of inflammation, particularly tissue recruitment of immune cells from the blood circulation and vascular permeability. These are critical components of the innate immune response against injury and infection, but when dysregulated, inappropriately triggered or prolonged, can lead to the development of numerous pathologies, including highly prevalent cardiovascular and metabolic conditions as well as tumor progression.

The focus of my PhD work (Madrid, Spain) was to investigate the molecular mechanisms that mediate immune cell interactions with epithelial barriers following leukocyte exit of blood vessels. Through diverse in vitro high-resolution and live cell imaging techniques, I revealed that apicobasal polarity regulates the interactions between epithelial and immune cells during liver inflammation (Reglero-Real et al., Cell Reports, 2014). Throughout this time, I also collaborated in numerous other projects, leading to 11 additional peer-reviewed publications. Driven by a desire to expand my imaging background, I moved abroad as a postdoctoral researcher (London, UK) to become an expert in the highly specialised technique of real-time 4D confocal intravital microscopy. This is currently the most advanced technique to image inflammatory events in vivo, most notably neutrophil migration through the endothelial cell (EC) monolayer of blood vessels. My work has led to the identification of the fundamental homeostatic and degradative pathway autophagy, within ECs, as the molecular basis for termination of neutrophil tissue recruitment in response to acute physiological inflammation (Reglero-Real* et al., Immunity, 2021). Crucially, we have unveiled non-canonical autophagy mechanisms operate in inflamed ECs and control neutrophil trafficking in vivo. Collectively, these results are of fundamental importance and absolute scientific novelty to the fields of vascular biology, leukocyte trafficking and autophagy, hence opening up numerous future avenues of research and paving the way for novel therapeutic strategies to control inflammatory diseases. To bring this project to successful fruition, I set up multiple national (UK) and international (EU, US, Japan) collaborations, managed a research team and developed novel ad-hoc imaging methodologies, such as a 3D Correlative Light and Electron Microscopy to analyse the ultrastructure of venular ECs in murine tissues. Doing so, I have established a completely new line of research that is clearly distinct from my supervisor's current and future research interests, showing my ability to develop independent research as supported by my co-corresponding authorship in our latest publication.

As an independent investigator, I aim to establish a novel research program that will capitalize on my 4D in vivo imaging expertise and the recently developed single cell spatial-omics techniques to better understand the molecular and functional interplay between canonical and non-canonical autophagic pathways in the context of EC inflammation biology, a completely unexplored area of research, and to establish its relevance in chronic inflammatory and aging-associated pathologies.

Resumen del Currículum Vitae:

I obtained my PhD in Biomedicine from the Universidad Autónoma de Madrid (UAM) in 2013, training as a cell biologist under the supervision of Dr. Jaime Millán and Prof. Miguel A. Alonso, experts in inflammation biology and membrane trafficking, at the Centro de Biología Molecular Severo Ochoa. In 2014, I joined as a postdoctoral fellow the laboratory of Prof. Sussan Nourshargh (William Harvey Research Institute, WHRI; Queen Mary University of London, QMUL), a world-wide expert in the study of neutrophil-vessel wall interactions in vivo through 4D imaging of inflamed tissues. During both research periods my work has focussed on topics that were not the primary expertise of the laboratory. This has represented a big challenge but also a great fulfilment when seeing the achievements accomplished (publications in prestigious journals as a first author in both stages and even as a cocorresponding author in the last one). In order to take my projects forward, I had to establish multiple national and international collaborations, gain expertise in a broad range of experimental techniques, tackle complex biological questions from molecular and physiological angles and deal with the publishing process of the most highly demanding journals. Overall, I have published a total of 18 research items, including book chapters, scientific reviews and research articles in well-recognized journals (Immunity, Nature Cell Biology, Cell Reports, Journal of Cell Biology) and contributed as first author to 7 of them and to 3 as corresponding author. My h-index is 12 and my research holds a total of 787 citations (G. Scholar). During my career I have been awarded several fellowships, including 2 Introduction to Research fellowships, a JAE pre-doctoral fellowship and a short-term scholarship to visit Yale School of Medicine from CSIC; a Marie Curie CoFund postdoctoral fellowship from the EU and a María Zambrano Grant for the Attraction of International Talent (UAM). I have presented my work as first author at 14 international and national meetings (recently as an invited speaker at the French Society of Immunology Meeting in Paris, with >600 attendees) and have been awarded multiple prizes. Further evidence of my leadership skills has been the ability to supervise junior colleagues, helping them to grow scientifically and to acquire the skills for answering interesting and important research questions. In total, I have co-supervised 4 PhD (3 successfully awarded and 1 on-going), 2 MSc, 3 BSc students and 1 research technician. Moreover, I have directly been invited by the chief editor of Autophagy to write a commentary on our work (only corresponding author), peer-reviewed for several journals and taken part in 3 PhD evaluation committees. I regularly teach the undergraduate students of the BSc Pharmacology and Innovative Therapeutics at QMUL (lecture delivery and marking of assessments). I am an active member of the WHRI postdoctoral committee, have chaired several institutional events and are involved in numerous outreach activities, such as coordinating Pint of Science London festival, acting as STEM ambassador for primary school students and promoting the visibility of female scientists. Collectively, with my acquired experience at different levels and an exciting research plan idea, I feel ready and thrilled about my next steps as an independent researcher.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Area Temática:	Biomedicina
Nombre:	PELLETIER , JOFFREY
Referencia:	RYC2021-032943-I
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Título:	Ribosome Biogenesis Control and Cancer Stem Cells Differentiation

Resumen de la Memoria:

Since the beginning of my scientific career, I have been intrigued by the plasticity of metabolic networks and signalization pathways allowing cancer cells to adapt to the tumor microenvironment. During my PhD in the laboratory of Pr. J. Pouysségur (Univsersity of Nice/France), I studied the mechanisms underlying the metabolic reprograming of tumor cells exposed to hypoxia. I realized that to sustain tumor growth, oncogenic lesions converge to the upregulation of protein synthesis and the hyperactivation of ribosome biogenesis, potentially the Achilles heel of aggressive tumors. I joined the laboratory of Pr. G. Thomas (IDIBELL/Spain), internationally recognized in the field of PI3K-mTOR signaling and ribosome biogenesis, to study the cellular sensing of ribosomal stress by the tumor suppressor p53 and the activation of the pre-ribosomal complex IRBC (Impaired Ribosome Biogenesis Checkpoint). I showed that, depending on the context, the IRBC can protect from genomic instability, as in colorectal cancer, or induce MCL1 degradation and cell death in MYC-driven B-cell lymphomas. Aiming at understanding how oncogenic lesions induce transcript-specific changes in the pattern of synthesized proteins, we showed how the mTOR-LARP1-5 TOP axis reprograms the translatome to promote anabolic plasticity. Joining the laboratory of Pr. E. Batlle (IRB/Spain), I developed my expertise in preclinical models to study cancer stem cells (CSCs) in colorectal cancer. I discovered that the inhibition of ribosome biogenesis induces the terminal differentiation of CSCs opening new therapeutic perspectives. My main research lines are (1) investigating the molecular crosstalk between ribosome biogenesis and the CSCs stemness features, and (2) developping alternative/novel therapeutic strategies based on the elimination of biosynthetic stem cells niches. Considering my dual expertise in translational control and cancer stem cells differentiation, as well as with my leadership and mentoring experience, a RyC grant would be the foundation fo

Resumen del Currículum Vitae:

Over the years, working with exceptional mentors in international environments, promoting excellence, has been a very rich experience. My scientific trajectory has provided me with the skills, tools and collaboration network necessary to become a successful independent investigator. My main scientific findings have contributed to a better understanding of the responses to ribosomal stress in MYC-driven colorectal cancers and B-cells lymphomas, and uncovered a novel role of mTOR in the reprogramming of the tanslatome through the 5′TOP mRNA motif. I co-authored 16 publications, including 15 peer-reviewed articles and 1 review in Nature Reviews Cancer. I am the first author of 7 articles (Science advances, EMBO journal, Oncogene), being also corresponding author in EMBO journal. I am also last and corresponding author of 1 article in the journal Blood, resulting from the mentoring of a PhD student, denoting leadership skills. To date, my publications have obtained 785 citations in total (excluding the consortium article in Autophagy) and my H-index is 11. I have gained critical experience in the publication process, from the experimental design to the writing and the reviewing process, which has also been complemented by peer review contributions for prestigious journals (Nature, Science, Nature Cell Biology). I am able to attract funding, demonstrated by the 4 competitive grants I have obtained throughout my career and my involvement in the writing and experimental execution of a multidisciplinary translational AECC grant, for which we have bridged collaborations between outstanding clinical oncologists and researchers on colorectal cancer. I have established a multidisciplinary network of collaborators including worldwide leading researchers in the field of ribosome biogenesis and translational control, apoptosis and epigenetic regulation. These collaborations have been decisive for the success of my projects, and will be precious for the future of my scientific career. I had the opportunity to assist to major international conferences, to be selected for oral presentations including an EACR meeting in 2016, to be scribe of a workshop organized by the NCI/NIH with leaders in the field of Ribosome Biogenesis & Protein Synthesis, and to give lectures to Master students.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Biomedicina
Nombre:	OTANO , ITZIAR
Referencia:	RYC2021-032795-I
Correo Electrónico:	iotanoan@alumni.unav.es
Título:	Immunotherapy of cancer
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Resumen de la Memoria:

Cancer is a leading cause of morbidity and mortality, accounting for an estimated 9.6 million deaths in 2018. The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US\$ 1.16 trillions. During the past decade, new treatment agents and early diagnosis programs have increased the 5-years survival rate in some cancer types. However, this is still patients diagnosed with poor prognosis. Thus, new innovative therapies are required. My previous and actual studies showed that the use of agonist antibodies against co-stimulatory markers, or limiting excessive T cell-death after activation, combined with the advances in immunogenetics could boost the immune response to cancer malignancies.

Based on my own results and ideas, I have built a strong, multidisciplinary research project for my future independent career. The excellence of my science is supported by my publication record, but I am applying to secure funding and I have developed leadership capabilities by supervising students following the knowledge acquired in prestigious courses. Based on these facts, I truly believe I am ready to become an independent scientific leader in my field, and this funding represents the first stepping stone to achieve my goal.

Resumen del Currículum Vitae:

Dr Itziar Otano obtained her BA in Biological Sciences by the University of Navarra in 2000. In September of 2000 she started her PhD in the Medicine department under the supervision of Dr Gloria González Aseguinolaza. The research she carried out during her PhD was about developing new therapeutic approaches in chronic Hepatitis B virus infection (CHB). As a relevant model of CHB, chronically infected woodchucks with the woodchuck hepatitis virus (WHV) were treated with different immunotherapies. During this time, Itziar Otano acquired the knowledge of adaptive immunity in chronic infections and she also developed interest in gene therapy strategies. She could extend her expertise in chronic viral infections during a short stay in the University of Cornell. In 2011 she obtained her Cum Laude PhD. In 2011, she was awarded with the Anabasid fellowship from the Navarra Government. So, in 2012 she moved to the University College of London for a postdoctoral stay under Professor Mala Maini supervision. After 2 years, she was awarded with the Sheila Sherlock EASL postdoctoral fellowship. During her postdoctoral stay her knowledge in immunology, multicolor flow cytometry, and gene therapy increased significantly. She has been exposed to the best researchers in the field and to the most innovative technology. Her research has been based on chronic HBV immunology and gene therapy. Specifically, she worked on genetic modifications of HBV-specific CD8 T cells and generation of transgenic HBV-TCR T cells in order to rescue the immune response in CHB patients. On 2016 she moved to Prof Lasarte s group, and she was setting up a translational project for the treatment of multiple myeloma (MM) in strong collaboration with Prof San Miguel and his group. By July 2017, she joined Antonio Bertoletti s group at the National University of Singapore, for a 4 months stay to work in a microfluidic 3D model for preclinical evaluation of T cell immunotherapies. By the end of 2017, she joined Prof Melero s group to carry out a project based on boosting tumor-specific T cell responses in collaboration with Alligator Bioscience. During the past three years, she has been involved in 5 different publications in high impact factor journals (Cancer cell, Immunity, J Immunother Cancer). Among them, her contribution regarding experiment design, implementation and interpretation resulted in third authorship for a paper published in Nature (2019 May;569(7756):428-432), and first and corresponding author in a Theranostics paper (2020 Mar 15;10(10):4481-4489) and in a Nature Communications manuscript (2021 Dec 15;12(1)). Recently, she was awarded with the AECC Investigator fellowship. On 2021 she joined the group of Dr Luis Paz-Ares at the Institute of Hospital 12 de Octubre in Madrid, in order to start a new line of investigation to study the key challenges facing cancer immunotherapy. In summary, Itziar Otano s main research has been focused on investigating immune exhaustion and dysfunction of T cells in persistent infections and cancer and to overcome the limitations of current strategies. Itziar Otano has a unique scientific background and essential abilities to develop an independent academic career with a focus on cancer malignancies and immunotherapy.



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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ESCUDERO GARCIA-CALDERON, JOSE ANTONIO
Referencia:	RYC2021-035005-I
Correo Electrónico:	jaescudero@ucm.es
Título:	Integrons and Antibiotic Resistance

Resumen de la Memoria:

From the beginning of my research activity, I have been interested in the impact of veterinary medicine in Public Health. Today, one of the main issues in Public Health is antimicrobial resistance, a phenomenon that increasingly jeopardises clinical outcomes, representing a major threat to modern medicine. The ecology of antimicrobial resistance shows no frontiers between livestock, food, the environment and man. This connection is the founding basis of the concept of One Health, that unites human and veterinary medicine worldwide. Indeed, the fight against resistance must involve all Public Health agents, among who veterinarians play a fundamental role. I have hence devoted my scientific career to the study of AR mechanisms and the platforms that allow their spread.

During my thesis I described the genetic basis of two mechanisms of resistance against fluoroquinolones in the emerging zoonotic agent Streptococcus suis. I also collaborated in the study of a variety of other resistance mechanisms in other bacterial species. I soon realized that a major genetic element in antimicrobial resistance is the integron. I therefore performed my post-doctoral stay in the world-leading group in the field, Dr. Mazel s laboratory. During the years at Institut Pasteur I intensively worked on functional and mechanistic aspects of integrons. I studied in depth how integrases recognize the integration site, where resistance cassettes are incorporated. This sheds light on the evolutionary origins of integrons and how these structures have emerged. At a second short postdoctoral at the University of Oxford, I mixed my previous skills to study the evolvability conferred by integrons under antibiotic treatments.

I am currently head of the MBA laboratory at UCM, a group of 11 members, including 4 PhD students, 4 post-doctoral researchers, a technician and a Masters student. We are funded by an ERC Starting Grant, and national and regional projects. In MBA we are interested in many aspects of integron biology. Our research lines are broad, ranging from the study of the adaptive value of sedentary chromosomal integrons, and the deciphering for biotechnological purposes of functions encoded in them; to the evolutionary dynamics of integron resistance cassettes. We also study regulatory aspects of integron and cassette expression, or the development of biotechnological tools to detect cassettes. Our research follows a One Health approach aiming to produce results that are relevant for human and animal health.

Resumen del Currículum Vitae:

Como licenciado en Veterinaria, mi interés por la intersección entre investigación y Salud Pública me llevó a realizar un doctorado en resistencia a antibióticos. En mi tesis describí las bases genéticas de la resistencia a fluoroquinolonas, un grupo de antibióticos de importancia crítica según la OMS, en el agente zoonótico emergente S. suis. En 2011 obtuve mi título de doctor en Ciencias Veterinarias con premio extraordinario de Doctorado, premio de la Real Academia de Doctores y premio del Colegio de Veterinarios a la mejor Tesis Doctoral. Interesado por unas plataformas genéticas de gran importancia en multirresistencia denominadas integrones, continué mi carrera científica postdoctoral en el laboratorio del líder mundial en el campo, D. Mazel, en el Instituto Pasteur de París gracias a la concesión de una beca Marie Curie IEF. Allí describí la presencia de la actividad ancestral en las integrasas y mostré cómo fue posible su evolución desde sus ancestros. Esto es importante en el campo de la evolución por demostrar que la adquisición de dominios enteros es compatible con el mantenimiento de la función ancestral de las proteínas. Más tarde complementé mi formación en integrones y resistencia con un post-doctoral corto en la Universidad de Oxford, centrado en la evolución de la resistencia a antibióticos mediada por integrones. En él describimos como los integrones generan variabilidad genética durante los tratamientos antibióticos, produciendo niveles más elevados de resistencia. Posteriormente, la obtención de proyectos tales como el del Programa de Atracción de Talento de la Comunidad de Madrid (2016-T1/BIO-1105), del programa I+D EXCELENCIA 2017 y RETOS 2020 del Ministerio de Ciencia Innovación y Universidades (BIO2017-85056-P y PID2020-117499RB-100), y una Starting Grant del ERC (803375) han permitido la creación de mi propio equipo de investigación en el Dpto. de Sanidad Animal de la Fac. de Veterinaria de la UCM. Actualmente dirijo la tesis de 4 doctorandos (ambas como director único y con ayuda competitiva) y formo a 4 investigadores postdoctorales. Todos los proyectos del laboratorio orbitan en torno a la biología de los integrones y su influencia en la resistencia a antibióticos.

En los últimos cuatro años he conseguido 9 proyectos como IP único por un total aproximado de 2,4 M . En total he participado en más de 15 proyectos que han generado 30 publicaciones científicas en el campo de la resistencia a antibióticos, evolución y ecología entre las que cabe destacar artículos en eLife, Nature Communications, Nature Ecology & Evolution y Nucleic Acids Research entre otros. Además soy autor de tres capítulos de libro, incluido uno en el libro de referencia mundial Mobile DNA III (ISBN 9781555819200). Asimismo, he participado en 70 congresos nacionales e internacionales. Durante los últimos 4 años he sido invitado a dar 7 conferencias.

Además, mi compromiso con la educación ha sido total a lo largo de toda mi carrera, impartiendo clases durante la tesis doctoral, y posteriormente, en los Máster del Instituto Pasteur, de la Univ. Paris VI- Sorbonne, de la UCM y de la Univ. de Estudios del Desarrollo en Ghana. He dirigido alumnos de TFG, de Máster y de Doctorado en la UCM, la Univ. de Oxford y el Inst. Pasteur. Por último, he recibido el certificado de Excelencia Docente por los tres años desde que me incorporé a la UCM.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias agrarias y agroalimentariasNombre:HERNANDEZ HERNANDEZ, OSWALDOReferencia:RYC2021-034786-ICorreo Electrónico:oswaldohh@yahoo.comTítulo:Carbohidratos y derivados: síntesis, análisis estructural y bioactividad en ciencia de la alimentación

Resumen de la Memoria:

My research and professional career have been focused on the properties of different carbohydrates as food ingredients, as well as their bioactive activities. This allowed me to acquire multidisciplinary scientific knowledge. My scientific experience commenced with my degree in Biology specialized in Food Science and Technology which I completed with a final thesis with Honours based on the fabrication and in vitro fermentation of edible films made from polysaccharides. Then, I joined the group headed by Isabel Martínez-Castro at the Institute of Organic Chemistry (IQOG-CSIC) funded by the program JAE-Pre, where I developed new analytical methods based on different chromatographic modes and tandem mass spectrometry to characterize new carbohydrates. In pursuit of multidisciplinary training and comprehensive structure/function knowledge, I completed two international stays: one at the University of Reading, UK (6 months) under the supervision of Prof. Bob Rastall, and the other at the University of Arkansas under the supervision of Prof. Steve Ricke, USA (3 months) learning the gut microbiota modulation of the different new carbohydrates. My PhD degree (European Mention) was recognised with the Cum Laude qualification and the Doctoral Extraordinary Award.

Continuing my research line, I completed a Posdoctoral stay at CropTailor AB, a company based at the University of Lund (Sweden). During that stay, I developed numerous analytical techniques to analyse different oat lines. In order to continue my professional training in the corporate environment, I started to work as Senior Associate Scientist at Philip Morris International (Switzerland). At PMI, I developed different analytical tools to characterise food grade compounds in a new healthier alternative to conventional cigarettes, called IQOS, for what I was recognized with an Above and Beyond the Call of Duty award. In order to continue my career in Food Science, I joined Natac Biotech as Senior Scientist (2015) with the key objective to develop new products based on antioxidant polysaccharides, and during that time I obtained a Torres-Quevedo project. Thanks to my experience, spanning both the scientific research and business, I was selected to work in the development of new low-calorie carbohydrates with prebiotic activities by Optibiotix Health plc in collaboration with the Institute of Food Science Research (CIAL). This also allowed me to start a new research line at CIAL focused on the analysis of carbohydrates from the digestibility point of view and the concession of a JIN Project (RTI2018-101273-J-I00).

In sum, I have more than 10 years of multidisciplinary and polyvalent work experience in both academic and private sectors. I am a co-inventor of one Spanish patent, three patents application at the UK, co-authored 25 research papers in high-impact SCI journals, three book chapters by invitation and more than 30 presentations at different international congresses. My h-index is 18 and I have been cited more than 1218 times (Scopus). I have tutored master and undergraduate students, as well as, two PhD students.

Resumen del Currículum Vitae:

Mi carrera profesional se ha centrado en las propiedades de diferentes carbohidratos y compuestos glicosilados como ingredientes alimentarios, incluyendo el estudio de la bioactividad, y la relación de esta con la estructura molecular de dichos compuestos, esto me permitió adquirir conocimientos científicos multidisciplinarios. Mi experiencia científica comenzó con mi licenciatura en Biología. Luego, me incorporé al Instituto de Química Orgánica General (IQOG-CSIC), como estudiante de doctorado con una beca JAE-Pre. En la búsqueda de una capacitación multidisciplinaria, completé dos estancias internacionales: una en la Universidad de Reading (Reino Unido), y la otra en la Universidad de Arkansas (EE.UU). La tesis doctoral (Mención Europea) fue reconocida con la calificación Cum Laude y el Premio Extraordinario de Doctorado.

Continuando con mi desarrollo científico, realicé una estancia posdoctoral en la Universidad de Lund (Suecia). Es importante resaltar que, durante este periodo postdoctoral, los resultados obtenidos fueron usados por la empresa CropTailor AB que financiaba el proyecto. Debido a la novedad de dichos resultados, los mismos estuvieron protegidos durante 8 años, y recientemente publicados en Food Chemistry.

Con el fin de continuar mi formación profesional, y buscando aumentar mi versatilidad como investigador, comencé a trabajar en el sector privado como Senior Associate Scientist en Philip Morris International (Suiza). En PMI, desarrollé diferentes métodos analíticos para caracterizar compuestos, de grado alimenticio, en una nueva plataforma alternativa y más saludable a los cigarrillos convencionales; por lo que fui reconocido con un premio ABCD award. Para continuar mi carrera en España, me incorporé a Natac Biotech y durante ese tiempo obtuve un proyecto Torres-Quevedo.

Debido a la visibilidad y redes de contacto que creé entonces, abarcando tanto el sector de I+D+i fui contactado por la empresa británica Optbiotix Health plc, empresa creada a partir de investigaciones llevadas a cabo en la Universidad de Reading (Reino Unido), para trabajar en el desarrollo de nuevos carbohidratos, bajos en calorías y con actividad prebiótica. Con el fin de desarrollar la investigación en España, logré que dicho desarrollo se llevara a cabo en colaboración con el Instituto de Investigación en Ciencias de los Alimentos (CIAL, CSIC-UAM). A partir de las investigaciones llevadas a cabo en colaboración con Optibiotix Health plc, logré abrir una línea de investigación en el CIAL basada en una aproximación más real de la digestibilidad de carbohidratos. Dicha línea de investigación ha sido financiada con un Proyecto JIN.

El reciente avance en técnicas de alta resolución me motivó a aplicar a una Beca Marie Skłodowska-Curie, de la cual soy actualmente beneficiario en la Universidad de Davis-California (EE.UU). El fin es trasladar la experiencia en glicómica del grupo liderado por la Prof. Daniela Barile al CIAL.

En resumen, cuento con una experiencia multidisciplinar y polivalente tanto en el sector académico como en el privado. Soy co-inventor de cinco patentes, coautor de 49 trabajos de investigación en revistas de alto impacto, además de capítulos de libros, director de trabajos grado, master y doctorado.



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ROBLEDO SANCHEZ, DIEGO
Referencia:	RYC2021-032248-I
Correo Electrónico:	diego.robledo@usc.es
Título:	Genetics and genomics of disease resistance in aquaculture species

Resumen de la Memoria:

I am a group leader at the Roslin Institute (University of Edinburgh). The main interest of my research group is to understand infectious processes in aquatic animals, and especially differences in disease resistance between individuals, populations or species, applying this knowledge to improve the resistance to diseases of aquaculture stocks. To do so, we employ a broad range of genetic and genomic approaches, including the development of new genome assemblies and genotyping arrays, genome-wide association and genomic selection approaches, (single-cell) transcriptomic and epigenomic technologies, and genome editing using CRISPR-Cas systems. This ample repertoire allows us to tackle research questions from different angles. Our ongoing lines of research can be summarised in 1) Understanding the biology underlying differential resistance to infectious diseases; 2) Improving the efficacy and efficiency of selective breeding via the use of genomic selection, imputation and functional information; and 3) increasing disease resistance via the use of in vitro and in vivo CRISPR-Cas9 genome editing. Lately I have become interested in the role of TRIM E3 ligases in fish immunity and fish-pathogen interactions. This family is extremely expanded in fish species, with 10s to 100s of copies of single-copy tetrapod genes. A fish-specific TRIM subfamily, finTRIMs, has been associated with antiviral responses and show signatures of positive selection in domains associated with pathogen recognition. Surprisingly, fish TRIM expansions are clade-specific, which suggests that novel TRIM genes are fulfilling specific roles in each species, potentially connected to species-specific viral pressures. I am really intrigued by fish TRIMS, and aim to explore their function and their role in fish-virus interactions during the coming years.

I look forward to continuing and expanding my research programme, which I believe has the potential to shape our understanding of fish immune systems and deliver important benefits in food production and animal welfare.

Resumen del Currículum Vitae:

I am currently a group leader at the Roslin Institute, University of Edinburgh. I lead a research group focused on understanding infectious processes in fish species using a variety of genetic and genomic technologies.

Publications: I have 56 peer-reviewed publications, 32 of them without my PhD supervisors. I am the first author in 13 publications and the last author in 3, and the (co-)corresponding author in 6 of them. My work has been cited 1,465 times (h-index 22, Google Scholar).

Funding: I currently hold funding as PI for over 2M. Since February 2022, I am also work package co-lead of the European funded project AQUA-FAANG, and I have recently applied for an ERC Starting Grant (January 2022). Before obtaining my independent position, I was able to secure external competitive funding for every step of my career (PhD, PhD visit, postdoctorate).

Collaborations: My research is highly collaborative, and most of my current funding is as part of multicentre projects involving international collaborators from UK, Spain, Norway, Australia, Canada, US, Mexico or Qatar. Recently, my collaboration with Dr Nick Robinson (NOFIMA, Norway) has been especially fruitful, with three projects on resistance to sea lice in salmonids (> 6M from British and Norwegian funding agencies). Other selected collaborators include Dr Ricardo Pérez-Enríquez and Dr Raúl Llera (México) on shrimp genomics and disease resistance, Prof Paulino Martínez (Spain) on flatfish genomics, Prof Rune Andreassen (Norway) on non-coding RNAs and fish disease resistance, Dr Eva Candal and Dr Antón Barreiro (Spain) on neurogenesis in basal vertebrates, and Prof Roberto de la Herrán and Prof Laureana Rebordinos (Spain) in Senegale sole reproduction.

Industry engagement: I maintain fruitful collaborations with various industry partners. Most of my work in disease resistance in Atlantic salmon is cofunded by the breeding companies Benchmark Genetics and Hendrix Genetics, and the latter collaboration has led to a patent application in IPNV resistance in Atlantic salmon and rainbow trout. The animal health company Zoetis and the breeding programme managing company Xelect have cofunded PhD studentships on different topics. I have also acted as consultant for Xelect.

Leadership: I have the ability to lead major research projects involving multiple institutions, from conceptualisation and proposal development, to management of the day-to-day of the project and the delivery of the research objectives. My research group currently consists of 8 postdoctoral researchers and 1 PhD student, so I have also acquired important managerial skills, allowing me to efficiently support my team and continue with my other responsibilities. I am also the co-supervisor of three other PhD students, and I have formally supervised three MSc students (currently doing their PhDs, one in my research group) and several visiting researchers.

Other measures of esteem and awards: I am well-respected in the aquaculture genetics and genomics community, with invited presentations in various forums, and I am part of the scientific committee of the Genomics in Aquaculture international symposium. I am Associate Editor for the journal Genomics. I am member of the Rules of Life interview panel for the EASTBIO PhD programme (UK), and I co-chair the Easter Bush Research seminar series (University of Edinburgh, UK).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	OSES RUIZ, MIRIAM
Referencia:	RYC2021-032146-I
Correo Electrónico:	mir_tkc@hotmail.com
Título:	Molecular mechanisms associated with infection caused by plant pathogenic fungi

Resumen de la Memoria:

Dr. Miriam Oses-Ruiz, graduated in Agricultural Engineering (UPNA, Spain) and obtained an MSc in Plant Pathology (Wageningen University, NL). During her career she has specialised in understating the molecular mechanisms that pathogens use to cause infection in plants. Her scientific career started with a pre-doctoral work with Prof. Jan van Kan (Wageningen University, NL) investigating the grey mould fungus Botrytis cinerea, a devastating pathogen of dicotyledonous species. Immediately after, she was offered a pre-doctoral position at, The Sainsbury Laboratory (UK), to join Prof. Sophien Kamoun s group to investigate Phytophthora infestans, an oomycete that caused the Irish Potato Famine. She obtained a fellowship to join Prof. Jesus Murillo s group (UPNA, Spain) where she investigated bacterial-insect-plant interactions. In 2010, she started her PhD with Prof. Nick Talbot (University of Exeter, UK) as a Marie Curie Fellow, where she investigated one of the most destructive plant pathogens called Rice Blast fungus Magnaporthe oryzae. Her research aim was to identify and characterize fungal virulence genes to be exploited as antifungal targets. She specialised in genetics, cell biology and transcriptomics and received training some of the best laboratories across Europe. She carried a post-doctoral research period at University of Exeter where she specialised in cell cycle regulation and MAP kinase signalling. She discovered during this period, the molecular mechanisms associated with S-phase checkpoints in M. oryzae (Oses-Ruiz et al., 2017; PNAS) and the role of Pmk1 kinase in tissue colonisation (Sakulkoo et al., 2018; Science).

She then moved to The Sainsbury Laboratory as a senior post-doctoral fellow where she specialised in phosphoproteomics, biochemistry and protein-DNA interaction collaborating with Dr. Frank Menke (TSL, UK) and Prof. Caroline Dean (JIC, UK). Her work was recently published in Nature Microbiology as co-corresponding author (Oses-Ruiz et al., 2021). She also investigated the cytoskeleton and transcriptional regulation processes in M. oryzae. She was part of the team that discovered a turgor sensor (Ryder et al., 2019; Nature) and the role of VLCFAs in infection (He et al., 2020; Nature Microbiology).

Now she is a junior group leader at Institute for Multidisciplinary Research in Applied Biology (IMAB, UPNA). Her line of research aims to Investigate molecular mechanisms associated with infection caused by the Rice Blast fungus Magnaporthe oryzae . Focusing on three areas: i) cell cycle regulation and DNA damage response; ii) surface perception; iii) cellular heterogeneity. She uses a combination of cell biology, genetics, transcriptomics, proteomics, biochemistry and single cell -omics. She has obtained two Winter Studentship Grants from SRUK (UK) and a "Retos de Investigation JIN" from Agencia Estatal de Investigacion as lead PI. Her vision is to develop a line of research that aims to guarantee global food security by the discovery of new molecular determinants to develop control strategies against plant diseases. Her aim is to become a leader in plant pathology and her motivation relies on the social-economic importance of the Rice Blast disease in the world. She wants to make discoveries and generate scientific resources that contribute onto guaranteeing Food Security and solve agricultural problems.

Resumen del Currículum Vitae:

- Lead Pl of Retos Investigacion- JIN grant from Agencia Estatal de Investigación del Gobierno de España (2021-2024) and two Winter Studentships grants from Spanish Researchers in the UK (2020)

- Co-corresponding author in Nature Microbiology (Q1; IF:17.745)

- Publication book chapter and fifteen publications (87% in Q1; three Multidisciplinary; 13% in Q2) including Nature, Science, eLIFE, Nature Microbiology, PNAS

- Assistant Feature Editor of Plant Physiology journal (2022-2024) and Guest Co-Editor of Frontiers special issue Fungal Biology (2022). Reviewer: Molecular Microbiology, PLoS Genetics, Microbiology Spectrum, Molecular Plant Pathology, Molecular Plant Microbe Interactions and Fungal Biology Reviews

- 42 contributions in scientific meetings: plenary speaker (3), invited speaker (5), selected speaker (7), invited seminar (3), poster (24)

- Organizer 3 scientific events: International Satellite Meeting 2nd Magnafest (Italy 2020); Workshop: Science against hunger; International Day of Girls and Women in Science (Spain 2018); 1st Exe-BioCon (UK 2015)

- Co-chair 2 scientific meetings: 8th Rice Blast Conference (China 2019) session Molecular Biology of the Blast fungus; Plant Pathogens Session 1st Exe-BioCon (UK 2015).

- Member of Royal Society of Biology, SRUK, SEB, Athena Swan, GWIS; Treasurer of TSL post-doctoral group

- Supervision of six student: 3 MSc, 1 pre-doctoral, 2 PhD. Current advisor committee member of TSL PhD rotation program

- Teaching profile: Assistant Lecturer of Advanced Cell Biology 2nd Year Biosciences students (BIO2088) and Medical Sciences students (BIO2088M) (UK, 2016-2017), Demonstrator of Practical Genetics Course (UK, 2010-2014), Postgraduate Teaching Assistant (2010-2011), Diploma in Learning and Teaching in Higher Education (UK Certificate)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

- High internationality profile: MSc in The Netherlands, Pre-doctoral research in The Netherlands and UK, PhD in UK. Carried 17 specialised scientific courses in more than 14 laboratories across Europe.

- Training: RNA-seq Analysis (UK), Grant Writing Workshop- Scriptoria (UK), ChIP-seq Analysis (UK, 2019), Fungal Genetics and Biology (Denmark), Fungal Transcriptomics and Bioinformatics (UK), Proteomics in Fungi (Germany), Scientific writing, presentational skills & management (Germany), Pathogenicity in fungi (Spain), Medical mycology, grants and IPR workshop (UK), Cell cycle (Spain).

- Solid network of collaborators: Dr. Frank Menke (TSL, UK), Prof. George Littlejohn (Plymouth University, UK), Prof. Caroline Dean FRS (JIC, UK), Dr. Jitender Cheema (JIC, UK), Prof. Yasuyuki Kubo (Kyoto Prefectural University, Japan), Prof. Barbara Valent (KSU, USA), Prof. Nicholas J, Talbot (TSL, UK), Dr. Federico Lopez-Moya (Universidad de Alicante, Spain), Dr. Pingtao Ding (Leiden University, NL)

- Awards: two poster awards in international conferences (28th FGC, California, 2015 and XV MPMI, Japan, 2012), two travel grants (Rice Blast Conference, China, 2019; SEB, Sweden, 2017), Hons. Award Final Agricultural Engineering Project (2009)

- Fellowships: ITN Marie Curie Marie Skłodowska-Curie actions Fellowship, (European Commission; 2010-2013) Formación de Tecnologos- predoctoral fellowship (Navarra Government, 2009-2010), Erasmus Mundus fellowship (European Commission; 2006-2007); Research Collaboration Fellowship (UPNA, 2005-2009)



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	CALATAYUD ARROYO, MARTA
Referencia:	RYC2021-033955-I
Correo Electrónico:	marta.calatayudarroyo@gmail.com
Título:	Development of personalized ecosystem models for host-microbiota interaction studies

Resumen de la Memoria:

Mechanistic studies on host-microbiome-diet interplay are hampered by the lack of in vitro systems mimicking a representative microbiota of the gut and its interplay with the intestinal epithelium. Hence, my current research line is focused on developing in vitro enabling technologies to assess the host-microbiome interaction, with the final goal to improve the translational component of in vitro studies and optimize preclinical testing. During my predoctoral training, I acquired expertise in mammalian cell culture techniques, molecular biology and analytical chemistry, resulting in

During my predoctoral training, I acquired expertise in mammalian cell culture techniques, molecular biology and analytical chemistry, resulting in proficiency in in vitro modelling of the gastrointestinal tract. Combined with lab work, I also participated in exposure and risk assessment projects, analysing different biomarkers of heavy metals exposure in sensitive populations (infants, pregnant women).

In my postdoctoral stage (74 months of international training) and thanks to an extended collaborative network, I have participated in the generation models tailored to specific populations (e.g., diseased patients, infants) or anatomical locations (e.g., small intestine, colon, sinosasal cavities), and applied human samples to create personalized ecosystem models combining physiological microarchitecture, host cells and microbial communities. I developed these activities simultaneously to institutional responsibilities as the Host-Microbiome Interaction Technology Lab manager (Ghent University), teaching tasks (Technical University of Ambato, Ghent University), and funding acquisition. Later, I moved to the private sector, acting as Senior Scientist at ProDigest, a R&D spin-off company of CMET with expertise in gastrointestinal processes. Management of multiple projects with relevant industrial partners at the international level offered me the possibility to improve my knowledge transfer, networking skills and valorisation of the research.

At present, I combine my activity as voluntary postdoc at CMET with scientific consultancy and paper writing. With 74 months of international experience, I have h index = 18 (Scopus), 47 SCI papers, one preprint, 39 Q1 (JCR) of which 23 are in the top 10% (JCR, CiteScore percentile), 20 papers as first author and 4 correspondence authorships; participation in 12 publicly financed projects (5 as PI) and two projects related to the industry (1 co-PI); 1 book chapter; 1 Ph.D. supervised, 2 Ph.D. ongoing; 8 master thesis, 1 bachelor thesis, 19 oral communications (6 invited talks), participation in 9 Master thesis evaluation committees (UGent) and 1 Ph.D. jury member (Universidad Politécnica de Valencia), assessment of scientific projects for international agencies and peer-review in multiple journals.

Resumen del Currículum Vitae:

I m a senior researcher with expertise in personalized in vitro models to study host-microbiota interaction processes. My research line aims to improve the translational relevance of in vitro studies and allow mechanistic investigation of complex processes at the host-microbiota interface, thus reducing the use of animal models and improving the effectiveness of pre-clinical research.

I completed a Veterinary degree in 2004 and obtained my Ph.D. at the Institute of Agrochemistry and Food Technology (IATA-CSIC), 2013, thanks to a competitive FPU predoctoral grant. During my Ph.D., I focused on evaluating the fate of environmental pollutants (e.g., heavy metals) during gastrointestinal passage and the potential toxicity at the intestinal level, combining gastrointestinal simulations with cell culture models. In parallel, I carried out studies on exposure and risk assessment to environmental contaminants (e.g., heavy metals) in populations at risk (children, pregnant women) and gained experience in analytical techniques (e.g., HPLC, AAS) and molecular biology (e.g., RT-qPCR, targeted siRNA transfection, protein expression). Subsequently, I was professor of toxicology at the University of Ambato, Ecuador, where I acquired skills in teaching, institutional management and funding acquisition (two projects as PI, one of them as an educational innovation project). Later, I obtained two competitive postdoctoral fellowships and a travel grant to incorporate knowledge about microbial ecology at the Center for Microbial Ecology and Technology, University of Ghent. During this period, I gained expertise in managing natural or synthetic microbial communities and combined them with cell culture models to develop ecosystem prototypes to study host-microbiota interactions at different anatomical locations (i.e., gut, oral cavity, respiratory tract) and diverse population groups (i.e., healthy adults, inflammatory bowel disease patients, neonates). In parallel, I guided students, participated in multiple committees, had teaching assignments and acted as lab responsible (Host-Microbiota Interaction Lab) and obtained funding for further expand my research line (3 competitive postdoctoral projects as PI, coordination of a work package in a multi-institutional project, 23 SCI publications). During my last international stage (senior scientist ProDigest BVBA, Belgium), the direct interaction with industrial partners broadened my experience in technology transfer processes, knowledge valorization, socio-economic impact, and management of customized R&D services for different types of clients at the international level (e.g., Nestlé, Janssen Pharma, DSM).

I have published 47 peer-reviewed articles (SCI), 39 Q1 (JCR), of which 23 are in the top 10% (JCR, CiteScore percentile). I m the first author of 20 articles and have four senior or correspondence authorships. I have participated in 12 publicly financed projects (5 as PI) and two projects related to the industry (1 co-PI); 1 book chapter; 1 Ph.D. supervised, 2 Ph.D. ongoing; 8 master thesis, 1 bachelor thesis, 19 oral communications (6 invited talks), participation in 9 Master thesis evaluation committees (UGent) and 1 Ph.D. jury member (Universidad Politécnica de Valencia), assessment of scientific projects for international agencies and peer-review in multiple journals. h index (Scopus) = 18.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	GOMEZ MARTIN, ANGEL
Referencia:	RYC2021-032245-I
Correo Electrónico:	angel.gomezmartin@uchceu.es
Título:	Micoplasmosis de los rumiantes: búsqueda de alternativas a la antibioterapia

Resumen de la Memoria:

My research activity began with the Ruminant Health Research Group of the UMU and my scientific activity has continued as a Principal Research Scientist in the Research Group Etiological Agents Associated with Animal Reproduction (ProVaginBio) in CEU Cardenal Herrera University in Valencia. My doctoral thesisdescribed for the first time the epidemiological role of stallions in contagious agalactia (CA) and its epidemiological consequences. With these works I have contributed in the development and implementation of programs against CA. As a consequence, I am an official consultant of the Contagious Agalaxia Surveillance Programs in the The Ministry of Agriculture, Fisheries and Food. During my postdoctoral stage, I have also worked on studies that have described the antibiotic resistance of Spanish strains of mycoplasmas associated with CA and Mycoplasma bovis. Nowadays, my research activity is focused on looking for antibiotic alternatives in urogenital ruminant infections, using Mycoplasma spp. as a model. This line is the main line of research of the ProVaginBio group and is a direct continuation of my doctoral thesis. Currently, I am the PI of a Regional and NationalProject and two I+D+i agreements to evaluate the use of this type of bacteria and their peptides against Mycoplasma agalactiae (Ma) in small ruminants and Coxiella burnetii. This is allowing ProVaginBIO to create a bank of isolated bacteria in Spain and other Mediterranean countries that are candidates for probiotic use. The first antimicrobial effects already observed against Ma will allow the inclusion of a new alternative antimicrobial strategy to the use of antibiotics against the disease with greater socioeconomic repercussions in the dairy sheep and goat sector. In addition, these probiotics can be used to prevent vaginosis resulting from the use of intravaginal devices and even replace antibiotics in seminal doses. During 2021 I have been able to consolidate my line of research due to: 1- The formation of a multidisciplinary research group (ProVaginBIO) around a line of research that I am capable of independently lead other groups; 2-PI of a regional project, state project and two research, development and innovation contracts. Emphasize that public funding is based on obtaining advances in the control and prevention of CA, a disease that has occupied my research career uninterruptedly; 3-Interest from international research groups to participate in state public funding projects that I lead as PI; 4- Scientific publication capacity (all Q1) of studies led by ProVaginBIO, specifically 7 studies related to Lactobacillus spp., microbiota and/or Mycoplasma spp. between 2020 and 2021.

Resumen del Currículum Vitae:

Degree in Veterinary Medicine obtained from the University of Murcia (UMU) in 2009 and PhD in Animal Health at the same University (Extraordinary PhD Award) in 2015. My research activity began in 2007 with the Ruminant Health Research Group of the University of Murcia (UMU). Subsequently, I founded (2017) the Research Group Microbiological Agents Associated with Animal Reproduction (ProVaginBio) of the CEU Cardenal Herrera University (CEU-UCH), of which I have been the Principal Investigator (PI). Moreover, in 2013 I joined the Unité mixte ENVT-INRA 1225 (Pathogenèse des infections à Mycoplasmes) de l¿École Vétérinaire de Toulouse for 11 months. My doctoral thesis, Implications of the bucks in contagious agalactia: descriptive and molecular epidemiology, has contributed to the development and implementation of programs against this disease. Consequently, I have become an official consultant of Contagious Agalactia Surveillance Programs in the Ministry of Agriculture, Fisheries and Food. I am currently leading a research line with the ProVaginBIO Research team on the description of the reproductive microbiota in ruminants and the use of Lactobaccillus spp. against Mycoplasma spp. This line of research is a continuation of my doctoral thesis. I have worked as a PI in two initial projects, both related to the mentioned subject. I am currently working as a PI in a public regional (GV/2020/026) and a national project (PID2020-119462RA-100). Both projects aim to study the reproductive microbiota of small ruminants and to test probiotics against Mycoplasma agalactiae. On the other hand, I am also a PI of in a contract with a private company (OVIGEN) on the use of vaginal probiotics in sheep herds (Go Reprovi) and another contract with the multinational CEVA Santé Animale on Q fever. Seven Q1 articles have been derived from this line of research (reproductive microbiota) between 2020 and 2021. In addition, I have also worked on studies of Mycoplasma bovis, Mycoplasma conjunctivae, Mycoplasma ovipneumoniae, Staphylococcus aureus, Listeria spp., Q fever, Samonella spp., professional zoonosis, and the impact of COVID-19 in the small ruminant sector. I have participated in 53 international articles (44 Q1), 27 national articles, 73 international congress communication and 37 conferences by invitation. I have contributed to 14 regional agencies of state projects or agreement in Research, Development and Innovation area with livestock associations and public administrations. Moreover, I have supervised 9 Master's Theses, 24 Degree Final Projects and 3 Doctoral Theses. Currently, my international collaborations from which relevant scientific articles are being obtained are based on descriptive and molecular epidemiological studies on the one hand on Mycoplasma bovis with the Unité mixte ENVT-INRA 1225 of l¿École Vétérinaire de Toulouse, and on the other on Listeria spp. in collaboration with the research group led by the prestigious Marc Lecuit PhD of the Pasteur Institute, Paris (Centre National de Référence des Listeria and World Health Organization Collaborating Centre). I am currently co-directing an international doctoral thesis in collaboration with the aforementioned French team on Mycoplasma bovis and I am the main director of two doctoral theses developed at ProVaginbio related to the search for alternatives to the use of antibiotics.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	SANCHEZ MARTIN, JAVIER
Referencia:	RYC2021-032699-I
Correo Electrónico:	javicheztin@gmail.com
Título:	Joint Association Genomics of Wheat-Pathogen Systems for Durable Resistance Breeding

Resumen de la Memoria:

I was always intrigued to see how some of my father s wheat varieties coped better than others. To study the molecular and physiological processes behind those differing responses, I decided, supported with a FPU PhD Fellow, to accomplish my PhD thesis in Resistance to Biotic and Abiotic Stresses in Avena at the Institute for Sustainable Agriculture (IAS-CSIC, Córdoba). I established methods to characterize oat landraces against powdery mildew, crown rust and drought stress in laboratory and field conditions. Additionally, I characterized the metabolome of drought-tolerant varieties during my stays in Aberystwyth University.

To complement my pathologist and physiologist soul developed during my PhD studies, I got a Marie Curie COFUND FP7 fellowship to carry out my postdoctoral research at the University of Zurich (UZH), focusing on the molecular interaction between cereal crops and their pathogens. I joined forces with the John Innes Centre (Norwich, UK) to develop MutChromSeq, a genomic-based gene cloning approach that has had a remarkable impact within the cereal research community as it was used to clone seven of the 83 functionally validated genes in wheat so far. Using MutChromSeq, I have cloned two race-specific resistance genes against wheat powdery mildew: Pm2, encoding a canonical nucleotide-binding domain leucine-rich repeat (NLR) protein and Pm4b. The Pm4b wheat resistance gene encodes a chimeric protein composed of a serine/threonine kinase, and multiple C2 domains and transmembrane regions (MCTP). This is the first report where MCTPs are described as being involved in plant immunity. Pm4b undergoes alternative splicing generating two isoforms that interact to form an ER-associated complex and are equally essential for resistance function.

To go beyond the limitations of MutChromSeq, restricted to the diversity within bi-parental populations and the arduous selection of mutants, I became part of the Open Wild Wheat Consortium, which assembled and whole-genome short-read sequenced 242 Ae. tauschii accessions to transfer to hexaploid bread wheat via a k-mer-based association mapping pipeline agronomically important genes. Among the latter, I successfully cloned WTK4, another non-NLR encoding a tandem kinase protein.

As Oberassistent since 2019, leading a five-people group, I started a new research line based on Pm4b and WTK4. Both genes, not belonging to the NLR family, show a large diversity of immune receptors beyond canonical NLRs. The characterization of both Pm4b and WTK4 has the potential to reveal fundamentally novel molecular mechanisms by which plants achieve race-specific immunity, offering the possibility to explore this newly discovered gene family for disease resistance breeding.

In 2021, I successfully applied for a highly competitive Junior Group Leader position at the Centre for Research in Agricultural Genomics (CRAG), which I will in 2022. At CRAG, in the short-term, I will continue developing my research lines initiated as Oberassistent. In the medium- and long-term, I will integrate whole-genome sequence of Spanish wheat landraces-pathogen systems to simultaneously identify and characterize host and pathogen interacting components governing their reciprocal adaptation, with the ultimate goal of supporting resistance breeding strategies.

Resumen del Currículum Vitae:

My research career has been centered on the mechanisms used by plants to cope with stress, in particular cereals (oat and wheat) combining laboratory and fieldwork, and has included the development of novel cereal genomic methods. My productivity as a researcher is illustrated with 22 published manuscripts (13 first/co-first, three as corresponding and one as senior author, SCOPUS h-index 13). Throughout my career, I have established multiple international collaborations and been awarded with different personal grants and scholarships in international and national competitive calls. In my PhD studies at IAS-CSIC, I characterized oat landraces against powdery mildew, crown rust, and drought stress, including in field conditions, and characterized the metabolome of drought-tolerant varieties. As a result, I published eight first/(co)-first author articles from my PhD thesis. Having acquired experience as pathologist and physiologist, I moved to the University of Zurich (UZH) as a postdoctoral researcher, supported by a Marie Curie COFUND FP7 fellowship, to work on the molecular aspects of the interaction between cereal crops and their pathogens. In collaboration with the John Innes Centre, I developed a reference-free gene cloning approach based on mutagenesis, MutChromSeq, which has had a remarkable impact within the cereal research community. Using MutChromSeq, we cloned the wheat canonical nucleotide-binding domain leucine-rich repeat (NLR) gene Pm2 and two immune receptors with unique, previously unknown, domain architectures, Pm4b and Lr14a. Other groups have used MutChromSeq to clone additional canonical NLR resistance proteins and other genes exhibiting a broad range of molecular functions. I am also an active part of large international consortia, like the Open Wild Wheat Consortium, where we established an end-to-end pipeline for targeted transfer of agronomically relevant genes from Ae. tauschii to bread wheat. My more direct contribution was the identification of WTK4, another non-canonical resistance gene. As Oberassistent at UZH, I have recently initiated a new research line supervising a five-people group where we are studying the molecular mechanisms behind two of these novel immune receptors I have identified (Pm4 and WTK4), expanding our understanding of race-specific immune system activation.

I have communicated my research findings in 24 national and international conferences, 13 oral and 11 poster presentations, respectively. I was the presenter in 11 of the oral talks, acting as an invited speaker in two of them. I have co-chaired one session of a national conference. I have also participated in translational research by generating and characterizing stable transgenic lines with improved disease resistance in field conditions.

I have supervised students and technical personnel and heavily involved in a wide range of teaching activities, including lecturing and organizing practical courses of the UZH. Besides, I have been a cornerstone in conceptualizing and writing some of the grants awarded to my host lab, and successfully being awarded an individual grant as well.

In 2021, I successfully applied for a highly competitive Junior Group Leader position at the Centre for Research in Agricultural Genomics (CRAG, Barcelona), which I will join in 2022.



Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	CRAVA , MARIA CRISTINA
Referencia:	RYC2021-033098-I
Correo Electrónico:	m.cristina.crava@uv.es
Título:	Tri-trophic interactions among insect, plant and entomopathogen

Resumen de la Memoria:

Sustainable pest control management is a pillar in the transition towards an environmentally-friendly and climate-neutral agriculture system. In this context, the improvement of methods aimed to exploit insect s natural enemies and plant natural resources is an essential goal to provide new solutions to the farmers. My research agenda is driven by the long-term aim of developing strategies pointed to synergize the activity of entomopathogens and plant defenses. The current research goals actually pursued by me and my group (composed by a PhD candidate and a technician, and funded by a regional plan Gen-T and a national Retos de Investigación funding) focuses on the study of the tri-trophic interactions among plant, insect and entomopathogen. More specifically, some biological questions that drive our investigations are related to the impact of the insect-associated microbiota in plant defense activation and the behavioral manipulation triggered by viral entomopathogens and their ecological consequences.

My current research line arose by merging the scientific background that I accumulated along my career, which was composed by a PhD at the University of Valencia and three postdocs abroad. These international experiences strongly helped me to build my own international network of collaborators. During my PhD and a postdoc at the University of Pavia, I studied the interaction between insects and entomopathogens, namely Bacillus thuringiensis, baculoviruses and insect-specific viruses. Plant-insect interactions was the topic that I explored as a postdoc in the Molecular Ecology Department of the Max Planck Institute for Chemical Ecology (Germany). Finally, insect chemosensation was the subject of a three-year long post doc in the Chemical Ecology unit of the Fondazione Mach (Italy), which was supported by a Marie Curie grant. Overall, my research results have been published in 21 peer-reviewed publications and presented at 27 international and 12 national congresses, and I supervised one PhD (in collaboration) and two master thesis.

Resumen del Currículum Vitae:

I am a molecular entomologist with 15 year of experience. All along my career, which has been uninterrupted, I published 21 peer-reviewed papers, my results have been presented at 27 international and 12 national congresses and I raised around 850.000 euros to fund my research. In particular, as independent Junior Group Leader I obtained a Spanish national research grant and I am leading an international team that applied to the Human Frontier Science Program funding program reaching the final evaluation step. I supervised 2 master and 1 PhD student, whereas other 2 PhD candidates are currently being co-supervised. I served as ad hoc project reviewer for the University of Wageningen (the Netherlands) and the French Research Agency (ANR), as review editor for Frontiers in Plant Science and I reviewed papers from 15 journals of the entomology, evolutionary biology and plant areas.

My experience has been built though a PhD at the University of Valencia (funded by a competitive internal grant and awarded an outstanding PhD prize) and 3 post-docs carried out abroad. During these stages, my research interests have been spanned 3 major topics that I later tried to merge to start my own line of research at the University of Valencia where I settled thanks to a Juan de la Cierva Incorporación first, and to a Plan Gen-T funding later.

The interactions between entomopathogens and their hosts have been the main topic of my PhD and my last postdoc. Results obtained during the PhD were published in 4 first-author papers, whereas side projects led to other 2 papers (one of them as first author). The relevance of my findings was furtherly supported by the awarding of 3 travel grants to present my research at international congresses of the Society for Invertebrate pathology (SIP). During my PhD I also served as student member of the SIP board, and I spent 4 months abroad, at the University of Tennessee (US). During the postdoc at the University of Pavia (Italy), I developed bioinformatics and programming skills and the results of my were published in Molecular Ecology (as first author) and in a methodology paper published in BMC Bioinformatics.

Plant-insect interactions have been the topic of my postdoc at the Max Planck institute for Chemical Ecology of Jena. Results were published as a firstcoauthor paper in Elife whereas a parallel side project led to a first-author paper in BMC Genomics. The insect chemosensation, was the topic of my postdoc at the Fondazione Mach (Italy) where I was supported by a Marie Curie IEF. I developed skills in neurophysiology, evolutionary biology, immunostaining and transcriptomics. My results were published in 6 papers (3 of them as first and corresponding author) plus a paper as first author that reported results from a side project. Additionally, my experience recently led to a collaborative review. During my time as Marie Curie fellow, I also started to organize outreach activities (in which I am still currently involved in).

The last step of my career is now developing at the University of Valencia, where I started on September 2019 as Junior Group Leader. Here I brought all my previous background to study tritrophic interactions among insects, entomopathogens, and plants. My own group is currently composed by one co-supervised PhD candidate and a technician (I am also co-supervising a second PhD candidate), and it is funded by the Spanish National Plan I+D and Plan GenT from the Valencian Community.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Ciencias agrarias y agroalimentarias
GIMENEZ BASTIDA, JUAN ANTONIO
RYC2021-032111-I
ajb23022@hotmail.com
Dietary polyphenols and cardiovascular health

Resumen de la Memoria:

From 01/01/2008 to 30/09/2014 the research line was related to health-diet interaction. Specifically, on the identification of plant foods polyphenols (pomegranate, citrus fruits and buckwheat) that could have a beneficial effect in health, particularly against intestinal inflammation and cardiovascular diseases, to evaluate whether polyphenols are responsible for the benefits associated with diets rich in plant-derived foods (i.e., fruits, vegetables). This goal was approached in a multidisciplinary way covering from preclinical (cell culture and animal models) to human studies, and with the aim of establishing the physiological conditions at which polyphenols or their derived metabolites (phase II or microbial) exert their action in the potential target organs. Thus, considering the observed effects in vivo, I worked on in vitro mechanistic studies, at physiologically relevant conditions, identifying the underlying molecular mechanisms.

From 14/10/2014 to 22/05/2018, I worked at Vanderbilt University (Nashville, TN, USA) where I branched out from my background in food science to pharmacology. The research line developed was intended to deepen in the understanding of the biological role of the 5-LOX and COX-2 enzymes through the study of a novel group of eicosanoids formed by the cross-over of both enzymes. This innovative project focused on the synthesis, quantification and biological study (i.e., platelet-aggregation and tubulogenesis) of the COX-2/5-LOX cross-over hemiketal eicosanoids. The quality of the studies published brought me to be awarded with one of the prestigious grants funded by the American Heart Association (106.350\$) as the principal investigator. I worked on receptor pharmacology to advance towards the functional characterization of the newly discovered 5-LOX/COX-2 hemiketal eicosanoids in order to stablish a firm foundation for novel anti-inflammatory therapy and rationalize some of the failures of current treatments.

In June 2018, as a Juan de la Cierva fellowship, I came back to CEBAS to work on the identification of new mechanisms of action of polyphenols (i.e., oxidative activation of urolithins) and the study of the biological activities of polyphenols (i.e., urolithins and resveratrol) as: i) anti-inflammatory (reducing the 5-LOX/COX-2 eicosanoids formation in leukocytes) and ii) anti-carcinogenic (against breast and colon cancer cells). This research line is now supported by a Marie Curie grant (172,932.84) that will focus on the study of the axis polyphenols-microbiota-cardiovascular health". The main objective is to provide new insights into the key role of the gut microbiota modulating the beneficial effects against CVD related to PPs-rich foods consumption. Thus, this project involves the study of the role of gut microbiota as mediator of the effects of the consumption of plant-derived foods on angiogenesis in in vivo animal models, modulation of gut microbiota through diet, and in vitro study of the underlying mechanisms of action in the vascular endothelial function. Thanks to the internal call (Marie Curie Extension) launched by CSIC, the Marie Curie project has been extended for 18 months. This extension period will be essential to work on the preparation of a proposal, based on the results obtained hitherto, that will be submitted to the ERC Starting grant 2023.

Resumen del Currículum Vitae:

I completed my PhD very successfully with 8 publications in SCI-indexed scientific journals, 4 posters and 1 oral presentation (international conferences). My Thesis (study of the anti-inflammatory effects of polyphenols at the intestinal and vascular level) received the Cum Laude distinction, the Extraordinary Doctorate Award, and one Outstanding poster award (250) in an International Conference. I also supervised a specialized technician for 4 months.

The EU-funded Refresh project gave me the opportunity to work at the Institute of Animal Reproduction and Food Research (Olsztyn, Poland). During this period, I started a new research line related to inflammation and polyphenols. Within this line, I mentored one pre-doctoral student and the results generated were published in a peer-reviewed journal. I also published 2 papers as corresponding author, indicating ability to work without close supervision and act and think independently. The results were presented in 3 international conferences. In this regard, I attended the 252ND American Chemical Society National Meeting & Exposition (Philadelphia, EEUU) as invited speaker.

In 2014, I joined Dr Schneider s lab at Vanderbilt University (Nashville, TN, USA). I grew into many fruitful collaborations with many of the world leaders of eicosanoid research (Drs. John Oates, Stokes Peebles, and Ambra Pozzi). Thanks to the hard worked performed, I was awarded with one of the prestigious Postdoctoral Grants of the American Heart Association. This grant resulted in 7 publications, and numerous oral/poster presentations in international conferences, where I received 2 Travel (1000 and 500\$) and 1 Outstanding Poster (300\$) awards. The results generated were the base for the project renewal (NIH R01, GM076592-07), creating new goals in the hosting group. I also mentored 2 graduate students, established permanent international collaborations and acquire a background in nutrition and food science as well as in clinical pharmacology.

This multidisciplinary knowledge led me to be awarded with one Juan de la Cierva Fellowship to work at CEBAS-CSIC, where I studied the role of polyphenols as anti-inflammatory (in leukocytes) and pro-senescence molecules (in cancer cells). During this period, I was awarded with Marie Curie IF (#838991) in which I am currently working to study the axis diet-microbiota-health. Thanks to the CSIC-funded Marie Curie Extension program, I will continue working on my research line to generate new results and apply for an ERC Starting grant in 2023.

I have participated in 28 research projects (PI in 2) which resulted in 39 peer-reviewed papers (H index = 18; 1st author in 20, corresponding/last author in 5). I have also published 10 book chapters, attended 20 conferences (17 international). I have supervised specialized technicians and undergraduate, graduate (JAEintro felloswhips) and predoctoral students. I have been the director of a Master s Thesis (2021) and I am supervising another one (2022). I have also participated in numerous outrage activities (the week of science, IDIES project, oral presentations and social media). I have been Guest Editor of 4 special issues and have participated as a committee member to evaluate Master Thesis. I also collaborate as a reviewer and board member for SCI journal such as Int. J. Mol. Sci.


AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: processes Ciencias agrarias y agroalimentarias GONZALEZ MORENO, PABLO RYC2021-033138-I glezmoreno@gmail.com

Understanding invasive species and pest patterns in agriculture and forest systems in relation to key natural

Resumen de la Memoria:

My research focuses on understanding invasive species and pest patterns in agriculture and forest systems in relation to key natural processes (regeneration, growth, and mortality). Particularly, my research has focused on three main topics: a) Invasive species and pest modelling, b) invasive species management and c) forest processes modelling. During my research career, I have acquired and applied cutting-edge analytical skills in statistical modelling and Geographic Information Systems (e.g. Bayesian modelling). The focus of my research has progressively shifted from understanding macroecological patterns of invasive plants across a broad range of habitats (mostly forests, e.g., González-Moreno et al 2013 Landscape Ecology) and scales towards a more applied approach linked to risk prediction and management of forest and agriculture pests and diseases using a combination of statistical modelling (Early et al 2018 Neobiota), and remote sensing approaches (Zhang et al 2019 Remote Sensing). For instance, during my postdoc at CABI (2016-2019), I co-managed an UK-Sino funded project in China, focusing on pest monitoring and management using remote sensing. Currently, I work at the Department of Forest Engineering (UCO, Spain) focusing on combining my experience in pest and disease modelling with the understanding of key forest processes to deliver useful recommendations in an adaptive and comprehensive forest management strategy at several scales. I have developed an independent researcher career as demonstrated by the number of senior and lead-author publications (14 of 35 papers) in high impact journals (e.g. Global Ecology and Biogeography and Diversity and Distributions), the total funding obtained as principal investigator in research projects and consultancies (312499) and the invitation to four conferences as keynote speaker. I have also developed a relevant international network of research collaborators, leading multi-author papers and coordinating large research groups (e.g. González-Moreno et al. 2019 Neobiota with 88 authors). My full involvement in this research network has facilitated the publication of broad scale studies and reviews with high impact (e.g., Kleunen et al 2018 Biological Reviews).

Resumen del Currículum Vitae:

Research: My research focuses on understanding invasive species and pest patterns in agriculture and forest systems in relation to key natural processes (regeneration, growth, and mortality). During my research career I have acquired and applied cutting-edge analytical skills in statistical modelling and Geographic Information Systems (e.g. Bayesian modelling). The focus of my research has progressively shifted from understanding macroecological patterns of invasive plants across a broad range of habitats and scales towards a more applied approach linked to risk prediction and management of forest and agriculture pests and diseases using a combination of statistical modelling, and remote sensing approaches. I have published 35 peer-reviewed papers (9 as lead author, 5 as second, 4 as senior), 4 book chapters, and 3 outreach publications accumulating >2000 citations (Google Scholar). I have proven a solid independent research career besides my former PhD group (23 papers with new collaborators). I have developed a diverse list of national and international network of collaborators (>270 authors in my publications). I have produced 38 contributions in scientific meetings (>50% oral contributions, >70% international and three of them as organiser). I have been also invited as keynote speaker at four international conferences (2014 Lisbon, LifeWatch 2019 and 2021 and Congreso internacional Agroforestería dinámica 2021). Since 2011 I have been involved in 16 scientific projects (10 international and 3 as principal investigator, total funding as PI 312499 including JDC). During my postdoc position at CABI (UK) I led two projects (Japanese knotweed biocontrol funded by DEFRA and the Quzhou integrated platform funded by STFC). I also had major coordination responsibilities in the PRISE and Parthenium projects dealing with experimental design and implementation in Kenya, Ghana, Zambia and Pakistan.

Knowledge transfer and outreach: I am the principal investigator of an international research consultancy project funded by the multinational company Mondelez International on modelling cocoa agroforestry systems in West Africa which has obtained up to date 110000 . Furthermore, I have secured funding for research consultancies with UK based NGO CABI to support four projects (UCO OTRI ref. 12021137, 12021211, 12020006, 12019159) for a total of 33499 . My research has been summarised in three individuals radio interviews (BBC Radio 4 in UK, Canal Sur and Ondacero) and a TV programme (Canal Sur TESIS) together with impact in national and international newspapers (LeMonde, Agora, La Vanguardia and AtresMedia). I also collaborate intensively as a reviewer (>50 recommendations) with a wide range of academic journals (e.g., Journal of Applied Ecology, Neobiota, Diversity and Distributions, Ecology Letters).

Capacitiy building: I have given continuous lectures since 2016 at MSc level at University of Cordoba and Seville (>200 hours) in GIS, R programming and modelling. I have also major responsibilities in administration of educational programmes as coordinator of four MSc courses, and member of the Quality Assurance Unit of two MSc programmes, one of them International (Erasmus Mundus IMRD). I have supervised six MSc Thesis (four international from Imperial College of London, King s College of London and Newcastle University and two at



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: forest dynamics Ciencias agrarias y agroalimentarias AMEZTEGUI GONZALEZ, AITOR RYC2021-033956-I ameztegui@gmail.com

From land-use legacies to adaptive management: effects of human activity and environmental changes on

Resumen de la Memoria:

The current composition, structure, dynamics, and biological diversity of the Mediterranean forests cannot be understood without considering the long history of uses and changes induced by human activities, which have contributed to shape the Mediterranean landscapes as we know them today (Blondel 2006, Human Ecology). The expansion of agriculture, and livestock herding, among other activities, resulted in a significant reduction in forest area (Valbuena-Carabaña 2010, Rev Paleo & Palyn). Moreover, forests were intensively cut and transformed into coppices, and many forests were transformed into monospecific, even-aged systems. The deforestation trend only reverted during the 20th century, when ambitious reforestation plans were undertaken, particularly in Spain. These reforestation efforts have been joined in recent decades by important processes of natural reforestation, due to the abandonment of traditional activities and rural exodus. Consequently, most Iberian forests possess a series of legacies derived from their past record of land-uses. These land-use legacies have undoubtedly affected their composition and structure, but also their current and future dynamics, and have the potential to shape the capacity of forests to respond to the challenges of climate change. However, we are still far from fully understanding the role of land-use legacies on forest functioning.

At the same time, the maintenance of ecosystem functions and the provision of services are being compromised due to global change, particularly in Mediterranean forests. The fundamental challenge of natural resource managers is thus to effectively manage complex ecological systems under increasing uncertainties and to anticipate global change impacts through the implementation of appropriate adaptive management strategies. Given the uncertainties associated to future climate predictions and the longevity of trees, simulation models are important and very useful tools to help both researchers and managers. This type of models allows to assess the future consequences that the planning and management decisions we take today may have on the functioning of forests, their ability to provide different ecosystem services, and their resilience, i.e., their ability to cope with disturbances. They allow decision-makers to implement an evidence-based management upon the best available science.

In this sense, my current and future research is articulated on two axes:

1) Assessment of the impact of land-use legacies on forest structure and composition in recent decades and their effects on forest functioning and dynamics.

2) Use of simulation models of forest dynamics to inform forest management and planning in the face of global change

Resumen del Currículum Vitae:

The current composition, structure, and dynamics of Mediterranean forests cannot be understood without the long history of uses and changes induced by human activities. My research focuses on understanding how the interactions between human activity and environmental changes determine forest functioning and dynamics. I am particularly interested in (i) the assessment of land-use legacies and how they impact forest dynamics and their capacity to respond to the challenges of climate change; and (ii) the use of simulation models to inform forest management and decision making. I assess the future consequences that the management decisions we take today may have on the functioning of forests, their ability to provide different ecosystem services, and their resilience, i.e., their ability to cope with disturbances. My final aim is to help decision-makers to anticipate global change impacts through the implementation of appropriate adaptive management strategies based on the best available science.

I have participated in 15 research projects, including the coordination of a project of the program 'Challenges for Society' of the Ministry of Science and Innovation (PID2019-111781RB-I00), and the local coordination of the LIFE Adapt-Aleppo project (LIFE20 CCA/ES/001809), as well as several contracts with private non-profit organizations. Throughout my career I have published 40 SCI articles (30 Q1, 19D1), I have supervised three doctoral theses (one finished in 2019, 2 ongoing), and several Master theses. Since 2018 I am researcher and lecturer at the University of Lleida, where I have taught more than 500 hours of graduate and postgraduate courses, and where I am member of the Academic Committee of the PhD Programme in Forestry and Natural Environmental Management. I am also an Associate Researcher at the Joint Research Unit CTFC-Agrotecnio.

I am the coordinator of the Forest Modelling Working Group of the Spanish Forest Science Society. I was also a member of the Scientific Committee of the VII Spanish Forestry Congress, where I chaired the session on Forest Ecology, as well as co-organizer and moderator of a Symposium on Forest Ecosystem Modeling that was held during the ISEM Annual Meeting (Salzburg 2019). As part of my collaboration with ISEM, I was Guest Editor of a special issue of the journal 'Ecological Modelling' (SCI, IF:2.507), on forest ecosystem modelling. Since 2018 I am Associate Editor of 'Forest Systems' (SCI, IF: 0.960) and 'Cuadernos de la SECF' (pending indexation). In 2019 I was invited as Contributing Author to the 1st Assessment Report of the MedECC on Climate and Environmental Change in the Mediterranean, where I contributed to the section on terrestrial ecosystems.

Throughout my career, I have received several awards, both for my research and for my academic achievements, and I have developed an intense outreach activity in parallel to my research career. I have been accredited as "Professor Lector" (2016) and "Professor Agregat" (2020) by the AQU (Catalan University Quality Assurance Agency).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	PEREZ GREGORIO, MARIA ROSA
Referencia:	RYC2021-033224-I
Correo Electrónico:	mariarosa.perez@uvigo.es
Título:	A comprehensive study of the role of polyphenols in food quality and human health

Resumen de la Memoria:

Pérez-Gregorio holds a PhD in the field of Food Science at University of Vigo-UVigo (2010), which was entirely executed at Nutrition and Bromatology group in the area of Polyphenols (PPs) and Food Quality. The applicant holds 12 years of postdoctoral research experience including 3 years as project manager at IQAC-CSIC (Spain), 2 years as postdoctoral fellow at CIQUP (Portugal), 3 years as postdoctoral fellow at LAQV-REQUIMTE (Portugal) and 4 years as an independent Senior Researcher at LAQV-REQUIMTE (Portugal). Currently, the applicant was incorporated at UVigo after getting the competitive contract Maria Zambrano.

The applicant's research line focused on plant-based foods shaping the future in the Food Industry, providing innovative, sustainable, appealing, nutritional and health solutions. The main research line performed by candidate is based on the ability of PPs to bind to food components, digestive enzymes and cell receptors, which determine two main issues:

1. Food quality and organoleptic properties of food (PPs-oral cavity interactions & taste perception; PPs-lipid-proteins interactions & texture; PPs-polysaccharides interactions & colour)

2. Health-promoting effects (PPs-ligand interactions &food functionality)

Since food quality issues are being investigated, the main research falls within the understanding of the molecular mechanisms on how PPs could modulate immune reactions to food (IRF). To date, PPs were obtained from different food sources in a circular economy approach. Besides, the basis on how PPs could modulate IRF was already set through (a) the detailed description of some immunogenic proteins (IP) and the settlement pattern by PPs are able to bind to IP and (b) the effect of PPs-IP interaction in digestibility, absorption, interaction with gut microbiota, cell receptors and further immune response. Still, the intake of PPs was proven to ameliorate some of the most typical histological changes associated to the gluten ingestion in an in vivo animal model of Celiac Disease enteropathy (DQ8+) while favored the maintenance of gut redox homeostasis. Several missing links need to be addressed before recommending PPs for the prevention and treatment of IRF such as bioavailability studies; cutting-edge biochemical tools and foodomics approaches to identify active components and metabolites within different PPs extracts to understand the cause-effect relationship; a better understanding of the cellular impact of PPs on immune cells in different age groups, etc. Taken together, this research line constitutes a highly relevant breakthrough as it provides the fundamental basis concerning the significance of PPs to be used in the development of innovative functional &sustainable foods. Furthermore, the candidate has validated the ability to get the financial resources needed to achieve the stated objectives (5 funded projects as PI/task leader in the last 5years). The experience attained by candidate joined with the strategic partnerships already established will open future research strategies, while can produce ground-breaking research and innovation that solves complex problems, drives economic growth, and creates a more skilled workforce.

Resumen del Currículum Vitae:

Pérez-Gregorio graduated in Food Science and Technology; Technical Agricultural Engineer and holds a PhD in Food Science and Technology (University of Vigo-UVigo, 2010). The applicant holds 9 years of post-doctoral stages mainly in Spain and Portugal (after winning 2 competitive fellowships) and 4 years as independent researcher in Portugal. Currently, the applicant wan the position Maria Zambrano for attracting International talent to work at UVigo (Spain).

Applicant¿s work is dedicated to search for appealing, sustainable, and healthy plant-based food, anchored to the Horizon 2020 societal challenges in agreement with UN-SDGs and addressing the key priorities of the Food 2030 strategy. The applicant has been working on 16 research projects, including the international COST action Sourdomics and in the Interreg program-Iberphenol together with 3 projects in collaboration with the industry (Bioclarvino, IDFoods, cLabel+). Among them, the applicant has assume a pivotal role as Project/Task Manager or PI in the 5 most recent, which have great international scope and economic endowment (~12.3million in the period 2020-2023). During the last years, the applicant has established strategic partnership between National, European and African research Institutions within the consortia to apply to H2020 (Food4Africa, 2019) and PRIMA (Remedium, 2021) calls. Currently, three proposals are under preparation to be submitted to the FCT-Portugal and PRIMA & HORIZON-CL6-2022-FARM2FORK-01-09-European calls.

The applicant has a fruitful scientific production that includes publications in prestigious journals (h index 17, 48 scientific contributions, 1274 citations), which contributes to the outstanding position awarded by the University of Porto in Shanghai ranking s 2021-15th in the world and 3rd in Europe, in the subject of Food Science and Technology. Furthermore, the applicant¿s work has reflected in the direct transfer of research outcomes resulting in an already product in the market and some others in preparation to scale-up to the commercial step. Pérez-Gregorio has been additionally involved in the development of 2 patents and she has been awarded by the prestigious EITFood, the Scientific Committee of the International Conference on Polyphenols and Health and by the Portuguese Society of Chemistry.

Pérez-Gregorio has supervised more than 10 national and international students, postdoctoral researchers and professors. The candidate is member of several editorial boards in primary journals of the field of Food Science and Technology. She is Auxiliary Professor at University of Porto (Portugal) and University of Vigo (Spain). She was a guest lecturer in several workshops, scientific meetings and in 1 International Summer School. She belongs to several networks in Europe and she was an organizing member of a Scientific Congress. Furthermore, the candidate has participated in the evaluation committee of several academic juries and in the call for projects at the Estonian Research Council.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	MARTINEZ GARCIA, LAURA BEATRIZ
Referencia:	RYC2021-032732-I
Correo Electrónico:	laurabeatrizmartinez@gmail.com
Título:	Soil Health, Food Security and Climate Change

Resumen de la Memoria:

I am a soil microbial scientist widely interested in the use of soil microbial biodiversity and their functions to improve soil health and the resilience of agroecosystems. Given that Soil Health is the basis to guarantee global food security, human and planet health, I consider my expertise and research line of utmost interest in the context of the current widespread environmental degradation and parallel search for sustainable nature-based solutions for our production systems.

With my research line Soil Health, Food Security and Climate Balance I investigate the use of soil management to optimize multi-functionality of our soils, including soil functions such as primary productivity, carbon management, nutrient cycling, water regulation and biodiversity. The four major domains of my research are:

1- Dynamic feedbacks between plant and soil; Plant-soil interactions are essential for plant health, determining the enhance of plant nutrient use efficiency and water status, and the decrease of plant soil borne diseases.

2- Soil biological processes; Soil biota has a lead role to play in promoting soil multifunctionality through the mineralization of nutrients or decomposition of organic matter in soil.

3- Adaptation and mitigation to environmental change. Soil health contributes to increase resilience of agroecosystems to environmental disturbance such as climate change and/or pests.

4- Soil science for society; Involving main actors of the food production chain is essential to efficiently tackle agricultural and social needs. My research uses participatory approach that involves scientific community, farmers, agri-food industry and policy makers.

My passion to investigate ecosystems processes started at the Pre-Pyrenean grasslands, studying plant-plant interactions (CTFC). I soon realized the importance of integrating soil in ecological studies and I started a PhD to investigate arbuscular mycorrhizal (AMF) functioning in the Spanish semiarid (EEZA-CSIC, Spain). During my PhD I learnt from worldwide leading scientists the foundations of the AMF symbiosis and plant-soil interactions (EEZ-CSIC, Guelph University, Free University of Amsterdam, CCMA-CSIC and University of Indiana). My PhD research proved for the first time AMF host preference in semi-arid environments, and showed that AMF increase agroecosystems resilience to climatic change events. As a postdoctoral researcher, my enthusiasm to continue discovering the ins and outs of soil processes took me to unique places in the world; First, I moved to New Zealand where I studied for the first time the role of AMF in ecosystem development in the famous Franz Josef soil chronosequence (Landcare Research). Second, to the boreal forest in Canada to study the role of soil microbes on plant invasions (Algoma University). Later, I went back to Europe where I focused my research in agroecosystems (University of Lisbon, Wageningen University, Lund University). Currently, I am decided to use my expertise on soil processes to find novel soil health agricultural management to apply with farmers and the agri-food industry, and find solution to the global food crisis as well as adaptation and mitigation of climate change.

Resumen del Currículum Vitae:

I am a soil scientist widely interested in the use of soil microbial biodiversity and their functions to improve the health and resilience of agroecosystems. I have a long and highly international trajectory investigating the capacity of soils to provide key ecosystem services such as carbon storage, soil fertility, disease suppressiveness and water regulation in both natural systems and agricultural lands.

Since I initiated my research career as a soil scientist, my scientific outputs have been of high relevance to advance on scientific knowledge and to be applied within the society, specifically within the agro-food sector. Thus, the results from my research have been disseminated via multiple scientific papers in high-impact factor journals, as well as outreach scientific articles, and conference proceedings. I have published 21 research papers (most of them in Q1 journals and as lead author), and contributed to numerous international conferences. Frequently in the last years, I have organized multiple R&D activities, such as multi-stakeholder workshops on soil health and specialized training courses for MSc and PhD students. Additionally, I have also lectured in MSc courses and in high-education specialized training courses, as well as supervised students, including MSc and BSc Theses, and Erasmus Internships.

My capacity to plan, manage and implement research projects is proven by my ample research trajectory at several universities and research institutes across the world. I have worked or stay for a short research stay at the Forest Science and Technology Centre (Spain); EEZA, EEZ and CCMA (CSIC, Spain), Free University of Amsterdam (Netherlands), Guelph University (Canada), Indiana University (USA), Landcare Research (New Zealand), Algoma University (Canada), Lisbon University (Portugal), Lund University (Switzerland) and Wageningen University Research (WUR; Netherlands).

From 2019 to 2021, I coordinated my personal MSCA-IF European project entitled HARVEST. In partnership with Danone, a world leader in the agrifood sector, and WUR (Netherlands). HARVEST aimed to develop novel nature-based soil health strategies that simultaneously enhance soil-borne disease suppressiveness, nutrient use efficiency and water regulation, thus decreasing the need for chemical fungicides or fertilizers. My MarieCurie project involved main actors from the food production system (scientific community, agri-food industry and farmers) ensuring application of scientific results and reinforcing multi-stakeholders innovation partnership.

Currently I work as a soil researcher at Wageningen Environmental Research (WUR, The Netherlands). The main focus of my current research is to develop feasible carbon farming systems for Europe and apply them in a regional context in The Netherlands. Therefore, I am involved in several European projects (EJP Soil) as well as in national Dutch funded projects. These projects involve multi-stakeholder partnerships between industry, policy makers, the bank sector and research institutes.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Ciencias agrarias y agroalimentarias
VICENTE CONDE, JORGE
RYC2021-031349-I
vicentecon.jorge@gmail.com
Linking targeted protein stability in the plant immune system to crop yield protection

Resumen de la Memoria:

I have committed my career to the study of the regulation of the plant immune response against pathogenic infections and to develop biotechnological tools to help secure future crop harvests when challenged by infective agents. My research has taken me from complementary disciplines, as a biochemist in the study of the natural antimicrobial compounds oxylipins or the genetic analysis of the resistance driven by lipoxygenases to an international leading role in the characterization of the N-degron pathways as major regulators of protein stability during plant stress responses, particularly plant immunity.

I graduated as a biologist specialized in molecular biology at the University Autónoma (Madrid, Spain), while combining my studies with practical work as a student assistant at the Biotechnology National Centre in Madrid in Prof. Castresana s group, world expert in oxylipins, lipid derivatives with multiple functions in plant defense. My work during this training period led to a publication (Plant Physiology). During my PhD at the same group, I continued the study of oxylipins and the enzymes that synthesize them in the plant immune response. My training was improved during stays with Prof. Schulze-Lefert at the Max Planck Institute (Cologne, Germany) in 2006, where I participated in a project of chemical genetics, and with Prof. Flors at the University Jaume I (Castellón, Spain), where I performed metabolomic analyses. During this period, I published 6 papers in high impact journals (Molecular Plant, Plant Cell). This work has significant biotechnological implications as oxylipins could be used as natural antipathogenic agents.

During my postdoc in Prof. Holdsworth s group (Nottingham, UK), world leader in N-degron pathways, I have opened a new independent research line to study the control of conditional protein stability during model and crop (Arabidopsis and Barley), responses to pathogenic infections. This work is essential to understand and predict how plants balance the stability of key defense proteins to achieve an effective resistance, that could be used to reduce current yield losses. During this period, I have published 12 papers in top journals (including Nature Communications, Molecular Cell, Current Biology), 2 of them as corresponding author. Besides, I have co-authored 2 funded grants (BBSRC, total value £738.108) and led both as Researcher Co-Investigator (a BBSRC official status) and established a network of internationally leading collaborators (UK, Belgium, Germany, Austria, Spain). I have supervised 11 MSc and PhD students and technicians and, currently, I am co-directing 2 PhD theses. I have been an evaluator of the Spanish State Research Agency since 2021 and a regular reviewer in international plant science journals.

My 19 publications have been cited 1541 (WoS) / 2085 (Google Scholar) times.

Currently I am addressing one of the key questions still unanswered in plant biology, how plants translate information from pathogen sensing to an effective immune response by controlling the stability of key defense proteins. This is the basis of my current and future translational research line which, by determining new key regulatory proteins whose abundance is regulated to enhance defence in tomato and in other crops, will improve biotechnological and classical breeding approaches to secure yields against pathogens.

Resumen del Currículum Vitae:

I graduated as a biologist specialized in molecular biology at the University Autónoma (Madrid, Spain). PhD cum laude with a Formación de Personal Investigador (FPI) fellowship at the Spanish Biotechnology National Centre in Prof. Castresana s group (2012). By following genetic, phenotypic and molecular biology approaches I focussed my research in the role of the lipid derivatives oxylipins in the plant response against pathogens and in the use of these compounds as natural inducers of disease resistance in different plant species. Once I published the results from my thesis, I moved to UK in 2013 to work in the University of Nottingham (UoN) with Prof. Holdsworth in regulation of conditional protein stability by the N-degron pathways during stress response in Arabidopsis and Barley (the fourth largest grain crop globally). Here I initiated new research capacity in a group with no previous experience in biotic stresses, leading the characterization of the N-degron pathways as mayor regulators of the abundance (that greatly affects the function) of key defense proteins. My work is defining one fate of those proteins in a way hitherto unknown for the scientific community, providing a gateway to protection of crop yields. This study has allowed me to extend my knowledge to additional areas as proteomics and crop physiology. During my career:

-I have published 19 articles, 9 in the last 5 years, which have been cited 1541 times (WoS). I am the corresponding author of 2 publications, one of them an ISI highly cited paper (Vicente et al., 2019). I have participated in a publication recommended in F1000Prime (of special significance in its field). I have regularly presented my work at national and international conferences.

-I have participated in 11 projects (defining objectives, managing costs, planning experiments) and co-authored the last 2 (BBSRC, £738.108), leading both as Researcher Co-Investigator (BBSRC official status that recognises intellectual input, management and leadership on the proposed research). My research based on Barley resistance to abiotic and biotic stresses has been funded by a private company (SABMIller, 2013-2019). -I visited other labs (Max-Planck, VIB, UJI) to improve my training in chemical genetics, proteomics and metabolomics.

-I have been invited to 3 thesis defenses (2020-2022). I have been an evaluator of the Spanish State Research Agency since 2021 and a reviewer in international plant science journals.

-I am involved in a continuous mentoring role, co-directing 2 PhD projects and having supervised 11 MSc/PhD students and technicians.

-I am a demonstrator in a science show, involved in SciComm through Twitter and online research communities.

My current network includes internationally leading collaborators in UK, Belgium, Austria, Spain, Germany.

My experience in UK have brought to light the importance of translating my work from basic research to crops, reason why my future research line will be based in tomato. In our preliminary data obtained from state-of-the-art proteomic datasets, we showed that during pathogenic infections we can track the fate of key defense proteins by a combined analysis of protease and N-degron pathways activities. In my return to Spain I will translate this information to tomato, an organism with a big economic importance for the country and the EU. Being able to predict the identity and fate of key defense proteins will provide a unique know-how to stabilize crops





Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	FERRER GALLEGO, RAUL
Referencia:	RYC2021-031638-I
Correo Electrónico:	raul.ferrer@vitec.cat
Título:	Wine chemistry and quality. New products, technologies and processes for wine industry

Resumen de la Memoria:

Agronomist Engineering (UPV, 2003) and Enology Degree (UPV, 2006). I moved to France (9 months) and then I started my PhD in Salamanca (USAL). PhD with European mention (2011) and with Special PhD Award. Pre-doc and Post-doc stays at University of Porto (Portugal) (30 months).

My scientific productivity is reflected in 38 SCI-publications, h-index 14, and 752 (Scopus). 3 book chapters and several participations as reviewer, international PhD referee, guest editor, member of PhD thesis committees. Part of the organization in one international congress, and member of accredited sensory panel.

The successful technological transfer of my research is reflected in the development of new products, and the optimization of processes for wine industry by competitive projects and consortiums with companies. I participated actively in more than 25 competitive projects (total budget 30 M), 3 internationals (7,5 M) and more than 50 private company contracts (3 M). Principal Investigator (PI) in 2 competitive international and 8 national projects (more than 1,5 M), 3 competitive regional projects (2016-2022, 100.000) and several national private contracts (2019-2021, 1,5 M). I collaborated with more than 75 researchers from different countries (France, Portugal, Sweden, Uruguay, Brazil, Cyprus, etc.). I have established a wide network of national and international research collaborations with leading groups that are currently ongoing. During my career, I have supervised one PhD thesis (defended 2021) and directed 3 Master students. I lead courses and I participated as assistant teacher. I lead my own winery and I act as enological adviser. Importantly, I have developed my scientific career in national and international leading scientific groups, obtaining most of my own funding from national and international competitive research agencies.

In summary, I have reached a solid understanding related to wine science and industry. The excellent training and the amount of independence and scientific freedom I already enjoy in my career have made me confident of my abilities to create/manage innovative projects. My future projects will be open into novel areas of wine research, where the transfer knowledge will be clear. My future as Ramón y Cajal researcher will include the study of new processes and products.

Resumen del Currículum Vitae:

In 2003, I earned my agronomist engineering degree (UPV) and carried out my final career project at IVIA (Instituto Valenciano de Investigaciones Agrarias, 6 months). In 2006, I obtained the enology degree (UPV) and was awarded with a mobility fellowship (Leonardo Da Vinci Program) moving to Bordeaux (France, 6 months, 2005). After that, I moved to Perpignan (France, 3 months, 2006) to acquire expertise as oenologist. I started my scientific career moving to the University of Salamanca (USAL) to perform my PhD (FPI fellowship) under the supervision of Profs. Julián Rivas-Gonzalo and M. Teresa Escribano-Bailon at the Excellence Research Group of Polyphenols (GR-133). My pre-doctoral research stay was carried out at University of Porto (Portugal) under the supervision of the recognized Prof. Victor de Freitas (6 months, 2010). I obtained the European PhD Degree (USAL, 13/12/11, 'cum laude') and the special doctorate award. I participated as teaching assistant in USAL in different courses (biology and pharmacy, 2009-2011). In 2012, I obtained a competitive international post-doctoral fellowship from the OIV (2012, 10 months). In 2014, I awarded by a post-doctoral fellowship from the Martin Escudero Foundation to do my own research project at the University of Porto. Finally, in 2016, I moved to Falset (Tarragona) where I started my career as Independent Researcher in VITEC. Here, I have diversified my expertise as researcher. Since 2016 up to now (as scientific coordinator), I have been supervised and leaded the research of the center. I participated actively in more than 95% of the articles published in VITEC in diverse fields of expertise (analytical chemistry, microbiology, sensory analysis, winemaking). Here, I reached 29 SCI-papers, 3 book chapters, and 5 technical contributions. I helped to growth the young researcher of this center. I supervised 1 PhD thesis (defended in October 2021), 4 MSc and the scientific career of the VITEC training staff (more than 15 national and 2 international) helping them to find new employment opportunities and a job stability. Also, I am enological adviser, and I created my own family winery. My scientific career can be summarized in 38 articles in JCR (more than 75% as first, last, or corresponding author) with demonstrated relevance for wine science and great impact in the understanding the relationships between polyphenols of wine, salivary proteins, and the sensory perception. My hypotheses of polyphenol/protein interactions opened new research related to astringency and the interactions between wine polyphenols and cells of the oral cavity. My contributions to the society are related to the wine sector and demonstrated by the transfer of knowledge of new processes, products, and services to wineries and auxiliary industry. This transference knowledge to wine industry was made ad hoc for private companies and institutions. I participated actively in the developments and optimization of new processes, new technologies and new products that generated new market opportunities and economic growth. I have participated dynamically in more than 25 competitive projects. Current PI of VITEC in 2 international projects (6 M). I was PI in 5 competitive national projects (1,5 M) and 5 competitive regional projects (6 M) and several national and international private contracts (1,5 M).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	VALLARINO , JOSE GABRIEL
Referencia:	RYC2021-034936-I
Correo Electrónico:	vallarino@uma.es
Título:	Plant Metabolic Pathways Regulation
D	

Resumen de la Memoria:

My expertise is plant physiology, biochemistry and biotechnology, specially focus on understanding plant metabolic pathways structure and regulation by using integrative approaches in several crops (grape, strawberry, and tomato). My major goal is deeping on (i) fruit quality and (ii) stress tolerance mechanisms to generate new biotechnological strategies to be applied in future breeding programs. I got my Ph.D. at the University of Talca, Chile, where I worked on the problematic of volatile related to detrimental flavors in grapevine and wine. During this period, I was awarded with two competitive funding for mobility that allowed me to perform two research stays in USA and Germany. Also, being a PhD student, I was PI of a competitive research grant from the National Innovation and Research Agency. In 2012, I moved to Spain where I worked as postdoc for more than 4 years at the Instituto de Hortifruticultura Subtropical y Mediterránea La Mayora (IHSM-UMA-CSIC), where I focused on molecular and genetic analysis of strawberry fruit ripening with emphasis on the relationship of fruit and nutritional quality. In 2016, I moved to the Max Planck Institute of Molecular Plant Physiology in Germany where became a project leader (2016-2021), to work on integration a more system-wide analysis of plant metabolism by combining transcriptomic, metabolomics with molecular biology and physiological approaches to better describe the molecular mechanism underlying fruit production and quality. On 2021, I got a highly competitive grant (Attraction of Talent) that has given me the opportunity to start my own and independent research group as Junior Group Leader at IHSM-UMA-CSIC (2021-2025, Spain), aiming to investigate the metabolic regulation and gene regulatory network controlling plant development associated to abiotic stress resistance and fruit quality during ripening and postharvest. My research has been continuously funded by international, European, national and regional projects in some of them playing as Pl/co-Pl). In r

to transfer technology activities, Im PI in 7 different contracts (total budget of 75.280 euros). During my career, I have been continuously involved in teaching and supervision of young researchers from multiple countries (co-director of one PhD thesis, 5 MSc Theses, and 4 BSc Theses). Since the start of my Ph.D. I have published 42 articles (20 as first/corresponding author), mainly in Q1 journals (87% in leading journals in my area; D1). I have built an ample international network and currently a member of two COST Actions. Editor of Frontier in Plant Science and CABI Agriculture and Bioscience.

Resumen del Currículum Vitae:

1. EDUCATION:

-Agricultural Engineer (2002, University of Talca, Chile)

-PhD in Plant Science (2011, University of Talca, Chile). University of Malaga (2012, validated the PhD)

2. PROFESIONAL EXPERIENCE:

- 2021-Act: Young leader at IHSM-UMA-CSIC, Spain (Junta de Andalucia_EMERGIA program)

-2016-2021: Postdoctoral at the Max Plant Institute of Molecular Plant Physiology, Germany.

-2012-2016: Postdoctoral at the Instituto de Hortifruticultura Subtropical y Mediterránea La Mayora (IHSM-UMA-CSIC), Spain.

-2007-2011: PhD student at the University of Talca, Chile

-2002-2007: Project manager engineer in the company Copeval, Chile

3. SCIENTIFIC PRODUCTION:

-JCR articles: 42 (87 % Q1-JCR), including the high-rank journals in Plant Science area: New Phytologist, Plant Biotechnology Journal, The Plant Journal, Food Chemistry, Journal Experimental Botany.

- First/last and corresponding author: 20

- Book chapter: 8 (6 as first/last and corresponding author)
- H-index: 15 (WOS); 17 (Google Scholar)
- Total number citation: 669 (WOS); 929 (Google Scholar)
- 4. R&D PROJECTS AND CONTRACTS:
- Participation in 6 international/European/national projects.

- As PI/co-PI:

o research grant combining academia and industrial partnerships (the National Innovation and Research Agency `INNOVA-CORFO¿, and Sociedad Agrícola Santa Sara Ltd. And Kingston Family Vineyards S.A. in Casablanca Valley, Chile), with a total budget of 300.000 .

- o 7 different contracts in relation to transfer technology activities (total budget of 75.280)
- o Junta de Andalucia-EMERGIA program, 243.000 .
- 5. NATIONAL AND INTERNATIONAL RESEARCH COLLABORATIONS

- Member of 2 COST actions projects

- Different collaborations with different research groups and companies (aprox. 20 groups) from 11 countries (these collaborations are reflected in the CV)

6. R&D DISSEMINATION, COMMUNICATION AND EVALUATION COMMITEES:

- Contribution to conferences: 21

- Conferences and seminars given upon invitation: 7
- Publications in softer publications: 3
- Participation in events for general public: 3



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

- Editor tasks: 2 (invited in Frontiers in Plant Science and CABI Agriculture and Bioenergy)

- Peer-reviewer tasks in different journal from Plant Science category (such as Journal of Agricultural and Food Chemistry, Frontiers in Plant Science, The Plant Journal, Plost One, Plant Physiology and Biochemistry, Physiologia Plantarum.

- R&D project evaluation in different International Agencies: (Fondecyt from Chile; Israel Science Foundation from Israel, Entidad Certificadora EQA from Spain, Marie Curie Sklowska-Curie innovative training networks from European Commision)

- Member of 2 PhD Thesis committees

7. RECOGNIZED POSITIVELY BY ANECA:

Positive assessment as Profesor contratado doctor (2017) by ANECA

8. SUPERVISION, MENTORING AND TEACHING ACTIVITIES

- 1PhD disserted in 2019 (two PhD theses on going)

- 5 Master Theses



Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	MORIANA TORRO, ROSANA
Referencia:	RYC2021-034380-I
Correo Electrónico:	romotor@hotmail.com
Título:	Conversion of plant biomass into hig

ss into high value-added products (texturized food and bio-based materials) as an alternative to animal protein-based food ingredients/products and petroleum-derived packaging plastics & barriers.

Resumen de la Memoria:

The applicant has 18 years of research experience in 3 different countries (Spain, Italy and Sweden) in both environments: academic (Polytechnic University of Valencia-UPV, University of Bologna-UNIBO, Royal Institute of Technology, Stockholm-KTH, Skövde University, Sweden-HIS and The Swedish University of Agricultural Science-SLU) and industrial (Textile Research Independent Association, Research Institute of Sweden-RISE). She is a multidisciplinary scientist with focus on several disciplines, i.e. food science/technology, wood and fiber technology, polymer material science & technology, biotechnology and physical chemistry. She obtained 2 MSc, one in Chemical Engineering-UPV, Spain and a second one in Materials and Sensors for Environmental Technologies (UNIBO-Italy, UPV-Spain and KTH-Sweden). She was granted a PhD in Materials Engineering at UPV and 2 postdoctoral Swedish fellowships at KTH. She has worked 6 years as independent researcher/lecturer, acquiring as Principal Investigator / Applicant ~1.95 Million . As Associate Professor-tenure track position at HIS she was in charge of stablishing a a new research and educational programme on biobased circular polymeric materials. She was also awarded by an ÅForsk grant allowing her expanding her research group at KTH. At SLU, the applicant started to develop her major research ambition by applying her expertise in two research areas (food and biopolymeric materials); designing biological structures with targeted properties as an alternative to animal protein-based food and fossil-based plastics. Nowadays, she is senior researcher at RISE, and in this last 2 years her reserarch portafolio was composed of 17 mutidisciplinar projects (2.9 Million). She has been appointed as a PI of a Project founded by governalmental national founds (480.000) to promote the development of sustainable barrier products and as a board research member in the RISE Research Programme on barriers with direct contact with companies (Tetra Pak, DS Smith, Klabing, UPM, Valmet), which found the specific research.

Quality indicators are: 36 peer-reviewed papers (80% ranked as Q1 and 60% as D1), being first author in 10(28%), last author in 8 (22%) and corresponding in 13(37%) of them; h index 17; 62 contributions to congresses; supervision of 25 students of different levels including 7 PhD thesis; participant in 62 conferences and in 42 research projects (value of 6.8 Million), being principal investigator/project leader in 9 of them; teaching experience as lecturer and course responsible of undergraduate level.

Her main research line is on the conversion of plant biomass into high value-added products (texturized food and bio-based materials) as an alternative to animal protein-based food ingredients/products and petroleum-derived packaging plastics/ barriers. She is specially interested in the valorisation of agro-food and forest processing side-streams/residues by using biorefinery processes in a cascade approach, maximizing the profitability of the sources and contributing to the zero residues approach. A particular challenge in this field and her ultimate research interest is to understand how the structural properties of biomolecules control the assembled cell-wall biomass architecture and how biomolecular interactions and their assemblies can control and define the resulting product performance/quality.

Resumen del Currículum Vitae:

Current Position

Previous employments
(80%) Researcher at Molecular Sciences, SLU-Swedish University of Agricultural Sciences, Uppsala, Sweden
(80%) Senior Lecturer at Högskolan i Svöde.Skövde.Sweden
(20%) Researcher at KTH-Royal Institute of Technology.Stockholm.Sweden
Researcher and post-doctoral fellow at KTH. Stockholm.Sweden
RD Technician in the Biotechnological and Materials Dep. of the Textile Technological Institute (AITEX), Spain
Higher education degrees
-Ph.D in Mechanical and Materials Engineering UPV, Spain
-M.Sc in International Master in Materials and Sensor Systems for Environmental Technologies, KTH-UPV-UNIBO
-M.Sc in Chemical Engineering- specialty in Environmental Processes, UPV
Scientific production and dissemination
-Author of 62 peer-reviewed publications. 36 papers in JCR, (80% ranked in Q1 and 60% in D-1)
-First author in 10 papers (28%), last author in 8 (22%) and corresponding author in 12 (37%)
-Author's h-index of 17, 75 different co-authors, 1007 citations
-Guest invited editor in Novel Polymers from renewable biomass, Special Issue of Polymers
-62 contributions to national and international scientific congresses. Invited chairman in 2 of them
-General public presentation. Popular Sciences Lecture at KTH-library and online.
Collaborations/Independency:
-Participation in 42 Research Projects (~value of 6.8 Million being ~440.000 from private founds (contracts with companies))
-PL in 9 research projects of an ~value of 1.95 Million of which (275,000) are from contracts with companies/private founds

Supervision/Leadership of 25 students at 3 Universities (UPV, KTH, SLU):





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

-8 undergraduate students during their project degree, 4 of them Masters -12 PhD students: 7 of them during their PhD thesis as co-supervisor, 2 hosted during their temporary stays and 4 during cooperative studies that resulted in publications -1 post-doc fellow hired by one of my granted projects (12 months) -1 post-doct internship (3 months) -sumer jobs and internships Teaching portafolio: -Teaching in undergraduate level in 4 different universities (UPV, KTH, HIS, SLU) -Teaching in workshop for university teachers (continuing professional development) -Guest lecturer in the Biopolymer course at KTH -Course leader and examiner at SLU, coordinator 15 ECTS -Preparation of audio-visual teaching material for e-learning at UPV (11 different learning objects) -9 contributions to pedagogical conferences, 5 peer-reviewed publications Teacher training in a: -Course intended for all examiners at SLU to be course leader -Course tailored for PhD main supervisors at KTH -CAP-Ciclo teorico practico, UPV -Programa de Acogida Universitario, UPV Internationalization and mobilization .7 months of Erasmus-Mundus at UNIBO, Master Thesis .3 international temporary stays/internships during her PhD studies at KTH .Long-term international post-doctoral stays (total time of 43 months) in both industry and research environments in Spain and Sweden .Research career as an independent research leader developed at 3 different Swedish Universities and at the Research Institute of Sweden during the last 10 years

Scientific Missions Member of Swedish Institute for Standard and ISO representative for sweden



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ROTUNDO , JOSE L.
Referencia:	RYC2021-032623-I
Correo Electrónico:	rotundo.jose@gmail.com
Título:	Ecofisiología de cultivos de granos
Resumen de la Memoria	-

I have a Bachelor s degree in Agronomy (5-year degree) and a Master¿s degree in Natural Resources both from the University of Buenos Aires, Argentina. I also completed a Ph.D. in Crop Production and Physiology from the Agronomy Department at Iowa State University. Research for my Master¿s degree was pursued at the Agricultural Institute of Physiological and Ecological Research (IFEVA), a top leading research institution at Argentina. After completing this degree, I wanted to expand my expertise to another research field as part of an integral formative process. My interest focused on crop physiology, particularly on how the environment affected seed composition of field crops and how selection for quality traits affected crop functioning (due to its relevance in Argentina and the USA I worked up to now in soybean as a field crop model, but my interest is wider to field crops in general). I obtained a Fulbright Scholarship to conduct a PhD on this area in the US. After completing the Ph.D. degree at Iowa State University, I was a post-doc at the same university. In January 2010 I obtained a permanent position as a Research Scientist in CONICET, the National Research Council from Argentina. Therefore, I decided to finish the postdoc in Iowa and move back to Argentina. I worked then for CONICET for several years and a couple of years ago I left this position to start working as a Research Scientist in the Industry in USA (at Corteva Agriscience in the department of Predictive Agriculture) where I work at the interface of Crop physiology and Crop modeling. In this new role I got exposed to diverse cropping systems around the world. Also, it provided me with a different set of tools and skills that the ones I developed previously at the academy.

Resumen del Currículum Vitae:

My research goal is to better understand the physiological bases of crop management and breeding to increase productivity and sustainability of agricultural systems. My major achievement was to build a career that combines: 1) a strong publication record, 2) an extension program solid built on scientific grounds in the public sector, and 3) a more recent research and outreach program developed in the private sector. An example of this is my research program in soybean seed composition that transitioned from detailed physiological studies to applied research and extension activities that impacted in how growers managed the crop funded by public agencies, farmer groups, and exportation councils. I developed research skills ranging from basic crop ecophysiology, statistical analysis of large databases originated directly from farmers fields, and the development of agronomic trials to test technologies to improve seed composition. This program also allowed to train two PhD students under my advice and program is an example of what I consider a successful pathway from basic through applied research to outreaching and education in the context of crop sciences.





Área Temática:Ciencias agrarias y agroalimentariasNombre:SALOMON MORENO, ROBERTO LUISReferencia:RYC2021-032467-ICorreo Electrónico:roberto.salomon@upm.esTítulo:Tree physiology and modelling for knowledge-based management

Resumen de la Memoria:

My research focuses on plant physiology, and I am particularly interested in plant respiration, hydraulics, and modelling. I consider that a comprehensive understanding of tree responses to warmer and drier climates is crucial to propose knowledge-based measures to solve global issues such as forest decline associated with climate change.

During my PhD at the Technical University of Madrid (UPM; 2011 2015), I explored the physiological causes of tree decline in oak (Quercus pyrenaica) coppices from sub-mediterranean regions. I tested the hypothesis of an imbalance between above- and belowground organs resulting from long-term coppicing as the underlying cause of tree decline. For this, I applied a multidisciplinary approach integrating genetic analyses, dendrochronology, plant anatomy and physiology.

My first postdoctoral position (2016) consisted of a collaboration between the Laboratory of Plant Ecology at UGent (Belgium) and the Centre d'Ecologie Fonctionnelle et Evolutive (CNRS) at Montpellier (France) to model the hydraulic behaviour of oak (Q. ilex) trees subjected to long-term drought stress. I took advantage of a long-term rainfall-exclusion experiment at the CRNS and implemented the resulting dataset in a mechanistic hydraulic model. Then, I compared the temporal variation in stem water content and hydraulic capacitance between control and rainfall-excluded trees.

During my second postdoctoral stage (2017-2020), I extended my stay at UGent to work on the project "Woody tissue respiration and climate change: a mechanistic modelling exercise". I had the opportunity to learn cutting-edge tracking isotopic techniques and perform manipulative experiments to assess plant responses to scenarios of climate change (elevated CO2 and drought). Moreover, I developed an innovative biophysical model of plant respiration at the organ level (TReSpire), a valuable tool to predict tree stem water and carbon fluxes under varying biotic and abiotic conditions.

For my third postdoctoral stage, I returned to the UPM in September 2020 as a Juan de la Cierva Incorporación research fellow. I am gaining skills to upscale tree-level observations to continental and global levels. Illustratively, I am the first author of a paper recently published by Nature Communications summarising results of a European network of dendrometer data. I also continue with my previous research lines, mainly plant respiration, modelling, stem hydraulic functioning, and further investigate the origin of the decline of sub-Mediterranean oak coppices, for which I have recently received funding as principal investigator.

In the future, in addition to continuing with the ongoing research explained above, I would like to start new research on nanobiotechnology. For this, I recently presented my project proposal to the ERC Starting Grant (call 2022): "Nanobiotechnology to enhance plant Water Use Efficiency".

Resumen del Currículum Vitae:

My academic education includes an MSc degree in Forestry Engineering (2009) and a PhD in Advanced Forest Research (2015) from the Technical University of Madrid (UPM). After completing my PhD, I moved to Ghent University (UGent, Belgium) for almost five years, three of them as an FWO [PEGASUS]2-Marie Sklodowoska-Curie Fellow. I came back to the UPM in 2020 with a "Juan de la Cierva Incorporación grant. My research training has been complemented with eight international research stays; four predoctoral stays at the University of Georgia (USA), Université de Québec en Abitibi-Temiscaminge (Canada), Institute of Dendrology of the Polish Academy of Sciences (Poland), and UGent (Belgium), and four postdoctoral stays at the CNRS (France), the Hawkesbury Institute for Environment (Australia), the Max Plank Institute for Biogeochemistry (Germany), and UMR Écologie des Forêts de Guyane (French Guyane).

I participated in 12 research projects, nine funded through competitive calls. I am a co-author of 37 articles published in journals indexed in the Journals Citation Report (JCR), two in the Nature portfolio, 19 as the first author, and 75% in the first decile of journals belonging to the categories of Forestry, Plant Sciences and Multidisciplinary Sciences. Moreover, I am the first author of one book chapter in which I was invited to review the "Carbon losses from respiration and emission of volatile organic compounds" (Springer). According to the Google Scholar Database (accessed on 25th January 2022), I have 611 total citations, an H-index of 14, and an i10-index of 19. My research activity led to 17 national and international conferences or workshops contributions. I belong to the editorial board of Frontiers in Plant Biophysics, and Modelling, the review board of Tree Physiology, and I frequently review manuscripts for other journals (31 according to Publons). Likewise, I participate as a scientific evaluator or research project proposals for national (MICINN EVALUA) and international (Emmy Noether Programme, Germany) programmes. I have been assigned to the evaluation board of one PhD dissertation thesis and five MSc theses (UGent). I have obtained the accreditation for Profesor Contratado Doctor by the Spanish ANECA.

I have experience attracting funding from national and international competitive calls. I was selected for a Marie-Curie Individual Fellowship (2016 call) and a scholarship within the programme "Atracción de Talento" of the Community of Madrid (2019 call). I turned down these two highly competitive grants due to incompatibility with funding achieved simultaneously. Moreover, I have received project funding as principal investigator from the Flanders Research Foundation (FWO) and the Spanish Ministry of Science and Innovation (MICINN). More recently, I presented a research proposal in the ERC Starting Grant (call 2022) with the ambition of starting my research group.



In parallel with my research activities, I have performed teaching assignments as a co-lecturer in MSc courses from UGent (2017-2020). I currently assist in teaching activities in three BSc and MSc courses at UPM (2020-2022). I also mentor young researchers. I have supervised a final MSc thesis at the UPM, co-supervised two PhD thesis at UGent, and am currently co-supervising two more PhD candidates (from 2020).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	MANZANO , CONCEPCION
Referencia:	RYC2021-034086-I
Correo Electrónico:	manzano.concepcion@gmail.com
Título:	Plant root development: from model organism to crops
Título:	Plant root development: from model organism to crops

Resumen de la Memoria:

My main interest and fascination are the study of plant root development and its interaction with the environment. During my PhD, I participated in two projects: 1) Identification of ubiquitinated proteins and 2) Gene regulation of lateral root primordia (LRP). In the first project, I identified more than 200 proteins subjected to ubiquitination in Arabidopsis. This work was published in Plant molecular Biology. In the second project, we described the role of epigenetic marks coupled with auxin in regulating the LR development. This work was published in Plant Physiology. During a stay in Tom Beeckmands lab, I also profiled the LRP cells using a specific cell type marker coupled with fluorescent activated cell sorting. We found a novel role of reactive oxygen species in LR development, and all this work was published in Plant Physiology. Moreover, as part of my first postdoctoral experience, we identified two mutants with defects in LR development and we deciphered the role of the responsible genes on this process. We got a couple of publications in Journal of experimental botany and in Plant Journal describing the function of each gene.

I wanted to expand my studies in root and cell type development using crops as a model system. Particularly, I was interested in the study of root celltypes that control the root-soil interaction. One of these cell types are the endodermis and exodermis, they form barriers to control the entrance of solutes and water from soil. I designed the Root Barriers project to study the differentiation of the exodermis. I received a Marie S. Curie fellowship to start this project at the University of California, Davis. During the past four years, I have been able to characterize the exodermis differentiation and found for the first time some molecular regulators implicated in its differentiation. I have submitted a manuscript for publication in a high impact journal. I have also participated in a crop cell atlas project that aimed to generate for the first time a comprehensive dataset of all the cell-type genes in several crop species. As a result, we have an article published in Cell.

My past experiences have demonstrated I was able to get funding from ERC having obtained a Marie S. Curie fellowship. Also, since 2019 I am participating as external expert reviewer for Marie S. Curie IF fellowships. All of that proves my experience with the ERC priorities and standards for project funding. During last few years, I have become an expert in the field of the Plant Apoplastic Barriers. That was reflected by the invitation as Keynote speaker at the last Padiba (Plant apoplastic diffusion barriers conference) held in Germany in 2019. I have also co-tutored 4 PhD students and tutoring a junior specialist and 4 undergraduate students. In 2021 I also contributed to acquire extramural funding to continue my project about the exodermis differentiation from the National Science Foundation (NSF) in the USA.

Resumen del Currículum Vitae:

Education

- Bs in Biology (2005, Complutense University of Madrid)

-PhD in Genetics and Cellular Biology (2011, Complutense University of Madrid, Summa Cum laude).

Appointments

- INIA PhD fellow at CBGP (2005-2009)

- PhD student contract at CBGP (2009-2011)

- Postdoctoral scholar at CBGP (2011-2015)
- Marie S.Curie IF. University of California at Davis INIA (2016-2019). Score 93.
- Assistant Project Scientist University of California at Davis (2019-Present).

- Expert evaluator Marie S. Curie IF (2019-Present).

Scientific production

- Author of 18 articles in indexed journals; 18 papers (100%) published in Q1-journals.

- H-index=12 (Scopus).

- Author of 22 works presented at national and international conferences

Technology transfer

- Author of two patent (P201630412) INIA and 081906-1185400 (238200US) UCD.

Participation in national and international research projects.

-Researcher in National Projects: 6 (Competitive calls).

-Researcher in International Projects: 3 (Competitive calls); 1 Project (Marie Curie Actions) as Principal Investigator.

International experience

- 2 months at VIB at Tom Beeckman lab. (Gent, Belgium) (2008).

- 24 months at University of California, Davis with a Marie S. Curie fellowship (2016-2018).
- 34 months at University of California, Davis (Since 2019)
- 2 months at University of Lausanne at Niko Geldner lab (2017).
- Expert evaluator for the H2020 Marie S. Curie IF (Since 2019).
- Invitation as keynote speaker: PADIBA meeting in Bonn Germany (2019).

National and International Collaborators



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

-Collaboration network of more than 80 researchers from research institutions from USA, Switzerland, Germany, UK, The Netherlands, Spain and Portugal.

Teaching and supervising experience

- Participation in teaching activities at University of California at Davis.
- Co-supervisor of 3 PhD students and supervisor of 4 undergrads students.
- Supervisor of one international PhD student and two national PhD students during their stay at CBGP.

Dissemination activities

- Week of Science

- Fascination of plants day

Awards

- Best poster presentation at the Root research at the forefront of Science International Symposium in 2018. Israel.





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	runio de deceso general
Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ARMENGOT MARTINEZ, LAURA
Referencia:	RYC2021-032601-I
Correo Electrónico:	larmengot@gmail.com
Título:	Sustainable agricultural practices and crop diversification

Resumen de la Memoria:

My scientific career focuses on the development of new sustainable agricultural practices that are based on crop diversification. In the current climate change emergency, it is crucial to reduce the impact of farming on the environment while at least maintaining productivity.

Early contact with Prof. J. Sans s group during my Biology bachelor at the University of Barcelona allowed me to contribute to a new research line on weed flora and organic farming via grant of the Spanish Ministry of Education and Science. With a follow-up MEC PhD grant, my research increased our understanding of agrobiodiversity conservation and changed the then-current weed-crop competition paradigm towards acknowledging weeds and their functional traits as crucial elements in agroecosystem. This knowledge was the base for new agroecology-based weed management strategies, aiming at the development of divers weed communities with less competitive ability.

My main approach focused on the comparison of conventional and organic farming practices. Overall, organic farming has less impact on the environment but there are challenges for its broader adoption such as higher weed pressure. In this sense, my research helped to understand and improve alternative weed management practices that have the potential to improve carbon sequestration, reduce soil erosion and energy use such as reduced tillage, cover crops and the roller crimper. Our results proved the feasibility of these practices under organic management even though herbicides are not allowed.

Agroforestry, another crop diversification strategy with trees, also aims at reducing the environmental impacts of farming while increasing overall productivity. Since my involvement in the SysCom project at FiBL, my research has mainly focused on evaluating the agronomic, economic and environmental performance of cacao-based agroforestry systems in comparison with monocultures, both under organic and conventional farming. Through strong international collaborations, I covered a broad range of research areas from energy use, productivity, climate change adaptation and mitigation, to economy and food security. Overall, my research has proved that agroforestry systems, especially under organic management, outcompete monocultures in most of the above mentioned areas, but also identified the challenges for broad adoption such as locally adapted agroforestry designs in terms of species composition and type of management.

If funded by the Ramón y Cajal fellowship, my research will contribute to a broader adoption of less impacting and sustainable farming practices. My research line will take advantage of my previous advances in organic farming, agroforestry systems and weed control strategies in order to develop superior agricultural practices based on crop diversification and ecosystem services. Some of the urgent key question to be answered are: what are the most suitable agroforestry designs that allow to increase C sequestration, adapt and mitigate climate change, maintain biodiversity and increase productivity and profitability of the systems? How can we overcome the challenges encountered for a broader adoption of organic farming? How weed management control strategies can be improved to reduce biodiversity loss, weed-crop competition and labour time?

Resumen del Currículum Vitae:

My research focuses on the development of sustainable agricultural practices that reduce the impact of farming on the environment (climate change, soil erosion, biodiversity loss) while improving farmers livelihood. I am biologist by training and I got my PhD degree under the supervision of Prof. J. Sans, at the University of Barcelona. Since end of 2014 I work at the International Cooperation Department of the Research Institute of Organic Agriculture in Switzerland, one of the world leading institutes in the field of organic agriculture. Currently, I am a senior scientist and scientific coordinator of one of the institute keystone projects (SYSCOM, 6,160,000CH, 2019-2022), with management responsibilities in other projects.

So far, my research has resulted in 39 peer-reviewed publications in international journals (36Q1, 24D1; 10 first, 5 last and 15 corresponding author; citations: 1247; h-index: 17). In addition, I have published 3 articles in peer-reviewed national journals, 1 book chapter, and 2 data publications and 59 conference papers (1 key note, 35 oral communications, 23 posters). I have participated in a total of 19 different funded research projects by national and international funding agencies and private sector. I had a leading role in 4 of them, summing up a total amount acquired of 6,016,145.

Throughout my inter- and transdisciplinary research, I have explored new research opportunities and emerging topics and pursued collaborations with national and international teams leading to 4 funded research stays in Germany, Switzerland, France and Italy and publications with 90 different co-authors from 40 institutions.

I have been in the scientific committee of 2 congresses, chaired sessions in another 2 and co-edit a journal special issue. I also worked with the private sector, e.g., a contract with a private retailer, was appointed as member of the Swiss Cacao Platform and disseminate my research for a broad audience (6 oral presentations, e.g., at the UN Science Days, 3 videos, 4 technical leaflets, 7 open field days).

I have contributed to the capacity building of almost 30 students. I have officially co-supervised 2 PhD students, and strongly supported another one. I have supervised 3 MSc, 3 BSc, mentored 5 funded internships and informally mentored 16 MSc, BSc and internship students within the SysCom project. As a Scientific Coordinator of SysCom, I coordinate the scientific activities of a group of 9 people in Switzerland, which directly work with research groups in Bolivia, India and Kenya, and I coordinate the external scientific advisory board of the project.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I have been in 4 PhD examination committees. I have evaluated research projects and postdoctoral proposals for French, Swiss and German institutions and been an active reviewer of 10 top scientific journals. Me and my team have received awards for project outcomes (SFIAR award (2019) and SHIFT price (2021)), and one of my publications and 1 poster were also awarded.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ARIZ ARNEDO, IDOIA
Referencia:	RYC2021-032345-I
Correo Electrónico:	idoia.ariz@unavarra.es
Título:	Optimisation of N nutrition in leafy vegetables grown with soilless systems
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Resumen de la Memoria:

I have studied nitrate, urea and ammonium nutrition in plants for more than 15 years. This vast experience has helped me to reach a consolidated trajectory on the study of nitrogen (N) nutrition of plants. With more than 10 years of postdoctoral experience, including long-term international stages, I have achieved expertise in the analysis of ammonium nutrition in plants and other organisms. I published several contributions in this field (13 of them as first or last leading author, 3 of them currently under review), using not only model plants but also legumes and leafy vegetables as crops with agronomical interest, as well as review articles on the topic. This long trajectory has provided me a consolidated scientific scope, with more than 550 cites and h-index: 12, as well as several communicative, scientific and techn(olog)ical skills.

Initially, I mainly focused my research on the adaptation of plant response and its C/N metabolism to nutritional stressful conditions originated by high ammonium concentrations. Afterwards, my works on stable N isotope signature (d15N) in plant tissues have led to the establishment of the root-d15N as a potential indicator of the inorganic N source use, and the plant stress level originated when ammonium is applied as sole N source. My last studies in natural stable N isotope composition in yeast cells cultured with ammonium as sole N source, have led to the identification of the dissociation of NH4+ into NH3+H+ during passage by the widespread AMT/Mep-Rh ammonium transport proteins.

Thanks to the independent funding that I have obtained as PI in competitive calls at the national (JIN, 2019) and the regional level [La Caixa - Caja Navarra Foundation (2019) and Gov. of Navarra (2018; 2019 and 2020)], with a total sum of > 500,000 in the last 5 years; I have established a new line in the group: Optimisation of N nutrition in leafy vegetables grown with soilless growth systems. This line of research currently includes, besides me as PI, 1 lecturer (permanent staff at UPNa), 1 hired project assistant, 2 PhD students, 1 MSc student and 2 undergraduate students. To further supporting my research line, I relies on the collaboration with my solid national and international networking coming from Belgium, Germany and Portugal.

Resumen del Currículum Vitae:

After my Degree in Agronomy (Extraordinary Award, UPNa, 2004), I was funded by UPNa to pursue my PhD studies on Plant physiology and ammonium nutrition in plants . In that period, I did two predoctoral stays at CNRS-Université Paris Sud XI (France) to determine metabolic profiles of plants grown with nitrate or ammonium nutrition. In 2009, I obtained my PhD at UPNa (Summa Cum Laude, European Mention). As a result, I published several publications that contributed to better understanding primary flows of carbon and nitrogen (N) in response to ammonium toxicity. As a close topic to ammonium nutrition, I also participated in studies dealing with urea fertilization practices and urease inhibitor applications, helping to understand the urease inhibitors effects on N metabolism in plants.

Afterwards, in 2010, I engaged with the investigation of the relationship among the natural N isotopic signature of ammonium-fed organisms, ammonium transport systems and ammonium toxicity in plants and yeast. For this purpose, I received several post-doc fellowships (from UPNa 2010-2011; from Gov. of Navarra, outgoing category, 2012-2013, and from Portuguese FCT, 2013-2016). I proposed for the first time that ammonium toxicity in plants could be partially linked to the chemical form transported by roots (i.e. NH3 instead of NH4+). In 2012, I joined the Plant and Soil Ecology (PSE) group to continue this line of research, at the Centre for Ecology, Evolution and Climate Change (cE3c), of the UL (Portugal). There, I established strong international collaborations, nowadays active, with two pioneering European research groups in ammonium transport in living organisms: the Molecular Plant Nutrition group, headed by Prof. Nicolaus von Wirén (Germany), and with the Biology of Membrane Transport laboratory leaded by Dr. Anna M. Marini (Belgium). Altogether, we evidenced that transport of NH4+ through the pore of the proteins AMT/Mep/Rh, is associated with the dissociation of NH4+ into NH3 + H+ in the protein (published in Sciences Advances Journal, IF: 12.8; Ariz et al. 2018).

On my return to Spain, I broadened my technological skills working as researcher in the Technological Centre Cemitec (Spain; 2016-2017). In 2017, I moved to BACh group, at the UNAV, as Juan de la Cierva Incorporación fellow, leading my own research line focused on optimisation of mineral N nutrition in leafy vegetables, funded by NitroHealthy projects (Gov. Navarra, 2018-2019). In 2019-2020 period, I was granted by La Caixa Caja Navarra Foundation (Talent Grant, UPNa), and I achieved contract firstly as Associate Lecturer and then as Lecturer at UPNa, teaching in several degrees at the School of Agronomy.

Since 2020, I am a JIN fellow funded by the Spanish MICINN at UPNa, leading my own research line on Optimisation of N nutrition in leafy vegetables grown with soilless growth systems with national (MODULATransProt project, 2020-2023) and regional funding (HORTA 0,0 project, 2020-2022).

I have been involved in public engagement and scientific outreach activities. Since 2020 (after obtaining positive evaluation for I3 program), I serve as expert evaluator of research projects of French (ANR) and Spanish (ANEP) National Research Agencies. I am Reviewer Editor and Associate Guest Editor for Front. Plant Sci.



VESTIGACIÓN

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	FERNANDEZ CALVO, PATRICIA
Referencia:	RYC2021-033767-I
Correo Electrónico:	pitifernandezcalvo@gmail.com
Título:	Signaling circuits in plant stress responses

Resumen de la Memoria:

Regarding my main research line, across my scientific career I was focused on understanding the activation and modulation of the molecular pathways that are activated in plants in response to stress stimuli that lead to the transcriptional and metabolic reprogramming of the cell. I was always interested in discovering and deciphering the role of novel modulators of such pathways, either TFs or repressors, in plant developmental and stress responses. On the one hand, I characterized two new master regulators of JA signalling in Arabidopsis, the bHLH TFs MYC3 and MYC4, and on the other hand, I studied the function of FRS7-FRS12 protein complexes as repressors of growth and flowering time in Arabidopsis. In such works, I employed transcriptomic and metabolomic techniques to carry out functional studies with candidate genes. As mentioned before, those modulators are potential targets for novel crop breeding strategies since they regulate essential processes that control the defense and developmental responses in plants. Moreover, I have been studying the role of specialized metabolites, i.e., glucosinolates, thalianol, and its derivatives, as insect repellents and putative root growth regulators, respectively. Such compounds could be good candidates to develop new biologicals that improve crop fitness because glucosinolates mediate resistance to pests and thalianol modulates root growth but also play a role in the recruitment of root-specific microbiota. Additionally, I have been focused on developing new methodologies to study protein function and protein interactions with other molecules (antibodybased microarray and small metabolite affinity purification protocol). Similarly, I have implemented several protein-protein interaction techniques, for instance, Y2H, tap-tagging, CoIP for TFs, and plasma membrane proteins, in my host laboratories. Moreover, I learned crispr-Cas9 gene-editing technologies in Arabidopsis and tomato, as well as in vitro techniques to regenerate transgenic tomatoes. All this state-of-the-art technological expertise will be valuable to carry out my future and independent projects. In summary, my research record clearly shows my scientific skills and my capacity to obtain funding and publications. Moreover, my previous expertise in protein-protein and protein-metabolite interaction techniques complement my expertise in plant defense and immunity supporting my capacities to initiate my own novel and innovative project and eventually become a group leader in the next future. Overall, I was able to publish 16 articles, 14 of them in Q1 journals. I also showed my ability to get national (FPI-CAM, L'Oreal-UNESCO award) and international funding (MC-IEF7 and FWO). Additionally, I developed mentoring abilities since I supervised a TFG and four MSc. Students and co-supervised a Ph.D. student, Yuechen Bai (University of Gent, Belgium). Currently, I'm also supervising the Ph.D. project of Marina Martín at UPM. The scientific, management and leadership skills developed, as well as the potential of my previous results and expertise to move towards translational biology make me a good candidate to design a new project and become an independent PI in the next future.

Resumen del Currículum Vitae:

Interested and fascinated by science, I have been working in several aspects of biology from plant signaling to biomarker identification. During my studies of Molecular Biology and Biochemistry at University of Santiago de Compostela (USC), my interest to become a scientist drove me to do an internship in Prof. Ángel Matilla's group at the Department of Plant Physiology-USC. I realized that I was fascinated by plant molecular biology, I decided to do a Ph.D. in the plant field. I was granted an FPI-CAM fellowship in 2005 to join Prof. Roberto Solano's lab at CNB-CSIC where I studied plant signalling pathways during defence responses in Arabidopsis. In 2011, I defended my Ph.D. and after a short-postdoctoral stay in the same lab, I moved to IBENS-CNRS under the supervision of Prof. Lionel Navarro to gain experience in epigenetic techniques applied to the study of plant defense responses. In 2014, I was granted a Marie-Curie/FP7 from the European Union and I joined Prof. Alain Goossens' lab at PSB-VIB to analyze modulators of specialized metabolism and develop a new technology aimed to study protein-metabolite interactomes in the context of plant stress responses. PSB-VIB is nowadays a worldwide reference center for plant systems biology. The excellence and novelty of my projects allowed me to get extra funding from the Flemish Research Agency through the highly competitive and prestigious FWO grant. Back in Spain, I joined CBGP (UPM-INIA) to study different aspects of plant immunity and my project devoted to finding new immunomodulators of plant defense was awarded by L Oreal-UNESCO for Women in Science program in 2019.

During my scientific career, I have published 16 scientific articles. Among them I would like to highlight three papers in Plant Cell, two in Plant Journal, two in New Phytologist and one in Nature Communications, four peer review journals that are references in the field of Plant Molecular Biology. My H-index is 13 and the total citations of my work are 2207 excluding self-citations (WOS). I have also shown my ability to get national and international funding. I have been supervising as well several Msc. Students in Belgium (3) and Spain (1) and co-supervising a Ph.D. student (Yuechen Bai, UGent 04/09/2019). Currently, I am supervising the Ph.D. work of Marina Martín in Molina s lab at CBGP.

In summary, the scientific, management and leadership skills developed across my career make me an excellent candidate to lead my own project and eventually become a group leader in the next future





Área Temática:Ciencias agrarias y agroalimentariasNombre:GIMENO CHOCARRO, TERESA EFIGENIAReferencia:RYC2021-031759-ICorreo Electrónico:teresa.gimeno@bc3research.orgTítulo:Integrating plant physiological processes to predict vegetation-climate feedbacks in a global changescenario

Resumen de la Memoria:

Vegetation functioning is fundamental for predicting ecosystem responses to climate and global change. Plants are crucial for maintaining ecosystem services, the conservation of biodiversity and regulating climate. Anthropogenic activity alters vegetation functioning by increasing atmospheric CO2 concentration, changing the climate, introducing exotic species, destroying natural habitats and altering ecosystem nutrient availability. Our impact on the biosphere is so profound that we have forced the transition to a novel geological epoch: The Anthropocene. Still, predictions for our ecosystems in the Anthropocene are based on knowledge of plant functioning under pre-industrial conditions. Predictions of vegetation-climatic feedbacks require parametrizations of plant processes valid under current and future climatic conditions. In my research, I combine experimental and observational studies to parametrize plant physiological responses to global change drivers (Fig. 1). I have addressed the impacts of climate change, specifically warming, extreme temperatures and drought; changes in land use and elevated atmospheric CO2. My ultimate goal is to parametrize how simultaneous global change drivers affect the soil-plant-atmosphere continuum to predict biosphere-climatic feedbacks. My main research expertise is plant ecophysiology, but my skill-set also includes plant-process modelling, numerical ecology, dendroecology, spatial statistics and molecular ecology. I have achieved this expertise trough my research experience in multiple institutions, specialized training and research stages. I am experienced in ecophysiological techniques like gas-exchange; fluorescence; biochemistry assay, sap-flux measurements and online measurements of atmospheric tracers, carbon and water stable isotopes. I have received specialized training in high-sequence throughput analyses, which I am applying to the study of fungal community composition and structure; numerical ecology techniques, including spatial-statistics and structural equation modelling; and ecosystem and plant-process modelling. I have succeeded at applying these skills to my research and at transferring them to my fellow researchers and tutored students. This broad skillset has allowed me to achieve an integrative understanding of ecosystem functioning.

Resumen del Currículum Vitae:

I have authored 41 publications, including 38 articles in ISI-indexed journals and two book chapters. My publication record includes four highly cited papers (according to Web of Science, WoS) and journals such as (number of publications): Nature (1), Nature Climate Change (2), Global Change Biology (6) and New Phytologist (4). All my 38 indexed publications are within the Q1 of their field and 26 are in their D1 (section C2). I have an h-index of 22 and my publications have been cited 1726 times (according to WoS, 24 and 1805, according to Google Scholar). Since the completion of my PhD (in 2011), I have raised >270k as a principal investigator (PI, section C3) including projects funded by national and regional agencies and prestigious fellowships (Marie S. Curie Individual Fellowship). Currently, I supervise one PhD, one MSc. and one BSc. student and five students have completed their MSc. thesis under my supervision, all with outstanding marks. Since 2014, I have contributed to several undergraduate and MSc. programs as invited lecturer in botany, cellular biology and biogeosciences courses. I have also contributed to teaching as an evaluator of MSc. thesis and three PhD committees. Since January 2021, I am communicating editor of the indexed journal Trees Structure and Function and I have served as expert reviewer of >30 journals. I evaluate projects for national and international funding agencies and in 2021 I was part of the evaluation committee for R&D Projects of the Spanish research agency in the sub-area of Plant Biodiversity . Currently, I am an Ikerbasque researcher (tenure-track) at the Basque Centre for Climate Change (BC3, Spain). Starting in March 2022, I am expected to join the center for forest ecology research and application (CREAF, Spain) as a senior scientist. At BC3, I have led three projects as principal investigator. I also hold institutional responsibilities as organizer of mentoring and outreach programs and as health and safety security officer. Previously, I was a research fellow at the French Institute of Agricultural and Environmental Research (INRAE) at the center of Bordeaux funded first by the IdEx post-doctoral program of the Université de Bordeaux and then by an individual Marie S. Curie fellowship. My international experience expands outside Europe as I was a research fellow at the Hawkesbury Institute for the Environment (Western Sydney University, Australia), funded by a CSIRO flagship collaboration. There, I managed a multi-institutional project assessing the impact of elevated CO2 on ecosystem water-use. Before, I was a researcher the University Rey Juan Carlos (URJC, Spain), where I was in charge of the site characterization for a European project assessing the effects of forest tree diversity on ecosystem services. I completed my PhD in 2011 at the Institute of Natural Resources (Madrid, Spain) of the Spanish Research Council (CSIC). funded by CSIC s I3P/JAE competitive scholarship. My dissertation was recognized as outstanding PhD of the academic year of the Department of Biology & Geology (URJC). My PhD addressed the impacts of drought and land use change on Mediterranean woodlands. I completed my PhD training with stages at the Research School of Biological Sciences, (Australian National University), the INRAE-Grand-Est (France) and the Université du Québec à Montréal (Canada). Prior to my PhD, I was awarded an Introduction to Science Fellowship for undergraduate students.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	RUIZ-JARABO DE LA ROCHA, IGNACIO
Referencia:	RYC2021-032451-I
Correo Electrónico:	ignaru02@ucm.es
Título:	Fisiología del bienestar en acuicultura

Resumen de la Memoria:

The improvement of WELFARE of AQUATIC ANIMALS have constituted my main research topic.

My scientific career started during the BSc degree and continued with my PhD thesis. During that period, I introduced to my lab several techniques related to biochemistry, endocrinology, molecular biology and isotopic tracing that, combined with animal maintenance and simple modelling, revealed the impacts of biotic and abiotic factors on the growth and energy management of AQUACULTURED SPECIES. During stays at Dutch, Portuguese and Chilean universities, I learned to holistically analyze fish welfare, aiming at the optimization of their culture in captivity. These stays improved my manuscripts and PhD thesis level, and initiated long-lasting collaborations.

Since my postdoctoral periods at the Centre for Marine Sciences (Portugal) and the University of Cadiz (Spain), I started studying the PHYSIOLOGY OF WELFARE IN NEW SPECIES FOR AQUACULTURE such as cephalopods, crustaceans, elasmobranchs and teleosts. In addition, I designed, wrote and executed several national and international research projects in collaboration with the Spanish Institute of Oceanography and local fishermen.

I have also participated and led studies of diet design for aquaculture to optimize fish growth.

These scientific achievements were possible thanks to the technical development of procedures related to PHYSIOLOGY and ENDOCRINOLOGY of aquatic animals I have accomplished. During the last years, I also PATENTED a method for the transport of live aquatic organisms.

To date, I lead a research line on the IMPROVEMENT OF WELFARE IN AQUACULTURE. I also participate in national projects to study stress in fish, and I have applied for national projects to continue the study of physiological impairments due to stress in aquatic taxa.

Resumen del Currículum Vitae:

My research career aims at improving WELFARE of aquatic organisms in AQUACULTURE using physiology and endocrinology.

Scientific career: all my academic degrees are in Marine Sciences (BSc 2005, MSc 2007 and PhD 2014, University of Cadiz -UCA-, Spain). 2007-2014: several research contracts at the UCA. 2014 2017: post-doc at the CCMAR (Portugal). 2017 2020:post-doc at the UCA. 2020-date: 5-years contract (Assistant Professor) at the University Complutense of Madrid (UCM, Spain).

Research achievements: 64 published JCR journals (33 signing as 1st, 2nd or last author; 7 positioned in D1, 36 in Q1 and 20 in Q2) and 18 book chapters devoted to aquaculture. Quality indicators: h-index (21 Scopus and WoS, 25 Google Scholar), times cited (1379 Scopus, 1894 Google Scholar and 1284 WoS), and i10-index (47 Google Scholar).

Director of students: 2 PhD, 5 MSc and 5 BSc students.

Congresses: organized 2 international congresses (2007 and 2018), invited as speaker 2 times and 1 as chairman. Assistance with 27 talks and 37 posters to international congresses, and with 12 oral and 29 posters to national congresses. Three talks were awarded.

Patented and build a prototype (financed by the UCA, 3.000) of an aquarium system for the maintenance of alive octopus (ES2712348, Spanish Office for Patents and Brands, 2019, title hold by UCA). I was also awarded with the 2nd position at a National Competition for young technology-based entrepreneurs (VI atrÉBT, UCA, 2012).

Participation in competitive projects: Principal Investigator (PI) in 1 national (2022, 150.813,13) and 2 international (2017 and 2019, financed with 5.500 each) projects; promoter and leader of 2 national projects (2018 and 2019, up to 160.000); and being researcher in 8 Spanish national projects (2005-2020, 1.311.656 in total); and in 1 Chilean (2011-2014, 195.000), 2 Portuguese (2014-2017, 400.000) and 1 Brazilian (2010-2020, R\$ 9 million) projects.

Participation in non-competitive projects in collaboration with enterprises: PI in 1 project (2021, 1.500); promoter and leader of another project (2018, 13.810); and researcher in 11 projects (up to 91.080).

Research internships: i) Pre-doctoral student: 17 months (Netherlands), 1 month (Portugal) and 3 months (Chile); ii) Post-doc: 5 months (Portugal), 1 month (Chile), and 1 month (Brazil). I was invited to 7 oceanographic cruises as an expert in aquatic animal¿s welfare by the Spanish Institute of Oceanography (95 days).

International participation: PROMOTOR AND LEADER of an Iberoamerican network of research in aquatic sciences (RIIF-AQUA), which includes 52 researchers belonging to 24 institutions from 13 countries. Member of the ICES (International Council for the Exploration of the Sea) Working Group MEDS. Evaluator of National projects: FONDECYT (Chile, 2021).

Editorial board member of scientific journals: Guest Associated Editor in Frontiers in Physiology and Biology . Reviewer in 25 journals.



Scientific dissemination: 13 articles, 4 talks, several interviews on radio and in written press.

In the near future I would like to improve and disseminate knowledge, highlighting the importance of the WELFARE of AQUATIC ANIMALS that interact with humans (mostly in AQUACULTURE, but also in FISHERIES). This will lead to a sustainable BLUE GROWTH economy and to have healthier aquatic ECOSYSTEMS.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	DEMYDA , SEBASTIAN
Referencia:	RYC2021-031781-I
Correo Electrónico:	sdemyda@fcv.unlp.edu.ar
Título:	Development of novel quantitative and genomic approaches in animal breeding programs as a tool to
improve the efficiency and sustainability of livestock production systems	

Resumen de la Memoria:

After obtaining a degree In animal sciences in Argentina, I started my scientific career as a Ph.D. candidate at the University of Cordoba, Spain, where I studied some genetic aspects of the production of in vitro cattle embryos. I was able to demonstrate that gamete maturation is a key factor to reduce the incidence of chromosomal abnormalities in the embryos. I defended my thesis in 2013, with four papers published and the highest honors, but also with an increased interest in animal genetics (and genomics). Due to this, I joined the MERAGEM group (University of Cordoba) as a postdoc in 2013 supported by a FEDER grant, shifting my research aims towards the analysis of genetic mechanisms controlling fertility in horses and cattle using a genomic approach. But also, I developed an additional research project focused on the effect of inbreeding in livestock production. It was a very productive stage of my career that allowed me to mature as a scientist and start to develop leading abilities. In addition, it was the first time that I started to collaborate with breeders associations in the development of breeding programs, which was crucial to reasserting my idea that genetics is one of the most powerful tools to improve livestock production when it is applied in joint efforts with breeders associations, allowing to breed better and healthier individuals. But also, it shows me that genetics is probably the best way to achieve long-term sustainability in animal production by selecting more resistant and eco-adapted animals.

In 2016, I moved to Argentina and started my own research program in a joint position between the National Research Council (CONICET, Argentina) and the Veterinary School in the National University of La Plata.

Since then, my scientific aims are focused on three main projects: to establish the genetic basis of the research group is focused in three main projects. 1) To establish the genetic basis of the sperm variability in cattle and horses, using high-throughput genotyping data and phenotyping methodologies based on computer-assisted analysis; 2) To determine the effect of the inbreeding in reproductive characters of horses and cattle using molecular data; and 3) To develop a breeding program in the Argentinean Polo horse breed focused on sports performance and ethnological traits, by combing quantitative and genomic methodologies,

Nowadays, my research group, located physically in the Vet School of the University of La Plata, Argentina, includes 5 Ph.D. students, and it is supported by 4 active grants I obtained as PI. I also established several collaborations both, locally and internationally, with researchers from 12 different countries.

However, although I have been seen out of Spain the last six years I have maintained close links and collaborations with Spanish researchers and breeding associations, being part of the Retinto and Cardena Andaluza cattle, Pura Raza Español horses breeding programs (among others), in which I collaborate to integrate new genomic technologies within the current genetic evaluation plans. We aim to provide more reliable and accurate results. After ten years of scientific development, I considered myself a young but mature scientist. Therefore, obtaining a Ramon y Cajal grant could provide me with an incredible opportunity for consolidating my scientific career in the next five years.

Resumen del Currículum Vitae:

I started my scientific as a Ph.D. candidate in the Department of Genetics from Córdoba University in 2009 supported by the Spanish government (MAEC-AECID grant).

During my thesis, I evaluated the genetic aspects of the in vitro production of cattle embryos. During that period (2009-2013), I published 4 papers, presented my research in 12 conferences, and performed two short research stays in Belgium and Italy. My thesis was defended in may of 2013, obtaining Cum Laude degree and an international mention.

In 2013 I started a postdoc in the MERAGEM group at Cordoba University, as the leading scientist in a research project focused on the detection of horse infertility by genomic methodologies. During that period, I was very productive, publishing 14 papers presenting in 12 conferences, and advising several grade and preg-grade students.

Finally, in 2016 I moved to Argentina to a permanent joint position as a senior researcher in the National research council (CONICET) and the Veterinary School of the National University of La Plata. Since then I was able to lead my research group and develop several research lines (which I described in the research line summary).

To date, I have published 45 articles in JCR journals (64 including conference abstracts according to WOS), from which 27 were in the last 5 years, being a senior author in 13 (48%). I obtained 355 total citations (94 in 2021) and my H index is 12 (9 in 2021). In addition, I presented 64 conference abstracts (four as a keynote speaker and 16 as oral communications), 9 articles in non-JCR indexed journals, and published 6 books (breeders catalogs). My international network of collaborators includes 145 authors from 12 countries. Duri. I also obtained a European patent protecting one of my scientific developments.

I m being also successful in securing research funds, obtaining 7 research grants as PI during the last 5 years, and participating as a team member in 8 additional (including 2 in Spain). In addition, I am participating in the development of breeding plans of Spanish (Retinta, Cardena, and Purara Raza Española) and Argentinean (Argentinean Polo pony) breeds, supported by the breeder's associations.

My experience advising students is ample, including 2 bachelor's, 7 master's, and 3 Ph.D. thesis advised. I am currently, I am advising 5 additional Ph.D. students in my research group in Argentina. All of them are working on horse and cattle genetics using molecular and quantitative approaches.

In addition, I performed a wide range of evaluation and editorial tasks, such as reviewer of research positions, scientist promotions, and Ph.D. and research grants in the ANPCyT and CONICET (Argentina), as well as more than 140 manuscripts over 32 different journals. I also held several positions in international scientific committees such as CANDES (IETS, USA) and the steering committee of the Bovine Pangenome consortium (USDA, USA). In addition, I'm an associate editor in the journals Frontiers in Veterinary Science and Animals (guest).

I received several awards and certifications including the INNOVAR prize (2016, Argentina), the I3 (2019), and Profesor Titular de Universidad (2016) certifications (ANECA, Spain) and a Fulbright Scholarship (Fulbright international commission) in 2019. Finally, I serve as an Associate professor of the Veterinary school at the University of La Plata, Argentina, since 2016.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias	
Nombre:	TORRECILLAS BURRIEL, SILVIA	
Referencia:	RYC2021-031414-I	
Correo Electrónico:	silvia.torrecillas101@alu.ulpgc.es	
Título:	Functional feed additives in responsible fish diets as growth, health and welfare boosters	

Resumen de la Memoria:

The research line I developed and consolidated along my research career is focused on the use of dietary functional additives/ingredients as fish growth, mucosal health and welfare boosters. More specifically I study their potential as mucosal barrier protectors in order to ameliorate the side effects caused by a dietary replacement of marine raw ingredients by land-based origin meals and oils, as well as their implications on fish disease resistance, performance and vaccine efficacy.

In 2011 I obtained my PhD (Extraordinary PhD award) in the University of Las Palmas de Gran Canaria (ULPGC). My PhD thesis was focused on the development of functional additives for aquafeeds as fish gut health and disease resistance boosters. My first postdoctoral studies were as an industrial postdoct at Alltech® Ireland (2012-2014; 26 months), were I continued studying the role of prebiotics as mucosal health and gut integrity boosters when fed in low fish meal and fish oil diets. Back at ULPGC as competitive postdoctoral researcher (2014-2017) and later at its Science and Technology Park Foundation (FCPCT) as Juan de la Cierva-Incorporación postdoctoral researcher (2017-2019), I focused my research on determining: (1) the effects of land-based ingredients on fish mucosal health and disease resistance, (2) the practical levels of responsible raw materials in aquafeeds, (3) the efficacy of functional additives as a tool to promote fish mucosal health and welfare and (4) the potential interactions and synergies between functional ingredients (health, welfare and microbiota).

From 2019 to date (Research Group in Aquaculture-ULPGC), I focused my research on the study of the capacity of genetically superior fish to use emergent raw materials and functional ingredients efficiently, in terms of mucosal health, welfare, disease resistance and production performance. Altogether has consolidated my multidisciplinary background in terms of areas of research and methodologies applied (nutrition, physiology, morphology, genomics, microbiome, bacteriology)

Since 2011, I published 53 articles (45% as first author, 90 international co-authors, 1414 citations) and 1 book chapter (h index:19) and I presented 76 works in International and National Symposiums. My studies include 26 months of industrial postdoctoral studies and 29 months of institutional postdoctoral collaboration & trainning studies (UAB: 5 weeks; Universitetet i Norland: 5 months; CSIC: 1 months, Biomar A/S: 1 month; Universitat Rovira I Virgili: 5 months; University of Insubria: 12 months). I have been part of the research team of 5 EU projects and 3 National projects and leaded as principal researcher 10 Research and Technological transfer agreements with the private sector, 1 national project and 1 EU project (both in evaluation) with a total fund-raising contribution around 2,5 million euros for the Institution to date. Along the development and consolidation of the mucosal health/functional feeds research line, I supervised 3 Master & 4 PhD thesis (2 in course) and stablished an academic-industry networking with international research institutions and feed & additive producers.

Resumen del Currículum Vitae:

PhD degree at the ULPGC (2011; European Doctorate, Extraordinary Award in Science). Industrial postdoc at Alltech Ireland (2012-2014), joining back the ULPGC as a competitive postdoctoral researcher (2014-2016) and afterwards the Fundación Parque Científico Tecnológico de la ULPGC from 2017-2019 as Juan de la Cierva-Incorporation researcher. Currently, I am a research member of the Aquaculture Research Group (GIA)-ULPGC, and I led several research and transfer agreements with International companies in the aquaculture sector. During my research trajectory I have consolidated the mucosal health research line with focus on its reinforcement through the use of functional products I contributed to the development of knowledge regarding to the mode of action of functional additives for fish diets in relation to: (i) the improvement of mucosal health: integrity, potential of its MALT and microbiota, (ii) host (mucosa)-pathogen interactions, (iii) animal welfare and (iv) production performance. All the research carried out in this line has been defined within a framework of applicability and development of a sustainable and responsible sector, implementing the advances obtained in the reduction of the effects associated with the use of diets with high levels of substitution of marine raw materials by other terrestrial ones or with low carbon footprint. The results have been reflected in 53 publications (1414 citations, h-index of 19.) I have acquired scientific and technical skills in histological, immunological, microbiological, biochemical and "omics" methodologies and I adapted several histopathological analyses to new automated digital technologies. I have led as principal investigator 10 research and transfer agreements with reference companies in the sector of additives for animal nutrition (>250,000). Member of the research team of 5 EU competitive projects (ARRAINA, AQUAIMPACT, DIVERSIFY, AQUAEXCEL, PISCIBIEN) and 3 National projects (PROINMUNOIL, PROIMUNOIL+, JACUMAR SERIOLA). Principal investigator of the National project LARVOOST (Marine and terrestrial by-products of food origin and high value bioproducts as growth and health enhancers for gilthead sea bream (Sparus aurata) larvae, and the European project MARENOSTRUM (More Seafood from Responsible and Circular Aquaculture and Fisheries) Horizon Europe Framework Program, both under evaluation. I have established multiple International collaborations with Universities and research centers (University of Bergen, Nord University, NOFIMA, UAB, UsI, CSIC) and companies in the sector, and participated in the dissemination of results in different symposia in the field of nutrition and immunology (69 communications since 2009). After my industrial postdoctoral period at Alltech Inc (26 months), I have completed my training with stays in several research groups and companies, including CSIC-Instituto de Ciencias del Mar (1 month), Biomar Iberia (1 month), Universidad Rovira y Virgili (6 months), Università degli studi dell'insubria (12 months). To date, I have directed 3 Master Theses (1 in progress and 2 graded with honors and special award for the best Master-Science Thesis-ULPGC 2015 and 2017) and 4 PhD Theses (2 in progress and 1 awarded as best doctoral thesis in Aquaculture 2020 by the Spanish Society of Aquaculture). Accredited by ANECA as a profesor contratado doctor since 2018.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	runo de deceso general
Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	CANELLAS AGUARELES, ELENA PURIFICACION
Referencia:	RYC2021-034150-I
Correo Electrónico:	elenacanellas@gmail.com
Título:	Positive and negative interactions between packaging and food

Resumen de la Memoria:

I focused my research on food safety. On the one hand, I studied the risk assessment derived from food packaging. I became one of the most relevant experts in the elucidation of non-intentionally added substances that contaminate food. Besides, I worked on the development of new active packaging to decrease food waste. As a result, two products were commercialized internationally. Moreover, my work on the study of antioxidant compounds in plant extracts created a basis for the development of other active packaging. Additionally, I am opening my ongoing projects into novel areas of research since I am principal investigator of a relevant project about the study of the toxic compounds contained in the surgical masks used during the Covid pandemic.

I am author of 41 scientific author (37 of them Q1), 5 book chapters and 1 reference module (h index=20). I participated in 21 international and national conferences and I am member of the editorial board of the Foods journal. Moreover, I have two-six years research periods recognized by ACPUA. During my postdoctoral stage, I was principal investigator of four competitive public financed projects and 12 private international projects with the University of Caldas (Colombia), the University of Bejaia (Algeria), the Ferdowsi University of Mashhad (Iran) and companies from UK, EEUU, Germany and France. Moreover, I participated in three European projects, one of them was a Marie Curie Action project and in 20 private projects with companies from EEUU, Portugal, Germany, Switzerland, UK, France and Italy. All these projects I led combined with the international thesis and the 6 Master final projects I supervise demonstrate my leadership.

I have done several stays in Waters (Manchester, UK) from 2019 to 2021. This fact combined with the tens of contracts and projects with international companies and universities demonstrate my internationalization.

My research has a high scientific, technical and social impact potential, demonstrated by the novelty and impact of my publications and the innovative products that we introduced in the food market. My contribution to society can be shown through my transfer of knowledge to the international industry.

Resumen del Currículum Vitae:

I focused my research on food safety. On the one hand, I studied the risk assessment derived from food packaging. I became one of the most relevant experts in the elucidation unknown compounds through the 11 years of experience I have in accurate mass spectra obtained by high-resolution mass spectrometry. I worked on the identification hundreds of non-intentionally added substances that contaminate food. Besides, I worked on the development of new active packaging to decrease food waste, two new products were commercialized internationally. Moreover, my work on the study of antioxidant compounds in plant extracts created a basis for the development of other active packaging. Besides, I am opening my ongoing projects into novel areas of research since I am principal investigator of a relevant project about the study of the toxic compounds contained in the surgical masks used during the Covid pandemic.

I am author of 41 scientific author (37 of them Q1), 5 book chapters and 1 reference module (h index=20). I participated in 21 international and national conferences and I am member of the Editorial board of the Foods Journal. Moreover, I have two-six years periods recognized by ACPUA.

During my postdoctoral stage, I was principal investigator of four competitive public financed projects and 12 private international projects with the University of Caldas (Colombia), the University of Bejaia (Algeria), the Ferdowsi University of Mashhad (Iran) and companies from UK, EEUU, Germany and France. Moreover, I participated in three European projects, one of them a Marie Curie Action project and in 20 private projects with companies from EEUU, Portugal, Germany, Switzerland, UK, France and Italy. All these projects I led combined with the international thesis and the 6 Master final projects I supervise demonstrate my leadership.

In 2011, I was granted with Incorpora-Torres Quevedo contract. From 2011 to 2019, I was I the head of R&D department of the company Samtack. Then, I was granted with a Contrato de acceso al Sistema de Ciencia español in the University of Zaragoza. I have done several stays in Waters (Manchester, UK) to improve my expertise on high-resolution mass spectrometry techniques used for elucidation of unknown contaminants in food from 2019 to 2021. This fact combined with the tens of contracts and projects with international companies and universities demonstrate my internationalization.

My research has a high scientific, technical and social impact potential, demonstrated by the novelty and impact of my publications and the innovative products that we introduced in the food market. My contribution to society can be shown through my transfer of knowledge to the international industry.

Finally, I have the accreditation Contratado doctor. I have been teaching 330 h at the University of Zaragoza during the last 3 years.



 Área Temática:
 Ciencias agrarias y agroalimentarias

 Nombre:
 BARBOSA PEREIRA, LETRICIA

 Referencia:
 RYC2021-033505-I

 Correo Electrónico:
 letricia.b.pereira@gmail.com

 Título:
 Sustainable recovery of bioactive compounds from agro-food wastes and their application as food additives and functional ingredients

Resumen de la Memoria:

The candidate s domain of specialization is Analytical Chemistry, Nutrition, and Food Science and Technology. In this context, her research has been committed to the recovery of high add-value compounds for the production of additives/ingredients with vast applications in food, pharmaceutical, and chemical industries committed with Horizon 2020 and 12th Goal of the United Nations 2030 Agenda.

With a consolidated background in this area and their application as food additives in active packaging, after completed Ph.D. studies at the University of Santiago de Compostela (Dec 2013), and after the experience acquired in parallel to the Ph.D. studies at the Department of Chemical Engineering (Uvigo, 2012-14), the candidate had the opportunity to work in three different centers across Europe, in different research lines and integrated in multidisciplinary research teams, participating in National and European 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 the new centers, she worked on the development of functional ingredients using nanotechnology to improve organoleptic and technological properties for their incorporation into food and to ensure a controlled release and increased bioavailability of the ingredient in the human body (Biochemistry Group, Uvigo, Spain, 2014-15) and developed skill in the determination of the bioaccessibility of bioactive compounds after human digestion (CEB, Portugal, 2015). After, with the achievement of 2-years Marie Curie Grant (2015-2017), she moved to the University of Turin and stablish with independence a new research line focused on the development of functional foods and assessment of their health benefits using new ingredients obtained from several food by-products. In this field, she has been collaborating with several companies from different food sectors to find new strategies for recycling their wastes and create new market opportunities in the concept of Bio-based Economy. She could consolidate her research in this center with another 2years competitive grant (MIUR, 2017-2019). Currently, she is a Juan de la Cierva Incorporación (1st position, call 2017) at the University of Santiago de Compostela, where she is working hard in the implementation of a new research line and extended their knowledge in the field of food contact materials and food science, based in her background and the new technical and soft skills acquired during the postdoc stage abroad. In 2020 she was a visiting research fellow at the Nano4Food research group (INL, Portugal) to develop nanocoating edible films using food byproducts extracts as bioactive compounds. Currently, the candidate is also implementing a new research line to evaluate the application and implementation of the in vitro oral bioaccessibility studies to assess the impact of human dietary exposure to chemical substances related to food packaging materials and contribute to their risk assessment.

Resumen del Currículum Vitae:

CURRENT AND PREVIOUS POSITION

Dept. Analytical Chemistry, Nutrition and Food Science, Faculty of Pharmacy, USC (2019-2021: JCI & 2021-Present: JIN)

SCIENTIFIC PRODUCTION

-Total number of articles in SCI journals:50 (postdoc 37)|Q1: 40 |D1:17 |Books:1| Book chapters:5|First, co-first (*), second or last author:37|Open access: 38|Corresponding Author:13|Conference proceedings:11

DISSEMINATION ACTIVITIES:

-International scientific conferences: > 60 works presented (oral and poster) -Outreach activities: 8 events and expositions, 2 invitation for EU events (Science is wonder-ful! European Researchers Night 2016 (Parlamentarium, Brussels, BE) and EXPO 2015 European Union Contest for Young Scientists (EUCYS 2015) (Milan, IT), both organized by European Commission - Marie Skłodowska-Curie Actions.

TECHNOLOGY TRANSFER Patents (3): -ES2347631B1 San Miguel, Fábricas Cerveza y Malta, S.A. -ES 2 527 366 B1 UVIGO -102016000123836 (IT) UNITO -Contracts with private companies: 14 (12 (ES) and 2 (IT), collaboration in research projects with national (food and packaging sectors) and international companies (e.g. cocoa sector in Italy)

MOBILITY AND INTERNATIONALIZATION -Dept. of Chemical Engineering, Industrial Engineering School, Vigo, ES (15 months) -Dept. Analytical Chemistry and Food Science, Uvigo, Ourense, ES (10 months) -Centre of Biological Engineering (CBE), UMinho, Braga, PT (1 month) -Dept. Agricultural, Forest and Food Sciences (DISAFA), UNITO, Turin, IT (48 months) -International Iberian Nanotechnology Laboratory (INL), Braga, PT (1month)

RESEARCH PROJECTS AND INTERNATIONAL COLLABORATIONS

-Participation in research projects and contracts: 27 national and regional (ES & IT) and 4 EU (FP7, MSC, PRIMA, ERANET) projects - (4PI); 1 Cost Action.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

-Collaboration with national and multinational companies, research centers and universities worldwide. Scientific publication/patents with more than 150 co-authors

GRANTS/AWARDS -JIN Grant (Call RETOS 2020) -JdC Incorporation Grant (1st position, Call 2017) -MIUR Grant (2nd position, call 2016) -Marie Skłodowska-Curie Grant (2015) -Postdoc Xunta de Galicia (Rejected to benefit MSC) -2 IACOBUS mobility grants (calls 2015 and 2020) -MSCA Travel grant (2017) -ECOTROPHELIA Italian Food Innovation Students award 2016, Parma, IT -Merit award for the original contribution and quality of the research activity in food packaging and shelf life Poster presentation, 2012 PARTICIPATION IN SCIENTIFIC COMMITTEES AND EDITORIALS -Peer reviewer for several JRC journal in the field of Food Science & Technology and Dietetics: Trends in Food Science & Technology, Food Chemistry, Food Control, Journal of the Science of Food and Agriculture, Nutrients, Food and Bioprocess Technology, Foods, etc. -Guest Editor of Journal Foods (ISSN 2304-8154) -Scientific Expert of REPRISE (external project evaluator) MIUR, IT -Scientific Expert of MINECO (project evaluator) ES -Scientific Committee Member of InSIPack (Jun 2016) -Marie Curie Alumni Association Membership TEACHING AND SUPERVISING EXPERIENCE -Positive assessment as Profesor Contratado Doctor by ACSUG -350 hours of teaching in Spain and Italy on undergraduate and master s degrees (USC, UNITO)

-Supervisor/Co-supervisor of 23 B.Sc. research projects (18 UNITO, 5 USC), 4 Master's degree projects (USC) and 4 Ph.D. theses (3 UNITO, 1 USC, ongoing)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	SALAZAR GARZO, NURIA
Referencia:	RYC2021-033521-I
Correo Electrónico:	nuriasg@ipla.csic.es
Título:	Gut microbiota modulation through diet in obesity and elderly

Resumen de la Memoria:

I am an enthusiastic microbiologist and I am currently the recipient of the JIN program at IPLA-CSIC. I carried out my PhD Thesis at IPLA-CSIC with a FPI grant under the supervision of Prof. de los Reyes Gavilán and Prof. Ruas-Madiedo, obtaining the PhD (Cum Laude and European mention) by the University of Oviedo. I have shown for the first time that exopolysaccharides isolated from bifidobacteria of different origin can be considered prebiotic substrates and modulate the gut microbiota. I have completed my predoctoral training with stays at the University of Reading, in the UK where I acquired new skill in uncultured techniques for microbiota analysis. I have been part of the research team of several national and international projects, highlighting my participation in the CENIT-SENIFOOD for the rational selection of potentially probiotic strains for its inclusion in products for the elderly. After the PhD, I worked as a postdoctoral researcher at the Catholique Université of Louvain UCL in Belgium (2011-2014) under the supervision of Prof. Delzenne. I was the recipient of several competitive fellowships to evaluate the impact of the administration of probiotics, prebiotics and different drugs in the gut microbiota in the context of obesity and other metabolic disorders. I rejoined end 2014 IPLA-CSIC to develop my own research line, in the field of functional foods and obesity from a new perspective, considering the impact of regular diet and not only assessing one or several dietary components and its relationship with the gut microbiota. I was a beneficiary of a Clarín- Marie Curie COFUND Action (2014-2016) acting as PI. Next, I obtained Juan de la Cierva Incorporación contract (2016-2018) and a postdoctoral contract from FINBA (2018-2021). I supervised 2 PhD Theses and I have mentoring BSc and MSc students and predoctoral and postdoctoral researches in the last years.

My current interests are gut microbiota modulation through diet in certain populations, mainly obese and elderly taking into account the differential characteristics of these groups in terms of diet-microbiota interaction. I have demonstrated experience in molecular techniques and chromatographic analyses in the study of the composition and metabolic activity of the gut microbiota, in the performance of in vitro, in vivo, observational, and clinical studies. I have recently revealed different functionalities of the gut microbiota of different population groups, demonstrating changes in severe obese individuals after weight-loss diets and bariatric surgery. My CV indicates that I have successfully executed cutting-edge science in a collaborative manner, obtaining competitive funding in every step of my career. My future goals are strengthen my leadership, to develop a successful independent scientific career and to establish fruitful collaborations to acquire new skills and knowledge and face scientific challenges in the field of gut microbiota diet and cancer.

Resumen del Currículum Vitae:

SCIENTIFIC AND TECHNICAL CONTRIBUTIONS

Participation competitive research projects: 3 European , 10 National , 1 as PI and 2 from the Belgian Fonds, 5 Regional projects (3 as IP). I have participated in 12 contracts with R&D companies.

During my career, I have maintained an excellent record of publications, improving the quality and the metrics especially in the last years.

-69 SCI articles, 43 Q1 (62%), 15 D1; 38 as main, second author ,1 SCI article with great impact on the media and 23 with international collaborators. -Co-author of 10 book chapters and co-inventor of 1 patent request

-76 congress contributions, 22 International, 14 oral communications and 4 as invited speaker.

-Scientific trajectory recognized by 5 awards, 4 of results in peer review congresses in the postdoctoral period.

-Regular participation in dissemination activities: seminars in schools, high schools, general audience: Science Week, INSPIRA STEAM, International Day of Women and Girls in Science.

MOBILITY AND INTERNATIONALIZATION

-Predoctoral stays: 7 months at University of Reading, UK.

-Postdoctoral stays: 28 months Université catholique de Louvain, Belgium.

-23 JCR publications, mainly during the postdoctoral period with international collaborators from United kingdom, Netherlands, Belgium, Ireland, Italy, Spain, Argentina, France, USA and Japan and a Research Topic in Frontiers in Microbiology with international researchers

LEADERSHIP

I have been awarded with competitive funding in every step of my career, especially in the postdoc period reflecting my capacity to obtain my own funding and to develop my research career

-FPI predoctoral fellowship (MEC), Exchange Grant ENGHIR, Postdoctoral fellowship (2011, FECYT), FEMS fellowship, Postdoctoral fellowship (2014, Clarín-COFUND), Juan de la Cierva-Incorporación Contract (2016, MICINN), Postdoctoral Intramural Junior Contract (2018, FINBA), JIN-RETOS 2020 contract (2021, AEI)

- Guest editor in Frontiers in Microbiology in: 2 Research Topics, one finished and ebook-ISSN 1664-8714 and another one on going with international researchers, in 1 Special Issue in Nutrients ISSN 2072-6643

-Editor in Frontiers in Nutrition and reviewer in Frontiers in Microbiology since 2019

-Associate editor in Probiotics and Antimicrobial proteins since 2020.

-Reviewer in > 25 JCR journals (Food Science and Technology, Microbiology, Multidisciplinary Sciences, Nutrition and Dietetics, Biochemistry and Molecular Biology areas)

-Reviewer of research projects from national agencies like AEI and international projects from Argentina, Chile, Israel, Louxembourg, Polonia. - Member of the jury of 2 PhD thesis.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

TEACHING EXPERIENCE AND YOUNG RESEARCHERS MENTORING

-BsC and Master teaching in the last years in University of Oviedo, European University of Madrid, Master in Probiotics, Prebiotics and Microbiota -Positive assessment of Profesor Contratado Doctor (ANECA 2020) and I3 (AEI 2021).

-Supervision 2 PhD Thesis (2019, 2020), 4 MSc Theses, 2 BSc Theses, 5 external practices of Bachelor and Master students and 5 pre/postdoctoral researchers.

OTHER MERITS

Organizing committee Third International Symposium on Propionibacteria and Bifidobacteria: Dairy and Probiotic Applications (2010) Active Member recognized international scientific societies (FEMS), European research networks (ENGIHR, ISAAP) national thematic networks and specialized groups such as RedBAL, SEMiPyP and Microbiología de los Alimentos



Área Temática:	Ciencias agrarias y agroali
Nombre:	MERELO CREMADES, PAZ
Referencia:	RYC2021-034342-I
Correo Electrónico:	pmerelo@ibmcp.upv.es
Título:	RYC2021_Paz Merelo
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mentarias

Resumen de la Memoria:

I studied Agronomic Engineering at the UPV (Valencia; 2000-2006). During the last year of my degree, I developed my diploma thesis at IVIA. In 2006, I was awarded an INIA fellowship to start my PhD project in the Department of Genomics at IVIA. During this stage (2007-2011), I worked on genomic approaches aimed at understanding the molecular basis of abscission in citrus. Fruit abscission represents a high percentage of annual yield losses in important fruit crops like citrus. Thus, I was particularly interested in identifying candidate genes involved in organ abscission with potential for further biotechnological applications to delay or avoid pre-harvest fruit abscission. Combination of transcriptome assays at the cell type resolution together with histochemical, biochemical and phylogenetic analyses helped to obtain a high-quality catalog of candidate genes for such approaches.

After finishing my PhD thesis, I decided to extend my knowledge in the regulation of plant developmental processes and carry out my postdoctoral research in the Developmental Biology Unit at EMBL (Germany). In this period (2012-2016), I was focused on the study of the molecular mechanisms that regulate organ morphogenesis and development and the activity of meristematic cells in Arabidopsis thaliana. I studied how the flattened shape of leaves depends on an antagonism between the genes that specify adaxial (top) and abaxial (bottom) tissue identity. In particular, I characterized how this antagonism is established very early in the leaf primordia and in the shoot apical meristem using a combination of next generation sequencing and genome-wide transcriptional approaches together with deep genetic analyses, live imaging, protein-protein and protein-DNA interaction assays. After that, I have led my own research line thanks to the ComFuturo program and hold a Young Investigator position at IBMCP (2018-2021). I have applied my knowledge of organ formation and meristem regulation as well as the techniques that I learnt during my PhD and postdoc stages to characterize the genetic pathways and signals that regulate the global proliferative arrest (GPA) (or reproductive meristem arrest). This is a process of agronomic interest since it determines the duration of the flowering period and the production of fruits and seeds in many species. This work has been carried in Arabidopsis, which has provided basic knowledge about the factors that control this process. Importantly, this basic knowledge is being transferred to species of economic interest (wheat) to develop biotechnological approaches aimed at delaying GPA and then increase seed production. During my research career, I have acquired a solid expertise in Developmental Biology, Molecular and Cell Biology, Biotechnology and Genetics. I have studied the regulatory pathways underlying biological and agronomic important processes in plants. The combination of multidisciplinary approaches has strongly contributed to upgrade my researcher s skill toolbox. Finally, since I have achieved a strong background on the regulation of the activity of the shoot apical meristem, I plan to extend my line of work exploiting additional developmental processes taking place in the reproductive meristem (e.g. control of meristem proliferative capacity) as potential breeding targets related to crop productivity

Resumen del Currículum Vitae:

To date, I have published 17 papers in multidisciplinary scientific journals such as PNAS or Current Biology (D1), in journals specialized in Plant Science such as Current Opinion in Plant Biology or Journal of Experimental Botany (Q1) and in Conference Proceedings. My current h-index is 11, with 544 citations since 2008. My diploma and PhD theses led to a 5 publications, one as a first author (Front Plant Sci, 2017, IF 4.117) and 4 as a co-author. The work developed during my postdoctoral stage was translated into two publications as a first author (PNAS, 2016, IF 10.467; PLoS One, 2013, IF 4.065). Moreover, my significant contribution to the Developmental Biology field led to a first authorship in an invited review in a renowned journal in the area (Curr Opin Plant Biol, 2017, IF 7.719). Recently, I have published results from my granted project in Curr Biol (2021, IF 10.834) as a corresponding author.

These works have been selected for oral presentations or posters at national and international conferences (e.g. At the Forefront of Plant Research Congress, 2019; XV Meeting of Plant Molecular Biology, 2020) and for seminars in centers such as CNB (Madrid) or IBMCP (Valencia, 2016). I have also participated in communication and outreach activities organized by EMBL, such as lectures for students (2013), or by CSIC, such as conCIENCIAsé or the Researchers' Night (Valencia, 2019). I have communicated to the general public results of my project as a PI, which have been highlighted in CSIC, FGCSIC and UPV websites and scientific platforms or led to interviews in newspapers, the National Geographic Magazine or radio programs (2021-2022).

As part of my research career, I have actively developed contacts and collaborations with national and international leading groups in the areas of Plant Development and Biotechnology from different countries (e.g. Dr. Alessandra Gentile, Università degli Studi di Catania; Dr. Elena Orellano, Institute of Biology Molecular and Cellular of Rosario; Dr. John Bowman, Monash University; Dr. Detlef Weigel, MPI; Dr. Stephan Wenkel, University of Copenhagen; Dr. Cristina Ferrándiz, IBMCP; Dr. Viviana Echenique, CERZOS). These collaborations have contributed to 5 additional publications.

I have acquired teaching experience by participating in university courses (e.g. Master of Cellular, Molecular and Genetic Biology, Jaime I University of Castellón, 2007; Master of Molecular and Cellular Biotechnology in Plants, IBMCP, 2021) and trained four predoctoral students, one postdoctoral researcher (2007-2011), one graduate student (2013) and one undergraduate student (2021) in molecular biology, laser microdissection and confocal microscopy techniques. I have supervised a Master thesis student (2019-2020) and, currently, I also supervise a PhD student (since 2020).

During my career, I have been awarded an INIA PhD fellowship (2007-2011) and a highly competitive grant from the ComFuturo program (CSIC Foundation) (2018-2021), which allowed to lead my project as a PI. This project also obtained the seal of excellence of the Horizon 2020 Program (Marie Sklodowska-Curie actions H2020-MSCA-IF-2017). My postdoctoral research at EMBL (Germany, 2012-2016) was in the frame of an ERC grant (GA 261081). Finally, I am also member of the expert reviewers for the Agencia Española de Investigación (AEI) since 2021.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias de la educación
Nombre:	CRESCENZI LANNA, LUCREZIA
Referencia:	RYC2021-031152-I
Correo Electrónico:	lucrezia.crescenzi@gmail.com
Título:	Children's learning processes through innovation and technology

Resumen de la Memoria:

My research and publications straddle the fields of child development and educational technology. In 2008 I joined the LMI research group (UB) thanks to a pre-doctoral FI fellowship associated with a European project on digital literacy for young people (eLearning Programme). In 2009 I obtained a doctoral fellowship at the Roma Tre University, and that same year I coordinated a competitive project founded by CAC. As part of my research, I established an age-based classification model for educational TV series for children and obtained a PhD (2010, European Doctorate Mention, cum laude) in Education, Communication and Art from the UB, followed by three years of postdoctoral research at the same institution (2010-14). Since my PhD I have been interested in studying the potential and limits of digital game-based learning in early childhood education, observing young children s interactions with digital educational tools by means of multimodal methods; to the best of my knowledge, this is the first time this approach has been applied in Spain. I have also co-directed two PhD theses and supervised various PhD, master s and undergraduate dissertations, along with regularly teaching research methodology on undergraduate, master s and PhD programmes.

In 2013 I was invited to spend six months as a Visiting Research Associate at the Institute of Education, Faculty of Children and Learning (Univ. College London), to collaborate with Profs. Jewitt and Price on a project using multimodal methods. While there I directed the first of various observational studies on the use of touch-screen devices in preschool education in the UK, Spain and Brazil, resulting in over 15 scientific publications as the outcomes of international projects and fellowships. In 2015 I held a Juan de la Cierva Research Fellowship (2015-17), which gave me the chance to develop my research further and to prepare with Dr. Valente a proposal to submit to the Horizon-2020 Programme (MARGIN, 1.8M.), which I co-coordinated. In 2017 I was granted a competitive Experienced Researcher Fellowship at the UFSC (Brazil), studying young children s behaviour and interactions with apps and their impact on learning processes. Since then, I have been a lecturer at UVIC-UCC.

- In the last 10 years I have authored 22 papers (15 of them indexed in Q1/Q2 JCR or Q1 SCOPUS). In addition, my scientific record includes a book (Q1 SPI), 2 book chapters (Q1 SPI) as the main author and 2 peer-reviewed book chapters as the sole author

- 30 contributions at scientific congresses (16 as lead author) and 20 publications in international conference proceedings with external evaluations, including 3 presentations as guest speaker

- 19 national and international R+D+I projects (funded by the EC, m-Learning enterprises, and the Spanish and Brazilian governments) or contracts with educational bodies, involving collaboration with colleagues worldwide. In 8 of these I was the PI or Scientific Coordinator

- I have been involved in organizing 7 international R&D activities and received invitations for 3 post-doctoral visiting (including to UCL and Stanford University). I have also collaborated as a referee for a number of impact journals (e.g. Computers and Education or Comunicar) and R&D projects at the CSIC (Uruguay)

Official accreditations: Ayudante Doctor (ANECA), Prof. Agregada (AQU), sexenio

Resumen del Currículum Vitae:

I have a background in Developmental Psychology (La Sapienza University, Italy, 2006), obtaining a Ph.D. in Education Communication and Art from the UB (2010, with honours and European mention). Since then, I have been studying the interaction of young children with digital educational tools. This line of research has been consolidated over the years thanks to my direct involvement in 15 national and international research projects funded through competitive calls for proposals and 4 contracts (knowledge transfer). I have been a PI or Scientific Coordinator for eight of these projects in the UK, Spain and Brazil, funded by the EC (H2020), m-Learning enterprises and the Spanish and Brazilian state research agencies.

After three years of postdoctoral research at the UB, in 2013 I was invited to the Institute of Education, Faculty of Children and Learning (UCL, UK) as a Visiting Research Associate to collaborate on a project using multimodal methods. During my stay at UCL, I coordinated a groundbreaking observational study on the use of touch-screen devices in preschool education, the results of which have been published in top journals. In 2014, I held a teaching position as Assistant Professor at the University of Vic, and one year later I was awarded a Juan de la Cierva Research Fellowship (2015-17). In these years I obtained funding in a highly competitive call within the framework of the Horizon 2020 programme (2015-17) as the Scientific Co-Coordinator of a 1,881,401 project, evaluated with a top score of 15/15 with 7 partners from 5 European countries and more than 35 researchers.

In 2017 I was granted a highly competitive Experienced Researcher Fellowship at the UFSC (Brazil). I am currently a lecturer in the Faculty of Education, Translation, Sport and Psychology at the UVIC-UCC (Spain). I have 13 years of regular teaching in undergraduate, masters and doctoral programmes. I have co-directed two PhD theses, sat on a thesis committee, and supervised various PhD, master s and undergraduate dissertations.

In the Postdoctoral Orientation Period, my record shows over 50 scientific publications cited in over 250 JCR journals (average JCR WoS citations during the last 5 years: 30 a year) and in over 700 studies worldwide. I have been awarded many fellowships and research grants funded by public bodies and been invited as a Visiting Research Associate by the Institute of Education (UCL, UK 2013), the UFSC (Brazil, 2017) giving me an opportunity to develop my research further.

In the last 3 years I have led 3 research projects and contracts (MICINN; CAC; Ministry of Science of Brazil) and published in 9 indexed journals (5 Q1 JCR), a book (Q1 SPI) and a book chapter (Q1 SPI), as well as promoting research dissemination in 4 international congresses and a number of OA knowledge-transfer activities. The relevance and contribution of my work can be appreciated from the increasing number of citations. I have been invited as an expert in my research area to seminars and symposiums organized by different national and international universities, and I have collaborated as a referee with a number of international indexed (Q1 JCR) journals. My research has been recognized with a sexenio (six years of international-quality research, 2016) and official accreditations (included of Profesora Agregada, by AQU, 2017).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: dimensions Ciencias de la educación JORNET GIL, ALFREDO RYC2021-034096-I a.j.gil@ils.uio.no

Creativity and pedagogical innovations across learning contexts: Cultural, technological, and affective

Resumen de la Memoria:

My overall research focus has been on cultural, technological, and socio-affective aspects of learning across formal and informal settings, with an emphasis on creativity and pedagogical innovation. As part of this, I have developed new theoretical and methodological insights within Vygotskian Cultural-Historical Activity Theory that have contributed to conceptualize and understand social innovations in and across formal and informal learning settings. Mostly using design-based and participatory ethnography methods, but also including mixed methods approaches, I have conducted research in such diverse contexts as arts-based education, learning in and outside classrooms, makerspaces and science museums, professional design, and commercial aviation pilot training. More recently, my work has focused on promoting and investigating open-schooling pedagogical innovations involving collaborations between the school and local communities to address environmental and social justice challenges, a work that is currently in expansion. Through the attached application, I describe the breadth of my methodological background, which includes mostly qualitative research, but is informed by my background in quantitative methods (undergraduate studies) and design and participation in mixed methods research project. I document my contributions to theory development in educational theory generally, and cultural-historical activity theory approaches more specifically; and my specialization in both video-based ethnography and participatory, action-oriented methodologies aiming at supporting and understanding pedagogical innovation involving collaboration between schools and out-of-school actors. As I hope it becomes plain through the reading, I have during the years developed a very strong and deep understanding of sociocultural theory at large, not only of one aspect of it, but of the entire epistemological foundation. This includes not only the historical and philosophical precedents of the school of thought, but also of those connections that cultural-historical theory has, and can have, with other schools such as pragmatism, phenomenology, or more modern takes in embodied and situated cognition. Moreover, I have not only explored the theoretical foundations and developed novel concepts related to ideas of experiential learning and innovation by drawing connections with other schools of thought, but I have also been explicit with regards to the implications for educational practice that these theories have, particularly in the context of collaborative pedagogical innovations so much needed in the current context of social and ecological adaptation and transformation.

Resumen del Currículum Vitae:

Alfredo Jornet Gil is full professor of pedagogy at the Department of Teacher Education and School Research, University of Oslo, Norway, where he also is the Head of Research and the Deputy Head of the department, co-leading over 140 staff, of which around 85 are academic staff under Jornet Gil s research leadership. His research, which includes a total of 48 works published in high impact peer-reviewed international journals (21 published research articles and 14 editorials), peer-reviewed anthologies (11 book chapters), and two monographs, contributes to better understanding how people with different disciplinary backgrounds and interests learn and develop as they work collaboratively to imagine and achieve new shared goals of societal and educational relevance. He has a track record of project acquisition, project leadership, and project participation in national and international projects, including a Horizon2020 project (www.seas.uio.no) where he is co-PI and leader of two core work packages. Currently, he also leads two national projects focused on building and investigating interdisciplinary collaboration networks involving schools, academics, private and public organizations, and local communities, with a focus on addressing local sustainability challenges in Norway. Jornet Gil is editor in chief of the international journal Mind, Culture, and Activity, where he leads a team of eight senior editors, having also contributed to expanding the journal by establishing an associated innovative publication outlet, Cultural Praxis, which serves as project incubator and explores alternative forms of scholarly publication (https://culturalpraxis.net). Jornet Gil has a strong national (Norway) and international collaboration network that is further strengthened by a solid mobility record including a 48 month stay at the University of Victoria, Canada (2015-2017), six months at the Griffith University in Brisbane, Australia (2012), and two months in Reykjavik, Iceland regular participation in international conferences, national and international invited talks, as well as through the organization of several international conferences and meetings. He is officer of the AERA SIG on Cultural-Historical Theory, serves as panel member for the Academy of Finland Research, Council for Culture and Society s, Review Panel for Education, and is regular reviewer for multiple international journals. Jornet Gil has recently been appointed to lead a work group at the Faculty of Education of the University of Oslo to establish the faculty s new strategy for sustainability (research section). In addition to high-impact research and research leadership, Jornet Gil has extensive experience teaching including but not limited to teacher education in Norway and supervising at both bachelor, master and PhD levels, and has served as external evaluator in several occasions (in Norway, Spain, and the UK). Having supervised and co-supervised multiple master students and PhD candidates, he has directly addressed early career scholars in some of his publications about methodology.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias de la educaciónNombre:BOULLOSA ALVAREZ, DANIEL ALEXANDREReferencia:RYC2021-031098-ICorreo Electrónico:daniel.boullosa@gmail.comTítulo:Sport and Exercise Training for Performance and Health

Resumen de la Memoria:

Following my undergraduate training (2001), I started to work in different jobs related to physical education and sport while, at the same time, I started my scientific training with the Diploma of Advanced Studies (2002-2004) and my PhD studies (2005-2009) at University of A Coruña. During the PhD, I enjoyed a short part-time grant from Consejo Superior de Deportes (2006).

I started to work in Academia at Catholic University of Brasilia (2011-2018). During these years, I experienced all the possible academic roles, and acquired new skills related to sport and exercise psychology and molecular biology. Importantly, I used my sports training background to develop new projects more oriented to training for health. Further, I was awarded with a Productivity Research Grant (PQ2) from the National Council of Research and Technology (CNPq, Brazil), and with an honorary position as Adjunct Senior Lecturer at James Cook University (JCU, Australia).

During the most recent period, I enjoyed a granted post-doctoral fellowship (PNPD, CAPES; 2019) at the Health Sciences Department of University of Brasilia (Brazil), an invited Visiting professorship at German Sports University Cologne (2019-2020; Germany), and a Visiting professorship at Federal University of Mato Grosso (2019-2021; Brazil). My PQ2 grant has been recently promoted to the PQ1 level which is the highest recognition for a researcher in Brazil. I have also received an extension request for renewing my honorary position at JCU for other 3 years.

I have published a total of 136 articles, with 112 in the JCR (27 in Q1 and 20 in Q2; 1233 citations; H-index = 22). I have edited two books and written one book chapter. I have supervised 3 PhD and 4 Master s theses. I have presented 94 works in conferences, including 9 invited lectures in international conferences. I have been granted in 5 public competitive calls as Principal Investigator. I am serving as Associate Editor or Editorial Board member for several highly ranked journals.

Resumen del Currículum Vitae:

I completed my undergraduate in Physical Activity and Sport Sciences at the University of A Coruña (UDC, Spain) during a 4-year period (1997-2001). Thereafter, I worked in different jobs related to physical education and sport (2001-2010). At the same time, I started my scientific activity, first with the Advanced Studies Diploma (2002-2004), and then with my PhD studies (2005-2009), both under the supervision of Dr. José Tuimil (University of A Coruña). I joined a short part-time grant from Consejo Superior de Deportes (2006) at the start of my PhD studies. I defended my PhD in 2009 with 4 published articles (2 in JCR journals) and 10 scientific communications in national (3) and international (7) conferences.

I started to work in Academia in 2011 in the Catholic University of Brasilia (UCB) as lecturer for graduate and undergraduate courses, and as Masters and PhD s advisor. Just after 3 years working at UCB, I was promoted to Coordinator of the Masters and Doctorate Courses in Physical Education (2014-2018) and Coordinator of the Specialization Course in Exercise Physiology (2015-2017). During this period, I was awarded with a Productivity Research Grant from the National Council of Research and Technology (CNPq, Brazil) (2016-) and an honorary position (2016-) as Adjunct Senior Lecturer at James Cook University (Australia). I also acted as National Coordinator of Sports Training for the Brazilian College of Sport Sciences (2018-2019).

During 2019, I joined a post-doctoral grant (PNPD, CAPES) at the Health Sciences Department of University of Brasilia (UnB, Brazil) to participate in a couple of studies on strength training for 5 months, under the supervision of Professor Martim Bottaro (H-index = 30). During this time, I was approved in a competitive call to join a position as Visiting Professor at the Federal University of Mato Grosso do Sul (UFMS, Brazil). Thus, I arrived at UFMS in October 2019, however I was allowed to visit Germany from November 2019 to February 2020 to enjoy the invitation received from Professor Lars Donath (H-index=26) to act as Visiting Professor at the German Sports University (GSU). This resulted in an agreement between the Institute of Cardiovascular Research and Sports Medicine (GSU) and the Integrated Institute of Health (UFMS) for collaboration in my research project on the effects of sprint training for depression, which is currently being conducted at UFMS.

During my academic career, I have published a total of 136 articles, with 112 in the JCR (27 in Q1 and 20 in Q2; 1233 citations; H-index = 22). I have edited two books and written one book chapter. I have supervised 3 PhD and 4 Master s theses. I have presented 94 works in conferences, including 9 invited lectures in international conferences. I have been granted in public competitive calls for 5 research projects as Principal Investigator. I serve as Associate Editor for International Journal of Sports Physiology and Performance (Q1, JCR), PLoS One (Q2 JCR), International Journal of Environmental Research and Public Health (Q2, JCR) and Human Movement (Q3, Scopus), as Invited Editor for Frontiers in Physiology (Q1, JCR), and as Editorial Board member for European Journal of Sport Science (Q1, JCR).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: contexts **Ciencias de la educación** AIELLO , MARIA EMILIA RYC2021-033530-I aiello.emilia@gmail.com Successful community organizing that enhances educational transformation in deprived socio-educational

Resumen de la Memoria:

The research line developed by Dr. Aiello has focused on understanding the processes and mechanisms underlying successful community organizing that takes place and is fostered within and around those most deprived socio-educational contexts, and which lead to socio-educational transformation in terms of students academic achievement, and coexistence. This by looking specifically at the role played by women, and at how when dialogic leadership is promoted within these contexts, women s human agency is enhanced. Within this broad research line focused on the relationship among community organizing and the transformation of socio-educational contexts and the dynamics derived from it, three have been then main ways in which Aiello has inquired, and to which she has contributed with her scientific work.

The first one is about the type of leadership promoted, and how narratives and storytelling can play a distinctive role enhancing a type of leadership that is values-based, and which acknowledges the importance of fostering a shared social identity. Dr. Aiello has researched since her PhD and during the EU Narratives4Change project, how public narrative, a framework for leadership development, is contributing to this. Public narrative acts as a catalyst for shared identity creation, what underlies and sets the ground for building organizational capacity -build community and build power. My research suggests that when this takes place within the educational context, not only teachers but also families become key agents for coexistence in centers, enhancing positive learning environments for all.

Her second main contribution to this broad research line is about how a different organizational structure is construed in these sites, promoted and made sustainable throughout the time, leading to the transformation not only of the educational centers structure, but also of the own neighborhoods and the relationship between them. In this sense, Dr. Aiello has looked at processes that impact on shaping a different organizational structure in these deprived educational centers and their neighborhoods, providing strong evidence that points out how socio-educational transformation can take place, hence leading to the integration of those most vulnerable kids, promoting civic engagement. This has been observed in the work that Aiello has carried out with Roma women in Spain, and also in the research conducted in the Narratives4Change project with undocumented migrants in Michigan (USA), as well as with midwifes and end-users of healthcare maternity services in England.

The third way in which Dr. Aiello s work is making a ground-breaking contribution to existing scientific literature in social sciences has a particular methodological dimension: it is about how to capture by putting in place specific methodological strategies since the design, to the implementation and evaluation of research, its social impact and the social creations derived from these studied transformative and agentic-based community organizing that take places in the mentioned socio-educational contexts. In doing this, the research process strengthens its capacity to understand societal processes embedded in these social realities, and it also conceives actors as individuals capable of engaging in such transformation processes.

Resumen del Currículum Vitae:

Prior to her appointment as post-doctoral researcher at the Harvard Kennedy School, and at the UAB Department of Sociology, Dr. Aiello gained a BA in Political Sciences, Master s degree in Labour and Social Policy, and PhD in Sociology, all of them developed at the UAB. Her PhD dissertation Roma women taking the lead for social transformation: the case of the Roma Association of Women Drom Kotar Mestipen, was qualified Excellent Cum Laude and awarded with the Extraordinary PhD Award Prize in UAB.

Besides her Marie S-Curie project Narratives4Change, Dr. Aiello has either collaborated or been member of the research team of 5 scientific projects funded by the European Framework Programmes for Research and Innovation. These are the following: the FP6 INCLUD-ED project (ID: 28603, 2006-2011); FP7 IMPACT-EV (ID: 613202; 2014-2017), H2020 PROTON project. At the present, besides leading herself the H2020 Marie S-Curie project Narratives4Change, she is also member of the research team of 2 EU-funded research projects, of the highest category: the H2020 ALLINTERACT project (ID: 872396; 2020-2023); and the H2020 REFUGE-ED project in which the candidate is leader of work-package 2 (ID: 101004717; 2020-2023).

In relation to Spanish RTD projects in which Dr. has been involved, these are 5: DROM-IN. Roma immigration in Spain: the challenges of social inclusion and coexistence (2009-2011); TRANSROMA. Strategies of mobility, return and transnational practices among Romanian Roma (2008-2011), SARTUCUE (2016-2019), REMIMOB (2014-2017), which studied return Migration and Re-emigration by focusing on the case of Moroccans and Bolivians in Spain. At the present. Dr. Aiello is member of the research team of the ROMI21 research project (2021-2023) focused on understanding how Roma women are tackling the COVID-19 effects on their own communities.

Dr. Aiello has presented her work or been invited speaker in international and European scientific forums such as the Multidisciplinary International Congress of Educational Research, the International Sociological Association Forum Conference, the Social Impact of Science Conference; the European Sociological Conference (in different editions), as well as other conferences held at a national and international level. She counts with 19 research articles, 11 of them are WoS JCR, published in top-ranked journals such as Qualitative Inquiry (JCR, Q1), Religions (JCR, Q1), International Journal of Qualitative Methods (JCR, Q2), Evidence & Policy (JCR, Q3), Plos One (JCR, Q2), International Sociology (JCR, Q3), among others. The academic career of Dr. Aiello has a remarkable international dimension. Aiello returned to the UAB from the HKS in June 2021 to start the return phase of the Marie S-Curie action. Prior to that, in 2014, she was a visiting researcher at Harvard Kennedy School, and in 2016, she was visiting researcher at the Department of Sociology at the University of Oxford. Both research stays were Awarded by the Spanish Ministry of Science.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Other relevant aspects of Aiello s career is her collaboration with several non-academic but professional and/or grassroots-based organizations such as Ciencia en el Parlamento Association, the Roma Association of Women Drom Kotar MEstipen, and The Leading Change Network.



Área Temática:	Ciencias de la educación
Nombre:	SANTOS ESTEVES, ANDREIA
Referencia:	RYC2021-032849-I
Correo Electrónico:	ainamorato@gmail.com
Título:	Investigadora en Tecnologias Educativas y Sistemas de Inovación
Basuman da la Mamar	ia.

Resumen de la Memoria:

I am a researcher, lecturer, and international consultant in educational technologies and open education. I have over 20 years of international experience in the education field. Currently, I hold a Senior Researcher post at the European Commission s Joint Research Centre (JRC), based in Seville, Spain. My role involves research and policy support on digital technologies for learning, skills, open education, digital competence of educators, and smart specialisation. My work lies in the intersection between research and policy, contributing to identifying opportunities and challenges of ICT and open educational practices implementation to innovate and modernise teaching, learning, and training practices in Europe. At the core of my activity is the cycle research-publication-dissemination, from which most of my academic production is released as either a Science for Policy Report or a Technical Report. This research is often produced in collaboration with stakeholders in the EU Member States and internationally, from academia and from national ministries of different sectors.

My current research focus is threefold: the promotion and uptake of openness in higher education institutions and EU Member States, the digital competence of educators, and the smart specialization strategies of higher education institutions. I have led the OpenEdu Project and conceptualised the OpenEdu Framework (JRC 2013-2019) which helps higher education institutions to go open in terms of open educational resources, open science, open pedagogies, and learning pathways. My other large-scale projects are the DigCompEdu Framework for the digital competence of educators, and its Check-In tool (JRC 2017-2022), my research on Blockchain in Education (2017), and my work on HESS (Higher Education Smart Specialisation JRC 2022). I also have carried out research on computational thinking, for the compulsory education sector (JRC 2022). I have published several scientific research reports, most of them being described in my CV.

I have worked as an open educational resources (OER) researcher for the Open University UK (2006-2011) and since then have been involved in several other education research projects in Europe and worldwide. I am the founder of DigiLearn (2011), an education and training consultancy service in Brazil. My clients have included government bodies, private and public universities, schools, NGOs, professional associations, and high-profile enterprises in Latin America, the USA, Europe, and Africa.

I have had important career achievements in the last couple of years (2021-2022), including the receipt of an institutional prize from CRUE -TIC (Conference of Rectors of Spanish Universities), in recognition of our collaborative work in the design and application of a national survey in Spain on the digital competence of academics. I have also carried out similar collaborative research with Metared (Universia Foundation) in seven Iberoamerican countries (Argentina, Brazil, Colombia, Chile, Peru, Mexico, and Portugal).

On the personal side, I have dual nationality, Spanish -Brazilian. I am a single mother by choice of a 2-year-old boy. I communicate fluently in three languages: English, Portuguese and Spanish, due to having lived for many years in Brazil (birth), the UK (11 years), and Spain (8+ years). My webpage is http://andreiainamorato.com

Resumen del Currículum Vitae:

Formal Education: I hold a PhD in Educational Technology from the Open University of the United Kingdom (2011) and a Master s in Research Methods for Educational Technology from the same institution (MScRMet, 2003). I have a Master s in Linguistics and Literary Studies in English Language (MA) from the University of São Paulo, Brazil (USP, 2001). I also hold a postgraduate diploma in Didactics of Teaching in Higher Education (1998, FMU, Brazil). My bachelor s degree was in Languages, Portuguese-English, (Brazil, 1994-1996). Earlier, I took a vocational education course on early-years and primary education teaching (1991-1994). My research career started with focus on language and applied linguistics, but my PhD in educational technology has offered me the background needed to start working as a researcher at the Open University UK in 2006, in the field of open educational resources (OER), which thereafter became my main area of interest and advocacy (open education). Professional experience: Following my formal education route, I have started my career as an English as a Foreign Language teacher (EFL), first at the primary education level (1994), then at private language courses (1995) and universities (1998-2001). Besides English Language, I taught English and American Literatures at UNISA (University of Santo Amaro, Brazil). I also owned a language school called Inamorato Idiomas from 1998-2001, which focused on the teaching of foreign languages to executives in São Paulo, Brazil (in-company classes). I then moved to the UK to do a PhD in educational technology. First, I did an MScRMet and then the PhD, which led me to work as a researcher on OER for the OpenLearn project of the OU UK (2006-2011). I then returned to Brazil for a couple of years for family reasons. During this period in Brazil, I worked for myself and founded DigiLearn, a consultancy company in education and training. I was then already well established and known as a researcher in open education and have been hired by UNESCO IITE as a consultant to do a national survey in Brazil which was published as part of their open education series: Open Educational Resources in Brazil: State-of-the-Art, Challenges and Prospects for Development and Innovation . Afterward, I was hired as a researcher by the European Commission s Joint Research Centre in 2013, in Spain, where I am working to date, and will be up until September 2022 when my contract ends. I joined to lead a large project called OpenEdu, with the goal to support European policy on open education and gave rise to the OpenEdu Framework for universities, of which I am the main author. Since then, I have led several research projects of the Commission, always with the goal to support education policies. I highlight my work on the digital competence of educators (DigCompEdu and Check-In tool) and blockchain in education. All projects have their corresponding publications, mostly science for policy reports. Conferences and Talks: I have participated in many conferences over the years and gave several talks as a keynote and invited speaker, in Europe, Latin America, USA, and Africa. Most of these conferences were on education, and also high-level international events. I highlight my participation in UNESCO conferences on OER; my talks at the OECD and at several policy events of the European Commission.


AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	MONTEJO BERLINGEN, JAVIER
Referencia:	RYC2021-030944-I
Correo Electrónico:	javier.montejo.berlingen@gmail.com
Título:	Searches for light higgsinos beyond the MSSM at the LHC
D	

Resumen de la Memoria:

Throughout my career, I have worked on physics analyses targeting different aspects of the hierarchy problem. I was the lead analyser for the first searches for ttH, which led to the confirmation of the SM-like nature of the top Yukawa coupling. I then transitioned to searches for beyond-the-standard-model top partners, that could cancel the top-loop corrections to the Higgs mass. I developed searches for fermionic top partners (vector-like tops) and scalar top partners (stops).

The large increase in energy and luminosity at the start of Run 2 made it the perfect moment to concentrate on BSM searches. As one of the prime candidates to address the hierarchy problem, I focused on searches for natural supersymmetry (SUSY). I led a series of searches for stops in the 1-lepton final state, with increasingly comprehensive coverage of stop production within natural SUSY scenarios, including the challenging decay to higgsinos.

No signal of natural SUSY has been observed, and limits on R-parity conserving models are reaching the regime predicted by natural SUSY models. Therefore, I decided to transition to less common models, such as supersymmetric models with R-parity violation (RPV), or models with long-lived particles, but still providing a successful explanation of the hierarchy problem. I proved that it is possible to reach sensitivity to higgsinos with RPV decays at the LHC and developed an analysis that provides the first limits on such models since LEP.

The increase in luminosity expected in Run 3 will only bring modest improvements to existing analyses. Therefore, I have been heavily involved in the trigger group where I have contributed to the operation, development and design of the trigger menu. I had the pleasure of defining the Run 3 ATLAS trigger menu, shaping an ambitious physics programme for the next years, that will enable searches in measurements in multiple new final states. I am currently coordinator of the Level-1 calorimeter algorithm and performance forum, where I am leading efforts to develop and optimise reconstruction and identification algorithms, in order to achieve the best possible performance out of the trigger phase-I upgrade.

My current interest is in searches for new physics, focusing on novel and unexplored signatures, including long-lived decays. I m working on the development of new triggers, reconstruction techniques and background estimation methods. I m also developing custom machine-learning techniques to be combined with data-driven estimation methods, that will allow overcoming common limitations of LHC analysis such as background modeling in extreme final states, low data statistics, and background extrapolations. My goal is to pursue ambitious searches exploring uncovered final states, that enrich the scope of the current physics programme.

In conclusion, throughout my career I have focused on new physics searches for models that address the hierarchy problem. I have performed analyses in a great variety of final states, which have required multiple different techniques and approaches. I consider that this broad view has given me the skills to pursue new challenges and adapt to the changing landscape of particle physics, in order to continue addressing the main questions of the field.

Resumen del Currículum Vitae:

I have developed my research career in the field of experimental high energy physics, working in the ATLAS experiment at the LHC accelerator at CERN. I was awarded with an FPU grant and obtained my PhD from the Universidad Autónoma de Barcelona in 2015 with Cum Laude honors.

Throughout my career, I have worked on physics analyses targeting different aspects of the hierarchy problem. During my PhD I was the lead analyser for the first searches for ttH, which led to the confirmation of the SM-like nature of the top Yukawa coupling. I then transitioned to searches for beyond-the-standard-model top partners, that could cancel the top-loop corrections to the Higgs mass.

During this period I also worked on the characterisation and calibration of the timing performance of the Tile calorimeter using collision data. I identified multiple detector and geometrical effects that were previously not accounted for and introduced a set of selection cuts and corrections that improved the resolution of the time measurement by up to 20%.

After my PhD I obtained a CERN research fellowship. During this time, I led a series of searches for scalar top partners. The strong sensitivity and flexibility of the analysis led to a series of publications with integrated luminosities of 3.2/fb, 14/fb and 36/fb, with increasingly comprehensive coverage of stop production within natural SUSY scenarios. As recognition of my work I was appointed convener of the third-generation supersymmetry group.

Alongside physics analysis, I have been heavily involved in the trigger group where I have contributed to the operation, development and design of the trigger menu, which defines the data that is recorded by ATLAS. I was appointed as trigger menu and signature coordinator, and as such I was part of the Trigger Coordination board, as well as the Physics Coordination board. I also had the pleasure of defining the Run 3 ATLAS trigger menu, shaping the physics programme of the experiment for next years.

I am currently CERN research staff, and during the last years I have transitioned to less common new physics searches, such as supersymmetric models with R-parity violation (RPV), or models with long-lived particles. I have recently developed a new search which provides the first limits on higgsinos decaying via RPV since LEP. During this period I was appointed convener of the R-parity violating and long-lived supersymmetry group. I am currently LHC LLP working group convener, where I coordinate the work of theorists and experimentalists studying long-lived particles across LHC experiments.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

As part of my effort to improve the Run 3 triggers, I am currently coordinator of the Level-1 calorimeter algorithm and performance forum, where I am leading efforts to develop and optimise reconstruction and identification algorithms, in order to achieve the best possible performance out of the trigger phase-I upgrade.

In summary, throughout my career in ATLAS I have performed measurements and searches targeting different aspects of the hierarchy problem. I have also contributed strongly in the Tile calorimeter and in the Trigger groups. During this time I have been entrusted with several management and coordination roles with an increasing level of responsibility and leadership, and proved my ability to lead large research groups in an international environment.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	LILLO BOX, JORGE
Referencia:	RYC2021-031640-I
Correo Electrónico:	jlillobox@gmail.com
Título:	Exoplanet diversity and habitability: new paths for the exoplanet exploration

Resumen de la Memoria:

I have devoted my scientific career, started in 2010, to the exploration of new worlds beyond the Solar System and the comprehension of their diversity. I am a recognised expert in exoplanet detection and characterization through different techniques, from high-precision radial velocity to high-precision photometry and high-spatial resolution imaging. I have become an expert in the statistical treatment of time series and the use of Bayesian inference in the astrophysical context. I started in this field in the framework of the Kepler space mission, becoming part of the extended team of the mission during my PhD and carrying out different works that put me in the international showcase for their relevance and impact in the field, with the detection of iconic planetary systems. After defending my thesis (Cum Laude and Extraordinary Prize Award), I decided to take a deep insight into astronomical instrumentation. I was awarded the highly competitive ESO Fellowship and spent 3.5 years in Chile as science support at the state-of-the-art Paranal observatory, where I had responsibilities in vanguard instrumentation such as the ESPRESSO planet hunter spectrograph. In parallel, I designed and started a new and original research line: the search for co-orbital exoplanet worlds, yet non-discovered planetary configurations that might contain key information about planet formation and evolution processes previously unexplored. Since 2017 I lead a European network of experts in different fields to explore the possibilities of detecting these co-orbital planets. This project, entitled TROY, received the Seal of Excellence from the Marie Sklodowska-Curie actions and was awarded the prestigious Junior Leader Fellowship in 2020. Additionally, I am the Principal Investigator of the KOBE experiment, a project that I designed and now lead that was awarded with >200 nights of observation with the state-of-the-art CARMENES spectrograph to search for new habitable worlds in unexplored environments between 2021-2024. All in all, my research lines can be summarised in three main objectives: (i) exoplanet population and its diversity, (ii) the search for habitable worlds, and (iii) exoplanet archeology through the unexplored field of co-orbital planets. My mature track record includes participation in the most important consortia in the exoplanet field, including both ground-based (e.g., ESPRESSO, HARPS, CARMENES) and space-based (Kepler, PLATO, Cheops, JWST, LIFE) missions, and leading international teams on breakthrough projects focused on key objectives for the exoplanet field.

All the interdisciplinary experience that I have been involved in during my career, from observational astronomy to instrumentation and theory, have paved the way towards a near and mid-term future full of self-designed projects. Thanks to these skills and the ability to attract funding resources from different agencies, I have been able to choose my path and work on science cases that I consider key in my field. Along my research career I have achieved professional maturity through the development of leadership skills, ability to collaborate, professional independence, and original thinking: all key to lead the scientific challenge that I am seeking to pursue in the course of this grant.

Resumen del Currículum Vitae:

I am currently a Junior Leader Fellow, a competitive and prestigious postdoctoral position from La Caixa Foundation co-funded by the European Commission through the Horizon 2020 Marie Sklodowska-Curie actions. This program includes research funding to cover both equipment and hiring of personnel.

I am an astrophysicist specialised in the exoplanet exploration field. I graduated in Physics in 2010 with end-of-studies extraordinary award at University of La Laguna. I defended my PhD in Astrophysics in 2015 at Universidad Autónoma de Madrid and was honoured with the Extraordinary Doctorate Award. My research career started with the consecution of different internships in outstanding research institutes before my graduation, including the European Space Agency (ESA, 2009), the Instituto de Astrofísica de Canarias (IAC, 2010) and the California Institute of Technology (Caltech, 2010). I was granted the prestigious JAE-Predoc grant (CSIC) to perform my PhD at the Center for Astrobiology on the study of exoplanet diversity (2010-2015). I then moved to Chile after being awarded the recognised and competitive ESO Fellowship (2015-2019), where I developed my own scientific project (50% of the time) and supported instrumental activities at the Paranal Observatory (50% of time). In 2019 I was awarded the María de Maeztu Fellowship in the context of the study of life emergence in the Universe through exoplanet exploration. In 2020 I was finally awarded the current position I hold, the Junior Leader Fellowship.

I have participated in 106 refereed papers in first quartile journals (including 2 Nature and 3 Nature Astronomy), 18 as first author, in the 10 years since my first publication. In total, they amount 2854 citations with an h-index = 30. I have more than 20 contributions in international conferences (including 5 invited talks) and 20 invited seminars in national and international institutions. I have led one White Paper and participated in the PLATO mission Red Book (definition study contributor). I lead funded projects (TROY and KOBE), international collaborations (the Planets in Giants project) and transdisciplinar teams (the Maisha enterprise), and participate as researcher in several national and European projects and collaborations. I am the science coordinator of the CAFE spectrograph and have participated in the commissioning and readiness of the most stable and precise spectrograph for astronomical purposes: ESPRESSO.

I have received several awards during my career including the Seal of Excellence from the European Commission in 2018. I serve regularly as referee in journals of the first quartile (including A&A, ApJ or MNRAS) as well as external referee of ERC proposals and panel member of observing time allocation committees. I am supervising one PhD student (and another one in the selection stage, to start in 2022), and I have supervised 14 Master thesis in the past 5 years. I am an active participant in outreach and dissemination events, critical to reach a broad part of society, and I edit my own outreach channels.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	REÑE ESPINOSA, JORGE
Referencia:	RYC2021-030937-I
Correo Electrónico:	jr752@cam.ac.uk
Título:	Phase transitions in living matter: From first principles to cell compartmentalization
D	

Resumen de la Memoria:

Liquid-liquid phase separation (LLPS) has emerged as an important organizing principle of the cell interior, where condensation of proteins and nucleic acids into liquid droplets has been shown to underlie the formation of membraneless compartments [1]. The presence of multivalent biomolecules, like proteins, nucleic acids or DNA, enable the spontaneous demixing of the cytosol and the cell nucleus into different coexisting liquid compartments where the formation of curated reactive volumes that selectively concentrate and exclude specific molecules, allows the coordinated control of thousands of simultaneous chemical reactions required to maintain biological function [2]. Understanding how molecules behave inside condensates is extremely important because their dynamics are linked to either health or disease [3]. In fact, misregulation of LLPS inside cells is expected to drive local liquid-to-solid transitions that significantly reduce the dynamic behaviour of the molecules inside condensates [4,5]. This phenomenon has been postulated to represent a key pathological step in the onset of some neurodegenerative disorders such as Alzheimer or ALS [5,6]. However, how the assembly and disassembly of these pathological condensates is spatially and temporally controlled remains largely unknown [7]. My research line pushes the current limits of the simulation techniques that have been developed so far to study LLPS in inanimate matter to arrive at a predictive model for functional LLPS inside the cell. To this end, I am developing novel multiscale modelling and simulation approaches [8-11] that overcome the existing methodological limitations, and that allows us to simulate protein/RNA/DNA mixtures that undergo LLPS in unprecedentedly large, and hence realistic, systems (i.e. ~10000 proteins) [12-14]. These coarse-grained models are firmly grounded in experimental data, such that the model retains crucial information about the molecular structure, backbone flexibility, and intermolecular forces, while being simple enough to reproduce the organisation of a large ensemble of species at experimentally relevant scales [15,16]. My work takes advantage of such models to link molecular mechanisms with macroscopic observables, validate directly against experimental measurements [17], and identify the main molecular and thermodynamic driving forces behind condensation and LLPS within the genome [18] and the cytosol [11].

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Resumen del Currículum Vitae:

Overview: Since October 2019, I am an Independent Research Fellow at the University of Cambridge Cavendish Laboratory funded by the prestigious Oppenheimer Fellowship and the Roger Ekins Fellowship at Emmanuel College Cambridge. Previously, I was a postdoctoral fellow at Cambridge (2018-2019) and obtained a PhD in Advanced Chemistry from the University Complutense of Madrid in 2018. For my doctoral work, I was awarded the 2019 Wormald Prize of the Royal Society of Chemistry and the Thermodynamic Series Conferences for the best PhD thesis, and the Extraordinary Doctorate Prize from the University Complutense of Madrid in 2019.

Publications: At this early stage of my career, I have already published 42 peer-reviewed articles. I am first or co-first author of 23 of them, and senior corresponding author in 7 of them. These include high-impact publications, such as 1 JACS, 1 Phys. Rev. Lett., 1 J. Phys. Chem. Lett., 1 Nat. Comm., 1 Nat. Comput. Sci., 1 Nano Letters and 1 PNAS. Among my publications, 3 articles have been cited more than 100 times, and 12 articles more than 50 times (Google Scholar). As of today, my work has been cited more than 1400 times, and my h-index is 19 according to Google Scholar.

Funding: In total, in my 3-year career as an independent researcher, I have secured ~ 450,000 (£375,000) to cover research expenses and my salary. This includes two of the most prestigious fellowships from the University of Cambridge, the Oppenheimer Fellowship from the Dept. of Physics, and the Herchel Smith Fellowship from the Dept. of Biochemistry (declined in favour of the Oppenheimer Fellowship), both to fully fund my independent research line in Cambridge for 3 years. I was elected to the Roger Ekins Fellowship in Emmanuel College. I have secured 3 consecutive EPSRC grants for Tier-2 Supercomputing Resources (one as co-PI in 2019, and two others as PI in 2020 and 2021) each of them valued in more than ~ 90,000 (£75,000). During my PhD, I also obtained funding from competitive performance-based programs, including a FPI Scholarship from the Spanish Ministry to fully fund my PhD, and two grants to fund 3-months international research internships, one in Princeton University (2016) and another in Cambridge University (2017).

Independent research: The Oppenheimer Fellowship has allowed me to begin to assemble my research group. My work is devoted to understanding, by means of advanced computer simulations, the thermodynamic and molecular driving forces behind phase transitions in wide-ranging systems: from colloidal particles to proteins/RNA mixtures and DNA/Chromatin systems . At Cambridge, I supervise two PhD students: Mr Adiran Garaizar who has recently passed his PhD defense (01/2022) with 12 publications, and Mr Ignacio Sanchez-Burgos (2nd year PhD student with 10 articles already). Moreover, I am the co-supervisor of a PhD student from the Polytechnical University of Madrid, Mr Andres Tejedor, who has done 2 internships in Cambridge of 8 months under my supervision. I am also supervising three Master students: Mr Tim Higginbotham (Cambridge), Ms Lara Herriott (Cambridge) and Mr Daniel Lainez (University of Huelva). Also, I have supervised 1 research intern from University College of London, Ms Maria Estevez (2021), and co-supervised 2 Bachelor Research Thesis of Ms Caridad Navarro and Mr Victor Cruces (University Complutense 2016).



Área Temática:	Ciencias físicas
Nombre:	BORSATO , RICCARDO
Referencia:	RYC2021-032371-I
Correo Electrónico:	ricc.borsato@gmail.com
Título:	Integrability, dualities and deformations in string theory and AdS/CFT

Resumen de la Memoria:

I have 25 publications with excellent citation records. According to Inspire-HEP my h-index is 19 and I have 1425 citations, for an average of 57 citations per publication. In fact, 14 of my papers (56%) have at least 50 citations, and 3 of them at least 100 citations. My most cited paper has 178 citations. I published 3 papers in the prestigious journal Physical Review Letters (in 2014, 2016 and 2020). My work is recognised also by invitations to speak at various institutions and at the most important events in my field, including the conference Integrability in Gauge and String Theory, and the recent Exceptional Geometry Seminar Series.

I have an extensive network of international collaborations and I am internationally known both for my scientific output and for the organisation of scientific events. In particular, I created the first edition of the annual series of conferences Integrability, Dualities and Deformations, that is an important platform for my field. I was also guest editor of the special issue Integrability, Dualities and Deformations in Journal of Physics A.

I published with leading experts in my field, and at the same time my achievements reflect my scientific independence and my ability to lead new research lines and research groups. My output is proof of a coherent evolution through my career, motivated by a strive to expand my horizons and work on the most relevant and timely topics. My contributions include classical integrability, quantum spin-chains, solution-generating techniques in supergravity, worldsheet methods, integrable deformations, generalised dualities in string theory, O(d,d) covariant formulations, alpha -corrections. Importantly, I constructed all-loop S-matrices for the integrable spin-chains underlying the AdS3/CFT2 correspondence and I derived the asymptotic Bethe ansatz equations . I also resolved a long-standing problem by including the previously missing massless modes (which lead to publication in PRL). I was the first to obtain the background of the eta-deformation of the AdS5 x S5 superstring by doing in complete independence a challenging computation with the Green-Schwarz action, that later lead to the discovery of the generalised supergravity equations . I have investigated various aspects of integrable deformations, including their relation to non-abelian T-duality (published in PRL). Remarkably, using Double Field Theory, I showed that non-abelian and Poisson-Lie T-duality admit first-order alpha -corrections to make them consistent at the quantum level (also in PRL).

Resumen del Currículum Vitae:

I studied in Padova (IT) and graduated with 110/110 cum laude (with honors) both at the BSc and MSc level. My PhD was in Utrecht (NL) under the supervision of G. Arutyunov, a leading expert in integrable models, string theory and the AdS/CFT correspondence (I was hired through his VICI grant, the highest Dutch grant). I then accepted a combined offer made by A. Tseytlin and K. Zarembo for postdoctoral positions in their groups, first at Imperial College London (UK) (1 year) and later at NORDITA (SE) (2 years). Such arrangement was ideal given the role of leadership of Tseytlin and Zarembo in my field of study (in both cases I was hired through their respective ERC Advanced grants), and given the scientific excellence of those institutes. Since 10/2018 I am working as an independent researcher at IGFAE (Instituto Galego de Física de Altas Enerxías María de Maeztu Unit of Excellence 2016 and Galician Research Centre 2019) in Santiago de Compostela (ES).

At first my position at IGFAE came with the offer of a Global Talent Fellowship created by the institute to attract talented researchers. I accepted because I knew that it would allow me to consolidate my scientific independence and maturity to be competitive in grant-application calls, and because of the possibility to manage my own funds for research activities (75,000 euros). My position improved further when I was awarded the Junior Leader Postdoctoral Fellowship of Ia Caixa Foundation, that I started in 09/2019. This is a very competitive fellowship (success rate of ∼ 8%) with a two-stage selection process (a first selection of written applications is followed by interviews with a panel). The fellowship programme is now part of the European Union s programme Horizon 2020 under the Marie Sklodowska-Curie grant agreement No 847648. The fellowship comes with a generous budget to carry out scientific activities (the total amount of the fellowship is 300,000 euros).

The grants that I have attracted allowed me to hire a postdoc, dr. Sibylle Driezen, who started her job in 02/2020. During this time I have been both her scientific supervisor and her mentor. Thanks to the work done with me and to my career advices, next year she is moving to the prestigious ETH Zurich for a postdoc. I have supervised also a PhD students, a MSc student, and I will supervise two visiting PhD students.

I organised various scientific meetings. In particular, as only funder and main organiser, I created the first edition of the annual series of conferences Integrability, Dualities and Deformations. This is a strategic platform for a large community in my topic, with a long-term planning (already a concrete plan for 2022 in Berlin and 2023 in Durham).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	GIL MARIN, HECTOR
Referencia:	RYC2021-034104-I
Correo Electrónico:	hectorgil85@gmail.com
Título:	Precision Cosmology with galaxy surveys
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Resumen de la Memoria:

My expertise lies in the synergy between observational and theoretical cosmology, focusing in the development and application of statistical tools to massive 3D galaxy maps. The goal is to extract information from the dark sectors of the standard model of cosmology: the dark energy and dark matter. However, extracting and using information from an actual galaxy map is a challenging task that requires both accurate models and precise observations. Observations must be made and treated appropriately, so that the information they deliver (the galaxy catalogs as 3D galaxy positions) is robust. Also, the catalogs need to be processed and compressed into useful data-vectors with the minimum loss of information, and confronted with models, with appropriate assessment of both systematic and statistical error. Only with an accurate treatment along the full pipeline, we can ensure that an observed signal is interpreted correctly.

I have extensive experience as key player of BOSS and eBOSS collaborations. Within these, I led the power spectrum analyses performing and coordinating the official baryon acoustic oscillation, redshift space distortions analyses (RSD), as well as performing for the first time the analysis and interpretation of the higher-order statistics signal. Currently, I am part of the DESI collaboration, where as a convener of the working group of one of the survey Key projects, I am responsible for delivering the official analyses using the RSD and Alcock-Paczynski signals.

From a theoretical point of view, I have also proposed novel strategies to interpret data and their connection with the theory more robustly. I am the architect of a new blinding strategy for spectroscopic surveys and I have also proposed a new compression technique that enables one to extract extra information beyond galaxy surveys's standard techniques. These works have had a significant impact within the observational cosmology community, for eg., have been adopted as part of the official DESI data-analysis pipeline.

My research plan focuses on continuing in this fruitful and promising direction, which potential has not yet been fully exploited. I plan to apply the newly developed techniques to forthcoming large data sets. I believe that this effort in developing new analysis, modelling techniques and interpretations and application to data is crucial so we have to understand the physical laws governing the Universe, eg., the nature of dark energy.

Resumen del Currículum Vitae:

I obtained my PhD at the Institut de Ciencies del Cosmos in 2012. Then worked as postdoctoral researcher at the Institute of Cosmology and Gravitation (Portsmouth University), where I became part of the science team of the Baryon Oscillation Spectroscopic Survey (BOSS) and eBOSS collaborations. In 2015 I obtained the Institut Lagrange de Paris fellowship and lead the final analyses of eBOSS, taking also an active role in the Dark Energy Spectroscopic Instrument (DESI). In 2018 I was awarded the prestigious Junior leader la Caixa fellowship with a budget of 300,000 , which allowed me to create my own research group.

In 2020 I obtained the 'Premio Joven Investigador en Física Teórica' by the Real Sociedad Española de Física & Fundación BBVA for outstanding contributions to the analysis and interpretation of galaxy survey data of BOSS and eBOSS, boosting our understanding of the accelerated Universe, and qualified as one of the most brilliant researchers in the field of the cosmology of his generation . From 2021 I am member of the editorial board of the Journal for Cosmology and Astroparticle Physics (JCAP), and I have been scientific referee of MNRAS, PRD, PRL, JCAP and PASJ.

I have held the following leadership positions,

1. In BOSS I led the 2-point Fourier space analyses of the final data release, and performed the analysis on the higher-order statistics (the bispectrum) of BOSS data. The impact of these works on the advancement of cosmology lies on the fact that they contributed to bring galaxy surveys into precision cosmology (Gil-Marin et al. 2015,2016a,b,2017)

2. In eBOSS, I have been chair of the working group which has coordinated the baryon acoustic oscillation (BAO) and redshift space distortions (RDS) type of analyses from the clustering of galaxies. I coordinated and did most of the work on the alphabetical paper Ata et al. 2018 where the first BAO measurements using quasar-clustering data is presented, and lead the BAO/RSD analyses on the luminous red galaxy sample, Gil-Marin et al. 2020.

3. In the DESI collaboration I am convener of the working group responsible for delivering the official analyses using the RSD and Alcock-Paczynski signals. I am responsible for designing the challenges and milestones that need to be achieved for producing the official results of the first year observations. Furthermore, I am the architect of the first map-based blinding strategy for clustering, described in Brieden, Gil-Marin, Verde. 2020 (led by my PhD student). I have also proposed a new compression technique (ShapeFit) that enables us to extract extra information beyond RSD and BAO from galaxy surveys. This technique has been presented and successfully validated with synthetic and actual data, (Brieden, Gil-Marin, Verde. 2021a,b. 2022; led by my PhD student). In both cases, these techniques have had a large impact within the observational community and have been adopted as part of the DESI data-analysis pipeline.

Supervision of 2 PhD thesis (R. Ruggeri 2014-18; S. Brieden 2018-22) and 2 Master theses (F. Fragkoudi 2012; S. Novell 2021). Member of the SOC in the international conference COSMO17. Lecturer in 2 international schools and courses for grad students



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	SCHULZ , FABIAN
Referencia:	RYC2021-034304-I
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Título:	Novel approaches combining high-resolution scanning probe microscopy with light-in/light-out methods
D	

Resumen de la Memoria:

Low-temperature scanning probe microscopy (SPM) allows for surfaces and single atoms and molecules to be imaged, studies and manipulated. In particular, scanning tunnelling microscopy (STM) measures the quantum mechanical tunnelling current between a fine probe tip and a conducting sample, enabling atomically resolved imaging of surfaces. Scanning tunnelling spectroscopy gives access to the sample s electronic properties, e.g., by measuring the tunnelling current as a function of the applied bias voltage. Another variety of SPM, noncontact atomic force microscopy (ncAFM) measures atomic scale forces between tip and sample, allowing for insulating samples to be imaged and the chemical structure of molecules to be resolved.

For my Master s thesis, I employed STM/STS and ncAFM to investigate molecular charge transfer and demonstrated how these processes affect the electronic properties of the molecule-surface interface. The microscope I used was based on a novel qPlus quartz force sensor, which enabled simultaneous STM and ncAFM operation.

During my Ph.D. in the group of Prof. Dr. Liljeroth at Aalto University, Finland, my main research line concerned epitaxial monolayers of hexagonal boron nitride (hBN). I studied in detail the structural and electronic properties of hBN on Ir(111) using STM/STS and ncAFM and demonstrated that using hBN as ultrathin insulating layer to decouple molecules from their metallic substrate improves the energy resolution in STS by one order of magnitude. In a second line of research, I studied the on-surface synthesis of graphene nanoribbons (GNRs) by thermal activation. Employing ncAFM to image with atomic resolution different reaction intermediates, I shed light onto the various reaction paths that are at play during the GNR formation.

For my Post-Doc in the group of Dr. Leo Gross at IBM Research Zurich, Switzerland, one of my research line concerned molecular structure elucidation. These were often highly interdisciplinary projects, where we studied complex molecular mixtures of various origins. Knowing the molecular structures that are present within these mixtures often helps better understand the chemical processes involved in their formation and is imperative for their accurate modelling. I also acquired novel skills in the on-surface synthesis of molecules by atom manipulation. Here, we used current or voltage pulses applied with the SPM tip to break or form new bonds in a precursor molecule to generate otherwise elusive molecules. I also developed a new research line at IBM combining ncAFM and STM-induced light emission, allowing a molecule s optoelectronic properties to be linked to its detailed atomic structure.

At my current position at the Fritz Haber Institute in Berlin, Germany, we employ THz-driven STM with novel pump-probe scheme to perform timeresolved scanning probe experiments to study charge carrier dynamics. I also developed STM-based scanning near field microscopy (SNOM), which improves the spatial resolution by one order of magnitude compared to conventional, cantilever-based SNOM.

In the future, I want to continue building on my existing expertise in STM/STS and ncAFM and want to explore novel concepts to combine STM and ncAFM with different light-in/light-out approaches.

Resumen del Currículum Vitae:

During my research career, I have developed outstanding expertise in the study of nanoscale physics using scanning probe microscopy (SPM) in ultrahigh vacuum and at low temperatures.

I received a M.Sc. in Physics from Freie Universität Berlin, Germany in 2012. For my Master's thesis I investigated molecular charge transfer processes using scanning tunnelling microscopy and spectroscopy (STM/STS) and noncontact atomic force microscopy (ncAFM).

From 2012 to 2016, I pursued a Ph.D. at Aalto University, Finland. Here, I employed STM/STS to investigate 2D materials such as graphene and monolayer boron nitride and their ability to serve as decoupling layer for the study of single molecules. In addition, I used high-resolution ncAFM to study the thermally induced on-surface synthesis of graphene nanostructures. My Ph.D. thesis received the Best Physical Dissertation Award from the Aalto University Department of Applied Physics.

After finishing my PhD, I joined the IBM Research Laboratory in Zurich, Switzerland as a PostDoc, where my work focused on the on-surface synthesis of molecules by SPM tip-induced atom manipulation, as well as using ncAFM with molecule-modified tips to reveal the atomic structure of individual molecules from complex molecular mixtures. We also carried out novel experiments combining ncAFM with STM-induced light emission on single molecules.

In autumn 2019, I accepted an offer to join the Fritz Haber Institute (FHI) in Berlin, Germany as a PostDoc, where I am expanding my skill set to timeresolved pump-probe experiments at the atomic scale using THz-driven STM.

In May 2022, I will start a new project at CIC nanoGUNE in San Sebastian, Spain, where I will study optical excitations of collective states in 2D material and their interplay with molecular phenomenology.

I have authored or co-authored 27 publications in international, peer-reviewed journals (26 original research articles, one review) and one book chapter; I am first author on ten of them, last author on one and corresponding author on another one. My work has gathered a total of 1235 citations and my h-index is 19 (Google Scholar 06/02/2022). I presented my work at several international conferences and workshops - 14 oral presentations (3 invited), 6 poster presentations (1 poster prize) - as well as seminars (5).



I was teaching assistant for the Thermodynamics and Surface Science courses at the undergraduate level and served as Master s thesis advisor to a student in our group at Aalto University. At IBM Research Zurich, I was the main person in charge of training one of our Ph.D. students in ncAFM. At FHI, I am supervising an experiment for the Advanced Lab Course of Freie Universität Berlin.

I am an active member of the scientific community and my expertise and commitment to excellence in research is also recognized by my peers, as demonstrated by my peer-review activities for leading scientific journals, i.e., Physical Review Letters, Physical Review Applied, Physical Review B, Nature Nanotechnology, Nature Communications, ACS Nano, Journal of the American Chemical Society, Applied Physics Letters, Small, Nanoscale, and Surface Science, as well as by having been a member of the Programme Committee of the 21st International Conference on Noncontact Atomic Force Microscopy in 2018.





Área Temática:Ciencias físicasNombre:LOPEZ ORAMAS, ALICIAReferencia:RYC2021-032991-ICorreo Electrónico:alicia.lopezoramas@gmail.comTítulo:Extreme particle acceleration and very-high-energy gamma-ray emission from variable and transientGalactic sourcesExtreme particle acceleration and very-high-energy gamma-ray emission from variable and transient

Resumen de la Memoria:

My research is focused on the study of variable and transient Galactic sources at very high energies (VHE, E> 100 GeV), ranging from binary systems, to transients (microquasars, magnetars, novae...) and unidentified (extended) VHE emitters. This research has been developed in a multiwavelength context, i.e. by analysing data of optical and infrared facilities such as VLT, Herschel or GTC.

Out of more than 300 X-ray binaries in the Galaxy, less than a dozen are known to emit VHE gamma rays. I have contributed to the study and characterization of these systems, highlighting the discovery of a new gamma-ray binary or unveiling, for the first time, super-orbital variability patterns or periodicities. My work has also focused on the search for new gamma-ray candidates, for which I have studied different sources and constrained their emission mechanisms.

Many Galactic transients have never been detected at VHE. I am leading different projects on the search for the VHE counterpart of transient sources, both within the MAGIC collaboration and the future Cherenkov Telescope Array (CTA), for which the first Large Size Telescope (LST1) is already under commissioning. The highlight of these studies is the discovery of the first nova in the VHE regime, RS Oph, me being one of the leading authors and the coordinator responsible for the data-taking campaign in MAGIC.

I have also worked on extended unidentified VHE sources with no counterparts in other wavelengths and/or localized in crowded fields, with the objective of unveiling the nature of these intriguing gamma- ray emitters.

The exploration of the VHE gamma-ray sky has been possible to the development of the Cherenkov technique, to which I have largely contributed. I have expertise in software development, since I was responsible of the data acquisition system (DAQ) of the MAGIC telescopes. I also participated in testing hardware components for the MAGIC telescopes during the II MAGIC upgrade and the LST1 camera. I have extensively worked in the development and characterization of a Raman LIDAR for CTA for atmospheric monitoring.

Furthermore, I am currently coordinator of the Transients group in CTA, leader of the Galactic transients task force in CTA, Deputy Analysis and Publications Coordinator of the MAGIC collaboration and member of the Executive Board of MAGIC. I have (co-)supervised different student s (3 MSc and 1 PhD) projects.

My work has been focused in the scientific exploitation of the MAGIC telescopes and in understanding the capabilities of the upcoming CTA observatory for Galactic transient detection. This research is key for the Galactic Science to be developed with the future CTA observatory.

Resumen del Currículum Vitae:

I obtained my PhD (2014) at Universidad Autónoma de Barcelona/IFAE (FPI fellowship). I was postdoctoral researcher for two years (2015-2017) at CEA/Saclay in Paris, funded with a CNES fellowship. My second postdoc (2017- 2020) took place at Instituto de Astrofísica de Canarias (IAC). I am currently Juan de la Cierva Incorporación fellow (2018 call, ranked 1st position with score 100/100) at IAC since 2020.

My work opened a new research line in the Astroparticle group at IAC, focusing on Galactic physics. I am member of the MAGIC collaboration, CTA consortium (both since 2010), LST collaboration (since 2017) and ASTRI (since 2019). I am expert in the Cherenkov technique (total of 25 weeks of observations, operations and telescope commissioning). I have led 14 campaigns in MAGIC as PI and obtained granted time as PI other multiwavelength facilities.

My work has focused in the scientific exploitation of MAGIC and in understanding the capabilities of the upcoming CTA observatory for Galactic transient detection. I have experience in multi-frequency and interdisciplinary studies, with transference to transversal lines. I have contributed to the Galactic Science done by Cherenkov telescopes (total of 135 papers and proceedings, 4680 citations, h-index 34, m-index 2.8; above the median in the community) via the study of gamma-ray binaries, Galactic transients and unidentified sources. The recent discovery of very-high-energy emission of hadronic origin from RS Oph, the first nova detected in this energy range (publication in which I am corresponding author, editor and coordinator of the data-taking in MAGIC) is one of the paramount discoveries in Cherenkov astronomy, revealing a new type of gamma-ray emitter: novae.

Active member of MAGIC and CTA, with more than 40 contributions as presenter to conferences, workshops, meetings and seminars (total work contribution to 76 presentations). I have performed different research sojourns and I have been awarded the FY2020 JSPS Fellowship for Research in Japan. I have organized conferences and I have been member of different committees, such as the 2020 OPUS call of the NSC (Poland).

I have performed large amount of technical work for the development of the Cherenkov technique, including software maintenance (MAGIC DAQ), hardware tests (MAGIC, LST1 camera) and atmospheric characterization for data correction via the development of a Raman LIDAR for CTA.

I count with a series of leadership tasks and responsibilities in the Cherenkov community as Coordinator of Transient working group and Leader of the Galactic transients team in CTA. I am member of the Executive Board and Deputy Analysis and Publications Coordinator of MAGIC. These leadership skills are complemented with the (co)supervision of PhD (Cechvala, on-going) and MSc projects (Otero, 2018; Cechvala, 2019; Graña 2020). I have been guess lecturer for the Master in Astrophysics at ULL and I have participated in teacher s training courses.

This research is complemented with large outreach experience, with a total of 54 contributions to organization of events and fairs, astronomical talks for general public, high schools, primary schools and kindergarten. My work has been presented in different press releases and media interviews (radio, television, journal). I was member of the IAC Seminar Committee and I am member of the MAGIC outreach team.





Área Temática:	Ciencias físicas
Nombre:	JENNY , SORCE
Referencia:	RYC2021-031911-I
Correo Electrónico:	jenny_sorce@hotmail.com
Título:	Towards statistical analyses of large cosmological surveys without systematics

Resumen de la Memoria:

To understand dark matter and energy 95% of the Universe according to the standard cosmological model large cosmological surveys are designed to reach a few percent precision. This large quantity of spectral and multi-wavelength imaging data needs to be analyzed with innovative statistical techniques, combined with cosmological simulations, to be fully exploited. Such preliminary analyses brought out tensions between the standard cosmological model and observations: galaxies satellites simulated with LambdaCDM do not form thin planes such as those observed; local and global measurements of the Hubble constant differ at more than 3sigma; scaling relations followed by galaxies exceed theoretical expectations of dark matter / baryon interactions. Reaching a 1% precision, systematics of the same order of magnitude, due to our cosmic environment, our survey specificities and our tool properties, rise out. It is therefore necessary to control, also at 1%, the systematic due to our local environment on 400 Mpc, to the properties of our surveys and to our tools.

Statistical techniques need to be fueled with a new type of cosmological simulations designed to reproduce our cosmic environment with high fidelity down to the linear / non-linear scale threshold. I developed such simulations, that I baptized CLONES (Constrained LOcal & Nesting Environment Simulations). These simulations provide a robust methodological framework to minimize the systematics. To develop these simulations, I have contributed to the study of the local Universe, a region of ~400 Mpc centered on us, in an observational, theoretical and numerical way: 1) by calibrating the intrinsic luminosity-rotational velocity relation of galaxies in the mid-infrared, I have enabled the development of the largest galaxy radial peculiar velocity catalogs to date international standards; 2) I have assembled an innovative multi-technique algorithm to constrain, with only these velocities, the cosmological initial conditions of our local environment as opposed to the random ones typically used by the community; 3) my collaborators and I are analyzing the resulting simulations, called numerical CLONES, to study the formation and evolution of our local environment and those of its constituents. My internationally requested CLONES model astrophysical objects of different sizes through various physical phenomena for many projects.

I will now use new statistical methods at the cutting edge of technology jointly with my numerical CLONES: 1) I will identify and parameterize without environmental bias the best estimators and models of formation, 2) I will develop the algorithms on synthetic catalogs identical to those observed to infer the parameters without systematics and 3) I will parameterize the algorithms with synthetic surveys, calibrated at z = 0 on the observations, to process the data in a minimum amount of time or even in real time. With the volume of data to come, precision is underway. The community agrees that the accuracy of their analysis is now essential. With my unique expertise, I have an essential role to play in order to fully exploit upcoming missions. In addition to fulfilling the responsibilities I have within consortia producing large surveys (4MOST and Euclid), I will provide the community with innovative, fast, versatile and systematic-free tools to analyze large survey

Resumen del Currículum Vitae:

I did my PhD in observational cosmology, to develop peculiar velocity catalogs used worldwide, across two European countries and the USA. I successfully defended in 2014 and received a double diploma from the Universities of Lyon and Potsdam. Immediately after, I won a prestigious Alexander von Humboldt Fellowship and joined the Leibniz-Institut für Astrophysik Potsdam. There I led a major research program bringing together two international collaborations from observational and theoretical cosmology to develop the first cosmological simulations, based solely on galaxy peculiar velocities, that reproduce our cosmic 400 Mpc environment down to 3 Mpc. Subsequently, I received the Young Researcher Prize of Lyon City. I then moved to the Observatoire Astronomique de Strasbourg working on the European ASTERICS project to handle huge VO-databases while pursing my own goal: developing CLONES of our 400 Mpc cosmic environment in the form of constrained cosmological simulations. For this work I received the I Oréal-UNESCO Award for Women in Science in 2017 and won both the prestigious Spanish Juan de la Cierva and French CNES independent fellowships. With the latter, I moved to the Centre de Recherche Astrophysique de Lyon to introduce hydrodynamics in CLONES. I subsequently got an independent lecturer and researcher fellowship from the Ecole Normale Supérieure de Lyon, where I have been from 2020 to 2021. My latest award is a senior postdoctoral position within the French ANR LOCALIZATION project that I co-wrote with N. Aghanim at the Institut d Astrophysique Spatiale Orsay, France. I subsequently moved there in 2022 to use hydrodynamical CLONES of local galaxy clusters as calibrators of the zero point of the massobservable galaxy cluster relations. I have a diversified career path, a huge mobility, worldwide collaborations with renowned experts and I am fully dedicated: 42 rank A publications, 20 as 1st author and 72 communications mostly oral, among which 3 invited reviews at international conferences, 309 millions hours of computing time, as well as 6 supervisions and SOC/LOC member of several conferences and referee for several journal and grants. I was actually highly ranked for half a dozen permanent jobs. I play a crucial role in the cosmological community via both my numerical CLONES and my multiple and various responsibilities. In particular I am involved in ESO s 4MOST instrument (e.g. cosmological survey referent in instrument simulator), ESA s Euclid mission (e.g. co-coordinator of galaxy evolution with environment workpackage) and CLUES collaboration (co-PI / member of the executive board managing the collaboration and the projects). I am also strongly engaged (e.g. role model, organization of an AstroWeek) in breaking self-censorship and biases (women and/or underprivileged people) that are common in the scientific world.





Área Temática:	Ciencias físicas
Nombre:	GESSNER , MANUEL
Referencia:	RYC2021-031094-I
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Título:	Quantum information and metrology
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Resumen de la Memoria:

I am theorist in the fields of quantum information, quantum optics and quantum many-body systems. My research addresses the characterization of multipartite quantum systems of different levels of complexity, ranging from systems of few qubits to large spin ensembles. I study the many-body physics of trapped ions, cold atoms, Bose-Einstein condensates and photons and their applications in quantum information science. Controlling the quantum state, evolution, and measurement in these systems (i) provides access to strong forms of nonclassical correlations, allows us (ii) to study collective phenomena, and (iii) to explore the foundations for next-generation quantum technologies, such as quantum-enhanced precision sensors.

During my studies and early PostDoc years, I have gathered ample research experience in leading groups on open quantum systems (H.-P. Breuer, Uni Freiburg, Diploma Thesis 2011), quantum optics and statistics (A. Buchleitner, Uni Freiburg, PhD Thesis, 2012-2015), trapped ions (H. Haeffner, UC Berkeley, visiting scholar 2012-2013), quantum metrology and the theory of ultracold atoms (A. Smerzi, LENS Florence, PostDoc, 2015-2018).

In 2018, I started an independent line of research as Junior Research Chair holder at ENS, Paris (2018-2021). Since 2021, I am continuing this research as la Caixa Junior Leader at ICFO, Barcelona, where I am leading a team of 1 PostDoc, 1 PhD Student (based in Paris) and 2 Master s students. My research currently focuses on problems in quantum metrology [Baamara, Sinatra, and Gessner, PRL 2021; Gessner et al. Nat. Commun. 2020; Gessner et al. PRL 2019; Gessner et al. PRL 2018], quantum information [Ren, , and Gessner, PRL 2021, Yadin, Fadel, and Gessner, Nat. Commun. 2021], spinor Bose-Einstein condensates [Feldmann, , and Gessner, PRL 2021] and optical superresolution imaging [Gessner et al. PRL 2020].

My research addresses topics that are central to the European Flagship initiative on Quantum Technologies, as well as the related national programs of several European countries, such as Germany, France and Spain. Living and working in 5 different countries has provided me with a large network of international collaborators. I have co-authored articles with more than 20 different research groups and collaborated with 10 different experimental groups working on distinct platforms (trapped ions, Bose-Einstein condensates, photons). I have acquired funding for my research as PI of 4 individual projects (more than 1M Euro awarded) and by participating in international collaborative projects (3x co-investigator in EU H2020 QuantERA projects, 1x Quantum Flagship project).

Resumen del Currículum Vitae:

I obtained my Master s (2011) and PhD (2015) in Physics with highest distinctions from the University of Freiburg, Germany and I was funded by the most prestigious and selective PhD scholarship in Germany. A large part of my PhD was realized as visiting scholar at the University of California, Berkeley.

From 2015-2018, I joined LENS in Florence, Italy, supported by a Feodor-Lynen postdoctoral fellowship by the Alexander von Humboldt foundation. From 2018-2021 I was Junior Research Chair holder at École Normale Supérieure (ENS), Paris, France, where I started developing an independent research activity and participated in teaching in the Master s program.

Since 2021, I am a Research Fellow at the Institute of Photonic Sciences (ICFO), Barcelona, Spain. As a la Caixa Junior Leader and principal investigator of a Proyecto JIN, I supervise one PostDoc, one PhD student, and two Master s students.

I received awards for my Master's thesis (Alumni award), PhD thesis (published as textbook by Springer), my referee activity (IOP Outstanding Reviewer 2018), and my presentations (best talk award IQIS'16 Rome).

In the seventh year since completing my PhD, I have published 45 peer-reviewed articles (34 without advisors from PhD & Masters), 1 as single author, 24 as first author, 8 as last author, including 1 Nature Physics (as first author), 4 Nature Commun. (1 as first author, 1 as last author), and 12 PRL (5 as first author, 4 as last author). I am single author of one textbook (Springer 2017) and first author of two invited book chapters. My publications have been cited 702 times (h-index 15, with an average of 107.6 citations/year in the last 5 years), according to Web of Science, and 1122 times (h-index 19, 169.4/year over past 5 years) according to Google Scholar [07/02/2022].

I have supervised 3 Master's thesis and 2 Bachelor's thesis and I have hosted 2 visiting PhD students. These student projects led to several publications, including 4 PRL of which I am last author. Several former members are successfully pursuing an academic career.

I have been teaching tutorials and laboratory classes at Bachelor/Master level for 11 lectures (9 different subjects). I have further participated as external expert in evaluation committees (Grant evaluation for H2020 QuantERA; 3x EUCOR European Campus PhD admissions committee).

I have given 26 talks (10 invited) at international conferences and 25 invited seminars and colloquia. I have organized one international conference, funded by a competitive Junior Researcher Conference Grant.

My research has received funding from competitive international calls (4x PI of individual projects, in total more than 1M Euros). I have further contributed to successful collaborative European projects (3x co-investigator for QuantERA projects, 1x Quantum Flagship).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I have enjoyed multiple longer research stays in international centers that led to fruitful collaborations and have resulted in publications. I have coauthored papers with more than 20 different research groups.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	WU , BIN
Referencia:	RYC2021-032271-I
Correo Electrónico:	b.wu@cern.ch
Título:	Advancing high-energy nuclear physics in the LHC/HL-LHC era and beyond
Descusion de la Adama aut	

Resumen de la Memoria:

My research focuses on high-energy nuclear physics, especially on fundamental questions that CERN s LHC/HL-LHC can answer about the dense and hot regime of QCD. My major goal is to decipher new dynamics hidden in the unprecedented amount of new data to be delivered by the HL-LHC in the next two decades in order to advance high-energy nuclear physics in the LHC/HL-LHC era and beyond.

I started my research in high-energy nuclear physics as a visiting PhD student at Columbia University, mentored by Prof. Mueller, one of the world leading pioneers and founders of this field. As a postdoc, I started and led two research lines respectively in the two major areas of high-energy nuclear physics. I helped advance the state of the art of these research lines and published a number of high-impact papers:

At Bielefeld University and FIAS, I started my first research line on jet quenching physics with the very first next-to-leading order calculation of parton transverse momentum broadening in the literature. My second research line focuses on QCD bulk matter which could evolve through a novel phase of matter that once permeated our early universe: the quark-gluon plasma (QGP). Using AdS/CFT, I addressed the most puzzling theoretical issue on bulk matter produced in heavy-ion collisions at that time: the extraordinary fast formation of QGP fluid.

At IPhT CEA Saclay, I made a milestone calculation of parton transverse momentum broadening. It led to a novel understanding of the most important parameter for jet quenching physics (denoted by qhat) and stimulated many other studies. I also enriched my problem-solving skills including kinetic theory, classical and quantum field theory approaches and explored some salient features of bulk matter. At OSU, I proposed an ingenious way to measure qhat at RHIC and the LHC via transverse momentum broadening.

At CERN, I initiated and have been leading ever since an international collaboration (with 7 collaborators now) on a project in proton-proton (pp) collisions. This was mainly motivated by the fact that the most urgent open theoretical question nowadays on bulk matter is the possible formation of smallest possible QGP fluid in pp collisions. I initiated another collaboration with my CERN colleagues, partially answered this question and discovered intriguing early- and late-time attractors in heavy-ion collisions. Besides, I acquired a deep understanding of the LHC/HL-LHC experiments via training courses and seminars at CERN.

Through my postdoc research, I established myself as one of the few world leading experts in both of the main research areas of my field and placed myself in a unique, leading position to solve the most compelling theoretical open questions in the LHC/HL-LHC era. At IGFAE, I am leading a novel project to unravel such questions by constructing a long-awaited, unified framework. I laid the groundwork for such a unified description in a single-authored paper in 2021. For this project, I currently (co)-supervise a PhD student and advise young postdocs to work on some open questions on bulk matter. I also participate in two other projects at IGFAE, aiming to accomplish the most comprehensive understanding of jet quenching physics. These projects, combined, will prepare us for the advent of the HL-LHC era.

Resumen del Currículum Vitae:

My research focuses on theoretical high-energy nuclear physics. I received my PhD training both in China and USA. Before obtaining my PhD in 2010 from Peking University, I was awarded a scholarship of 21.6k USD based on competitive national calls in China and started to conduct research in this field as a visiting student at Columbia University in USA (08/2007-08/2009).

I have a rich postdoc experience in several prestigious research centers worldwide, including Bielefeld University and Frankfurt Institutes for Advanced Studies (FIAS) in Germany (03/2010-10/2012), Institut de Physique Théorique (IPhT) CEA Saclay in France (10/2012-09/2015), the Ohio State University (OSU) in USA (10/2015-09/2017) and CERN in Switzerland (10/2017-09/2020). I was the first non-member state CERN fellow in high-energy nuclear physics through competitive international calls among all the non-member states and awarded Marie Sklodowska-Curie Fellowship by European Commission. I also actively participated in teaching activities: tutor for a block course/spring school (Bielefeld), judge for Denman Undergraduate Research Forum (OSU), supervisor for students of CERN s summer camp and discussion leader for CERN-Fermilab HCP Summer School.

Since 01/2021 I am a junior, non-tenure track faculty (Distinguished Researcher) at IGFAE of University of Santiago de Compostela (USC). My current position is supported by the Talent Attraction and Retention Program of la Xunta de Galicia with 360k euro grant through competitive international calls. Currently, I lead one novel project as PI and participate in two projects at IGFAE, supported respectively by Spanish and EU funding. I officially (co-)supervise one PhD student, help advise young postdocs and serve as a member of the Postdoc Selection Committee of the group. In 2021, I designed and taught graduate courses at USC: Particle Physics II (Jet Physics) and Particle Physics I (Quantum Chromodynamics).

I established a scientific track record of contributions in high-energy nuclear physics and interdisciplinary fields of nuclear physics. My research resulted in 46 papers: 38 novel peer-reviewed (8 letters and 30 regular articles), 7 conference proceedings and 1 pre-print on arXiv. I enjoined fruitful collaborations as well as independent research with 15 single-authored or first author papers. According to INSPIRE, my h-index is 22 and all my papers have received over 1290 citations.

Through research I established myself as a leading expert in my field and developed an international network of contacts and collaborations (with 31 collaborators worldwide). I have been leading two international collaborations and was invited for research visits (27 times) by 17 different international institutes. I am a regular reviewer for 4 top journals. I have contributed to 25 oral presentations in international conferences and



workshops including 4 invited plenary talks in major international conferences of my field. In total I gave 44 talks including seminar talks invited by topnotch international institutes. I served as the organizer of Heavy-Ion Journal Club at IPhT (10/2014-09/2015) and Nuclear Physics Seminar at OSU (10/2016-09/2017). I am now a member of Local and Program Committee for DIS 2022, one of the major international conferences in my field. Since 2021, I have been organizing QCD group meetings at IGFAE.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	BECK , PAUL
Referencia:	RYC2021-033137-I
Correo Electrónico:	Paul.beck@gmx.at
Título:	Accurate Age determination in the red-giant phase through asteroseismology

Resumen de la Memoria:

Stellar age is a parameter that cannot be measured but only be inferred from comparing observational parameters with predictions from stellar models. Hereby the incomplete assumptions and description of the internal stellar physics lead to deviations that translate into significant uncertainties for the age estimate of stars. This shortcoming is particularly challenging for stars in the red-giant phase of advanced stellar evolution.

My research focuses on inferring the internal structure and dynamics of stars through asteroseismology, in combination with the measurements of the Li abundance, surface rotation, magnetic activity, and the analysis of binary stars. The constraints and calibrations obtained by this approach provide input for a more accurate model and are crucial for an improved termination of the age of a star.

With my research, I have significantly contributed to the advancement of asteroseismology of red-giant stars from data of NASA Kepler and continue working with TESS data.

Mixed modes are standing waves between the surface and the core that oscillate as pressure and gravity modes in the star's outer and deep interior, respectively. I led the first study (Beck et al. 2011), which identified this form of oscillation waves in red giants. This result built the bases for the pioneering exploitation of mixed-mode oscillation for determining the evolutionary state (Bedding et al. 2011) and internal rotational gradient (Beck et al. 2012) in red giants. In the latter paper, we showed that it is possible to obtain access to the deep interior and constrain the core-rotation rate. Meanwhile, this technique has been applied to hundreds of stars, allowing us to probe the evolution of the angular-momentum distribution as stars age.

In a series of papers led by me (Beck et al. 2014, 2015, 2018a, 2018b, 2022), we could demonstrate how stellar binarity in combination with asteroseismology, spectroscopy, modeling, and tidal is used to constrain yet unknown key properties and provide advanced calibration to the stellar models. Several individual systems were analyzed. For example, we could validate the assumption of quasi-rigid rotation in the convective envelope of giant stars. In total, we reported the discovery and seismic characterization of ~120 oscillating giants in binary systems.

In my third line of research, I concentrate on oscillating solar-like stars on the main sequence. In combination with a well-constrained structural model and an age for the star from asteroseismology, surface rotation, magnetic activity, and lithium abundance are good tracers of internal dynamics and mixing processes. In a series of publications (Beck et al. 2016, 2017; Salabert et al. 2016a, 2016b), we analyzed these three diagnostic parameters in oscillating solar-analog stars over a wide range of stellar ages could isolate evolutionary trends.

The three research lines allow me to draw a better picture of the Sun's present, past, and future and provide curial input for improving models that allow a more accurate age determination of stars.

Meanwhile, ESA's new flagship mission PLATO is on schedule for launch during my RyC fellowship. I am involved in the preparation of science workpackages and will contribute to the analysis of the first data of the space telescope.

Resumen del Currículum Vitae:

In my current position as an assistant professor at the Institute for Physics of the Karl-Franzens University Graz (KFU), I built and lead a junior research group focused on these techniques.

I enjoy moving through Europe and the world to seize the best opportunities for my science. Following my master s studies at Vienna University, I left Austria to set my career on an international trajectory. My PhD at Leuven University, Belgium, was on the seismic analysis of the internal rotational gradient of red-giant stars. In my postdoc at CEA at Paris-Saclay, France, I extended my expertise to seismology and spectroscopy of solar-like mainsequence stars. I was awarded the competitive Juan-de-la-Cierva Incorporación (JdC) Fellowship to work for two years at the Instituto de Astrofísica de Canarias (IAC) on seismology of main-sequence and red-giant stars. I extended my skill set to modeling the stellar structure and tidal interaction in binary systems. Back in Austria, I added university teaching and student supervision to a full-stake academic skill set.

I am a dedicated teacher who enjoys mentoring of young scientist. My teaching is aligned with the required profile of a modern astrophysicist. My approach to mentoring is best characterized by formation with and through science. I am committed to providing equal opportunities, inclusion, and equity for a healthy, modern academia.

I am a full member of the asteroseismic-science consortia of the Kepler/K2, TESS, PLATO,

and a member of the executive-science team of the BRITE-constellation space-telescope missions. Frequently, I am requested as a referee for Q1journals and national funding or space agencies. I am vice-president of the Austrian Society for Astronomy & Astrophysics (ÖGAA), representing professional astrophysics and amateur astronomy to the ministry, media, and the public. Moreover, I am mandated by IAU as National Astronomy Education Coordinator (NAEC).





Área Temática:	Ciencias físicas
Nombre:	NAVARRO GASTIASORO, MARIA
Referencia:	RYC2021-031639-I
Correo Electrónico:	lasai1401@gmail.com
Título:	Exotic superconductivity and correlation in quantum materials
Posumon do la Momori	

My research career has been driven by the long-standing problem of high-temperature and unconventional superconductivity and the related open questions in strongly correlated materials.

I first heard about Fe-based materials in 2012 during my MSc thesis at the University of Copenhagen with Prof. B. Andersen. Their discovery in 2008 had opened a new route to high-temperature superconductivity, and despite the enormous effort to understand the physical properties of these materials, many of the fundamental mechanisms behind their exotic phases of matter (superconductivity was just one of them) were, and still are, controversial. During my formation as a PhD candidate in Andersen *s* group, I specialized in many-body analytical techniques and developed basic numerical routines to obtain a theoretical description of these exotic phases. We found a new class of magnetic phases and proposed a novel way to map out the magnetic configuration of a system using spectroscopic features. We also reported correlation driven novel disorder phenomena, including an enhancement of the superconducting critical temperature, as well as a candidate source of the reported transport anisotropy in the nematic phase of these materials.

In 2017 I shifted my research focus to quantum complex oxide materials by joining the Center for Quantum Materials (CQM) interdisciplinary team at the University of Minnesota as a postdoc. Besides providing theoretical support for the measurements of C. Leighton s and B. Jalan s experimental groups, together with A. Chubukov and R. Fernandes I started working on two original directions: we extended the Migdal-Eliashberg formalism to the dilute carrier density regime, and studied and characterized a novel mechanism for superconductivity emerging in the proximity of ferroelectric phases.

Since late 2019 I have been working in J. Lorenzana s group at CNR-Sapienza in Italy, as a Marie Curie Postdoctoral Fellow since late 2020, characterizing new properties of silver fluorine, a material with potential for high-temperature superconductivity. Simultaneously, we have developed a second research line on a microscopic mechanism for superconductivity in quantum paraelectrics, joining my knowledge acquired in Minnesota with the expertise in first-principles of the CNR-Sapienza group.

All these findings have led to 13 first-author publications in peer-reviewed journals, I have been invited to present them in several international conferences, and have given me the opportunity to be part of international interdisciplinary collaborations.

Resumen del Currículum Vitae:

The one-year full scholarship I won to study abroad financed by the regional Basque Government in 2011 allowed me to complete my MSc thesis at the Niels Bohr Institute in Copenhagen in B. Andersen s group in September 2012. I obtained my PhD in May 2016 working in the same group. During these efforts lots of collaborations took place with theoretical and experimental research groups from other countries, particularly with P. Hirschfeld s group in Florida, where I spent 3 months as a guest. I discovered I very much enjoyed these collaborations and that they were a very powerful source of new ideas and breakthroughs.

In January 2017 I joined the CQM team at the University of Minnesota as a postdoc with A. Chubukov and R. Fernandes. While in the US I contacted J. Lorenzana, based in CNR-Sapienza (Italy), to work on the Marie Curie Postdoctoral grant proposal (MSCA), which we won in early 2020. In October 2019 I moved back to EU to work as a postdoc for a year in Lorenzana s group in Rome, before starting the MSCA fellowship in October 2020, which is my current position. In December 2021 we won a 900K euro Italian national research project (PRIN) which I contributed to prepare. I have received two invitations to discuss our latest work in international conferences, including this year s APS March Meeting, a signature event of the condensed matter community.

I had my first mentoring experience as a co-advisor of J. Martiny s BSc thesis in 2014 in Copenhagen. The project had enough new results that warranted a publication in the Phys. Rev B journal, and the student continued with his MSc and PhD working on condensed matter projects. Later in 2017 in Minnesota I co-advised T. Trevisan, a visiting PhD student from Brazil. The project also resulted in peer-reviewed published material, and she continued with her career as a postdoc in condensed matter in the US. Recently in Rome I co-advised the MSc thesis of C. Muzzi who besides receiving Cum Laude for the thesis, obtained very interesting results and a manuscript is being prepared to be submitted for review. He is now in a very prestigious PhD program of SISSA in Trieste. I find mentoring to be both tremendously challenging and immensely fulfilling.

I learned about the importance of networking in academia outside of research environments as a regular participant of the Women in Physics and Astronomy meetings in Minnesota. During these activities, interactions amongst students, postdocs and faculty members from various US institutions happened. For instance, I was a panel speaker for an undergrad outreach event aimed at encouraging young females into STEM careers. In Rome I actively participate in similar activities and events organized by the Gender Balance Working Group .





Área Temática:	Ciencias físicas
Nombre:	OLAIZOLA MAMPASO, BRUNO
Referencia:	RYC2021-031494-I
Correo Electrónico:	bruno.olaizola@cern.ch
Título:	Fast-timing studies of exotic nuclei with implications for multidisciplinary research
Resumen de la Memoria	:

I am an experimental nuclear physicist, focused on nuclear structure. My research aims at providing a better understanding of how subatomic matter (protons and neutrons) organizes itself and what are the underlying phenomena that emerge far from stability. More specifically, my work has focused on measuring the lifetimes of nuclear excited states using direct electronic fast timing methods. I have conducted my research mainly at the state-of-the-art ISOLDE and TRIUMF facilities, two world-leading physics laboratories. Over the recent years, I have extended my research into interdisciplinary projects such as linking nuclear physics with the search for dark matter and development of tools with direct application for medicine and biology.

During my PhD, I surveyed the Islands of Inversion at N=20 and N=40. These are regions of the nuclear chart far from stability where the normal (spherical) ordering of shell orbitals is inverted. As a postdoc, I extended my work into different aspects of the nuclear structure. I studied the evolution of shape coexistence (a phenomenon unique to the atomic nuclei in which they present two or more different intrinsic shapes at close energies) in neutron-deficient Hg isotopes. Later, I searched for octupole deformation in neutron-rich Ba isotopes which, if permanent, could induce a non-zero electric dipole moment of the atom, implying a P-T violation and physics beyond the Standard Model. Additionally, I have collaborated in experiments measuring superallowed beta decays, which are the most stringent test of the electroweak interaction and the up-down element of CKM quark mixing matrix. I have also been part of experiments measuring decays or reactions of astrophysics interest, which shed light on the origin of heavy chemical elements.

More recently, I have started a new research line looking for exotic decay modes. The first results focused on 11Be, in which I observed for the first time a proton emission from a neutron-rich nucleus. This seems a contradictory process since it takes the nuclei away from stability. This is an important finding for nuclear structure since it is the first quantification of the 11Be halo character; namely, that one of its neutrons orbits far from the core. Even more provocatively, this imposes a tight constraint on the possibility that neutrons decay into dark matter, having profound implications for particle physics, star evolution and physics beyond the Standard Model. An article describing these findings was published in the prestigious Physics Review Letters and was chosen as an Editor s Suggestion.

In addition to physics, I have successfully applied my expertise to biological and medical fields. I designed and built the Perturbed Angular corrELation Labr Array (PAELLA) setup, used to develop a chelator able to carry an alpha-emitter to treat tumors. Through a collaboration with the Proton Therapy Facility at TRIUMF, I was involved in another project aiming to increase the spatial accuracy of their treatment and thus reduce the dose received by patients.

All the works described above are ongoing projects, with many students and postdocs currently analyzing the data. Moreover, the numerous approved experimental proposals awaiting to be run assure that I will generate high-quality scientific data for many years to come.

Resumen del Currículum Vitae:

I am an experimental nuclear physicist focused on unravelling the structure of the atomic nucleus. Some of the topics my experiments cover are the test of the Shell model, shape coexistence and the search for exotic decay modes. I conduct these experiments at large international facilities that produce radioactive beams, such as TRIUMF or CERN.

I obtained my PhD in Nuclear physics in 2013 at the Universidad Complutense de Madrid and was awarded the maximum qualification (cum laude), a European Doctor commendation and the first ATI-GEFN-RSEF award to the best nuclear physics thesis in Spain 2013. It yielded four articles, one as a Rapid Communication.

Following my PhD, I continued to Postdoctoral positions at the University of Guelph (2014-2017) and TRIUMF (2017-2020), establishing my prominent role in experimental nuclear structure and developing independent research. I became the chair of the Fast-Timing group for the GRIFFIN collaboration, of which I remain an active member. During this period, I also led or collaborated in multidisciplinary projects that link physics and biology for medical applications.

In 2020 I was simultaneously awarded the Juan de la Cierva (Spain, 54000), FELLINI (Italy, 151560) grant and the CERN Senior Fellowship (Switzerland). I chose the latter, a highly prestigious, international, and extremely competitive grant awarded to perform independent research at CERN and joined the ISOLDE laboratory, where I am currently employed. My position includes working on the Solenoidal Spectrometer and Decay Station setups. In addition, I am the coordinator for all HIE-ISOLDE (reaccelerated beams) experiments.

I have published a total of 68/106 peer-reviewed articles (source Web of Science/Google Scholar), with a total of 486/725 citations (WoS/Scholar), and an h-index of 13/15 (WoS/Scholar). I am the first author in 8 papers and a leading author in another 4. I have participated in 26 international conferences (21 oral presentations, 5 posters). I have been an invited speaker in 6 of them, including the prestigious Bormio or Cocoyoc symposiums on Nuclear Physics. Since 2019, I act as a reviewer for Physics Review Letters and Nuclear Instrument and Methods A.

My 12 approved experimental proposals (3 more currently under evaluation) demonstrate my excellence as a researcher. These are experimental projects that I have written in collaboration with an extended network of peers, and only one of them with my supervisor at the time. These proposals



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

have been approved by international committees of experts in competitive calls, and all 12 were assigned high priority, the maximum awarded. Seven of the experiments are already completed and are being analyzed by several students and postdocs. The remaining ensure that my projects will keep generating data for years to come.

I have ample experience mentoring students. As a postdoc, and later as a CERN fellow, I have supervised 12 undergraduate student and co-supervised 1 honor, 3 masters and 2 PhD theses. Most of these students analyzed data from experiments based on my experimental proposals.

Lastly, I recently obtained the certification Profesor Contratado Doctor (equivalent to assistant professor) from the Spanish ANECA, and I have applied for the I3 Spanish Certificate of Research Excellence, which I will obtain thanks to my CERN fellowship.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas	
Nombre:	FERRE MATEU, ANNA	
Referencia:	RYC2021-031099-I	
Correo Electrónico:	aferremateu@gmail.com	
Título:	Characterizing new galaxy types through cosmic time to constrain galaxy evolution models	
Decumen de la Memo		

Resumen de la Memoria:

My research aims at studying galaxies at different cosmic times to understand how they form and evolve and set stringent constraints on the current galaxy formation models. I characterize novel types of galaxies using state-of-the-art instrumentation, particularly focusing on massive compact galaxies. However, I have also led and have been involved in other hot topics such as the co-evolution of super massive black holes and their host, the universality of the initial mass function or the nature of ultra-diffuse galaxies. Following this quest, I have literally lived all around the globe. The expertise, breadth of collaborations and scientific maturity I have achieved through the different international positions, leave me in the best position for consolidating my career with a RyC fellowship.

I obtained my PhD in Astrophysics with an Astrofísico Residente grant (IAC, 2013), framed within a Mención internacional thanks to a 3-month stay at Oxford University. My PhD was focused on the characterization of massive compact galaxies (FM+12, Trujillo+12), while searching for the first ever massive relic galaxy. Special attention was paid to the effect of varying an initial mass function and the galaxy assembly timescales (FM+13, FM+14), carrying pioneer works on the detailed studies of galaxies at increasing redshift. Massive relic galaxies are crucial to constrain our current galaxy formation paradigm, therefore I kept searching for them during my first postdoctoral position at Subaru Telescope (2013-16, USA). We did eventually find the first confirmed massive relic (Trujillo+14), while finding that relic galaxies are natural outliers in the black hole scaling relations (FM+15). This had strong implications as it challenged the current view on the relations between the black holes and galaxy. Moreover, I showed for the first time that there seems to be a degree on the properties of these relic galaxies that is related to the environment they reside (FM+17).

During my second postdoc at Swinburne University of Technology (2016-18, Australia) my interests shifted towards the low mas, faint end of galaxies. I characterized the largest sample of compact elliptical galaxies to date (FM+18a), while leading novel observations of the newly found ultra diffuse galaxies. In 2018, I was awarded a Junior Leader Incoming Fellowship (2018-21, ICCUB) to start my own independent project and group, aimed at illuminating the faint Universe (FM+18b, Alabi+18, Gannon+20,21,22, Forbes+20). This has lead to one of the strongest collaborations, resulting in more than 15 publications in the last 4 years. Our results have provided stringent constraints to better understand the nature of this new type of galaxies. Unfortunatley, I had to take a career break (2019-2020) due to cancer treatment. While my own science was put on hold, I committed to continue supporting my students and collaborations. This highlights my core values: the ethical collaboration with others to maximize the impact into the society to achieve a greater global goal.

I am now an Advanced Severo Ochoa fellow (IAC, from September 2021), where I am wrapping up all the expertise acquired through my different positions, collaborations and experiences, to become one of the world experts on the field of compact galaxies (FM+21a,b) and their black holes.

Resumen del Currículum Vitae:

I obtained my PhD in 2013 (IAC, Spain), focused on the characterization of massive compact galaxies and the search for the first ever massive relic galaxy. Because these relics are crucial to constrain our current galaxy formation paradigm, I kept searching for them during my first postdoc at Subaru Telescope (2013-16, Hawaii). Besides finding the first confirmed relic, I found that relic galaxies are natural outliers in the black hole scaling relations, challenging the current vision of the black hole-galaxy coevolution. During my second postdoc at Swinburne University (2016-18, Melbourne) my interests shifted towards the low mas, faint end of galaxies. I was then awarded a Junior Leader Fellowship of la Caixa (2018-21, ICCUB, Barcelona) to start my own independent project and group, providing stringing constraints on the stellar content of the newly found ultra-diffuse galaxies. Now, I hold an Advanced Severo Ochoa fellow at the IAC (Sept. 2021), where I am putting my acquired expertise worldwide into better understanding the nature of compact galaxies as a family.

I have thus secured ~525k of research funding (~450k from Spanish projects) in the form of fellowships, research grants and funding to perform short stays and attend conferences. My leadership and scientific maturity have also been proven by the large number of awarded observational campaigns with more than 250 hours as PI (~500k worth of observing time) and more than 650h as co-I. The results have been published in 49 scientific papers, 32 of which are in Q1 peer-reviewed journals (16 as first or second author) with over 775 citations (h-index of 15). The majority of these works are the result of my own ideas, observations and data, rather than coming from large collaborations.

I have a good exposure within the international astronomical community, which can be accounted by the more than 43 talks in seminars, colloquium, and conference talks (12 invited) in Asia, Europe, USA, Australia and South America. I have also been a lecturer in Winter Schools and have been involved as local and scientific organizer in committees for several scientific workshops, conferences, and symposia. I am referee of several high-impact scientific journals in astronomy (NatAstr, MNRAS, ApJ) and have been evaluator for different funding agencies like AEI. Moreover, I am member of numerous international collaborations and survey working groups (EUCLID, WEAVE, INSPIRE, CATARSIS, 4HS, MAGPI, MAVIS, SLUGGs, RAVET), as to different astronomical associations (SEA, EAS, and IAU).

I have always shown high commitment to the institutions, having been a seminar organizer and member of several Equity and Diversity Committees. I regularly supervise and mentor students, with 6 undergraduates (3 ongoing, 4 finished 2019-21), 2 master students (2 ongoing, 1 finished 2021), 1 PhD student (ongoing), and 1 post-doc (2021). Likewise, I have been a panel member for PhD student reviews, PhD defence committees, and postdoctoral hiring, and I have also experience in teaching undergraduate courses (~15 credits).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Lastly, I have participated in open days, school visits, outreach talks, interviews, and media appearances, particularly those to promote STEMM careers in girls. I was selected from more than 400 candidates for an international leadership program for women in STEMM (2021-2022 Homeward Bound).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias físicasNombre:ABAD MAYOR, BEGOÑAReferencia:RYC2021-030861-ICorreo Electrónico:b_a_m_87@hotmail.comTítulo:Thermal, mechanical and structural characterization of nanostructured materials for enegy by laser-basedtechniques

Resumen de la Memoria:

During my PhD at the Institute of Micro and Nanotechnology, I developed a well-rounded approach to thermal characterization of bulk and nanoscale materials based on the photoacoustic technique. My experimental investigation of thermal transport included an abundance of new materials, in which I explained changes in thermal transport based on morphology, composition, or characteristic dimension. Furthermore, I investigated many of these materials with an eye on their application in thermoelectric energy conversion, and I closed the loop by carrying out an extensive characterization of electrical conductivity and Seebeck coefficient in order to assess thoroughly the potential for this application. These studies were published in top journals, leading my thesis to be awarded the extraordinary doctorate prize by the Complutense University of Madrid.

During my first postdoctoral stay at the University of Colorado Boulder, I probed heat transport and acoustic dynamics in nanostructured materials by ultrafast pump-probe spectroscopy. I performed these experiments with table-top coherent extreme ultra-violet sources. I mastered the extremely non-linear quantum process of high harmonic generation, which creates unique light beams of ~30nm in wavelength by upconverting infrared ultrafast pulses. I measured, analyzed, and coordinated correlative measurements with collaborators to verify our findings on 3D nanoarchitectures with sub-100nm features. I also performed measurements with exquisite sensitivity on extremely thin films and coordinated a collaboration with industry partners (Intel), which led to a publication as a last author. I also participated and coordinated research, in which we unveiled and explained extremely non-diffusive thermal transport away from nanoscale heat sources.

During my second postdoctoral stay at the University of Basel, in the approximately one year since I was awarded a Marie Skłodowska-Curie Action Fellowship, I have developed an experimental setup based on pump-probe spectroscopy to perform both transient reflectivity and time-resolved Raman spectroscopy experiments. I selected/purchased optics, electronic and mechanical parts, and assembled this extremely complex optical setup, carefully aligning the beam paths to achieve both temporal and spatial overlap at the sample, and minimizing every source of noise. We are currently performing advanced measurements on coherent phonons and hydrodynamic thermal transport.

My research, therefore, can be divided into three lines:

a)Development and implementation of metrology techniques: during my entire career I strongly focused on the development of experimental techniques to measure thermal properties of materials for energy, mechanical properties for designing robust devices as well as carrier and lattice dynamics in semiconductors to further the understanding in nanoelectronics.

b)Characterization of thermoelectric materials: I performed exhaustive characterization in the field of thermoelectric materials in order to optimize their efficiency to push clean energies.

c) Ultrafast characterization of complex materials: I have gained experience in time-resolved techniques based in pump-probe schemes in order to access fundamental properties of materials, such as their elastic tensor or different regimes of thermal transport which differ from macroscopic predictions.

Resumen del Currículum Vitae:

My research abilities are illustrated by my record of peer-reviewed publications in leading journals such as Nano Letters, PNAS, ACS Nano or Science Advances. I have produced 26 publications, nine as first author and one as a last author (h-index =13; data from Scopus). I am also an author of a patent. My scientific career has been based on developing metrology techniques to measure thermal transport at all dimensions of complex materials. During my PhD research, I implemented experimental techniques to measure thermal properties of both bulk and nanostructured materials, and I carried out science spanning from the materials' fabrication to their characterization, resulting in several publications as first author. My work led my thesis to be awarded the extraordinary doctorate prize by the Complutense University of Madrid. During my postdoctoral stay at University of Colorado at Boulder, among other national projects, I was deeply involved in the STROBE NSF Science and Technology Center, which is a collaborative exchange between six universities across the US with an awarded budget of \$48 million over 10 years. I focused on probing heat transport and acoustic dynamics in nanostructured materials by ultrafast extreme ultraviolet (EUV) pump-probe spectroscopy. I performed these experiments with extremely sophisticated and complex tabletop coherent EUV light sources and worked on further upgrading their capabilities. Currently, at the University of Basel, I am developing an advanced setup based on Raman spectroscopy to probe phonon lifetime, coherence and hydrodynamic transport. I have gained hands-on experience with high-power ultrafast laser technology, high harmonic generation, vacuum technology, nonlinear optics and thermal and mechanical characterization of nanoscale complex materials. My leadership capabilities were also greatly advanced during my postdoctoral research stays, by supervising several graduate students from very different backgrounds and cultures and by developing a wide and collaborative national and international network. These experiences have, as a byproduct, trained me how to efficiently work both independently and in a team, as well as to communicate with colleagues from different backgrounds.

Moreover, during my stay at the University of Basel, I have had the opportunity to assist in the courses Nanophononics: manipulation of sound and heat and Physics of Condensed Matter . The students positive feedback made me value my ability to communicate scientific knowledge to younger generations, and to learn from their questions and ideas. I am also committed to education and equity for minorities in STEM fields. During my first postdoctoral stay in the US, I worked as a member of Women in Science and Engineering at CU-Boulder where we wrote proposals to obtain funding to sustain our outreach events. I joined the Organizing Committee for the AAUW (American Association of University Women) Expanding your Horizons Event, which targets middle school girls to promote STEM careers. In 2017 and 2018 I worked as a volunteer coordinator, managing and coordinating > 60 volunteers for the EYH event, which hosted ~250 girls. Currently, I am a member of the organizing committee of the International Day of Women and Girls in Science at the Department of Physics of University of Basel.



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas	
Nombre:	FASIELLO , MATTEO RAFFAELE	
Referencia:	RYC2021-033786-I	
Correo Electrónico:	matteo.fasiello@csic.es	
Título:	Exploring the Origin of the Universe through Gravitational Waves	
Resumen de la Memo	ria·	

My main research focus over the years has been the physics of the early universe. However, I have a keen interest also in the physics of large scale structure (LSS) and I have been fascinated by the puzzles of late time acceleration. I have given major contributions to all these areas.

Inflation and Primordial Gravitational Waves (GW).

I work on inflationary models studying their properties as effective field theories and characterizing their predictions for CMB and LSS observables as well as for pulsar timing arrays and interferometers.

* I have given major contributions to the so-called EFT of inflation approach, both in single and multi-field inflation. I am an expert in the use of effective theory techniques in cosmology having applied them in the early universe, LSS, and late-universe contexts.

*I pioneered the study of fossil signatures of primordial physics. These represents a novel handle on primordial non-Gaussianity in the form of anisotropies in the power spectrum induced by long-short mode couplings. My know-how in laser interferometers capability to explore primordial physics, acquired in part thanks to my involvement in the LISA Collaboration, has led to my PRL 2020 work. This publication marks a major achievement as it represents to date one of our only points of access to primordial gravitational wave non-Gaussianity at interferometer frequencies. I recently proposed cross correlations with the CMB in order to single out the primordial contribution to GW anisotropies.

* I proposed an axion-gauge fields model which has spurred a flurry of ongoing research. Its remarkable GW phenomenology includes testable features in the GW spectrum as well as a strong chiral component for the signal. The model has also been used to support the science case for international experiments such as LiteBIRD.

Large scale structure (LSS).

I investigate the underpinnings of perturbative techniques aimed at providing an analytical handle on the mildly non-linear regime of LSS.

* I was the first to include non-Gaussianities in the effective field theory of large scale structure (EFT of LSS).

* I pioneered the study of a clustering quintessence + dark matter system in the fluid description by deriving the solution to the dynamical system to all-orders in perturbation theory.

* I introduced an innovative framework to account for screening effects in LSS observables. I am actively involved in further expanding this research programme.

Dark Energy and Modified Gravity.

I investigate the cosmological viability and theoretical consistency of models of late-time acceleration.

* In massive theories of gravity, I have set powerful bounds on the theory parameter space by combining stability (unitarity bounds for interacting spin-2 theories) and viability requirements. These have been thoroughly employed in the literature ever since, serving as a benchmark for any model with viability ambitions.

*I devised tests of modified gravity with LISA standard sirens. Exploiting the modified notion GW luminosity distance (in contradistinction to the electromagnetic one) in such theories, we obtained testable predictions for modified GW propagation from some of the best studied theories of modified gravity.

Resumen del Currículum Vitae:

I received my PhD in 2011 from the University of Milan - Bicocca. Previously, I did my undegraduate studies at the University of Salento (IT) and a Master at the University of Chicago (IL, USA). In 2011 I won the "Della Riccia" fellowship, which I spent at DAMTP, University of Cambridge (UK). I then moved to postdoctoral positions at Case Western Reserve University (Cleveland, OH, USA), Stanford University (Physics Dep. and Stanford Institute for Theoretical Physics, Stanford, CA, USA), and the Institute of Cosmology and Gravitation at Portsmouth University (UK). From 2020 I have been an "Atracción de Talento" (Modalidad 1, doctores con experiencia) at IFT UAM-CSIC, Madrid.

I have authored over 37 publications in top scientific journals which have collected about 2,000 citations. I have authored 7 papers with 100+ citations and over 7 papers with 50+ citations. h-index: 25.

I am a full member of the LISA ESA Consortium and my work within the collaboration has already led to several publications. I have recently also joined the Einsten Telescope Collaboration.





I have been awarded two major grants as Principal Investigator:

* Atraccion de Talento grant 2019-T1/TIC-15784.

Title of the project: Colliders in the Sky . Funds are estimated at more than 280,000 and include 170,546.51 for the hiring of a small group. * Angelo Della Riccia Foundation Award 2011.

This award includes 17,000 for financial support (the highest amount awarded) and is aimed at supporting research performed in leading foreign Institutions. Host:DAMTP, University of Cambridge, UK.

Over the years, I have given sixty-four invited oral presentations.

* Since 01/2011, I have given 27 invited oral presentations at international workshops and conferences (including Pascos 2011, Cosmo 2013&16&19, YKIS 2018, BritGrav 2019, GGI workshop 2019, KITP workshop 2020, DarkMod 2017, MITP workshop 2017, Nordita workshop 2015 etc).

* I have also given an additional 37 invited presentations at Universities and Research Centres worldwide (including Princeton 10/2013, Stanford 11/2010, Tokyo 06/2015, UChicago&KICP 01/2020, Berkeley 04/2013, Cambridge 01/2021, CERN 03/2017, Oxford 04/2016, Edinburgh 12/2017, Padova 11/2021, Ecole Polytechnique 01/2022).

I have officially supervised both PhD students and postdocs.

* PhD: Laura Iacconi, ICG (2018-22); Martino Michelotti, Groningen (2021 -); Ameek Malhotra, UNSW (informally, 2020 -); Robert Hardwick, ICG (informally, 2017-19); Matteo Biagetti, Geneva (informally, 2012-16);

* Postdocs: Lucas Pinol, IFT (2021 -); Ogaz Ozsoy, IFT (2022 -); Tomohiro Fujita, Stanford (informally, 2015-17).

I received the habilitation as Full and Associate Professor:

* Full Professor: (i) Physics of Fundamental Interactions (Italian Ministry of Research); (ii) Astronomy and astrophysics (French Ministry of Research) * Associate Professor: (i) Astronomy, astrophysics, physics of the earth and other planets (Italian Ministry of Research); (ii) Elementary Particles (French Ministry of Research).

I have organised conferences, workshops, seminar and colloquium series.

* Organizer, The Dawn of GW Cosmology 2023 Workshop at GGI Florence.

* Co-Organizer, A cosmic window into fundamental physics Conference, IFT Madrid UAM-CSIC, Madrid, (planned for 2022).

* Organizer, Cosmo Dives Lectures, IFT Madrid UAM-CSIC, Madrid, 2021-22

* etc



Área Temática:	Ciencias físicas
Nombre:	CAVECCHI , YURI
Referencia:	RYC2021-032718-I
Correo Electrónico:	ycavecchi@astro.unam.mx
Título:	Thermonuclear Anti-Cyclones on Neutron Stars: Accretion, Explosions and the Internal Composition
Pesumen de la Memori	a.

I am a theoretical astrophysicist using numerical simulations to model the type I bursts: thermonuclear explosions on the surface of accreting neutron stars which resemble hurricanes of fire expanding till they engulf the whole star. The overarching goal of my research program is to model the type I bursts from beginning to end, studying them not just as isolated phenomena, but as events connected to their environment, accreting neutron stars in low-mass X-ray binaries, turning the bursts into probes of the neutron star physics. In particular, I am interested in:

Simulating the flame propagation, its instabilities and dependence on star parameters (such as spin and magnetic field) to model the emission patterns and their resulting lightcurves. This will enable the use of the bursts and the burst oscillations to study the equation of state of ultra-dense matter, which is one of the biggest open questions of modern physics, opening as well the possibility of synergies with gravitational wave observations.

Modelling the dynamics and distribution of the fluid before the explosions, so to link the burst initial conditions to the accretion parameters. This will allow for applications to the study of nuclear reactions and the neutron star crust.

Studying accreting white dwarf systems which share a similar phenomenology to neutron stars with type I bursts, in particular extending my simulations to these systems. This will permit to obtain informations about accreting white dwarf properties.

Studying the binary systems in which neutron stars and white dwarfs dwell and modelling (relativistic) jets.

This will allow for applications to stellar evolution, by identifying the donor stellar types and analysing observations of stages such as protoplanetary nebulae, and the study of systems that are potential sources of gravitational waves (such as AM CVns, white dwarfs in ultra compact binaries).

Resumen del Currículum Vitae:

My main research focus are the type I bursts: thermonuclear explosions on the surface of accreting neutron stars, which I study mostly with numerical simulations (I produced the first realistic simulations of the bursts), but also with analytical calculations and observational data.

I am also interested in studying accreting white dwarfs and developing codes, for example to model relativistic self-similar jets or analysing black hole timing properties.

I have been awarded a highly prestigious Marie Sklodowska-Curie Global Fellowship: EUR 251 857.80 to do research at Princeton University (2016-2018) and the University of Southampton (2018-2019). In 2020 I have won a SONATA 15 fellowship from the Polish Academy of Science which I declined to accept a tenure track position at the Universidad Nacional Autónoma de México (UNAM), where I was also awarded a PAPIIT internal grant to carry out my research on thermonuclear explosions on neutron stars. Previously I also won computational time on the Dutch Cartesius cluster. I was given the MoCA Distinguished Visitor honour with funds to visit Monash University for a month in 2019 and have obtained 5 travel grants from the Dutch LKBF. Near the end of my PhD I was Co-I of the grant that funded my first postdoc (P.I. Watts, 2013 -2016).

I have built an active network of collaborations in many high ranking institutes such as Princeton University, University of Southampton, Caltech, University of Amsterdam, Monash University, ICE-CSIC, Texas Tech University, UNAM, McGill University and Chalmers University of





Technology.

I am part of the working groups of two currently proposed X-ray satellites (eXTP and STROBE- X) and LOFT (short listed for M3 ESA mission). For example, I contributed to papers in support of those missions. I am also a member of the JINA-CEE and PHAROS networks and I am part of the network of proposers of a European Union cost action for a successor to PHAROS. I have acted as referee for the high-impact journals ApJ, ApJL, MNRAS, A&A and for the DiRAC computing proposals in England. I was session chair at COSPAR2018 and ICONS2019 and was part of the SOC of the 40 years of X-ray bursts meeting (Madrid, 2015).

I have 61 publications, including 18 Atels, 1 GCN, 2 refereed proceedings and 32 refereed papers.

I have given 46 presentations at conferences and institutes, among which 25 invited colloquia and talks (e.g. Bursting the Bubble and ICONS conferences in 2019; National Mexican Astronomy Congress in 2021; colloquia at UNAM and Texas Tech University in 2020 as well as in other University in North America and Australia in the previous years).

I taught: a monographic lesson and later a week course for the University of La Serena PhDs, at the 13th school of modern astrophysics (Moscow) and a numerical methods seminar (Amsterdam). At UNAM I shared a course on pulsars and neutron stars (I covered 5 weeks), I joined the interview committee for the 2021-2 PhD Program in Astrophysics, committees to monitor the progress of 2 PhDs and a Master Thesis defence committee. I served on a similar committee in Amsterdam (2015). I have contributed to the supervision of two PhDs and was the main supervisor of a bachelor project between 2014 and 2015.

Finally, I enjoy taking part in outreach (open days, observing nights and public events) and authored 2 chapters of a popularisation book.





Área Temática:	Ciencias físicas	
Nombre:	NOVOA FERNANDEZ, DAVID	
Referencia:	RYC2021-034752-I	
Correo Electrónico:	dnovoafer@gmail.com	
Título:	Science and applications of micro-structured optical fibre technology	

Resumen de la Memoria:

My main research interests are focused on the understanding and exploitation of extreme nonlinear interactions between gases, plasmas and intense light, micro-confined in specialty hollow-core optical fibers over unprecedentedly-long lengths. I aim at pushing the limits and explore the combination of state-of-the-art hollow-core fibres guiding light through anti-resonant reflection and near-infrared ultrashort pulses with duration approaching a single optical cycle to generate, control and manipulate bursts of light featuring high-photon energies in the ultraviolet (UV). UV radiation is key in many relevant fields including lithography, metrology, spectroscopy, chemistry and medicine, since the majority of molecules feature outer-shell electronic excitations in this spectral domain. As an example, UV light is believed by many to hold the key to understand the left-handedness of most amino-acids, crucial to unveil the origin of life on Earth. Unfortunately, the lack of compact and versatile sources of bright, coherent (in both space and time) and wavelength-tunable UV light in the 100 300 nm range has severely hampered progress in those fields, leaving building-scale facilities such as synchrotrons as the only truly viable alternative to date. Just imagine what might be achieved if we could deliver compact and versatile UV sources with similar if not improved performance directly into scientists laboratories. The design of coherent ultraviolet sources is however complex since most materials are opaque to this radiation. Moreover, the ideal compact platform should enable the generation, manipulation, and environmentally insulated point-to-point transport of UV light. Fulfillment of this long-standing dream is now in sight for the first time owing to the unique properties of special micro-structured silica fibres that guide light in hollow channels, making them resilient to UV-induced damage.

My vision is to revolutionize most of the aforementioned scientific fields with novel, compact fibre-based solutions which might lead to new discoveries in modern micro- and nano-photonics, as well as in biophysics and spectroscopy. In a nutshell, I plan to employ state-of-the-art hollow-core microstructured fibres as the longest micro-laboratories of light-matter interaction ever conceived. This table-top platform will enable disruptive nonlinear optics experiments in tightly confined geometries which may lead to new sensors, super-resolution imaging systems, extreme light sources exhibiting high UV photon energies and short pulse durations approaching the sub-femtosecond limit.

The excellent balance I have achieved between experience, creativity and leadership has triggered my decision to apply now for this prestigious fellowship. It will allow me to establish an independent research group and open up new research paths with wide-reaching implications and potential impact in the international relevance of the spanish R&D landscape. Furthermore, it will also help me to apply for further funding and expand my already rich network of collaborators. I believe that the results I will achieve through this fellowship have the potential to lead to transformational impact, not only through new fundamental cutting-edge knowledge but also through industry-transferable ideas

Resumen del Currículum Vitae:

I am currently Ikerbasque Research Fellow and Visiting Professor at the University of the Basque Country.

I graduated in Physics (2006) and received my master s degree in Photonics (2008) at the University of Vigo. I then obtained my European PhD in 2011 with honours after a research stay at the division of Prof. Ignacio Cirac at the Max-Planck Institute for Quantum Optics (2009), and my thesis received the extraordinary PhD award at the same university in 2012. Right after my PhD, I obtained a competitive position at the Centre for Ultrashort Pulsed Lasers (Spain), where I studied strong nonlinear optical interactions in different materials and explore the properties of the quantum vacuum. Looking for new challenges, in 2013 I moved to Germany as a postdoctoral research fellow at the Max-Planck Institute for the Science of Light (MPL). In 2015 I was awarded a prestigious early-career grant Juan de la Cierva to return to Spain, which I declined since I was simultaneously offered an unusually long extension to my position at MPL (until 2027). However, in August 2017 I turned this position down since I was appointed W2 Associate Research Professor at MPL owing to my outstanding research success.

I am a recognized expert in the science of nonlinear light-matter interactions in micro-structured optical fibres. During my career I have pioneered novel ways of producing, guiding and manipulating ultraviolet and mid-infrared light, with applications ranging from spectroscopy to materials science and sensing. As a result, my research group at MPL reported several breakthroughs such as collinear Raman frequency conversion of arbitrary optical signals with world-record efficiencies above 80% or the generation of the broadest table-top supercontinuum ever achieved, spanning 7 octaves from the ultraviolet to the terahertz domain and with synchrotron-level brightness.

My research outcome has resulted in 42 papers (40 in Q1/D1) published in top-ranked journals such as Physical Review Letters (x8), Nature Photonics (x1), Nature Communications (x1), Optica (x3) or ACS Photonics (x2), among others. These works were done in collaboration with >60 co-authors of 15 different nationalities from different top research institutions. I currently score an H-index = 18 with >800 citations (Google Scholar) and have presented >80 contributions in major international conferences. In addition, owing to my increasing international visibility, leadership in the field and reputation, I have given 18 invited talks and seminars at major international conferences and research institutions worldwide. I have also co-edited one book and co-authored two book chapters. I have also acted as Guest Editor for a special issue of the journal Crystals (Ed. MDPI) and I am panel member of the specialized outreach magazine Spotlight on Optics .

Regarding acquisition of funding, I have participated in several research projects (total budget ~6 M), including two as PI (one with 600 k in 4 years, granted by the Max-Planck Society), and I was shortlisted for the 2018 ERC Starting Grant (interview stage).

Mentoring the next generation of scientists has always been a commitment of the highest priority to me. To date I have already supervised 5 PhD students to completion (one more thesis ongoing). I have also served as member of 2 PhD evaluation committees.



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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas	
Nombre:	MARTIN-ALBO SIMON, JUSTO	
Referencia:	RYC2021-033265-I	
Correo Electrónico:	justo.martin-albo@ific.uv.es	
Título:	Search for new physics in the neutrino sector with the DUNE and NEXT experiments	
Resumen de la Memo	ria:	

My research deals with the experimental study of neutrinos, the most abundant matter particles in the universe, and yet the least understood. Neutrinos provided the first evidence of new physics beyond the Standard Model, and they could also be the key to answer some of the most pressing questions today in fundamental physics, such as the origin of mass and flavour, or the cosmic asymmetry between matter and antimatter.

I earned the PhD in Physics from the Universitat de València, Spain, in 2015. After that, I worked as a postdoctoral researcher at the University of Oxford, United Kingdom (2015 2017), and at Harvard University, United States (2017 2019). In late 2019, I joined the Instituto de Física Corpuscular (IFIC), Spain, as a Junior Leader la Caixa fellow, advancing one year later to a Doctor de Excelencia GenT fellowship.

During these years I have contributed to the design, instrumentation, operation and physics exploitation of the DUNE and NEXT experiments, which employ the same detector technology (noble element time projection chambers) and have synergic physics objectives. The Neutrino Experiment with a Xenon TPC (NEXT) searches for the hypothetical neutrinoless double-beta decay at the Laboratorio Subterráneo de Canfranc (LSC) using high-pressure xenon gas TPCs with electroluminescence readout. The discovery of neutrinoless double beta decay would prove that neutrinos are Majorana particles; that is, truly neutral particles identical to their antiparticles. The Deep Underground Neutrino Experiment (DUNE) is a new-generation long-baseline neutrino oscillation experiment that will perform precision measurements of the parameters that govern neutrino mixing, including the still-unknown charge-parity (CP) violation phase, as well as searches for new phenomena. Majorana neutrinos and CP violation are two required ingredients of leptogenesis, the theoretically preferred mechanism to generate the asymmetry between matter and antimatter observed in the universe today.

Resumen del Currículum Vitae:

I am an experimental particle physicist working at the Instituto de Física Corpuscular (IFIC), a joint research center of CSIC and the Universitat de València. My research focuses on neutrinos, the most abundant matter particles in the universe but the least understood.

I earned the PhD in Physics in 2015 from the Universitat de València (UV), Spain, working on the Neutrino Experiment with a Xenon TPC (NEXT), which searches for the neutrinoless double beta decay (0vbb) of Xe-136 using high-pressure xenon gas time projection chambers (TPCs). I have participated in NEXT from its initial conception. I was involved in the early conceptual studies described in the NEXT proposals and design reports, as well as in the design, commissioning, operation and data analysis of our first prototype, NEXT-DEMO. Moreover, I developed the simulation model describing the various components of the NEXT background spectrum and I estimated the expected background rate of the NEXT-100 detector and its sensitivity to 0vbb. These contributions to NEXT resulted in half a dozen peer-reviewed publications with me as lead author. My PhD dissertation was granted a cum laude and the Extraordinary Doctorate Award from the UV.

After my PhD, in the autumn of 2015 I moved to the University of Oxford, United Kingdom, to work on the Deep Underground Neutrino Experiment (DUNE), a new long-baseline neutrino oscillation experiment that will perform precision measurements of the parameters that govern neutrino mixing, including the still-unknown charge-parity (CP) violation phase. At Oxford I led in DUNE the simulation studies that examined the advantages of a large magnetized high-pressure argon gas TPC (GArTPC) for the physics of the near detector. Eventually, the DUNE Collaboration selected the GArTPC technology as part of the conceptual design for the ND. In parallel, I also worked on the conceptual design of the DAQ and trigger for the DUNE far detector and its large-scale prototype at CERN (ProtoDUNE), and I was co-convener of the DAQ simulation group.

In late 2017 I moved to Harvard University, USA, where I continued my involvement in the design process of the DUNE near detector, focusing, in particular, on its sensitivity to phenomena beyond the Standard Model (BSM) of particle physics. In addition, I resumed my participation in the NEXT experiment, assuming responsibilities in detector simulation, data analysis and in the construction and commissioning of the NEXT-100 detector. At Harvard, I also initiated a new interdisciplinary research line for the development of novel photodetectors for particle detectors based on the use of metalenses.

In October 2019 I returned to IFIC as a Junior Leader la Caixa fellow to develop the physics and technology of the DUNE ND GArTPC. The following year I received a Doctor de Excelencia GenT fellowship to work on the DUNE and NEXT experiments. In DUNE I work on the design and construction of the photon detection system of the DUNE far detector. I continue as well my involvement in the BSM physics group in DUNE, now as a co-convener. In NEXT, I am working on the preparation of the physics exploitation of the NEXT-100 detector, which will be commissioned in late 2022, and I lead the design effort of the tonne-scale version of the experiment. I am supervising the work of 2 PhD students working on DUNE and another one working on NEXT.





Área Temática:	Ciencias físicas
Nombre:	GRAND , ROBERT JOHN JAMES
Referencia:	RYC2021-032289-I
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Título:	Numerical simulations of galaxy formation and evolution

Resumen de la Memoria:

I am an Advanced Severo Ochoa Fellow at the Instituto de Astrofísica de Canarias, leading an independent line of research specialising in numerical simulations of galaxy formation and evolution. My research centres on some of the biggest questions in astrophysics and cosmology, such as: how did Milky Way-like galaxies form and evolve? What is the nature of dark matter?

In my decade of research experience (including PhD), I have worked at 4 leading universities/research institutes in 3 different countries (UK, Germany, Spain), and have obtained 2 competitive independent fellowships (Max Planck Fellowship and Advanced Severo Ochoa). I have become a prominent figure within the wider communities of Europe s largest computational astrophysics groups: the international Virgo and CLUES consortia, through which I have established a large network of international collaborators.

I have published 90 peer-reviewed papers (18 first author) that have so far acquired >3,500 citations (>1,000 first author). I have made leading contributions to my research lines: for example, I received University College London s award for Outstanding Scientific Achievement for my novel theory of spiral arms, and my work has been the subject of media attention, including press releases and a research highlight in the prominent journal "Nature .

I amPI of the international Auriga collaboration (>30 members from 11 countries and 5 continents), which produced the first large suite of highresolution cosmological hydrodynamical zoom- in simulations, enabling detailed, statistical studies of galaxy formation. I have shaped its research direction through management and coordination of a range of sub-projects, which have had an enormous impact on the scientific community through more than 50 Q1 peer-reviewed publications to date.

I am co-PI of the state-of-the-art HESTIA simulations which reproduce the large-scale environment of the observed Local Group of galaxies with baryonic physics in great detail.

I am PI of the GalaHAD project (based on my recent ERC StG project that successfully passed to step 2) in which I am pioneering novel simulation techniques needed to interpret the how the Milky Way formed from upcoming observations, such as Gaia and WEAVE.

I have obtained several research and large computing grants, including 312,000 Euros as co-PI of a joint international research project on modelling dusty galaxies (GALEV-DUST) and 19.2M CPU hours of computer time as PI of the GalaHAD project.

I have (co-)supervised 7 PhD and Master projects, given over 40 conference/seminar talks, given University lectures, regularly review publications in high-impact scientific journals, participated in grant panels, and been involved in outreach activities.

Resumen del Currículum Vitae:

RESEARCH LINE: Study of the formation and evolution of spiral galaxies, with specific focus on the Milky Way and Local Group. Main methods used are numerical simulations and Galactic archaeology. My research focusses on understanding how a wide range of physical processes operating since the Big Bang shaped observed Galactic structure and the stellar populations that comprise it. In addition, I am also active in the study of dark matter and its astrophysical signatures.

ACADEMIC AND RESEARCH HISTORY: Masters in Physics and Astronomy (1st class honours) from University of Leeds (2010); PhD in numerical astrophysics from University College London (UCL) in 2014; Postdoctoral researcher at the Heidelberg Institute for Theoretical Studies (HITS) in the project The Milky Way System (2014-2018) working in the group of Prof. Volker Springel; Independent postdoctoral research fellow at the Max Planck Institute for Astrophysics (MPA) (2018-2021); Advanced Severo Ochoa Fellow at the Instituto de Astrofisica de Canarias (2021-present).

AWARDS: University College London s Alan Johnstone Award for Outstanding Scientific Achievement (2013).

PARTICIPATION IN RESEARCH PROJECTS: Since 2015, PI of the Auriga project - an international flagship project of the Virgo Consortium - with more than 30 members from 11 countries which has produced more than 50 publications to date. PI of the GalaHAD project, based on my ERC starting grant project that advanced to step 2. PI of computer time proposal awarded 19.2M CPU hours. PI of the PRESTIGE project within the Programa de Generación de Conocimiento 2021, pending approval by MCI. Co-PI of the HESTIA project - a flagship project of the international CLUES collaboration. Co-PI of the GALEV-DUST international project, awarded 312,000 Euros in research funding from the Flanders Research Foundation (FWO). Member of the WEAVE collaboration.

RESEARCH OUTPUT: 90 published papers (18 as 1st author) in first quartile peer-reviewed journals, with a total of more than 3,500 citations. Research highlight in Nature journal.

COMMUNICATIONS: I have presented my scientific work on galaxy formation at 46 international conferences and seminars (24 invited), including a review talk and invitation-only events for experts. I also took part in the organisation of 3 conferences covering a broad range of topics in astrophysics (including positions as chair). Numerous press releases and popular science magazine articles based around my work.

EVALUATOR: Referee in prestigious journals including Nature, Astronomy & Astrophysics, Astrophysical Journal, Monthly Notices of the Royal Astronomical Society. Expert reviewer for ERC AdG panel; the UK s national consolidated grant panel (UKRI, STFC); and Dirac computational resources allocation committee. Recruitment committee member for International Max Planck Research School PhD students.

TEACHING & SUPERVISION: 2 University Masters level lectures (at UCL and ULL). Organiser of Severo Ochoa-funded school. (Co-)Supervisor of 6 PhD students and 1 TFM student.

OTHER RESPONSIBILITIES: Institute seminar organiser (MPA); Journal Club organiser (UCL, HITS). Member of the Consejo de Departamento (IAC).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas	
Nombre:	JIMENEZ GONZALEZ, NOE	
Referencia:	RYC2021-034920-I	
Correo Electrónico:	nojigon@upv.es	
Título:	Acoustic holograms and metamaterials for biomedical ultrasound applications	
Description of a la Marine of		

Resumen de la Memoria:

Noé Jiménez (Albacete, 1984). I started my research career at the Polytechnic University of Valencia (UPV), Spain, where I obtained a scholarship of excellence awarded to the best academic record of my promotion. I performed a stay at Columbia University in 2012 and in 2015 I obtained a PhD degree with Cum Laude mentions, European PhD, and Extraordinary Prize at UPV for my thesis on Nonlinear acoustic waves in complex media . With these works I started to use artificially structured media to synthesize singular ultrasound beams such as acoustic Bessel beams, vortex beams, and highly focused ultrasound beams for biomedical ultrasound applications.

In 2015, I joined the French CNRS (UMR 6613) with a postdoctoral contract to develop acoustic metamaterials with novel functionalities. Acoustic metamaterials were my perfect playground to introduce innovative concepts with striking wave properties like Rainbow-Trapping Absorbers, Metadiffusers or Slow-Sound Perfect Absorbers. In 2017 and 2019 I obtained "Juan de la Cierva - Formación" and "Juan de la Cierva - Incorporación" grants, respectively, and joined the Spanish CSIC at the Institute of Instrumentation for Molecular Imaging (I3M) to research on ultrasonic metamaterials for biomedical applications and hybrid medical imaging systems under the supervision of José M. Benlloch. Since 2019, I am the head of the therapeutic ultrasound group at I3M, currently supervising and funding a team of 2 early-career post-doctoral researchers, 5 PhD students, and 3 laboratory technicians.

My research interests range from fundamental research on mechanical waves in complex and artificially structured media, to its application for innovative biomedical ultrasound techniques. During my PhD and my early postdoc experience at the CNRS, I gathered deep knowledge on waves in complex media and metamaterials, and I am currently focused on applying state-of-the-art fundaments to selected biomedical ultrasound applications. I am one of the first researchers to apply acoustic metamaterials and acoustic vortices to go beyond classical biomedical ultrasound technologies. Using 3D-printed acoustic holograms, I was able to encode complex acoustic wavefronts and conforming therapeutical ultrasound beams inside the human brain. This ground-breaking technique can compensate the strong aberrations produced by the human skull, and, simultaneously, generate sharp and arbitrary acoustic focal spots matching the complex shape of deep-brain structures, enabling for the first time the non-invasive treatment of brain diseases by a low-cost technology.

I am also applying acoustic vortices to develop novel ultrasound applications. I developed a quantitative elastography imaging method using acoustic vortices, an optimal and non-invasive lithotripsy system using vortex beams, and transcranial vortices to trap drug-delivery carriers and release their payload into the brain. I am author of 5 patents for biomedical applications of ultrasound. In 2020, I founded HOLOSONIC SL, a spin-off of therapeutic ultrasound devices based on low-cost acoustic holograms for the localized and non-invasive treatment of neurological disorders. I actively collaborate with a wide network of international hospitals and research centres, applying cutting-edge wave physics fundamentals to ultimately improve people's lives through Science.

Resumen del Currículum Vitae:

I obtained a PhD degree in 2015 with Cum Laude, European and Extraordinary Prize mentions, at UPV. In 2015, I joined the CNRS (UMR 6613, France) with a postdoctoral contract to develop novel acoustic metamaterials. In 2017 and 2019 I obtained Juan de la Cierva Formación and Juan de la Cierva Incorporación grants, respectively, and joined the Spanish CSIC at the Institute of Instrumentation for Molecular Imaging (I3M) to research on ultrasonic metamaterials for biomedical applications under the supervision of José M. Benlloch (Jaime I and National Research Awards). Since 2019, I am the head of the therapeutic ultrasound group at I3M, currently leading and funding 2 early-career post-doctoral researchers, 5 PhD students, and 3 laboratory technicians.

I have worked on 27 funded projects (6 as Principal Investigator, 1 as PI of the "Plan Nacional", Spanish Ministry of Science) and 11 contracts (3 as P.I.), rising more than 0.5 M for my current institution. He has published 44 articles in JCR journals, (29 Q1, and 30 as first and/or corresponding author), 7 book chapters and edited 2 scientific books, participating in more than 200 conferences, giving 30 invited talks and 2 plenary lectures. I hold a h-index of 17, an i10 of 30 and 1545 citations. In 2012, I obtained a grant to stay at Columbia University (NYC, USA) under the supervision of Elisa E. Konofagou, and developed methods for ultrasound-assisted blood-brain barrier opening. In 2019, I obtained a grant for a second stay at CNRS (France), and in 2016 I received a European Union COST grant for a stay at the University of Salford (UK).

During 2014 and 2018 I worked for the European Space Agency to control the acoustic load during the launch of the Vega system using metamaterials. Since 2015 I develop perfect absorbing metamaterials and acoustic diffusers with RPG Acoustics (NJ, USA) the major manufacturer of acoustic diffusers worldwide. I am author of 5 patents for metamaterials and biomedical ultrasound applications. In 2020, I founded a spin-off, HOLOSONIC SL, for holographic therapeutical devices.

I was one of the first researchers to apply acoustic metamaterials and acoustic vortices to go beyond classical biomedical ultrasound technologies. I have grown a worldwide network with hospitals and international research centres. At HM CINAC (Hospitales de Madrid, Spain) and the New-York Presbyterian Hospital (NY, USA) I am applying acoustic holograms for drug-delivery in the brain and neuromodulation. I collaborate with the Urology and Neonatology units at La Fe Hospital (Valencia, Spain) and Vall d'Hebron Hospital, (Barcelona, Spain) to transfer to clinics novel therapeutic ultrasound applications. I work with the Institute of Cancer Research (London, UK) and with ICube UMR 7357 CNRS, (Strasbourg France) to design low-cost and localized holographic hyperthermia treatments.



Among other awards, I obtained the Young Investigator Award from the Spanish Royal Society of Physics (Zaragoza, 2019), and the Young Investigator Award from the Spanish Society of Acoustics (Cáceres, 2011). I have supervised 18 Master thesis, 6 PhD students, 5 of whom are still working on their degrees and one completed, now Postdoc at Columbia University. I am professor teaching undergraduate and master's degree courses at the Applied Physics department of the Universitat Politècnica de València, and lectured 400 hours.





Área Temática:	Ciencias físicas	
Nombre:	DURIEUX , GAUTHIER	
Referencia:	RYC2021-033404-I	
Correo Electrónico:	gauthier.durieux@cern.ch	
Título:	Probing new physics systematically at colliders with effective field theories	

Resumen de la Memoria:

The phenomenology of physics beyond the standard model (SM) has been focusing most of my research interests, with applications at colliders in particular, and specific emphasis on the top-quark and Higgs sectors. Besides supersymmetric and composite-Higgs scenarios, I have mostly privileged model-independent approaches based on symmetries, effective field theories (EFTs), and on-shell amplitude techniques.

Effective field theories have a unique potential for the systematic and meticulous pursuit of physics beyond the standard model. If no single measurement deviates significantly from expectations, EFTs would remain as our last resort to correlate small deviations in various observables and isolate patterns imprinted by new physics. Complementary to parametrizations of new light states, EFTs are ideally suited for interpreting the precision measurements to be produced during the high-luminosity phases of the LHC, at Belle II, and at next-generation lepton colliders. Even in the absence of signal, they would effectively encode the data collected into well-defined theory parameters and provide legacy constraints for future generations of model builders, much like the oblique parameters extracted at LEP.

In this context, I am specifically striving to:

a- foster the global EFT interpretation of measurements in close intelligence with experimental collaborations;

b- develop precise EFT predictions extending the programme of higher-order standard-model computations beyond dimension-four operators;

c- devise observables aimed at better probing particular directions of the EFT parameter space and at providing an efficient multidimensional coverage; d- understand the implication of EFT results for new-physics models and map the relevant parameter space;

e- pursue the theoretical development of the on-shell amplitude approach to EFTs, together with formal aspects including their double copy.

Resumen del Currículum Vitae:

Since the beginning of my Master s in 2009, I have studied in three universities (UCLouvain, UAMadrid, Durham), attended two summer schools (TASI 2012 in Boulder and PiTP 2013 in Princeton), and held researcher positions in five institutions (UCLouvain, Cornell, DESY, Technion, CERN). Together with collaborative stays (Lyon, Grenoble, MIT, Fermilab) and the many workshops I participated to, this exposed me to many facets of high-energy physics. I have progressively built a large and diverse network of collaborators: they are 15 with whom I have authored at least two papers while, conversely, I have not authored more than four papers with any single collaborator (excluding one experimental paper with more than 10 authors). My contributions cover a wide range of topics, featuring innovative developments and comprehensive studies. To date, they appear in 22 publications accumulating 838 citations, for a h-index of 17. Three additional preprints were released in the last two months. I had a single-authored article (2016), two publications involving only one other young postdoc (2018, 19), an additional work with just junior collaborators (2018).

My research often triggered novel experimental analyses, motivating at least seven papers by CMS, ATLAS, LHCb and Belle. I co-supervised one PhD student working on next-generation lepton colliders (2017-20), leading to three joint theory/experiment papers including one with the CLICdp collaboration. I have held leadership positions in LHC working groups as editor of four reports and, since July 2020, as convener of the LHC EFT WG. Significant contributions to the study of future collider potential (eight papers and six sections in reports) also led to my nomination as convener of the FCC Physics Programme for the Higgs and electroweak sectors in January 2022.

In the past six years, I have been able to accept about ten talk invitations per year (15 in 2021) for department seminars, topical workshops, and international conferences. In addition to targeting my recent work, they often request reviews in EFT, top-quark, Higgs, electroweak, and future-collider physics. I have contributed to the organisation of three workshops on EFTs (2019-21) and convened sessions at three large-scale conferences (ALCW 2018, LHCP 2021, SUSY 2021). As a referee, I contribute to all major journals of my field (PRL, PLB, PRD, JHEP, EPCJ, SciPost Physics) and two funding agencies (SATW in Switzerland, and NRF in South Africa). Excluding resubmissions, I received ten paper review requests in 2021.

During my PhD, I acted as teaching assistant in quantum mechanics and coordinated master classes for high-school students (2012-14). I gave two advanced lectures as postdoc at DESY (2016,18), introduced EFTs in a meeting for young scientists of all fields (2019), participated as lecturer and discussion leader to three graduate schools (2018, 2021, upcoming in 2022), and contributed to three written pieces aimed at the general scientific community (for Nature Physics in 2017, DESY Highlights in 2018, CERN Courier in 2021).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	SANCHEZ MONGE, ALVARO
Referencia:	RYC2021-032892-I
Correo Electrónico:	sanchez@ph1.uni-koeln.de
Título:	Towards a statistical and comprehensive understanding of the formation of stars
Desument de la Manag	

Resumen de la Memoria:

Stars are the fundamental building blocks of galaxies and hosts of planetary systems. Therefore, studying their formation is not only key to understand the most abundant luminous objects in the Universe, but also the properties of galaxies as well as planets and planetary systems. Most of the stars, including our Sun, have formed in crowded stellar clusters containing very massive stars. But how did they form and evolve to the systems that we nowadays observe? Since the completion of my PhD in 2011, I have been actively studying the formation of stellar clusters, stars and their associated protoplanetary disks.

During my PhD research I studied the physical properties of dense cores in which stars are formed, and how these dense cores are disrupted by the strong feedback caused by the stellar winds and HII regions from newly formed (massive) stars. As postdoctoral researcher at the Osservatorio Astrofisico di Arcetri (2011-2013), I got involved and led projects to search for and to study protoplanetary disks around the most massive stars; a research that I have continued to date and for which I have co-authored a chapter in the book Star Formation (Springer, 2020). Since 2013, I conduct my research at the University of Cologne, where I have focused on studying how a molecular cloud fragments into stellar clusters and how the conditions of the molecular cloud determine the final properties of the cluster. Additionally, I study how the chemistry changes during this process both around the star and in the cluster. This provides insight into how simple molecules can develop into more complex (organic) species that can act as building blocks of life.

The knowledge acquired so far reveals that a forming star undergoes a series of evolutionary phases that will determine its final physical and chemical properties. My current and future research tackles a number of essential open questions necessary to fully comprehend this evolutionary process: (i) How is mass transported from the large molecular cloud to each member of the forming stellar cluster? (ii) How do this process determine the final properties of the cluster? (iii) What role do protoplanetary disks play in the accretion of material? And how do they evolve until the formation of planets? (iv) What are the dominant chemical reactions and physical processes that enable the formation of complex organic molecules?

Answers to these questions require the observations of a statistically significant sample of star-forming regions. For this, and throughout my research career, I have been granted observing time in world-renowned facilities, I have secured funding that has allowed me to hire and supervise PhD students and postdoctoral researchers, and I have led and joined large international collaborations. I am coordinator and member of the Steering Group of the ALMAGAL Legacy Project that, for the first time, will study with unprecedented resolution and sensitivity more than 1000 star forming regions, enabling a statistical study of the star formation process. All this experience qualifies me to not only understand the Science of this research, but also all the steps necessary to achieve this Knowledge.

Resumen del Currículum Vitae:

I carried out my PhD at the University of Barcelona with a 4-year FPU fellowship, defending the thesis with cum laude honors in 2011. During that period, I got a Master degree in Astrophysics, Particle Physics and Cosmology, and I made 3 research stays at the Centro de Radioastronomia y Astrofisica (Mexico). My most important contribution was to develop an evolutionary sequence for the formation of the most massive stars, based on observational evidences that I acquired in telescopes such as VLA (USA), PdBI (France) and IRAM30m (Spain). Afterwards, I received a fellowship to work as a postdoctoral researcher at the Osservatorio Astrofisico di Arcetri (Italy). After 2.5 years in Italy, I moved as a research fellow to the Star Formation group of the University of Cologne (Germany). My research aims at investigating the formation of stars, with special emphasis on the study of the mass transport from clouds to stars, the formation and properties of protoplanetary disks, and its chemical evolution, which may lead to the formation of complex molecules and the basic building blocks of life. I have exceptional leadership skills as demonstrated by the number of projects that I have led, the awarded observing time in world-renowned facilities, the funding that I have secured in research projects, and the number of theses that I have supervised.

I have published 121 original research articles in international journals (with 2700+ citations, and an h-index factor of 32). Out of these articles, I am first author, second author or senior author in 30 of them. In 2013, I reported the first disk around a massive star to be imaged with the newly commissioned ALMA telescope. Following this study, I have actively participated in the search for disks around the most massive stars, leading and being part of international teams. As a result, I have co-authored a chapter in the book Star Formation (2020) reviewing the current knowledge about protoplanetary disks.

A large fraction of my research is the result of international collaborations. I participate in several large projects such as ALMAGAL, CORE and the CARMA Orion Key Survey. I am member of the Steering Group of the ALMAGAL Legacy Project and coordinator of its Technical Working Group. During my scientific career, I have been granted observing time as PI in world-renowned facilities such as ALMA (30+ hours), the VLA (180+ hours) and the IRAM-30m (350+ hours), and secured 10+ Million CPU hours at the Jülich Supercomputer Center. I have given more than 50 invited and contributed talks at universities and international conferences. I am also regular referee for 7 of the most important journals in my field, and I have been member of different time allocation committees. Since 2017, I am member of the Science Team for the METIS instrument to be installed at the ELT.

In addition, I have enjoyed a substantial amount of teaching and mentoring activity. I have supervised and guided graduate and undergraduate students in their research, which resulted in the supervision of 9 PhD theses, and 12 Master and Bachelor theses. I have also an extensive teaching record, with experience in graduate courses at the Universities of Cologne, Bonn and Barcelona. As part of outreach activities, I have always been active to bring science closer to people, and from 2009 to 2019, I was president of the outreach association AstroAnoia.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas	
Nombre:	CORREA MARICHAL, LUIS ALBERTO	
Referencia:	RYC2021-032584-I	
Correo Electrónico:	l.a.correa.marichal@gmail.com	
Título:	Thermometry and cooling for quantum technologies	
Desumen de la Manag		

Resumen de la Memoria:

I am physicist working at the interface of open quantum systems, thermodynamics and high-precision sensing. I have 25 published papers in prestigious cross-disciplinary journals such as Phys. Rev. Lett., Quantum, J. Chem. Phys., or New. J. Phys. My work has been highly influential in its area, receiving 1376 citations (Google Scholar, GS) in ten years of activity [904 in Web of Science (WoS)].

I was one of the pioneers of the growing field of quantum thermometry, and have also made seminal contributions to open quantum systems and quantum thermodynamics. My work has a good international visibility and I am frequently invited to present it at conferences and institutes of excellence worldwide.

After my PhD, I have worked at Universitat Autònoma de Barcelona and the University of Nottingham. At present, I am a lecturer at Exeter and lead my own research unit within the Quantum Theory Group at the Physics Department. There, I supervise one PhD student, and co-supervise a second one. I also supervise masters students undertaking research projects. In these years, I have created an international network of active scientific collaborations, including Manchester, Geneva, Potsdam, Birmingham, or Siegen.

My work aims to shed light on the precision limitations on low-temperature thermometry. Indeed, accurate and reliable thermometry at ultracold temperatures remains a key open challenge, central to rapidly developing quantum technologies. Critically, the simple theoretical models underlying current thermometric methods miss key ingredients which become essential when deep in the quantum regime. My ambition going forward is to develop urgently needed new theory to fill this important gap, with an applied perspective.

I have also worked on the modelling heat transport through non-equilibrium quantum systems and their thermodynamic characterisation. On this front, my vision is to harness engineered quantum-thermodynamic cooling cycles to deliver the heat-management and efficient cooling solutions that next-generation quantum technologies need.

Resumen del Currículum Vitae:

I am a physicist working on open quantum systems and quantum estimation theory. I pioneered the rapidly growing discipline of quantum thermometry, focused on high-precision temperature sensing in the quantum regime. I have also done seminal work exploring the fundamental scaling laws that limit the accuracy of low-temperature measurements, and the enhancement of thermometric precision in ultracold atomic gases. Recently, I proposed a paradigm change to Bayesian methods in thermometry. This has already had a profound impact in the field, bringing it closer to practical applications. I have also made influential contributions to open quantum systems and quantum thermodynamics, specifically on the modelling of heat transport and on the performance optimisation of quantum-thermodynamic cooling cycles.

I have led and coordinated fruitful multi-institution international collaborations that have resulted in some of my 25 publications in top crossdisciplinary journals, including Phys. Rev. Lett, Quantum, New J. Phys, or J. Chem. Phys. I co-edited and reviewed the book ["Thermodynamics in the Quantum regime: Fundamental Aspects and New Directions", F. Binder, L.A. Correa, C. Gogolin, J. Anders and G. Adesso (Eds.), Fund. Theor. Phys vol. 195, Springer, Cham, (2019)]. With 41 contributions from over 100 authors it is the most complete and up-to-date volume on quantum thermodynamics. I was also invited to write the first review article on quantum thermometry. To date, my work has received over 1300 citations in ten years of activity [h-index: 18 in Google Scholar (GS); 904 citations in Web of Science (WoS) and h-index: 15].

In the last five years I have been invited to give ten keynote conference presentations and seminars at centres of excellence worldwide, such as KITP UC Santa Barbara, ITAMP Harvard, or the Hebrew University of Jerusalem. Likewise, I have widely disseminated my work among the general public through active media engagement. As a result, over 60 popular-science and news pieces have been published about my work.





Área Temática:	Ciencias físicas
Nombre:	CUESTA SORIA, CLARA
Referencia:	RYC2021-031667-I
Correo Electrónico:	clara.cuesta@ciemat.es
Título:	Física experimental de neutrinos
Resumen de la Memoria	:

My scientific career has been focused on neutrino physics and rare event searches, such as dark matter. My expertise in detector operation and data analysis during 13 years has been crucial to achieve successful physics results in different state-of-the-art experiments around the world.

I obtained my PhD in Physics from the University of Zaragoza in 2013 with the work "ANAIS-0: Feasibility study for a 250 kg Nal(TI) dark matter search experiment at the Canfranc Underground Laboratory". I optimized the design of the ANAIS modules and developed analysis algorithms used in first model-independent test of the DAMA/LIBRA result with outcome compatible with the absence of modulation.

In 2013, I obtained a postdoctoral position at the University of Washington to work on the search of neutrinoless double beta decay in Ge-76 with the MAJORANA DEMONSTRATOR. I was a detector expert and leaded the data reduction and pulse shape analysis. This work was key for the zero-neutrino double beta decay search and for other rare-event searches, such as dark matter, solar axions, Pauli exclusion principle violation, or electron decay. I also worked in the COHERENT experiment, in the NaI(TI) subsystem. We reported the first observation of the coherent elastic neutrino-nucleus scattering in 2017 even though it was predicted four decades ago.

I joined the CIEMAT in 2017, where I work with an Ayuda de Atracción de Talento Investigador from the Comunidad Autónoma de Madrid. I am working on light detection R&D in liquid argon (LAr) in the context of the Deep Underground Neutrino Experiment (DUNE). DUNE is a dual-site experiment for long-baseline neutrino oscillation studies, neutrino astrophysics and nucleon decay searches. My main contribution has been to the ProtoDUNE Dual Phase Photon Detection System (PDS). I was responsible of the validation of the PDS, the operation at CERN and the data analysis. The collection of light produced in LAr at 7 m from the photosensors was achieved for the first time, enabling to achieve pioneering results. Also, I am co-convener of the DUNE Low Energy Physics working group. DUNE will be uniquely sensitive to the electron-flavor component of the burst of neutrinos expected from the next Galactic core-collapse supernova and this working group is in charge of optimizing the physics reach of the DUNE experiment for low energy signals, such as the supernova neutrinos. I have also participated at AIDA-2020 European Project with key contributions to the light readout in large scale cyrogenic liquid detectors.

In 2020, I obtained the L'Oréal-UNESCO For Women in Science Award recognizing my work as women scientist in Spain. The L'Oreal UNESCO project I am leading consists on the study of the neutrino nature with Ge detectors.

Resumen del Currículum Vitae:

Appointments

- 03/2018-07/2022: Researcher Atracción de Talento Investigador de la Comunidad Autónoma de Madrid , 2017-T2/TIC-5556, CIEMAT, Madrid.
- 02/2017-03/2018: Postdoc of the H2020 European Project AIDA2020, CIEMAT, Madrid.
- 06/2013-02/2017: Research Associate, University of Washington, Seattle, WA, US.

Education

- 2013: Ph.D. in Physics, Univ. de Zaragoza. Dissertation title: ANAIS-0: Feasibility study for a 250 kg NaI(TI) dark matter search experiment at the Canfranc Underground Laboratory. Cum Laude and European Doctorate Mentions.

- 2009: M.Sc. in Physics and Physical Technologies, Univ. de Zaragoza.
- 2008: B.Sc. in Physics, Univ. de Zaragoza.
- 2008: DipHE, University of Southampton, UK.

My work on the ANAIS dark matter experiment allowed for the first model-independent test of the DAMA/LIBRA annual modulation result with results compatible with the absence of modulation. In the MAJORANA DEMONSTRATOR, I contributed to establish a lower limit on the Ge-76 neutrinoless double-beta decay half-life and on the effective Majorana neutrino mass, and to provide world-leading limits on rare-event searches like bosonic dark matter and axions. I took part of the first observation of the coherent elastic scattering of neutrinos off nuclei, a process that had eluded detection for four decades.

I have published 69 papers (28 of them with less than 20 authors) with >1200 cites. I am the corresponding or first author of 10 papers and 11 conference proceedings. I presented my work in 25 international conferences and workshops, 8 seminars, ~30 collaboration meetings, and 5 PhD schools. My publication record proves that my work is balanced between instrumentation and detector development, analysis, and physics results.

I am a member of the DUNE, SBND, and MAJORANA Collaborations devoted to neutrino science and have been a member of the WA105, LEGEND, COHERENT and EURECA collaborations. I gained international experience with stays in research centers from Europe and the US (CERN, University of Washington, Sanford Underground Research Facility, Laboratori Nazionali del Gran Sasso, and the Paul Scherrer Institut). I have participated in 13 research projects funded by MICINN, European Union, and US Department of Energy, among others. This shows my availability to work independently in international projects with important responsibilities.

My leading experience covers the leading of the working groups of Run Selection and Data Cleaning of the MAJORANA DEMONSTRATOR, Low Energy Physics in DUNE, and the Dual-Phase Light Calibration of DUNE; the ProtoDUNE-DP Photon Detection System operations and data analysis; acting as



Run coordinator of ProtoDUNE-DP, and as on-site lead researcher of the MAJORANA DEMONSTRATOR; as editor of the DUNE Interim Design Report; and organizing collaboration meeting agendas and sessions.

I acquired teaching experience working as Teaching Assistant at the University of Zaragoza, as Lecturer at the University of Washington, and mentoring undergraduate, master, and PhD students at the University of Washington and at CIEMAT. I am a reviewer for international journals (PRL, EPJC,) and often participate in dissemination activities. I have obtained fellowships and distinctions that provided self-funding during a large part of my career and I have received the L'Oréal-UNESCO For Women in Science Award in 2020.



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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias físicasNombre:PEREIRA SANTAELLA, MIGUELReferencia:RYC2021-033094-ICorreo Electrónico:miguel.pereira@cab.inta-csic.esTítulo:Resolving the processes behind galaxy evolution

Resumen de la Memoria:

My research activities are distributed in two areas: (i) my scientific research on the field of galaxy evolution; and (ii) my contribution to major spaceand ground-based international astronomical instrumentation projects that will support my scientific research.

My research focuses on the observational study of the processes (star-formation, active galactic nuclei, feedback, and outflows) that control the evolution of galaxies. In particular, I study local infrared bright galaxies (L(IR) > 1e11 Lsun; U/LIRGs) which are the local counterparts of the high-z objects where most of the stars of the Universe were born and permit detailed studies otherwise impossible at high-z. I am expert in multi-wavelength observational studies of local U/LIRGs from X-ray to sub-mm.

I also lead the largest ALMA program on a representative sample of 45 local U/LIRGs to firmly establish the impact of massive outflows in the evolution of galaxies (PUMA project). In addition to this statistical study, I am PI of 2 ALMA programs to study cold molecular outflows in ULIRGs using very high angular resolution (40-80 mas) for the first time.

I am also an expert in radiative transfer codes and its application to model the emission from galaxies. I am currently working together with theoretical astrophysicists to couple radiative transfer codes and large-scale cosmological simulations to produce mock observations of galaxies and directly compare the output of the simulations with real observations of galaxies.

My contribution to instrumentation projects includes my role as Project Scientist of ELT/HARMONI and developer of the open-soruce HARMONI Science Simulator (HSIM). I have also contributed to the science cases presented in the Yellow book and White papers of the SPICA space mission. I have also contributed to the development of the JWST/MIRI science cases.

Resumen del Currículum Vitae:

Since 2019, I hold a Atracción de Talento Investigador Senior grant from the Comunidad de Madrid. Before that, I worked at the University of Oxford between 2016 and 2019 as a Postdoctoral Research Associate. In 2017, I became Project Scientist of the HARMONI instrument. HARMONI is the first-light integral field spectrograph of the Extremely Large Telescope (ELT) developed by an international consortium (UK, Spain, France, and US). My postdoctoral experience also includes a 2-year fellowship at the Istituto di Astrofisica e Planetologia Spaziali (IAPS-INAF) in Italy, and 2-years at the Centro de Astrobiología (CAB-INTA/CSIC). During my PhD, I carried out two 3-months international stays at the University of Arizona (US) and at the University of Durham (UK).

I participated in 86 refereed publications in the main peer reviewed Astrophysics journals: 15 of them as first author, and 12 as second author including 3 papers from PhD students and postdocs I supervised. My work has been presented in 18 international conferences including 5 invited talks and 10 invited seminars/workshops.

I have been PI of +14 observing programs in competitive radio/sub-mm and optical observatories like ALMA, GTC, NOEMA, IRAM30m and NOT. I have been awarded more than 85h ALMA observing time (pressure factor >6 for European PI).

I have also participated in the development of international state-of-the-art astronomical instrumentation like JWST/MIRI, ELT/HARMONI, and SPICA. I am the Project Scientist of ELT/HARMONI and developer of the open-source HARMONI Science Simulator. I was coordinator of a Working Group of SPICA and performed simulations for JWST/MIRI. I lead and participate in various international scientific collaborations focused on the study of local galaxies (PUMA, TWIST, GATOS, and CONFIRM). I am the PI of two projects (AEI I+D+i 2019 and Comunidad de Madrid 2018) awarded 740k in total.

I have supervised 1 PhD, 1 Master student, 2 postdocs, 4 technical staff, 1 Summer student, and 3 short-term PhD student visitors since 2017. I have also co-supervised 2 PhDs and 3 Master students. I have been invited as lecturer to three 1-week international graduate schools. Also, I have been Demonstrator of the Astrophysics labs at the University of Oxford.


AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Ciencias físicas
MALGARETTI , PAOLO
RYC2021-034403-I
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Dynamics of non-equilibrium confined systems

Resumen de la Memoria:

My scientific interests cover diverse areas spanning from theoretical statistical mechanics, polymer physics, to biophysics. In particular, during my scientific carrier I have dealt with out of equilibrium systems embedded in inhomogeneous media such as fluid interfaces and porous media. In particular, I have studied both driven systems, i.e. systems brought out of equilibrium by applying external macroscopic forces, and active systems, i.e. systems that break equilibrium locally. When the aforementioned systems are unbound, their dynamics can be well understood, in some regimes, using relatively simple theoretical models. However, when they embedded in an inhomogeneous medium, such as fluid interfaces or porous materials, studying their dynamics becomes a complicated matter even with a numerical approach. This is because simulating media with a

inhomogeneous properties requires one to push the boundaries of current computational techniques. In order to tackle these problems, I have developed both numerical (Dissipative Particle Dynamics, Lattice Boltzmann) as well as analytical approaches entangled in a feed-back loop. Indeed, I have exploited analytical modeling to take into account the length and time scale separation typical of real systems and hence to identify the diverse possible scenarios. Then, via targeted time-consuming numerical approaches, I have checked the analytical predictions and, guided by their insight, I have exploited the numerical tools to study those regimes that cannot quantitatively predicted by the analytical models. Finally, I have used the outcome of the simulations as a feed-back to develop coarse-grained analytical, and semi-analytical models. Such an approach has been, up to now quite fruitful, its strength being the fact that it combines the advantages of both analytical and numerical approaches. Indeed, bridging the gap between (computationally-cheap) approximated models and more accurate (time-consuming) numerical or experimental approaches, in my opinion, is nowadays one of the key ingredients for a quick, yet well grounded, development of scientific research. Indeed, on the computational side the increase of CPU s performance is approaching the limits of Moore s law and hence we cannot expect a significant increase of the computational power in the near future. On the other hand, performing experiments, aside of its intrinsic difficulties, not always provides access to those microscopic variables that control the dynamics. Hence a proper mixture of analytical and numerical/experimental approaches will take advantages from both of them. Moreover this approach will provide an easy path to bring in contact fundamental research , aiming at understanding the basics of the underlying physical processes, and applied research that requires quantitative and precise predictions of some scenarios of interest.

Resumen del Currículum Vitae:

My scientific career has been driven by curiosity and by my fascination for challenging problems with the realm of non-equilibrium soft and biological systems. In particular, my approach has been to develop models complex enough to capture the dynamics of these systems and at the same time simple enough to provide insight into the general physical processes responsible for them. Indeed, the lack of a general understanding of non-equilibrium and biological systems provides a fertile and intriguing playground for this approach.

In order to put forward such a plan, during my academic trajectory I have developed both numerical and analytical skills that have allowed me to tackle diverse problems with different approaches. For example, during my PhD I have developed, in collaboration with Prof. I. Pagonabarraga, a numerical model to capture the hydrodynamic coupling among the molecular motors involved in intracellular transport. Later on, during my stay at the Curie Institute (Paris), these numerical results have been used to design, in collaboration with Prof. J-F. Joanny, an analytical model to capture the bistable motion observed in experiments dealing with cargoes transported by opposing molecular motors.

During the same time I have started my second research line on electrolyte transport. In this case I have first obtained analytical results that later on have been confirmed by detailed numerical simulations. This research project also put me in contact with the community and this has lead to the publication of two review articles.

Right after the end of my PhD I moved to Stuttgart at the Max Planck for Intelligent systems where I developed an analytical approach to model the effective interactions of phoretic colloids and fluid interfaces. In order to go beyond the limitations of the analytical approach I have developed, in collaboration with Prof. J. Harting, a numerical model based on Lattice Boltzmann simulations.

Such a collaboration has lead to my current position as leader of the team Dynamics of confined and chemically reactive fluids at the department Dynamics of Complex Fluids and Interfaces of the Helmholtz Institute Erlangen-Nürnberg for Renewable Energy.

Within my team, we are currently studying how to improve the performance of electrolyzers and fuel cells upon tuning the transport properties of both reactants and reaction products of the catalytic processes. The melange of analytical and numerical tools that we are developing make our approach very versatile and suitable to prompt interactions with our experimental colleagues.

The outcome of my scientific trajectory granted me the Habilitation to teach and supervise PhD thesis at the University of Stuttgart where, since 3 years, I teach my own lecture course on Physics of soft and biological matter. Additionally, I have organized a seminar-based course (Hauptseminar) at the University of Stuttgart and I have been invited as visiting professor for 3 months at the University of Navarra (Pamplona) where I have been responsible of the lecture course on Meteorology and Climatology. All these teaching activities put me in contact with students that eventually decided toi pursuit their Bachelor (3 students) Master (4 students) or PhD (3 students) thesis under my supervision.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	MACPHERSON , NIALL
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Título:	Supergravity and Holography
Resumen de la Memoria	•

String theory is a leading contender for a framework unifying a quantum description of gravity with the other fundamental forces. This allows it to address many important questions where gravitational effects cannot be assumed to be small, such as counting the black hole micro states making up the entropy in Hawking's seminal semi-classical work. With the advent of the gauge/gravity correspondence, a duality between certain field theoretical and gravitational systems, the scope of both string and gauge theory was expanded significantly. One became able to probe gauge theories with gravitational computations and vise versa, crucial to the utility of this approach is that it is a so called "weak/strong coupling duality", meaning that the perturbative regime of one theory is mapped to the non-perturbative regime of the other (where computations are hard to perform with traditional methods).

My main research focus is the study of the strong coupling limit of certain gauge theories and black holes through the gauge/gravity correspondence. In recent years a main focus of mine has been constructing AdS3/CFT2 pairs and studying them, I have also been active in the construction of black hole near horizon geometries with a view towards micro state counting. In the past I have also worked on string dualities and the construction of Minkowski vacua of string theory, which I will explain at more length in the main text.

The goals of my research require that one constructs many highly non-trivial solutions in supergravity. A main line of my activities is the classification and construction of such solutions, using a combination of established methods and techniques I developed.

Resumen del Currículum Vitae:

I gained my PhD in 2014 from Swansea University with the thesis Non-Abelian T-duality and holography under the supervision of Profs. C. Nunez and A. Armoni. During this time I was funded by an SFRC studentship (UK research council) and the prestigious STEP award, funding the best candidates at post-doc level during the final 6 months. My work during this time includes now standard references for the application of non-Abelian T-duality (NATD), and was foundational to the study of subsequent supergravity dualities (Poisson Lie T-duality, lambda deformation). A highlight was deriving the necessary conditions for NATD to preserve some supersymmetry. During this time I gained experience teaching in undergraduate physics labs (both experimental and mathematical methods) and participated in an annual outreach program explaining the activities at the LHC to high school students. Publications from this time have 308 cts.

From 2014 to 2017 I was a post-doc of Prof. A. Tomasello in Milano-Bicocca under his ERC grant. During this time I pursued 2 main research lines: 1) Using NATD we uncovered the first examples of several classes of supergravity solution of importance to the AdS/CFT correspondence a particular highlight was uncovering AdS5 solutions in type IIB with no 5-form flux, which were thought not to exist. 2) Mastering the powerful techniques of Gstructures, and then applying them to construct supergravity solutions with warped Minkowski factors and non-trivial fluxes (string vacua). During this time I was also quite involved in the supervision of 3 PhD students of Tomasello and 1 student of Prof. Y. Lozano. Publications from this time have 263 cts.

Between 2017 and 2019 I was a post-doc at SISSA under Italian Ministry grant of Prof. Sergio Cecotti. During this time the construction of supergravity solutions with G-structure techniques became my main focus. I continued my investigations into string vacua, completing a highly non-trivial classification of supersymmetric vacua preserving an SU(2) R-symmetry. I also began to apply these techniques to the construction of AdS solutions important to the AdS/CFT correspondence and black hole near horizons (classifying such solutions in d=11). I also became involved in the supervision of a second PhD student of Lozano. Publications from this time have 195 cts.

From 2019 to present I have had 3 post-doc positions of 1 year which merits a little explanation: I started an up to 4 year position in IIP Brazil, however due to coronavirus I decided not to renew my contract beyond 1 year, accepting a 1+1 offer from Oviedo and Santiago in that order. My main research line in this time has been the AdS3/CFT2 correspondence, some highlights are: proposing a new ¿ BPS version of the correspondence which has been especially impactful; finding all chiral N=8 AdS solutions uncovering novel holographic duals to surface defects in ABJM. Publications from this time have 189 cts.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	MANJAVACAS MARTINEZ, MARIA ELENA
Referencia:	RYC2021-033183-I
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Título:	Desvelando las atmósferas de objetos subestelares y sus similitudes

Resumen de la Memoria:

The aim of my research is the characterization of low-mass stars, brown dwarfs, and planetary-mass objects. In particular, my research focuses in the characterization of their atmospheres using near-infrared spectroscopy, and photometric and spectro-photometric variability. Near-infrared spectroscopy provides us with the chemical composition of their atmospheres, that changes dramatically with effective temperature, surface gravity and metallicity. Photospheric and spectro-photospheric variability provide us with the vertical and horizontal structure of their atmospheres, that are very likely covered by different cloud layers of different compositions. I carried out several works in which I studied the spectro-photometric variability of several brown dwarf analogs to different types of giant exoplanets: an intermediate-mass, a planetary-mass brown dwarf using HST/WFC3 near infrared spectra, and a young brown dwarf analog to the -Pictoris b exoplanet. These data allow us to study the horizontal and vertical structure of the atmospheres of these objects, that are counterparts of giant exoplanets.

During the past years, I have built several brown dwarf spectral libraries using X-shooter and ISAAC at the Very Large Telescope (VLT), and the Hubble Space Telescope (HST), with its Wide Field Camera 3 (WFC3). The aim of these libraries is to improve the characterization of brown dwarfs in the future and also their analogs, giant exoplanets, for which we do not have high resolution spectroscopy so far.

In addition to my science, in the past years I have developed my instrumentation expertise in several first-class observatories: I am participating in the commissioning of NIRSpec, onboard the James Webb Space Telescope, I have been a staff astronomer at W. M. Keck Observatory, and I was part of the commissioning team of EMIR, at the GTC telescope.

Finally, I have initiated, with the support of the Mujer y Astronomía Commission at the Sociedad Española de Astronomía (SEA), a mentoring program for women. The aim of this program is to provide support to young female astronomers members of SEA to help them and support them in the development of their careers as astronomers.

Resumen del Currículum Vitae:

The aim of my research is the characterization of low-mass stars, brown dwarfs, and planetary-mass objects. In particular, my research focuses in the characterization of their atmospheres using near-infrared spectroscopy, and photometric and spectro-photometric variability. Near-infrared spectroscopy provide us with the chemical composition of their atmospheres, that changes dramatically with effective temperature, surface gravity and metallicity. Photospheric and spectro-photospheric variability provide us with the vertical and horizontal structure of their atmospheres, that are very likely covered by different cloud layers of different compositions.

During the past years, I have built several brown dwarf spectral libraries using X-shooter and ISAAC at the Very Large Telescope (VLT), and the Hubble Space Telescope (HST), with its Wide Field Camera 3 (WFC3). The aim of these libraries is to improve the characterization of brown dwarfs in the future and also their analogs, giant exoplanets, for which we do not have high-resolution spectroscopy so far. The second aim of these libraries is to test and improve bayesian retrieval models of substellar objects, that are broadly used to characterize exoplanet atmospheres.

The characterization of exoplanet atmospheres is one of the most important aims identified in the Astro 2020 Decadal Survey, and one of the main areas of study of the James Webb Space Telescope (JWST) mission, that will provide the astronomical community with the most sensitive and high signal-to-noise data in the next two decades, thus, the development of retrieval atmospheric models is of vital importance to improve our understanding of the atmospheres of substellar objects.

At the same time, I carried out several works in which I studied the spectro-photometric variability of several brown dwarf analogs to different types of giant exoplanets: an intermediate-mass, a planetary-mass brown dwarf using HST/WFC3 near-infrared spectra, and a young brown dwarf analog to the -Pictoris b exoplanet. These data allow us to study the horizontal and vertical structure of the atmospheres of these objects, that are counterparts of giant exoplanets.

In addition to my science, in the past years I have developed my instrumentation expertise in several first-class observatories:

- As a member of the commissioning team for NIRSpec at the James Webb Space Telescope (JWST): as ESA/AURA Astronomer at the Space Telescope Science Institute, I am part of the commissioning team for the NIRSpec instrument on board JWST.

- As a staff astronomer at W. M. Keck Observatory, I supported other astronomers during their observing runs to successfully obtain their data. This usually involved teaching inexperienced observers how to use their instrument, and troubleshooting software and instrument failures in a timely manner.

- Experience as Verification Scientist for GTC/EMIR. I performed scientific tests at different integration stages under cryogenic conditions, following a guideline to ensure the complete functionality of the instrument before it was sent to La Palma for its integration with the GTC telescope. I actively participated for a total of 24 nights in the commissioning in La Palma.



Área Temática:	Ciencias físicas
Nombre:	ANDRADE WEBER, TOMAS
Referencia:	RYC2021-031826-I
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Título:	Gravity in the strong regime and numerical simulations
Posumon do la Momo	rio

Resumen de la Memoria

Our recently acquired ability to detect gravitational waves has expanded our senses and our possibilities of inquiring the Universe. This opens a new era for scientific exploration, the basis of which is firmly established. This revolution was made possible by a community effort of planet-scale size, lead by the the LIGO-Virgo-Kagra (LVK) Collaboration.

As a new era of gravitational wave detections rapidly unfolds, the role of having accurate models for their signals becomes increasingly important. This enterprise lies at the frontier of our understanding of the strong regime of gravity, which is intimately connected with the most fundamental questions about the nature of space and time. A tool common to both astrophysical and fundamental applications, and indispensable to access regimes in which gravity is strong, is Numerical Relativity. This entails the fully-fledged solution of Einstein's equations with the aid of High Performance Computing.

During my career I have developed both the fundamental and astrophysical aspects of gravitational physics, having as a common denominator the use of sophisticated numerical techniques. My main lines of research have been the application of holographic techniques to the study of condensed matter, the study of gravity in higher dimensions, the formation of space-time singularities, and the simulation of sources of gravitational waves using Numerical Relativity. I am currently leading the development of the field of gravitational waves as a member of LVK and Einstein Telescope.

This grant and the academic freedom that it entails, will help me continue my research career and contribute to a deeper understanding of the nature of space and time as described by General Relativity, and what lies beyond it.

Resumen del Currículum Vitae:

Gravitational physics and black holes have been transversal to my research. Throughout my career, I have studied different aspects of General Relativity. Numerical methods have been a key tool in this endeavour, and I hope to continue to develop these techniques in order to tackle problems in fundamental and applied physics. My career path shows that I am a capable researcher, collaborator, public speaker and mentor.

I earned a Fulbright Scholarship to fund my PhD at UC Santa Barbara. During these years, I studied gravity and holography under the supervision of Donald Marolf. After my PhD, I obtained a postdoc position at Durham University, where I began working on applied holography using numerical methods. At this time I wrote my most cited paper A simple holographic model of momentum relaxation in collaboration with Benjamin Withers. My second postdoc was at University of Oxford, where I expanded my knowledge on applied holography and numerical techniques. During these years, I began collaborating with researchers at University of Leiden, with whom I wrote several articles, most notably Doping the holographic Mott insulator published in Nature Physics. Currently, I am postdoc at University of Barcelona, where I have started a collaboration with Roberto Emparan. We have written several articles, notably Cosmic censorship violation in black hole collisions in higher dimensions, where we conjectured that weak cosmic censorship can be violated in black hole collisions. Through this work, I decided to get actively involved in the field of Numerical Relativity and began a collaboration with Pau Figueras (Queen Mary University) and Ulrich Sperhake (Cambridge). Via numerical simulations, we verified the above conjecture in the article Violations of Weak Cosmic Censorship in Black Hole collisions". Recently, I have joined the LVK and Einstein Telescope collaborations, where I am contributing to the detection of gravitational waves with my expertise in Numerical Relativity. My current focus is generalizing the waveforms models to incorporate eccentric and hyperbolic orbits.

I am supervising a PhD thesis on the topic of Numerical Relativity, and an internship and Bachelor's final work on the same topic, at U Barcelona.

I have been an organizer of 3 workshops held in Sao Paulo (2018), Leiden (2019), and Texas (2020, online) on the topic of gravity and holography. In addition, I was part of a collaboration awarded the mobility grants Newton-Picarte (2014-2017) and ICTP HolaGrav (2019). Furthermore, I have been the PI for an HPC grant awarded 4.2M hrs by the PRACE consortium, and I have been part of two collaborations awarded 5M hrs of computing time in Marenostrum at the Barcelona Supercomputing Center (2020).

I have given keynote talks at the international conferences, Numerical techniques for General Relativity, Siembra-HoLAGRAV meeting, online (Dec 2020); Spatial order in holographic applications to condensed matter, Strange Metals Workshop, Leiden University, Netherlands (Jan 2020); Applications of AdS/CFT, Latin American Workshop on Gravity and Holography, at ICTP-SAIFR, Sao Paulo, Brasil (June 2018); Holographic lattices and AdS/CMT, School on Numerical Methods in Gravity and Holography, Concepcion, Chile (Nov 2017).

All of this considered, I believe that I have acquired the necessary theoretical, computational, and social skills to become a leading academic and mentor at a research university in Spain. Because



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias físicas
Nombre:	KAVANAGH , BRADLEY
Referencia:	RYC2021-034757-I
Correo Electrónico:	bradkav@gmail.com
Título:	New Searches for Dark Matter on Earth and in Space
Resumen de la Memoria:	

2011 2014: PhD University of Nottingham

I earned my PhD in the Particle Theory Group at the University of Nottingham, supervised by Prof. Anne Green. I explored possible approaches to mitigate astrophysical uncertainties in lab-based searches for Dark Matter (DM). The approach I developed was published in Physical Review Letters, and I demonstrated for the first time that a future detection of DM would allow for the unambiguous reconstruction of the DM particle mass. I developed these ideas further during my PhD, for which I was awarded the 2016 IOP Astroparticle physics thesis prize.

2014 2017: First postdoc Paris (IPhT & LPTHE)

During my first postdoc in Paris (joint IPhT-Saclay and LPTHE-UPMC), I continued to develop my own lines of research. I continued to explore what information could be obtained from future DM searches and how uncertainties in these searches could be overcome. For example, I developed the widely-used code runDM which can be used to derive constraints on a range of theories Beyond the Standard Model from experimental data.

2017 2020: Second postdoc Amsterdam (GRAPPA Institute)

During my second postdoc at the interdisciplinary GRAPPA institute in Amsterdam, I continued to work on the phenomenology of direct, lab-based searches for DM. I also continued to develop tools and techniques for the analysis of DM search data, including verne, which has since been used by the XENON1T, SuperCDMS and EDELWEISS collaborations to produce world-leading constraints on DM-nucleus interactions.

Following the first detection of gravitational waves (GWs), I also began studying the link between Dark Matter and Black Holes (BHs), becoming an expert in primordial black holes (PBHs). Most recently, my core research line has been to explore how DM around BHs may be detected through its imprint on the dynamics of BH binaries and on the resulting GW signals.

2020 now: Third postdoc Santander (IFCA, UC-CSIC)

In my current role at IFCA, I am co-ordinating DM research. I created the Dark Collaboration working group at the institute, bringing together scientists from the Cosmology & Particle Physics groups, to develop new research lines on DM. As part of this Dark Collaboration initiative, the first joint publication between the two research groups was submitted in 2021. Ongoing projects include searches for charged PBHs at collider experiments such as CMS and the development of novel DM detection technologies.

In addition to this role, I continue working to understand what can be learnt about DM through GW observations, astrophysics and lab-based searches. In 2020, I calculated the first realistic GW signal from a BH binary surrounded by particle DM, opening the way for more careful study of these systems, which are extremely promising for detection with future GW observatories such as the space-based LISA. I also recently proposed a novel search for axion DM from radio transients, and such a search is currently underway at the Green Bank Telescope. At the same time, I am currently working with the EDELWEISS collaboration to produce updated constraints on light, strongly-inteacting DM from an underground search.

The search for DM is inherently multi-disciplinary, and complementary search strategies on the ground and in the sky offer the most promising avenue to detecting and characterising DM in the future.

Resumen del Currículum Vitae:

I am an expert in the phenomenology of Dark Matter (DM), having developed new signals and constraints on DM using direct lab-based searches, astrophysical probes and gravitational wave observations. I am also currently leading the development of new DM research lines at IFCA, Santander.

My expertise in the field of DM phenomenology is internationally recognised: I have made substantial contributions as an author on 3 review papers, covering gravitational wave probes of DM; primordial black holes; and directional detection of DM. I have also been invited to give plenary talks at 7 different international workshops and conferences, including TeVPA and Dark Side of the Universe. In addition, I have given 25 seminars and colloquiua and 25 contributed conference talks. My publication record consists of 44 publications (39 already peer-reviewed), including 5 single-author publications, 16 first-author papers and 4 papers published in Physical Review Letters.

I am a strong advocate of Open Science, which contributes to the broader scientific community, and encourages the openness, reproducibility and trust in science more generally. I have written and now maintain more than 15 publicly available codes. These codes have also had a broader impact in the community: the codes runDM and verne have been reused in over 25 publications. Looking beyond the scientific community, in 2016, I coordinated and edited the publication of an outreach article (Dark is the new black) on the NewDark research group in Paris, which I was a member of. My work has also been featured in a number of news outlets and blogs, including NewScientist.nl, Résonaances, and Phys.org.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

I have broad experience of teaching at a range of levels. This includes giving the Astroparticle Physics Lecture series at the CERN Summer School (2021, 2022), as well as designing and co-teaching workshops and full courses for Bachelors and Masters students in Amsterdam (2018, 2019, 2020). On an individual level, I have supervised 2 Bachelors students and 3 Masters students. One of these Masters projects resulted in a recent publication, highlighting my ability to act as a lead supervisor to students and guide them in novel research. I am currently co-supervising 3 PhD students (one as lead supervisor) on subjects including direct searches for DM, and gravitational wave and microlensing probes of primordial black holes as DM.

I have been on the organising committees of 7 workshops and conferences, including most recently Dark Matter 2021 (Sept 2021). I was the chair of the local organising committee for this (virtual) workshop, which attracted a total of 370 registered participants from over 30 countries, with up to 125 concurrent online participants.

I have refereed manuscripts for 8 different journals including PRD and PRL. I have also reviewed grant applications for the UK Science and Technology Facilities Council. In addition, I am a member of a number of working groups, focusing on fundamental and Beyond-the-Standard-Model physics, including Square Kilometer Array (SKA); Athena X-ray observatory; Laser Interferometer Space Antenna (LISA); and Lunar Gravitational Wave Antenna (LGWA). Within these international collaborations, I am working to understand how Dark Matter may be detected, helping to shape the science case and goals of these experiments into the future.



Área Temática:	Ciencias físicas
Nombre:	CUETO GOMEZ, ANA ROSARIO
Referencia:	RYC2021-031273-I
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Título:	Photon physics at the LHC: precision measurements and effective-field-theory interpretations
Posumon do la Momo	

Resumen de la Memoria

I am an experimental particle physicist working in the ATLAS Collaboration of the Large Hadron Collider (LHC) since 2013.

My main research areas are:

- precision measurements with photons in the final states to test and study the properties of

- quantum chromodynamics (QCD), the Higgs boson, or electroweak processes;
- effective field theory interpretations of Higgs boson measurements;

- Monte Carlo (MC) event generators modeling of Standard Model processes;

- characterization of silicon sensors for the ATLAS inner tracker upgrade

Measurements of prompt photon production inclusively or in association with jets provide, among others, tests of perturbative QCD, additional constraints to the gluon parton density function, better understanding of the dynamics of the different production mechanisms and of the backgrounds to relevant processes at the LHC like the Higgs production in the diphoton decay channel. During my Ph.D. I was the main analyzer of several measurements with photons in the final state. These measurements had an impact on the physics community (e.g. were included for the first time in PDF fits or helped to derive the photon fragmentation functions at NNLO). The understanding of photon production allowed me to make relevant contributions to the jet calibration for which in-situ photon plus jets measurements are helpful at high transverse momenta.

As a postdoctoral researcher at LAPP, I got involved in the measurement of the couplings of the Higgs boson in the diphoton decay channel. Even if several institutes were contributing to the analysis, I quickly became editor of the supporting documentation, later analysis contact, and currently convener of the HGam group of the Higgs group since October 2021. The final Run 2 publication is in the latest stages of the internal review process but preliminary results of this channel alone or in combination with other Higgs decay channels have been presented in several relevant conferences in the field like ICHEP. Also during this time, I started a new line of research on the effective field theory (EFT) interpretations of the mentioned Higgs measurement. In the absence of new physics from direct searches, EFT interpretations are becoming increasingly ubiquitous in ATLAS and CMS. My work there developed together with a Ph.D. student that I was supervising, settled the strategy that is currently used for these interpretations in ATLAS, and resulted in two conference and one publication notes. It required several discussions with theorists from different groups being the seed of the recently formed LHC EFT working group.

The MC modeling of photon processes has been relevant for the different stages of my research, either as a signal or background of the process under study. I became the convener of the jet and photon subgroup of the Physics Modeling group (2019-2021). Under this role, I coordinated the work of validation and development of SM samples used in the ATLAS Collaboration, supervised students during their qualification project and lead a publication note.

As a senior research fellow at CERN, I joined the ITk pixel group in May 2021 and, so far, I have actively participated in the characterization of silicon sensors by performing electrical tests or measurements with radioactive sources and x-rays for the prototyping production of modules of the ITk project.

Resumen del Currículum Vitae:

Previous to the start of my Ph.D. in October 2014, I could work on particle-physics-related subjects during a grant obtained in the last year of my physics degree (Beca de Colaboración), my M.Sc. thesis, and the DESY summer school program. For my Ph.D. I was awarded a Profesor Ayudante contract and the Universidad Autónoma de Madrid (UAM). The topic of my Ph.D. was the measurement of inclusive isolated-photon production or in association with jets. I was the main analyzer of four publications with photons in the final state and contributed to other four publications. Additionally, I worked in other tasks relevant for the collaboration (e.g. Simulation or Jet/Etmiss groups). The high quality of my Ph.D. was awarded the "Premio extraordinario de doctorado" from the theoretical physics department of UAM and the suma cum laude calification.

As a postdoctoral researcher at LAPP, I got involved in measurements of the couplings of the Higgs boson in the diphoton decay channel and the interpretation of Higgs measurements in the effective field theory (EFT) framework. I quickly became editor of the supporting documentation of the analysis I was working on and later analysis contact. The work on the EFT side settled the methodology for the interpretations currently used in ATLAS, and the discussions with theorists were the precursor of the recently formed LHC EFT working group. During this period, I became the convener of the jets and photon subgroup of the Physics Modeling group in ATLAS for which I developed and supervised the main SM samples that will be used in the collaboration.

As a research fellow at CERN, I have continued the previous lines of investigation, now as a convener of the Higgs to diphoton subgroup. And have started to work on the upgrade of the inner tracker (ITk) of the ATLAS detector. I evaluate the electrical characteristics of the silicon sensors used for the current prototyping preproduction.

I have an extensive international career with fruitful collaborations with researches from many different countries. I have participated in two Spanish and one French project. I have been an author of 8 papers published in peer-reviewed journals (most of them Q1), 5 conference notes, 3 publication notes, 4 proceedings, 1 divulgation article and 16 internal ATLAS internal notes.



I have presented the results of my research in 8 international conferences (e.g: La Thuile 2017, QCD@LHC2018, DIS2019, PIC2021), the Les Houches 2019 workshop, and in several ATLAS Workshops and internal ATLAS Weeks, regional Spanish conferences (3), and a seminar.

I am a reviewer of the European Physics Journal C. and have or have had several leadership or coordination positions within the ATLAS Collaboration: convener of the jets & photons subgroup of the Physics Modelling group (2019-2021), convener of the HGam subgroup in the Higgs group (2021-), Higgs Monte Carlo contact (since 2019), Standard Model photon contact (since 2021) and analysis contact and/or editor of 5 ATLAS analyses.

I have helped in the supervision 5 Ph.D students and led the project of two students for their qualification as ATLAS authors. I have also taught more than 280 hours in the Physics laboratory for different degrees and have also given 2 tutorial talks in ATLAS and participated as a discussion leader in the latest CERN-Fermilab school.





Área Temática: Nombre: Referencia: Correo Electrónico: Título: and applications Ciencias matemáticas MARTIN MORALES, JORGE RYC2021-034300-I jorge@unizar.es

Normal surface singularities, monodromy conjecture via motivic and p-adic integration, releted invariants,

Resumen de la Memoria:

One of the main invariants associated with a hypersurface singularity f=0 of dimension n is the monodromy of the Milnor fiber. It is an automorphism acting on the cohomology of the fiber. In the isolated case, this morphism is concentrated at the maximal n-th cohomology level. Yau s conjecture stated that the abstract topology of the singularity and the Alexander polynomial of the link determine the embedded topological type. However, E. Artal Bartolo gave a negative answer to this question finding a very concrete example using superisolated singularities.

The first part of my research consists in constructing more examples of this type motivated by the connection with the so-called Zariski pairs. To accomplish this aim we studied the Yomdin-Lê surface singularities and we succeeded guided by the following steps:

1) Find a special kind of toric embedded resolution (called embedded Q-resolution) of a Yomdin surface singularity [Mar14].

2) Generalize A Campo s formula for this type of resolutions and compute the characteristic polynomial [Mar13].

3) Generalize Steenbrink s spectral sequence and calculate the mixed Hodge structure of the Milnor fiber and the size of the Jordan blocks [Mar16].
4) Construct infinitely many pairs of Yomdin-Lê examples refusing Yau s conjecture using cyclic branched covering over orbifolds and Zariski pairs [ACM21].

5) In the meanwhile we developed an intersection theory on varieties with abelian quotient singularities studying Cartier and Weil divisors on it [AMO14a], [AMO14b].

The second part of my research deals with the monodromy conjecture which is nowadays an open problem. In the isolated case, it states that every root of the Bernstein-Sato polynomial gives rise to an eigenvalue of the monodromy of the Milnor fiber. The Bernstein-Sato polynomial is an invariant of f=0 coming from D-module theory and its computation is double exponential, since the general algorithm uses Gröbner bases in non-commutative algebras. We have developed several methods in [LM12], combining Gröbner bases and resolution of singularities, for testing the monodromy conjecture and we have implemented them in the computer algebra system SINGULAR. The speed of our algorithm has impacted the computer algebra community.

The third part of my research is related to the correction term of the Riemann-Roch formula for normal surfaces. This topic has to do with the fundamental group of the complement of a curve in a surface and it comes up naturally in the context of cyclic branched coverings and Zariski pairs. Therefore there is a strong connection between this correction term and the item 4) above. We have sorted out the problem for quotient singularities studying curvettes and introducing the embedded kappa invariant [CMO14], [CMO16], [CM19]. Also in a recent joint work with J.I. Cogolludo, T. László, and A. Némethi, we understood the correction term for rational surfaces and we found an obstruction for general rational homology spheres [CLMN19], [CLMN20].

More recent research involves motivic integration and motivic zeta functions [LMVV20] (with E. León-Cardenal, W. Veys, J. Viu-Sos), proof of the monodromy conjecture for some ideals in high dimension [MVV21] (with W. Veys and L. Vos), counting solution modulo p and cryptography [AM20] (with M. Avendaño), and the model of the APL algebra of a topological space (Alquézar and Marco).

Resumen del Currículum Vitae:

- I received my PhD degree in 2011 under the supervision of E. Artal and J.I. Cogolludo from the University of Zaragoza after having obtained a competitive 4-year fellowship from the local government.

- I work as an Assistant Professor (Profesor Interino two years left on my contract) at the University of Zaragoza. I am a member of the Institute of Mathematics and Applications (IUMA) of the University of Zaragoza and a collaborator of the Institute of Mathematics of the University of Seville (IMUS).

- I was a Visiting Fulbright Scholar in the Spring 2019 Semester at the University of Illinois at Chicago (UIC) where I had the opportunity to work with L. Ein. I have also enjoyed several research stays at prestigious institutions such as CIMAT Zacatecas (2015, 1 month), IMUS (2013, 2 months), RWTH Aachen University (2012, 1 month), IUMA (2010, 3 months), and Laboratoire J. A. Dieudonné (2009, 3 months).

- Quality Assessment and Accreditation ANECA: Certificación I3 (2019) and Titular de Universidad (2015).

- Two six-year terms of research activity acknowledged by ACPUA (2007-12 and 2013-18).

- Dissemination of science: I have participated for 3 years in the organization of the Mathematical Olympiad organized by THALES, 4 years in the Research Immersion Program of the University of Zaragoza, and 2 years in the stand organized by CUD at Feria de Muestras de Zaragoza.

- Currently I am supervising Carlos Alquezar's PhD thesis (defense scheduled for 2022) and I participated in the supervision of J. Ortigas-Galindo's (Univ. Zaragoza) and L. Vos' (KU Leuven) PhD theses within the lines of research in the Spanish Ministry MTM projects of which I am responsible. Also I was the advisor of 2 final master projects at CREC in Saint-Cyr and 15 final degree projects at the University of Zaragoza and CUD.

- Principal investigator (with J.I. Cogolludo) of the project PID2020-114750GB-C31, 6 members, 82280 . In addition, I was principal investigator of 2 R&D projects: CUD-2020_08, 4 members, 2500 ; and FMECD-ST-2018-CAS18/00473, \$16190, Fulbright José Castillejo.

- I was also a member of 12 R&D projects (5 Spanish Ministry MTM, 4 regional groups, 2 Acciones Integradas, and an engineering multidisciplinary project at CUD).

- I was invited to 21 national and international conferences (2 plenaries), 27 workshops and courses (2 colloquiums), and I was part of the organizing committee and scientific committee in 12 national and international conferences.

- Coordinator in Zaragoza and member of scientific committee of EACA network.



Turno de acceso general

- Since 2021 I was registered in the Spanish National Research Agency database of experts. Evaluator of postdoctoral fellowships of the Einstein Foundation Berlin.

- 35 works (5 of them are monographies), 27 already listed in MathSciNet, 11 of them ranked in Q1 of JCR, and 5 works submitted for publication. In these works I have collaborated with 23 coauthors and also publish several general audience articles.

- The methods from my article published in J. Algebra and its associated proceedings (64 cites in total) have been implemented in SINGULAR with Levandovskyy and they received the 2009 ISSAC Distinguished Paper Award for the scientific quality. My articles published in J. Sing. and in Int. J. Math. are the basics to develop the theory of embedded Q-resolutions from my PhD thesis (53 cites in total).





Área Temática:	Ciencias matemáticas
Nombre:	DE ARMAS ADRIAN, JESICA
Referencia:	RYC2021-032954-I
Correo Electrónico:	jessicaarmas@gmail.com
Título:	Optimization for Social Good
Desuments de la Manage	

Resumen de la Memoria:

Dr. de Armas is a Computer Scientist simultaneously interested in Combinatorial Optimization and Artificial Intelligence. Early on, she did applied work on Logistics, Production and Transportations, achieving technological transference with the industry. Currently, her research focus is on Social Good. The idea is to extend the use of these techniques to deal with topics such as Health and Social Care, Sustainability and Economic Development. Past Work

During her years as PhD student and later postdoc years, Jésica de Armas focused on applying optimization techniques for solving complex real-world problems arising in supply chain, production, logistics and transportation fields (UNESCO 120704 Distribution and Transport). Many optimization problems in such application areas are NP-Hard. Additionally, uncertainty and dynamism are two conditions that increase the difficulties for properly solving this kind of problems. The set of advanced Optimization and Artificial Intelligence techniques used includes metaheuristics (UNESCO 120315 Heuristics) for single and multiobjective optimization problems, machine learning (UNESCO 120304 Artificial Intelligence), simulation, biased randomization and mathematical programming (UNESCO 120709 Linear Programming, UNESCO 531107 Operations Research). She has also worked on methodological proposals, such as the hybridization of metaheuristics with machine learning for optimization with dynamic inputs, a novel nature-inspired metaheuristic for combinatorial optimization problems, or a framework to analyse the similarity between metaheuristics. Ongoing Work

During the last 3 years Dr. de Armas has been studying the benefits of applying Operations Research and Artificial Intelligence methods to social fields. She is particularly interested in social wellness and she thinks these methods can be a key factor to obtain excellent results and make an impact on the society (UNESCO 631011 Bienestar Social). The topic can be framed under the name Optimization for Social Good. Specifically, she is studying how the optimization techniques, successfully applied to business, can improve home social and health care services, and impact the economic development in certain regions.

She is PI of a national project entitled Logistics Optimization for the Home Health and Social Care Services . Recently, she was also awarded a Social Research la Caixa project, a very competitive research funding. This project focuses on the growing ageing section of the population in Spain and the need of optimizing the home care services required to fulfill their wellness. Additionally, she has obtained 2 PhD students under the Doctorats Industrials program from Generalitat, to support some parts of these projects. She has signed agreements with Ajuntament de Barcelona and Better Care S.L.

She is also has works in the Development field. She has developed a research paper on improving the accessibility to public schools in urban areas of developing countries through a location model. This work constitutes a first step to collaborate with Barcelona IPEG and the World Bank. Additionally, she has been meeting with Comunidad de Sant Egidio to talk about refugee s resettlement decisions and how to improve them thanks to optimization. This work is an on-going work with a leading group in optimization and humanitarian logistics in CIRRELT.

Resumen del Currículum Vitae:

I am currently an Associate Professor in the Department of Economics and Business at UPF. My research interests include operations research (OR), combinatorial optimization, metaheuristics, machine learning, and simulation, applied to logistics, production, transportation, and health&social care. Much of my contributions as a researcher try to propose and apply novel techniques to solve real optimization problems with high complexity. During the last years, I have focused on applying all my knowledge to improve the people and planetary wellbeing. As a result of my research, I have papers in JCR-indexed journals (30 JCR - 15 Q1) and I have participated in many relevant conferences in the field. Some of these papers have been developed jointly with well-known international authors thanks to my mobility (e.g., HEC Montreal - 1 month, U. Hamburgh - 1 month, U. Colorado Boulder - 1 month, U. Nottingham - 1 month, U. Edinburgh - 3 months). I have also taken advantage of the mobility to disseminate the research in seminars, such as in the U. Southampton and the U. of Liverpool.

Throughout my research career, I have worked in several research projects. Nevertheless, I started to lead some of them about four years ago. I am the IP of the EPHoCaS (100,000), OptCareServices (36,000), and WRPW (14,000) projects, and of a research contract with the company Job&Talent (5,000). I have also obtained a three-year subsidy for a PhD student (55,560) in the Industrial PhD program of the Catalan Government. All these projects have been successfully executed, demonstrating my ability to lead and the potential of the topics proposed for research.

I have also successfully developed technology transference with private companies in the transportation sector, such as Cabify and INELCAN S.L. Improvements in the staff scheduling and in fleet management systems have been possible thanks to mathematical models and algorithms.

Regarding students training, I have been an advisor of 4 final degree projects, 4 MSc degree projects, and 3 PhD students, one has finished in 2019 and the other two will present their dissertations in 2022, and 2023. For the last PhD student. Additionally, I have been the advisor of 1 postdoc researcher hired with the resources of my EPHoCaS project and 2 research assistants hired with funding from one of my seed grants.

I have also collaborated in the evaluation of some students. I was a member of the evaluation committee of the MSc of Statistics and OR of the UPC/UB in the period 2015-2016, and in 3 PhD theses (U. Delf 2021, UOC 2021, and UPF 2020). In 2020 I was evaluator of research projects presented to the call for proposals HÖG 2019, from the Swedish Knowledge Foundation and the U. Skövde, Sweden.

During my career as a researcher I have obtained some grants that support some of my research activities. I won a Seed Grant from the Barcelona School of Economics in 2019 (10,000). In 2011, I was also awarded a HPC-Europa2 Fellowship from the European Commission Capacities Area to develop a 3-month research visit to the U. Edinburgh in 2011. During my PhD student period I enjoyed a FPU grant.

I have also obtained some awards, such as the Best Paper Award from the Energies journal in 2019, the Luis Azcárraga Award from Fundacion ENAIRE, in 2017, the Best PhD Thesis awards from AEPIA in 2014 and ULL in 2012.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias matemáticas
Nombre:	MADRID PADILLA, JOSE RAMON
Referencia:	RYC2021-034089-I
Correo Electrónico:	josermp2008@gmail.com
Título:	On some problems at the interface of analysis and number theory
Resumen de la Memoria:	

I have been studying problems at the interface of analysis, number theory, combinatorics, graph theory, probability and some other related areas, these topics include:

-Regularity of maximal operators in Sobolev spaces (functional analysis and harmonic analysis)

-Discrete averaging operators (Fourier analysis and number theory)

-Decoupling inequalities (Fourier analysis and number theory)

-Generalized Collatz conjecture (Probability, number theory and analysis)

-Additive energies (Combinatorics and analysis)

-Auto convolution and auto correlation inequalities (Combinatorics and analysis)

These topics are related to each other, for instance decoupling inequalities can be used to obtain bounds for the additive energy of a subset of the hypercube. I enjoy studying problems at the intersection of many areas of mathematics, in particular I enjoy using analytic tools to solve problems in number theory or combinatorics. In any of the topics mentioned above I have already concluded some papers, I have some ongoing projects, and there are still many open problems that I would like to consider in the near future. Some of our results generalizes or extend some previous strong results by well know mathematician including Terence Tao and Jean Bourgain, and have been already published in prestigious journals.

Resumen del Currículum Vitae:

I obtained my PhD in Mathematics at IMPA-Brazil in 2016. Since then I held postdoctoral positions at Aalto University (Finland), ICTP (Italy), and currently I am a Hedrick assistant adjunct professor at UCLA (USA), I have been working in problems at the interface of analysis and some other related areas. I have participated in multiple workshops, congress and conferences in prestigious institutions around the world, I have presented seminars and colloquium talk in many places in Europe (including UK, Spain, France, Germany, Finland and Italy), North America (including USA and Canada), and Latin America (including Brazil, Chile, Peru, Honduras and El Salvador). I have already 16 papers published or accepted in prestigious journals (including Transcations AMS, Revista Matematica Iberoamericana, IMRN, and Journal of Functional Analysis), moreover, I have 7 preprints submitted and many ongoing projects. My list of collaborators includes PhD students, postdocs, and senior professors, some of them are Lillian Pierce, Michael Lacey, Barry Simon and Emanuel Carneiro. My collaborators are from many countries around the world including Spain. At UCLA I have been teaching many courses, from basic courses like single variable calculus to advance courses like analysis in metric spaces, moreover, I have been one of the organizers of the Analysis seminar at UCLA.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias matemáticas
Nombre:	HADDAD , JULIAN
Referencia:	RYC2021-031572-I
Correo Electrónico:	julianhaddad@gmail.com
Título:	Convex Bodies and Functional Inequalities
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Resumen de la Memoria:

I graduated in Pure Mathematics from Universidad de Buenos Aires in Argentina and obtained my Doctorate in Mathematics at the same university, under the supervision of Prof. Pablo Amster. The subject of my thesis was the study of topological degree, Morse theory and knot theory as applications to prove existence and multiplicity of solutions of differential equations, with special attention to the restricted N-body problem.

After the completion of my PhD in Buenos Aires, I got a Postdoctoral research grant of 2 years in Brazil. This contact was under the program Postdoutorado de Excelencia (Excellency Postdocs) funded by CAPES and organized by IMPA. The objective of the program was to attract young talented researchers to Brazil, and during this period I worked at Universidade Federal da Bahia (UFBA) and Universidade Federal de Minas Gerais (UFMG). I worked from July 2013 until March 2015 in several problems in the areas of Differential Topology, Differential Equations and non-linear Analysis, and published 4 papers.

Since March 2015 I am "Professor Adjunto" (permanent position equivalent to tenured Associate Professor) at the Department of Mathematics at the UFMG in Brazil. The graduate program in Mathematics at the UFMG is among the best ones in Brazil. The same year, I started working in the field of Convex Geometry and its applications to Functional Inequalities, specifically affine-invariant inequalities that have a geometrical counterpart.

Some of the well-known geometric inequalities for convex bodies, like the Petty-projection and the Buseman-Petty centroid inequality, are affine invariant. Then their functional versions are actually affine-invariant Sobolev-like inequalities that are often stronger than the classical versions. In this specific field I developed, together with my co-authors H. Jiménez and M. Montenegro, a simple technique to obtain affine invariant inequalities through the Lp Buseman-Petty centroid inequality. This technique proved to be prolific, resulting in 3 papers in important journals, accumulating more than 25 citations from other researchers (according to SCOPUS). Since then, my research focuses on various aspects of convex geometry, isoperimetric inequalities and affine invariant functional inequalities.

More recently, I also studied affine-invariant partial differential equations that arise as the Euler-Lagrange equation of affine-invariant minimization problems. In particular, we defined the affine-Lp-Laplace operator and established basic properties of its eigenfunctions. The theory of affine PDEs exists thanks to the aforementioned affine Sobolev inequalities, and is in a very early stage of development. We hope this becomes an active field of research in the next years.

Resumen del Currículum Vitae:

I completed my PhD at Universidad de Buenos Aires in October 2012. Between 2012 and 2021. I wrote 21 articles, 19 of which are already published and 2 are in review process. The most recent articles are mostly in the area of Convex Geometric Analysis, but also in Differential Equations and Non-Linear Analysis. All the published articles have been peer reviewed in indexed journals. From these articles, 16 out of 19 are in Q1 journals. According to Scopus I have a total of 61 citations, my H index is 5 with an average number of citations of 3.4 per publication. The information above is calculated as of today, based on SJR, and Scopus.

I regularly present my results in national and international conferences. Since 2018 I have been invited to give talks in 7 conferences and seminars, including the MFO in Oberwolfach, IASM-BIRS in Hangzhou (online), and the Tsinghua Sanya IMF in China.

I receive financial aid from government agencies like CNPq and FAPEMIG and currently coordinate a research project.

I co-supervised the PhD thesis of the student Leticia Alves da Silva from the Pontifícia Universidade Católica do Rio de Janeiro. She defended her thesis in April 2020, (this can be checked at http://www.mat.puc-rio.br/teses_dissertacoes.htm).

She has presented partial results of her thesis at national and international events, and part of her thesis has been published in the journal International Mathematical Research Notices (Q1). I supervised the PhD thesis of the student Daniel Olivera Silva from Universidade Federal de Minas Gerais, defended in March 2021. I currently supervise the PhD thesis of the student Fernanda H. M. Baêta from Universidade Federal de Minas Gerais. Her results are published in Arxiv and currently being peer reviewed for publication.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias matemáticas
Nombre:	YEPES NICOLAS, JESUS
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Título:	Functional and Geometric inequalities
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Resumen de la Memoria:

The candidate initiated his research within Brunn-Minkowski Theory, studying the roots of geometric polynomials, including Steiner and Wills polynomials. This gave birth to: J. Math. Anal. Appl. (2013), MIA (2014) and Rev. Mat. Iberoamericana(2015). He started the study of refinements of geometric and functional Brunn-Minkowski inequalities, culminated with J. Convex Anal. (2014) and Canad.J.Math.(2016). Regarding Minkowski's first inequality, Adv. Geom. (2017) emerged. These problems led to a characterization of the linearity of the volume and to counterexamples to conjectures of 1978 and 2011, published in J. Math. Anal. Appl. (2015).

Due to these works, he received the Vicent Caselles Mathematical Research Award 2016, by the BBVA Foundation and the RSME.

After his Ph.D., the study of refinements of Brunn-Minkowski inequalities was concluded in J. Math. Anal. Appl. (2017). In RACSAM (2016) the completely new concept of p-difference is introduced, germ of the Ph.D. thesis of Martínez Fernández, whereas in J. Geom. Anal. (2016) new Brunn-Minkowski inequalities for polar bodies were obtained. A characterization of the volume via Brunn-Minkowski inequalities was shown in Analytic Aspects of Convexity, Springer-INdAM-Series(2018).

In 2017 he initiated a project aiming to obtain discrete analogues of classical inequalities. The works SIAM J. Discrete Math. (2018), Rev. Mat. Iberoamericana (2020), Adv. Math. (2020), Discrete Math. (2022) and two submitted works came out of it, as well as the supervision of a Ph.D. (2019). Moreover, 3 of these works will constitute a fundamental part of the Ph D. of Lucas, to be defended in the middle of this year. In 2018 he started the extension of classical inequalities to the measure theoretic setting, giving rise to: Adv. Math. (2018), Int. Math. Res. Not. (2021) and RACSAM(2020). In Proc. Amer. Math. Soc. (2020) certain reverse isoperimetric inequality is shown. Using recent functional tools, new inequalities for the Wills functional were proven in Commun. Contemp. Math. (2021).

The characterization of the set of roots of log-convex coefficients polynomials was shown in a work to appear in Canad. J. Math., core of other supervised Ph.D. (2020). Geometric and functional extensions of Grünbaum s inequality were also developed, giving birth to J. Geom. Anal. (2021) and a submitted paper, fundamental works of another supervised Ph.D., to be defended in 2023. A book on Convex and Discrete Geometry was recently published in Aula-Magna (McGraw-Hill), 2021.

It is fair to point out that various of the above-mentioned works came out of the fruitful collaboration with foreign researchers, such as Andrea Colesanti (Università degli Studi di Firenze), Eugenia Saorín Gómez (Otto-von-Guericke Universität Magdeburg / Bremen Universität) or Artem Zvavitch (Kent State University), all of them recognized specialists in Convexity and beyond. Furthermore, the candidate initiated a research project, still work in progress with the recognized expert Richard J. Gardner (Western Washington University). The candidate has also had a close scientific cooperation with the novel researcher Michael Roysdon (Tel Aviv University), not only via a joint work but supervising a research stay of him at the University of Murcia, initiating some further work in progress and taking part of his Ph.D. committee in August 2020.

Resumen del Currículum Vitae:

Nuestra investigación se mueve en la Geometría Convexa y Discreta, así como en el Análisis Convexo. Hemos estudiado desigualdades funcionales, relevantes en los campos de la geometría y el análisis, versiones discretas de desigualdades clásicas, las cuales tienen aplicaciones en problemas de optimización, así como propiedades sobre raíces de polinomios geométricos, cuestión de interés en la literatura, que da pie a problemas dentro de la Geometría Discreta. Esta investigación ha dado lugar a 21 artículos de investigación, publicados en prestigiosas revistas de alto impacto (en el JCR Mathematics) como Adv.Math. (x2), Int.Math.Res.Not., Commun.Contemp.Math., J.Math.Anal.Appl. (x3), Rev.Mat.Iberoamericana (x2), Canad.J.Math (x2), etc., un libro completo, un capítulo de libro, y otros 3 artículos enviados para publicación. Estos trabajos han sido referenciados en 41 artículos de investigación por otros autores (excluyendo coautores). Por otro lado, cabe destacar que la investigación desarrollada durante mi tesis me hizo acreedor del Premio de Investigación Matemática Vicent Caselles 2016, concedido por la RSME y la Fundación BBVA. Además de éste, he recibido otros premios y distinciones como el 2º Premio Nacional Fin de Carrera (2010), una Distinción de la Universidad de Murcia (2013), o el premio extraordinario de doctorado (2016). He impartido 24 charlas en congresos internacionales y/o nacionales de reconocido prestigio (Oberwolfach, BIRS, INdAM, Alfréd Rényi Institute of Mathematics, Bedlewo Conference Center, Karlsruhe Institute of Technology, etc.), la mayoría de ellas por invitación, y he sido invitado a impartir un total de 19 conferencias en seminarios de diferentes universidades (Kent State University, TU Wien, Technische Universität Berlin, Università degli Studi di Firenze, Universidad de Granada, Universität Magdeburg, etc.). También he (co)organizado 4 congresos de investigación, así como el seminario regular del grupo de investigación al que pertenezco. Se incluye la participación en 8 proyectos de investigación financiados (5 de carácter nacional, 1 nacional de centros de excelencia y 2 regionales de grupos de excelencia). También he actuado como referee para las revistas Math.Ineq.Appl., Adv.Appl.Math., RACSAM, J.Math.Ineq.Appl., Mediterranean J.Math., Open Math. y Mem.Am.Math.Soc. (incluídas en el JCR), y he sido miembro del tribunal de 3 tesis doctorales.

He disfrutado de 10 ayudas/becas/contratos, destacando la beca-contrato predoctoral de la



Turno de acceso general

Universidad de Murcia (4 años), el contrato postdoctoral en el ICMAT del programa Severo

Ochoa (aprox. 2 años) y el actual contrato postdoctoral de la Universidad de Murcia. He

realizado 3 estancias de investigación, de 5, 3 y 3 meses de duración, respectivamente, en las Univ. de Magdeburg, de Florencia y de Bremen, bajo la supervisión de los Prof.

Henk, Colesanti y Saorín, expertos reconocidos en Geometría y Análisis Convexo.

Estoy acreditado como Prof. Contratado Doctor por la ANECA desde julio de 2018.

He (co)dirigido dos tesis doctorales: "On discrete Brunn-Minkowski type inequalities", defendida exitosamente en Diciembre de 2019 por el Dr. Iglesias, y "On roots of general Steiner type polynomials", defendida exitosamente en Octubre de 2020 por la Dra. Tárraga. Asimismo, actualmente estoy dirigiendo la tesis doctoral de D. Francisco Marín Sola (prevista para Diciembre de 2022).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias matemáticas
Nombre:	LEAR CLAVERAS, DANIEL
Referencia:	RYC2021-030970-I
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Título:	NEW TRENDS IN FLUIDS AND COLLECTIVE DYNAMICS
Resumen de la Memoria:	

The main focus of my research line is the mathematical analysis of partial differential equations coming from fluids and collective dynamics. In principle, two different and seemingly unrelated fields that are in fact intricately connected. On one hand, the field of fluid dynamics has a long history starting in the eighteenth century with Euler and Navier-Stokes equations, which continues today being one of the unsolved Millennium Problems. On the other hand, the very recent and popular field of collective dynamics, which seeks to describe many natural phenomena, is experiencing a boost by newly found links to compressible fluids, fractional parabolic systems and collisional kinetic theory. The relationship between these fields comes from the fact that when the number of agents increases to infinity, the evolution laws of self-organization start to resemble equations of hydrodynamics. Finally, it is important to emphasize that these systems are challenging because the PDEs involved are non-local and non-linear, which complicates the behavior of solutions and their analysis from the theoretical and computational point of view.

The first subject I am interested in is the mathematical analysis of alignment models of collective dynamics. Collective phenomena are commonly observed in nature, technology and human societies. Examples of that phenomena include flocking of birds and schooling of fish, but also, seemingly unrelated, consensus among individuals, distribution of goods, emergence of languages and synchronization of unmanned vehicles. With the advent of new techniques and methods in PDEs, analysis of mathematical models of collective motion is starting to become one of the most actively developing subjects of applied science.

In particular, I am working on one special class of alignment models, called Cucker-Smale system and its kinetic and hydrodynamic counterparts.

The second subject I am interested in is the existence of coherent structures near shear flows in the 2D Euler equation. The Couette flow is one of the simplest, if not the simplest shear flow, however, it poses several long-standing puzzles in hydrodynamics. The paradox that Couette flow is known to be spectrally stable for all Reynolds numbers in contradiction with instabilities observed in experiments is now often referred to as the Sommerfeld paradox. There were many attempts in the literature to find an explanation to this paradox starting in the nineteenth century with Stokes, Helmholtz, Reynolds, Rayleigh, Kelvin, Orr, Sommerfeld and many others.

In this setting, I am working on the existence of traveling waves solutions to the incompressible

2D Euler equations near the Couette flow at very low regularity, with consequences for the associated Navier-Stokes problem.

The third subject I am interested in is the global well-posedness theory and the qualitative behavior of solutions as they evolve over long-times. This problem is particularly interesting for physical systems without dissipation and external forces. In particular, my research has been centered on the stability near hydrostatic equilibrium in problems inside the field of incompressible fluid mechanics. Here, I have explored the global existence and long-time behavior of solutions for incompressible porous media and magneto-geostrophic equations and for the Boussinesq system.

Resumen del Currículum Vitae:

After obtaining my PhD in 2019 from the Universidad Autónoma de Madrid (UAM), I went on to accept a Research Assistant Professor position at the University of Illinois at Chicago (UIC).

I have published 10 papers including articles in Analysis & PDE, Annals of PDE, Advances in Mathematics or Archive for Rational Mechanics and Analysis among other. I have participated as speaker in 12 national and international conferences and seminars at different universities like Cergy-Pontoise Université or the University of Illinois at Chicago.

Over the course of these three years, I have established connections with the fluid mechanics and collective behavior research groups around the United States, visiting many universities (University of Maryland or Princeton University among others). In addition, during my postdoctoral position, I have taught several undergraduate courses like Calculus, Introduction to proofs, Real Analysis and I was awarded with the MSCS Departmental Teaching Award at Chicago, in recognition of my teaching excellence, in particular during the extremely challenging years of the pandemic. Furthermore, I have been also invited to give talks in many national and international conferences, including the Homogenization, Spectral problems and other topics in PDEs (Madrid 2019), Congreso Bienal RSME (Cantabria 2019), Multiscale analysis and methods for PDEs:fluids and active matter dynamics (Singapore 2023) and the conference New trends in Fluid and Collective dynamics (Banff 2023). I was also part of the organizing committee of some conferences, including the special session on Mathematics of Collective Behavior of the AMS at the University of Utah postponed due to the pandemic. In addition, I have been co-organizer of the Analysis and Applied Mathematics Seminar of the UIC during the last three years.

Having acquired expertise in the field of fluid and collective dynamics, I now aspire to broaden my fields of knowledge to kinetic theory and mean-field games. I believe that both deep understanding and originality are needed to forge new paths, and have demonstrated these characteristics in my research proving open problems by quickly assimilating new knowledge and turning it into important results. Furthermore, publishing these results in top journals as the sole author further establishes my ability to successfully work autonomously, highlighting this strength. My work reflects the priority I give to quality over quantity, facing problems that need new approaches rather than those that only address technical difficulties. The problems in this proposal form a part of this philosophy. As testament to my passion, I aspire to a life-long career in mathematics. The research I have presented is ambitious and broad in scope, and represents a natural extension of my previous work. By awarding this research program, a Ramon y Cajal fellowship will enable me to establish myself as an expert in the field, learn invaluable skills, and cultivate a network of outstanding collaborators.





Área Temática:	Ciencias matemáticas
Nombre:	LUCA , RENATO
Referencia:	RYC2021-031981-I
Correo Electrónico:	Renato.Luca.23.05.1985@gmail.com
Título:	Probability and fine properties of partial differential equations

Resumen de la Memoria:

My research focus on harmonic analysis and partial differential equations arising from fluid dynamics and quantum mechanics (like the Navier-Stokes and Schrödinger equations).

During my PhD (University of Rome La Spaienza) I worked on extensions of classical inequalities from harmonic analysis (like the Hardy-Littelwood-Sobolev and Gagliardo-Nirenberg inequalities) to L^pspaces with different integrabilities in the angular and radial directions. We found applications to the theory of weak solutions to the Navier-Stokes equations.

After my Phd I have been postdoc at the ICMAT (for 3 years) and at the University of Basel (for 3 years). During this period I broaden my research interest in several directions. Here my scientific milestones:

1) I worked on the Carleson problem for the Schrödinger operator, which is to establish maximal estimates for solutions with initial data in Sobolev Spaces. With K. Rogers we identified a class of pathological solutions with the properties of being very « sparse », that have been fundamental in the final solution of this long standing open question.

2) With A. Enciso and D. Peralta-Salas we gave the first rigorous examples of vortex reconnection for solutions of the Navier-Stokes equation.

3) With G. Genovese and D. Valeri, we developed a complete theory of invariant measures for the derivative nonlinear Schrödinger equation. This gives information on the asymptotic behavior of typical solutions.

Since September 2019 I am Ikerbasque research fellow at BCAM (tenure track position). My current research concerns the extension of the pointwise convergence theory for the Schrödinger operator on compact varieties. With D. Eceizabarrena, we already obtained some relevant results in the case of the torus. The case of compact varieties is much harder that the classic one, since there are much more resonances to control, and it certainly requires new ideas. I am also working to the case of the Sphere (or Zoll varieties), in collaboration with P. Gérard and N. Burq, who pioneered the theory of the Schrödinger equation on compact manifolds.

I am also working to a statistical approach to this kind of questions. In this spirit, I recently obtained some interesting results on the pointwise convergence problem for the nonlinear Schrödinger equation in collaboration with E.Compaan and G. Staffilani. With G. Staffilani, A. Nahmod and D. Eceizabarrena we plan to extend these results to generic polynomial nonlinear models, taking advantage of the probabilistic smoothing techniques recently developed by Deng-Nahmod-Yue.

This statistical approach can be also used to study the asymptotic behaviour of typical solutions. In collaboration with G. Genovese and N. Tzvetkov, we are working on the implementation of these methods in the context of the problem of the growth of Sobolev norms of regular of solutions of dispersive PDEs. This is an important open problem for almost any dispersive PDEs.

Finally, with Pedro Caro and our postdoc Gennaro Ciampa we aim to implement some ideas I used for the Navier--Stokes equation to provide examples of magnetic reconnection for solutions of the MHD (magnetohydrodynamic) equation. This would have important applications in physics, as the magnetic reconnection explains interesting phenomena like, for instance, the solar flares.

Resumen del Currículum Vitae:

My research focuses on harmonic analysis and partial differential equations arising from fluid dynamics and quantum mechanics (like the Navier-Stokes and Schrödinger eq.). See the "Resumen de la trayectoria y línea de investigación" for my most relevant scientific achievements. In particular milestones 1), 2), 3).

My results have been published in 18 scientific papers in competitive international journals such as J. Eur. Math. Soc.; J. Funct. Anal.; Comm. Math. Phys.; Anal. and PDEs; Sel. Math. New Series.; Adv. Math.; Math. Ann.; Int. Math. Res. Not.; Arch. Ration. Mech. Anal.; etc., 4 proceedings, 3 accepted papers and 1 preprint. My work has been cited 126 times on Scopus and 305 times on Google Scholar.

I communicated my work being invited as speaker in several prestigious international conferences, for instance at the Institute Mittag Leffer (Stocholm), the Karlsruhe Institute of Technology, the Oberwolfach Research Institute for Mathematics, the Gran Sasso Science Institute, the Escorial, the Journées EDPs in Roscoff, the 10-th AIMS Conference in Madrid etc. (see Section C.2.). Also, I strongly invested myself in teaching. For instance, in Basel I have been in charge of the «Introduction to Fourier Analysis» course and at BCAM I gave two PHD courses (in 2019 and 2021). I also put my experience at service of younger mathematicians, for instance participating to the BCAM mentoring program, aimed to support young Phd and post-doctoral students in their career development.

I have collaborated with internationally recognized mathematicians from several countries (such as Italy, France, Spain, USA, etc.) and I have been invited for scientific visits in prestigious institutions as the Institute de Mathématique d Orsay, the MIT (Boston), the Yau Mathematical Sciences Center





Turno de acceso general

(Bejing), the SISSA (Trieste), the CIRM (Trento, research in pairs program), the MFO (Oberwolfach, research in pairs), the Hausdorff Mathematical Center, the Universities of Cergy-Pontoise, Rome, Zurich, Basel, Paris/Diderot, Birmingham, Glasgow.

My research has been supported by several international research grants. Among the others, I have been part of two ERC grants, three Severo Ochoa excellence accreditation and a BERC.

After being postdoctoral researcher at the ICMAT (Madrid) and at the University of Basel, since September 2019 I am an Ikerbasque research fellow (tenure track position) at BCAM.

Since July 2021, my own research group counts 3 postdoctoral students: Gennaro Ciampa, Odysseas Bakas and Dariusz Miroslaw Kosz. They have been hired in the context of the BCAM Severo Ochoa joint post-doctoral program, which aims to promote the synergy and knowledge exchange among different research lines at BCAM. Soon (in March 2022) Roberta Belardo (student at Univ. of Naples Federico II) will join my research group for a 3 months Internship at BCAM to write her master thesis under my supervision.

I just applied as PI for a national project with title Spectral theory and PDE: Real and Fourier Analysis . Other members of the research team for this project are L. Fanelli (UPV/EHU), G. Ciampa (BCAM) and F. Pizzichillo (University of Cantabria). Before I was a member of the Equipo de Investigación of the national grant IHAIP (PGC2018-094528-B-I00).



Área Temática:	Ciencias matemáticas
Nombre:	SAARI , OLLI
Referencia:	RYC2021-032950-I
Correo Electrónico:	saari@math.uni-bonn.de
Título:	Harmonic analysis and time-dependent problems in PDE
Decument de la Manag	

Resumen de la Memoria:

My research focuses on harmonic analysis and its applications to partial differential equations. I started as a graduate student in the field of weighted norm inequalities, and my thesis project consisted in developing and consolidating a theory of parabolic forward-in-time Muckenhoupt weights that both generalize the one-sided Muckenhoput weights motivated by ergodic theory to multiple difmensions and connect to the regularity theory of parabolic partial differential equations in a way analogous to the relationship between the classical Muckenhoupt weights and elliptic partial differential equations. I defended my thesis at Aalto University in 2016 under supervision of Juha Kinnunen.

After my thesis project, I started a collaboration with Pascal Auscher, Simon Bortz and Mortiz Egert on Gehring type results for fractional derivatives in the context of parabolic and also non-local equations in Mathematical Sciences Research Institute in Berkeley. This is a natural link between the theory of weights and the regularity theory of partial differential equations. We moved from a semigroup minded approach to the notion of reinforced weak solutions and a mindset based on space time estimates and managed to extend the class of admissible source data for Gehring type results.

As a second branch of my research, I started studying regularity of maximal functions during my first year as a postdoc in Bonn. Together with a number of (mostly junior) collaborators, we proved the smooth harmonic analysts versions of the plain and fractional endpoint conjectures on the regularity of the Hardy-Littlewood maximal operator. Along the way, I got interested in questions in Fourier analysis that turned out to be tightly connected to the regularity questions.

The three projects above describe my mathematical background. In the course of the following few years, I plan to pursue further the accordingly motivated research on regularity of maximal functions for boundary value problems of degenerate elliptic, parabolic, and non-local partial differential equations; time frequency analysis for bilinear Fourier multipliers; and geometric analysis of Sobolev functions in time-varying domains with applications to fluid mechanics.

Resumen del Currículum Vitae:

I obtained my master s degree in engineering physics and mathematics with major in mathematics from Aalto University (Finland) in the fall 2013 and continued to work as a doctoral student in the research group Nonlinear Partial Differential Equations under the supervision of Juha Kinnunen in the same institution. As a part of my researcher training, I also spent two periods of a few months visiting the University of the Basque Country (Spain) and the University of Bonn (Germany). I defended my doctoral thesis in the spring 2016, and it was approved with distinction.

After the PhD, I was awarded one of the nine postdoctoral fellowships of the one-semester research program Harmonic Analysis in the Mathematical Sciences Research Institute in Berkeley, California. After the period in MSRI, I returned to work at Aalto University for one summer, and since September 2017 I have been holding a junior position at the University of Bonn (Akademischer Rat auf Zeit, temporary position of 1+3+3 years).

My research focuses on harmonic analysis with applications to partial differential equations. My thesis project solved two open problems helping to understand the difference between weighted norm inequalities relative to elliptic and parabolic partial differential equations. The study of parabolic boundary value problems and caloric measure is a topic that is still evolving, and that is also the potential field of the future applications. My later work has contributed to pushing the state of the art for the endpoint regularity conjecture for the Hardy-Littlewood maximal functions. My work has been carried out in collaboration with twenty fellow researchers in various career stages, from various countries in Europe and Americas and in different fields of mathematical analysis. I am an author in 23 research articles, 18 of which have already been published in peer-reviewed journals of high international standing, such as Analysis & PDE, Journal of Functional Analysis and Advances in Mathematics.

I have been an invited speaker to several international conferences on Harmonic Analysis, on Partial Differential Equations and on Applied Mathematics as well as to many research seminars. I have actively worked between different fields in pure and applied analysis and been involved in research projects concerning a broad spectrum of topics. Consequently, I have networked with several research communities in analysis.

I have been participating in teaching and researcher training by offering multiple lecture courses to advanced graduate students based on contemporary research. I have also supported researcher training by collaborating with doctoral students in the research groups I have been affiliated with. In particular, most of my contributions to the field of regularity of maximal functions have been done in teams composed of my junior colleagues. I have also acted as the external evaluator of two master s thesis projects and I am currently supervising one. In addition, I have been a reviewer for several renowned mathematical journals such as Analysis & PDE, International Mathematics Research Notices and Journal de Mathematiques Pures et Appliquées. I am the author of several reviews in Mathematical Reviews (MathSciNet).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias matemáticas
Nombre:	MARGOLIS , LEO
Referencia:	RYC2021-032471-I
Correo Electrónico:	leo.margolis@icmat.es
Título:	Group Rings and their Units
Resumen de la Memoria:	

My area of study are group rings. These are algebraic objects which come up in many areas of mathematics, e.g. in topology or functional analysis, but are also interesting in themselves. The group ring RG of a group G over a ring R is the free R-module with a basis G, when R is a field we can think of vector spaces, but with an additional multiplicative structure inherited from the basis G.

The main question of my research is the interplay between the ring structure of RG and the group structure of G. For instance, one can ask which properties of G are recognizable from G, with the isomorphism type of G clearly being the maximal possible. This forms the Isomorphism Problem for group rings which was studied in many interesting situations. The last years I worked on the major open formulation, the Modular Isomorphism Problem which asks if the modular group algebra of a finite p-group G determines G. After some new positive results, together with A. del Rio and our common PhD student D. Garcia-Lucas we could solve the problem by providing a series of counterexamples.

I have also introduced and studied in a series of papers a version of the Isomorphism Problem for twisted group rings together with Schnabel.

A further question concerns the unit group of a group ring RG and how its structure is connected to G. This is most interesting for the case of R being the integers Z where several conjectures had been stated over the years. The main open problem, the Zassenhaus Conjecture, stated that any unit of finite order in ZG is conjugate in the rational group algebra QG to a trivial unit, i.e. an element of shape g or -g for g in G. After studying this conjecture and related questions during my PhD and later during my first PostDoc, we could prove it for significant new classes of groups, but also identify potential metabelian counterexamples. In 2017 with F. Eisele we showed that these candidates indeed constitute counterexamples to the conjecture.

A third question I studied intensively is the Prime Graph Question which concerns the order of units in ZG - it asks if ZG contains a normalized unit of order pq if and only if so does G, for p and q any pair of primes. Compared to the other question it allows a reduction result to almost simple groups and is hence interesting for classes of groups which are very different from the ones mentioned before. Together with A. Bachle and later M. Caicedo we introduced and further developed a method in a series of articles which allowed us to show that the problem has a positive answer for several infinite series of simple socles, including all alternating groups and infinitely many projective special, symplectic and orthogonal simple groups, as well as for 24 of the 26 sporadic groups.

I have also contributed to the understanding how p-subgroups embed in the unit group of ZG as well as what the abelianization of that group looks like which is a question concerned more with properties of infinite groups.

Methodologically I mostly use the representation theory of groups in the ordinary, p-adic or modular setting, as well as group theory and aspects of ring theory, algebraic number theory and algebraic combinatorics. This variety of methods reflects the nature of group rings sitting at the cross roads of several areas of mathematics, though my main interest lies in questions of group theoretic nature.

Resumen del Currículum Vitae:

I studied Mathematics with second subject Physics at the University of Stuttgart in 2006-2011. During my studies I was supported by Studienstiftung des deutschen Volkes (German federal grant for especially gifted students) and obtained a post-graduation grant from the same organization for a research stay at the University of Murcia. This led to my first collaboration with Á. del Río between October 2011 and February 2012.

I then returned to Stuttgart and did my PhD under the supervision of W. Kimmerle, defended in June 2015. Between October and December 2015 I was a guest researcher at the University of Bielefeld in the working group of C. Voll financed by the DFG (German Research Foundation). From May 2016 until October 2017 I was a Marie Sklodowska-Curie Individual Fellow in Murcia. Between October 2017 and September 2020 I was an FWO (Flemish Science Foundation) Fellow in the working group of E. Jespers at the Free University of Brussels and was later employed directly by the university until July 2021. In August 2021 I joined the ICMAT as a Severo Ochoa Excellence PostDoc.

During my PhD I was already collaborating with several researchers and I am constantly enlarging my collaborative network at the same time not loosing contact with my collaborators. I have always been actively traveling for research stays and conference visits: for longer stays of several months in Murcia, Bielefeld and Haifa and for many shorter stays in Brussels, St Andrews, Regina or Leipzig. I have also been actively inviting guests to my own universities for research collaborations and seminar talks. Overall I have co-authored papers with 15 different researchers from 8 different countries.

Overall I have co-authored 30 research articles (three of those preprints) and 2 computer algebra packages.

Scientifically the highlights of my career so far were the solutions of two major problems from the area of group rings. The first was the Zassenhaus Conjecture which was stated by H. Zassenhaus in 1974 and predicted that units of finite order in integral group rings are as trivial as possible, namely they are conjugate in the rational group algebra to trivial units. We solved this conjecture together with F. Eisele in 2017. For this we were awarded the Reinhold Baer Prize 2020.

Together with del Rio and our common PhD student D. García Lucas we recently solved the Modular Isomorphism Problem which asked if the isomorphism of modular group algebras of finite p-groups implies the isomorphism of the groups.



Turno de acceso general

I was a student teaching assistant from my third year of studies and a teaching assistant during my PhD responsible for generating, organizing and conducting exercise sessions. I also worked as a teaching assistant and later lecturer in Brussels.

I am contributing to the reviews on MathSciNet (22 reviews), refereeing research papers (33) and since 2019 evaluating Marie Sklodowska-Curie IF applications. I have always enjoyed presenting my research, as witnessed by my 30 conference talks (10 during my PhD) and 35 seminar talks (4 of these online, 6 during PhD).

I have been co-organizer of the Algebra Seminar at the Free University of Brussels and am now co-organizer of the Group Theory Seminar at the ICMAT.

I have co-supervised one Bachelor and one Master thesis, had been in the jury of one PhD defense and am currently co-supervising a further PhD project.



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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias matemáticasNombre:AGUIAR FREIRE DOS SANTOS, MAIRAReferencia:RYC2021-031380-ICorreo Electrónico:maguiar@bcamath.orgTítulo:Deterministic and Stochastic Dynamical Systems Theory Applied to Public Health Epidemiology

Resumen de la Memoria:

With a multidisciplinary research profile, I am trained in dynamical systems theory, stochastic processes, nonlinear dynamics, bifurcation analysis and biostatistics. My research focuses on the development of theoretical methods, modeling and simulation techniques and its practical applications in life sciences, addressing significant mathematical problems and fundamental questions in medicine and biology.

I am the founder and leader of the research group Mathematical and Theoretical Biology at Basque Center for Applied Mathematics (BCAM), currently counting 14 researchers from all scientific levels.

I have been awarded two important research grants: An IKERBASQUE Research position at BCAM and a very competitive European Commission H2020 grant, in mathematics, in the framework Marie Sklodowska-Curie Actions, strategic for consolidating my career as an independent scientist recognized as Senior Researcher at European level. Along my scientific career I have published more than 60 scientific papers in ISI peer-reviewed high-impact medical and mathematical journals (please refer to Scopus database, h-index 15, for my peer-reviewed scientific publications).

My research career was developed within the scientific field of applied mathematics focused on

mathematical modelling of complex biological systems. The main research topics I have worked on are:

1) Advanced Mathematical Modeling Applied to Health : investigating multi-strain epidemiological systems and chaotic dynamics, vector-borne disease dynamics, COVID-19 dynamics, vaccine preventable diseases and accidental pathogens.

2) Population Dynamics and Methodological Topics in Mathematics: investigating dynamical systems with time-scale separation and center manifold analysis, stochastic processes and spatially extended systems, model comparison and parameter estimation of chaotic systems.

I use methods from dynamical systems theory and stochastic processes to develop new and innovative mathematical guiding tools, covering applications in all fields related to public health epidemiology and research topics in population dynamics. Among other relevant topics, I have been working with stochastic processes modelling epidemic systems via time continuous Markov processes, approximations to Fokker-Planck equations with state dependent noise, mean field bifurcation analysis (transcritical bifurcations, Hopf and Torus bifurcations, backward and tangent bifurcations), spatially extended stochastic processes including critical fluctuations and complex connectivities leading among others to superdiffusion described with fractional calculus, parameter estimation including Metropolis-Hastings algorithms and iterated filtering, which can also handle complex dynamical scenarios like chaotic motion with positive Lyapunov exponents.

The leadership, organizational skills and international recognition from my peers have been

essential in the development of my career, which is defined by an intense international mobility, as demonstrated by my previous scientific appointments in Brazil, Portugal, Holland, Thailand, Indonesia, Italy and Spain. My solid international collaborations translate into frequent plenary and invited talks and courses at scientific meetings and Universities of several countries, requests to referee papers and to be guest editor of special journal issues and editor of research books.

Resumen del Currículum Vitae:

With emphasis in Applied Mathematics, I obtained, with an excellent evaluation, a double European PhD degree in 2012 by the Vrije Universiteit (VU) Amsterdam, The Netherlands and the University of Lisbon, Portugal.

My recent research has generated new knowledge on the effect of multiple strains dynamics

and on the impact of different vaccination programmes and other non-pharmaceutical interventions. I have discovered new features in dengue vaccine efficacies of a newly licensed dengue vaccine, and these findings led the manufacturer to perform new analysis of the available trial data, changing this vaccine recommendation by the WHO in December 2018. As an active member of the COVID-19 Basque Modeling Task Force (BMTF), assisting the Basque health managers and Government during the COVID-19 responses, my work was recently publicly acknowledged by the Lehendakari, the President of the Basque Government.

In the past 10 years, I have participated in more than 50 international conferences and workshops with more than 35 scientific presentations as an Invited Speaker. In 2021, I gave 20 Invited Talks worldwide. I have published more than 60 scientific papers in ISI peer-reviewed high-impact medical and mathematical journals (please refer to Scopus, h-index 15, for my scientific publications).

My career was defined by an intense international academic and professional mobility, as

demonstrated by my previous scientific appointments and many collaborations, which translated into joint scientific publications and frequent invited talks and courses at scientific meetings and in Universities of several countries. To cite some names of international researchers that I am actively collaborating: Professors S.B. Halstead (Yale University, USA), A. de Silva (North Carolina University, USA), S. Merler (FBK, Italy), J.B. Van-Dierdonck (Director of the Basque Health Department, Spain), J. Mar (Biodonostia Health Institute, Spain), T. Goetz (University Koblenz, Germany), E. Massad (FGV, Brazil), C. Pinto (Porto University, Portugal), and E. Soweono (ITB Bandung, Indonesia).



Turno de acceso general

I am the founder and the leader of the research group Mathematical and Theoretical Biology at Basque Center for Applied Mathematics (BCAM), which currently counts 14 researchers

from all scientific levels. I am currently supervsing 5 postdoctoral researchers, 3 research technicians (postdoc level), 3 PhD students, 2 internship students. Besides been awarded the prestigious and very competitive European Commission H2020 grant, the Marie Sklodowska-Curie Fellowship, I have been involved in several European and national research projects, including a EU FP7 project with 12 worldwide partners, where I was Co-PI of one WP. Special attention is to be given to the project "Mathematical Models Applied to Health" awarded to BCAM, within the BMTF, where I currently lead 6 (out of 12) work packages in close collaboration with many local and international public health institutions.

With a large experience in scientific meetings organization, I have organized many international events with wide national and international participation. I am the leading organizer, since 2010, of the yearly International Conference on Dynamical Systems Applied to Biology and Natural Sciences (DSABNS) with wide international participation. The DSABNS 2022 counts with more than 620 participants from 65 countries.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	FERNANDEZ-LLAMAZARES ONRUBIA, ALVARO
Referencia:	RYC2021-034198-I
Correo Electrónico:	alvaro.fernandez-llamazares@helsinki.fi
Título:	Indigenous Peoples' land-based stewardship from local to global scales

Resumen de la Memoria:

I am an ethnobiologist with a research background firmly rooted in cultural anthropology, critical geography and conservation biology. My research program focuses on Indigenous land-based stewardship, and it centres on exploring the contributions of Indigenous Peoples and local communities in safeguarding biological and cultural diversity from local to global scales through their cultural practices and knowledge systems. I collaborate actively with colleagues from a wide range of disciplines and epistemic backgrounds in order to explore ways to facilitate the contributions of Indigenous Peoples to safeguarding our planet s biological and cultural diversity.

Based on my long-term, field-based ethnographic engagement with different Indigenous communities in the Global South (e.g., Tsimane in Bolivia, Daasanach in Kenya), my work has contributed to: (i) advance fundamental understanding of the importance of Indigenous land-based stewardship for biodiversity conservation; (ii) consolidate methodologies to quantitatively document pressures on Indigenous Peoples lifeways and knowledge systems; and (iii) solidify the societal and policy relevance of ethnobiology at the global scale. I have used a broad range of tools and research approaches to address these issues, from geospatial analyses of Indigenous land tenure at regional and global scales to field-based ethnographic studies of local biocultural systems, including also global dialogues across knowledge systems, and hands-on actions for honouring and revitalizing Indigenous and local knowledge.

The subject matter of my ethnobiological work is deeply relevant to solving problems of social and environmental injustices at multiple scales. Most of my research is empirical and hypothesis-driven, largely underpinned by quantitative methods (e.g., semi-structured interviews, household surveys), systematic approaches (e.g., randomized controlled trials) and geospatial analyses (coupled with ethnographically grounded data), applied to questions of conservation relevance, with important policy implications. The use of such innovative methodologies under a deliberately cross-scale focus has placed my research at the cutting edge of modern ethnobiology. I believe the ground-breaking nature of my work lies in the aggregation of evidence from different scales through multi-scaled assessments and models, building global relevance from the ground up, and connecting global patterns and trends with rich contextual insights emerging from locally-grounded empirical evidence.

The RyC Fellowship will provide me with critical funding to fulfil my research aspiration of enriching ethnobiology s field-based ethos with a global analytical focus, connecting on-the-ground realities with the higher spheres of international decision-making. To do so, I plan to establish a research group on Indigenous land-based stewardship, with a strong focus on multi-scale assessments combining cutting-edge geospatial analyses with ethnographically-grounded field data. I believe that my strong publication record, solid background in social science in support of conservation, and commitment to innovative teaching, public outreach and engagement with the international policy community put me in a privileged position to bring ethnobiological knowledge into resolutions that that can influence global environmental research and policy.

Resumen del Currículum Vitae:

I am a social environmental scientist with an established research trajectory on the study of Indigenous Peoples land-based stewardship. Although my intellectual home is largely within the field of ethnobiology, my research is inherently interdisciplinary, weaving the middle spaces between cultural anthropology, critical geography and conservation biology.

I completed my PhD in Environmental Sciences at the Autonomous University of Barcelona (Spain) in December 2015 (with a Cum Laude distinction and a PhD Extraordinary Award). Since then, I have largely developed my research career at the University of Helsinki (Finland), with short research stays as a visiting scholar at the University of Cambridge (UK; 2 months in 2016) and Indiana University Bloomington (US; 3 months in 2019). I have more than 30 months of in-depth ethnographic field experience with different Indigenous communities in the Global South (namely with the Tsimane people of the Bolivian Amazon, and the Daasanach community of the Kenyan Rift Valley).

I have published 69 scientific articles in JCR-indexed international scientific journals (40 in Q1 journals) and 11 book chapters, with first authorship in some of the most respected and influential journals in interdisciplinary environmental sciences, such as Trends in Ecology and Evolution (IF: 17.712), Current Biology (IF: 9.193), Conservation Letters (IF: 7.397), Current Opinion in Environmental Sustainability (IF: 6.984), and Global Environmental Change (IF: 5.679). I have an h-index of 18, with 1,197 citations (according to Web of Science). The significance of my work has been recognised by important awards such as Olli s Prize of the University of Helsinki (2014) or the Catalan Research Prize in Environmental Sciences (2015).

I have a proven record of winning highly competitive research grants, having obtained 1,351,005 of research funding (785,591 as a PI), including grants and research projects funded by the Academy of Finland, the Spanish Ministry of Universities, and contracts with public organizations, such as Finland s Ministry of Foreign Affairs or UNESCO. I have also worked as researcher and advisor in several EU projects (EU-FP7 LEK, 1M; H2020-EU LICCI; 2M) and as an expert in several intergovernmental science-policy platforms (e.g., IUCN Expert Group on Cultural Practices and Ecosystem Management). From 2017 to 2019, I served as an author of the landmark IPBES Global Assessment Report on Biodiversity and Ecosystem Services.

I have delivered 14 oral presentations in international conferences, as well as 9 invited seminars in different research centres. I currently teach in four MSc courses at the University of Helsinki. Moreover, I have taught a field course in Madagascar (in collaboration with the University of Antananarivo), contributed to organize two large ethnobiological conferences in Bolivia, and delivered guest lectures in three US universities (Yale, Colorado State and Indiana Bloomington). I have supervised 1 PhD student, 3 MSc students and 8 research interns. I am an Associate Editor for two world-leading



Turno de acceso general

scientific journals in the study of human-nature inter-relations (i.e., Journal of Ethnobiology and People & Nature). I have also authored 18 scientific dissemination articles for different magazines and newspapers, and 7 policy reports for decision-makers.





Área Temática:	Ciencias sociales
Nombre:	KOVACIC , ZORA
Referencia:	RYC2021-031839-I
Correo Electrónico:	zorakovacic@gmail.com
Título:	Science for the governance of complex environmental challenges

Resumen de la Memoria:

The research line that I have developed can be defined as science for the governance of complex environmental challenges, which I developed around three main themes: (i) the study of how scientific evidence is used in environmental policy (during my PhD), (ii) how uncertainty affects decision-making (developed during my early post-doc period with the study of energy policies in urban slums and innovative sustainability policies such as the circular economy), and (iii) the role of innovation in environmental governance (my current focus).

(i) How scientific evidence is used in environmental policy. Complex sustainability issues pose important challenges to the science-policy interface. The problem is one of complexity and uncertainty, both of the issues to be governed and of the scientific and political processes governing them. Scientific evidence does not always provide clear guidance to policy, science may speak with many and sometimes contrasting voices. The use of quantitative evidence, such as indicators and statistics, may obscure more than it illuminates when it comes to understanding nuance. Yet the use of quantitative evidence is very prominent in environmental policies (Verran 2013), to the point that Turnhout et al. (2014) speak of measurementality governmentality by numbers with regard to biodiversity governance. My contribution to this debate has been to assess how numbers are used in policy, analyzing both positivist uses of numbers as truth-speaking devices and non-positivist uses as quantitative tools.

(ii) How uncertainty affects decision-making. One of the central interests of my research has been the study of uncertainty and its effects on decisionmaking. Uncertainty is sometimes treated as a temporary problem, which can be reduced with more research, more data and better models. However, decisions about pollution prevention, toxic waste exposure, nuclear radiation management typical of environmental policies have to be taken before full knowledge can be attained. My contribution to this debate has been to broaden the understanding of how different types of uncertainty affect policy-making: while framing uncertainty challenges as risk invites a technocratic mode of governance, characterizing uncertainty as a challenge of ignorance and indeterminacy opens up policy debates. I developed a taxonomy of different types of uncertainty, including technical, methodological and epistemic uncertainty.

(iii) The role of innovation in sustainability governance. Innovation is another way in which science is used in governance, by promoting more applied uses of science and reinforcing the turn to techno-science. Innovation, however, may play an ambivalent role: while on one hand, it offers solutions, on the other hand innovations may create new uncertainties such as unintended consequences. From the point of view of science for governance, innovations create imaginaries about the future that are very important in the policy process. I have found that innovation is often used to turn bottlenecks and trade-offs into synergies. In the case of the circular economy, I have shown that innovative business models create an imaginary that turns the Stop! narrative of environmental conservation into a Go! message that enrolls environmental strategies in the service of economic growth.

Resumen del Currículum Vitae:

I work in the interdisciplinary field of environmental social sciences, and I study how scientific evidence is used in the governance of complex socioecological systems, using post-normal science as my theoretical framework. I have co-authored 40 scientific publications, 20 of which as first or single author. My publications consist of 33 articles in peer-reviewed journals (6 as single author and 11 as first author), 6 book chapters (2 as first author) and 1 monograph (as first author) with the academic publisher Routledge.

My research has had high policy impact at the European level: I have been invited to present my work and serve in expert groups at the European Commission s Joint Research Centre, the Directorate General (DG) Research & Innovation, the Group of Chief Scientific Advisors to the European Commission, the European Food Safety Agency (EFSA), and the European Environment Agency. I have also served as policy advisor to the National Secretariat for Planning and Development (SENPLADES), Ecuador, and to the municipality of Stellenbosch, South Africa. At the international level, I have collaborated in a service contract for the United Nation s Food and Agricultural Organization.

My leadership skills are attested by the supervision of 4 PhD theses (2 completed and 2 on-going), 3 Master theses (1 on-going), and the participation in 9 competitive research projects, with national, European and international funding (International Science Council). I was PI of 2 research projects, funded by the European Economic Area (NILS program) and the Catalan Institute for Peace Studies (ICIP), co-PI of the H2020 project MAGIC, and work package leader in NETEP (with EC funding) and PARTICIPIA (funded by the ACP-EU EDULINK II program). I was the coordinator of 2 service contracts by the European Environmental Agency.

My entire career has had a strong international orientation: I have collaborated in several EU projects, creating a strong international network. I worked as a post-doctoral research fellow by Stellenbosch University (South Africa) in 2017-18, and at the Centre for the Study of the Sciences and the Humanities (SVT), the international reference center for post-normal science, at the University of Bergen (Norway), in 2018-21. My research network spans from several EU countries, to Africa, Latin America and North America.



VESTIGACIÓN

	Turno de acceso general
Área Temática:	Ciencias sociales
Nombre:	BALSA BARREIRO, JOSE
Referencia:	RYC2021-034937-I
Correo Electrónico:	jobalbar@gmail.com
Título:	Understanding human mobility in cities

Resumen de la Memoria:

In 1900, only 15% of the global population lived in cities. Today this rate is 55.7% and is expected to be 70% in 2050. Global wealth tends to become more concentrated over time. Cities boost productivity and innovation, improve access to goods/services, decrease home-to-work distances, optimize infrastructures use, and allow sharing facilities. However, excessive density can lead to the emergence of the so-called urban diseconomies, where all the previous factors become downsides because of crowding, unaffordable living costs, undue segregation, or excessive pollution. The impact of recent technological and sociological changes, accelerated by COVID-19, is leading to rapid shifts. Therefore, it is more necessary than ever to understand cities¿ dynamics in order to anticipate decision-making.

My recent work aims to use state-of-the-art urban mapping analyses to understand the spatial component behind these dynamics. In 2019 [with Pentland, MIT] we discovered that global human dynamics related to urbanization, wealth concentration, and environmental costs describe spatially opposed traces. In 2020 [with Cebrian, Max-Planck] we detected evident saturation of interdependencies in the global network (deglobalization). This proposal allows to combine the two main research lines developed by the candidate in previous years, i.e. (a) the geospatial geometry of cities [with Hermosilla, Univ. British-Columbia], and (b) the social interactions that take place over [with Pentland, MIT]. The concrete goal is to understand the spatial correlation of mobility flows with the physical and social structure of cities. The combined use of both data sources with socioeconomic indicators enables a new and disruptive work line in transport geography and urban economy.

Resumen del Currículum Vitae:

About him: Since 2022, he is a distinguished researcher funded by 3-year Maria Zambrano grant oriented to attract international talent. He is Professor at the Dep. of Geography [USC] and researcher at the IDEGA. He primarily works in the interface between computational social science (geography, urban economics) and physical sciences (transportation, mobility) using geospatial technologies. His aim is to analyze cities as complex systems for addressing near-future challenges. His proposal emerges in the big data era, where more data allows validating more hypotheses and better addressing human complexity. He proposes a novel focus on an uncovered cross between physical and social sciences.

Before, he was research associate in CITIES in 2021 [NYU], Human Dynamics and Connection Sci. between 2017-20 [MIT Media Lab], Inst. for Transport Planning and Systems [ETHZ] in 2016-17, and Inst. for Photogrammetry in 2015-16 [Univ. Stuttgart]. In addition, he has been visiting scientist in NASA JPL+Caltech, California in 2019 and Max Planck Inst. for Human Development, Berlin in 2020. He keeps active affiliations and open collaborations with MIT Media Lab, NASA-JPL and CITIES.

He holds a PhD in civil engineering [UDC], with international mention [PoliTO]. His PhD dissertation analyze the use of GNSS and GIS to naturalistic driving data. During his pre-doctoral run, he worked in the Dep. Mathematical and Representation Methods [UDC] and collaborated with the Inst. on Traffic Safety [Univ. Valencia] and DIATI [PoliTO].

Research Impact: He proposes new approaches to urban complexity using big geo-datasets. His novelty lies in adopting a wide-range and crosssectional approach. He had published more than 35 papers, 22 of them highly indexed in SSCR and JCR metrics. Since 2017, he achieved 452 citations according to Google Scholar. Recently, he publishes in Q1 journals such J. of Cleaner Production(IF9.3), CEUS(IF5.3), IEEE Access(IF3.4), Mone(IF3.4), Complexity(IF2.8), and Nature group s journals (Scientific Reports(IF4.4), Palgrave Comm. and Nature Behav. and Social Sci.). His two most recent submissions are under review in Lancet Reg. Health and Transp. Res. Part C(IF8). He had demonstrated a high capacity to attract funding i.e. MIT Global Funds (2020), different scholarships during his pre- and post-doc career (2016), Maria Curie Individual Fellowship (2015), and Maria Zambrano (2022) from Spanish government. Two of the projects he was involved overcame a budget of 1.3 M each (Prologue and 4D-CH_World). He is expert on data mapping, pattern extraction, spatial planning, and social analysis. He dominates geospatial software including GIS and some libraries (in R, Python, SQL). Lately, he had actively collaborated with people from MIT and NYU. Mostly, he is the corresponding and the main author in approx. 90% of his papers.

He has led working teams. He was supervised seven master thesis, six of them from the M.Sc. GEOENGINE in Germany (2015-17). The last one (2019) in the Master in Planning and Territorial Management [USC]. In 2022, he is co-supervising two Master students in data science [UPV] and another one in MIT.

	35 peer-reviewed papers, 12 international conferences, 7 books and 3 books chapters.
	Invited to 10 invited talks in MIT, Caltech, ETHZ, and NYU.
	He has worked in consulting (Typsa) and Public Admon. (Turgalicia).
	He holds three levels of professorship accreditation by ANECA.
	



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	ALVES FERNANDES, JORGE MIGUEL
Referencia:	RYC2021-031037-I
Correo Electrónico:	jorge.fernandes@ics.ulisboa.pt
Título:	Representation and challenges to democracy

Resumen de la Memoria:

I hold a PhD in Political and Social Sciences from the European University Institute, Florence. After completing my PhD, I joined the University of Bamberg, Germany, as a postdoctoral fellow. In 2017, I first joined the Institute of Social Sciences, University of Lisbon, Portugal as postdoctoral fellow. In 2020, I was promoted to Assistant Research Professor. I have held visiting positions at the University of California at San Diego, Center for European Studies Harvard University and the Robert Schuman Centre for Advanced Studies at the EUI.

My research lies at the intersection of comparative politics and institutions. More specifically, I am interested in (i) how institutions such as electoral systems and political parties shape legislators behavioral incentives in the representation of groups in politics, including women, ethnic minorities, geographical regions and other social divisions; (ii) how executive governments work, particularly coalition management and government survival (iii) methodological innovations in the study of political representation.

Since 2016, I have published 17 Q1 (JCR) papers in some of the leading journals of the discipline, including Comparative Political Studies, European Journal of Political Research, Political Behavior, Party Politics, Legislative Studies Quarterly, among others. I have published three edited volumes. First, I co-edited a book on Iberian Legislatures in Comparative Perspective (Routledge) (Cristina Leston-Bandeira), bringing together some of the finest Spanish and Portuguese scholars to deliver a landmark comparative study on the functioning of Las Cortes Generales and the Portuguese Assembleia da República. Second, I co-edited The Politics of Legislative Debates (Oxford University Press) (with Hanna Back and Marc Debus) and The Oxford Handbook of Portuguese Politics (Oxford) (with Pedro C. Magalhães and António Costa Pinto). In addition, I have published 15 books chapters in international presses such as Oxford University Press, Michigan University Press, Routledge.

My publications, visibility and broad network in Europe and the United States have allowed me to be directly involved in multiple research projects and networks. I am currently principal investigator of two research projects, financed by the Portuguese Foundation for Science and Technology and the Francisco Manuel dos Santos Foundation (for a total of over 328.000,00)

This publication record, combining substantive contributions with cutting-edge methodological work, including machine learning for text-as-data and embeddings for Twitter and Facebook, has established me as an emerging leading scholar in comparative political institutions in Europe. In 2020, the Academia de Ciências de Lisboa (the Portuguese equivalent to the Spanish Royal Academy of Sciences) recognized my academic trajectory with the award for the best Portuguese political scientist under-40.

Altogether, I strongly believe that my publication record, international profile and network put me in a privileged position to build a leadership role in the discipline in Europe and beyond. The Ramón y Cajal fellowship would offer world-class conditions as a springboard to consolidate my career and contribute to the thriving Spanish social sciences community.

Resumen del Currículum Vitae:

Since 2020, I am an Assistant Research Professor at the Institute of Social Sciences (ICS), University of Lisbon (Portugal). Previously, I was a postdoctoral fellow at the University of Bamberg (Germany) and a postdoctoral fellow at ICS, Lisbon. I hold a PhD in Political and Social Sciences from the European University Institute, Florence (2013). I held numerous visiting positions in some of the best institutions in the world, including the University of California San Diego (2012), Center for European Studies at Harvard University (2018-2019) and the Robert Schuman Centre for Advanced Studies EUI (2021-2022).

Since 2016, I have published 17 Q1 papers (SJR) in the best journals of the discipline, including Comparative Political Studies, European Journal of Political Research, Political Behavior, Legislative Studies Quarterly and Party Politics. I have co-edited The Politics of Legislative Debates (with Hanna Back and Marc Debus) (OUP, 2021) and The Oxford Handbook of Portuguese Politics (with Pedro C. Magalhães and António Costa Pinto) (OUP 2022). I have published 15 book chapters in international presses, including Oxford University Press, Michigan University Press and Routledge. The results of my research have been disseminated regularly in the best conferences in political science, including APSA, MPSA, EPSA, ECPR General Conference, ECPR Joint Sessions.

I am currently involved in several funded research projects. I am the PI of the Parliamentary Candidate Selection in Portugal, 1976-2022 project funded by the Francisco Manuel dos Santos Foundation and the co-PI on a project on the Into the Secret Garden of Portuguese Politics funded by the Portuguese Foundation for Science and Technology. Furthermore, I am a member of POLEVPOP project (PI: Stefaan Walgrave) funded by the European Research Council to unpack how legislators form their perceptions about citizens preferences.

In 2019 and 2022, I have directed the ECPR Summer School on Parliaments in Lisbon to which I invited several leading scholars, such as Kenneth Shepsle, Diana O Brien, Kenneth Benoit, Michael Laver, George Tsebelis, among many others. The organization of the summer school and the scholars I have been able to invite show the excellence and extension of my network in Europe and the United States.

The training and nurturing of young academics have been a tenet of my research career. Since 2020, I have been co-director of the doctoral program in Comparative Politics at the ICS. I am the main advisor of four PhD students. Also, I have co-supervised five Master s theses and sat on numerous



committees. Since my early days as a postdoctoral fellow, in which one of my main tasks consisted in coordinating a team of 35 scholars in an international project, I have developed strong academic managerial skills, which provided me with extensive experience in managing academic teams.

My involvement in the discipline is best seen with my extensive reviewing activities for the leading journals. I have served as a referee for over 80 manuscripts in AJPS, APSR, BJPS, CPS, EJPR, Oxford University Press, Routledge, among many others. Additionally, since 2020, I have been a member of the editorial board of Legislative Studies Quarterly, the flagship journal of the American Political Science Association in the field of legislative studies.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	ROSSI , FEDERICO
Referencia:	RYC2021-032086-I
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Título:	A Comparative Study of Social Movements Legislative Work in Argentina, Brazil, Italy, and South Africa

Resumen de la Memoria:

Why some social movements aim to get seats in parliament? What members of movements do as parliamentarians? Social movements become famous due to their use of disruptive actions. However, in some countries, movements have been developing an array of institutional strategies as well. Among them, movements seek for parliamentarian representation. This, generally, does not mean that movements stop organizing protests. To understand the use of parliamentary representation by social movements is crucial if we intend to improve our comprehension of movement s role in institutional politics. This project is very relevant to social movements and the political sociology of legislatives alike linking both literatures to understand a topic that has not been researched before. This project compares the cases of four central movements in three continents: the unemployed workers movement of Argentina, the landless peasants movement of Brazil, the black liberation movement of South Africa and the environmentalist movement of Italy.

Theoretically, my aim is to move beyond the more formalistic study of the legislative process and examine how institutional politics is linked to informal practices associated with movements. My argument is that movements perform a repertoire of strategies that transcend contentious politics, integrating multiple strategies within the same relational dynamics. Thus, in order to understand the impact of social movements in the legislative process, we need to combine the study of protest with that of the less visible institutional actions that movements perform in a political sociology of the legislative arena. Because my research is mostly interested in the less formal daily interactions of MPs, methodologically I develop a cross-national qualitative comparative study of the repertoire of strategies performed by social movements within the national legislature.

This innovative approach to contentious politics and the political sociology of legislatives will lead to a book monograph with a major university press such as Cambridge University Press and at least two articles in top journals, one in social movement studies, such as Mobilization, and another in political sociology, such as Politics & Society. Simultaneously, my plan is to work on an ERC Consolidator project on the policymaking nexus of institutional politics and contentious politics to understand how street politics connects to technical decisions inside the state. The project I propose is the first step in this important reformulation of the understanding of the role of social movements in law-making and policymaking two neglected areas of study in the social movement scholarship.

Resumen del Currículum Vitae:

I am a political sociologist specialized in social movements and Latin American politics. In my book The Poor's Struggle for Political Incorporation (Cambridge) I propose a theory for analyzing the popular sectors' quest for incorporation as citizens and wage-earners. This book opened a new debate about the role of social movements in political and economic changes, originating the co-edited volume Reshaping the Political Arena in Latin America (Pittsburgh) to further apply my thesis of the second wave of incorporation in Latin America, and Socioeconomic Protests in MENA and Latin America (Palgrave) to expand my approach to the Middle East and North of Africa. Even though I defended my PhD less than 10 years ago, I am a scholar recognized for my important contributions to the understanding of the relational and historical analysis of strategy making and the study of the nexus between institutional politics and contentious dynamics. For this reason, I was invited to edit The Oxford Handbook of Latin American Social Movements, to become a member of the editorial board of The Wiley Encyclopedia of Social and Political Movements, to be a contributing editor of Mobilizing Ideas (Center for the Study of Social Movements, University of Notre Dame), I was awarded a Humboldt Stiftung Fellowship for Experienced Researchers for 2019-2022, I was nominated for the Premio Houssay 2021 as Investigador/a de la Nación Argentina , and I have been invited to give guest lectureships in all continents (WZB in Berlin, LSE, Sciences Po, Universidad de Salamanca, Newcastle University, Scuola Normale Superiore, VU Amsterdam, Brown University, University of Pittsburgh, American University in Cairo, Western Cape University, Singapore Management University, Pontificia Universidad Católica de Chile, Universidad de Buenos Aires, among others). I am Argentinian and Italian, fluent in Spanish, Portuguese, Italian and English.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	MONTOYA BERMEJO, AINHOA
Referencia:	RYC2021-034772-I
Correo Electrónico:	ainhoa.montoya@london.ac.uk
Título:	A Research Agenda on Violence and Democracy: Political Transition and Resource Conflicts
Desumen de la Memo	

Resumen de la Memoria:

I have developed high quality innovative research at top international universities and demonstrated leadership and initiative in a number of ways. My research has focused on the relationship between violence and democracy spanning the fields of the anthropology of violence and conflict, Latin American studies, and more recently political ecology.

Both my doctoral and postdoctoral research career are international, and I have been based at top universities such as Cambridge, Manchester, and London. I am currently Senior Lecturer in Latin American Studies, a position I got when I was only seven years into my post-PhD stage, and since April 2021 I am the Director of the Centre for Latin American and Caribbean Studies (CLACS) at the School of Advanced Study, University of London. I have developed international networks with leading research partners in Latin America, the US, Canada, several European countries, Australia, and India, as well as presented 48 papers at international conferences and seminars, 19 of them by invitation. I have enjoyed research stays in Mexico and Australia.

The originality and innovative nature of my research has been recognized internationally through the acceptance of publications in highly ranked journals and presses, and the award of prestigious large grants and essay prizes. 9 of my 15 journal articles and 4 of my 6 special issues are included in academic journals top ranked (Q1-Q2) by the influential Journal Citation Reports (JCR) and the SCImago Journal and Country Rank (SJR). I have also published a single authored monograph with Palgrave Macmillan as well as 2 invited book chapters with Berghahn Books.

I am the holder of highly competitive and prestigious grants awarded by the European Economic Research Council (ESRC), the British Academy and the US Wenner-Gren Foundation as Principal Investigator, which has allowed me to lead international research teams involving postdoctoral researchers.

I have also important editorial experience. I am a co-editor of the reputed Bulletin of Latin American Research (JCR, Q3), the journal of the Society for Latin American Studies (SLAS) published by Wiley, and the Editor-in-Chief of the Latin American Studies book series published by University of London Press.

Resumen del Currículum Vitae:

Dr Ainhoa Montoya is Senior Lecturer in Latin American Studies at the University of London since October 2019 and Director of the Centre for Latin American and Caribbean Studies (CLACS) at the same institution from April 2021. Her doctoral and postdoctoral research career is largely international. She completed her postgraduate studies (MPhil and PhD) at the top-ranked universities of Cambridge and Manchester, funded by prestigious and competitive scholarships. She has held postdoctoral positions at the University of Manchester, University of London and Universidad Autónoma de Madrid. During her doctoral and postdoctoral career, she has developed international networks with leading research partners in Latin America, the US, Canada, Europe, India and Australia.

Dr Montoya has published most of her research in world-class international journals and presses, which is indicative of the level of excellence of her scientific production. Out of the 15 academic articles, 7 special issues and 1 book review she has published, 9 articles, 5 special issues and the book review have come out in journals positioned in the first and second impact quartiles (Q1 and Q2) by the influential SCImago Journal and Country Rank (SJR) and the ISI Journal Citation Reports (JCR). These journals include Social Analysis, Bulletin of Latin American Research, Journal of Latin American Studies, Anthropology in Action, The International Journal of Human Rights, The Journal of Latin American and Caribbean Anthropology, and Disparidades. Revista de Antropología. She has also published a single authored monograph with Palgrave Macmillan, ranked as 5th best by the Scholarly Publishers Indicators (SPI) in Humanities and Social Sciences, and 2 book chapters with Berghahn Books, ranked as 9th best.

She is the holder of highly competitive and prestigious grants awarded, among others, by the European Economic Research Council (ESRC), the British Academy and the US Wenner-Gren Foundation. Indeed, an important indication of her leadership is the numerous grants she has received over the years, which include 4 post-doctoral fellowships, 3 postgraduate scholarships, 6 travel grants, 10 grants to hold conferences, 2 prestigious and large research grants and 5 small research awards, all of them except one as the Principal Investigator (PI). She is also the recipient of two essay prizes by the American Anthropological Association.

She has considerable teaching and supervision experience at both the undergraduate and postgraduate level, and has designed and delivered original lecture modules for programmes in Anthropology, Human Rights and Latin American Studies. She has supervised two PhD students to completion and is currently supervising another two. She has also acted as an examiner of three PhD dissertations at Goldsmiths, Birkbeck, and Universidad Autónoma de Madrid. She has mentored an average of 2 to 5 visiting postdoctoral fellows per year since 2014, as well as postdoctoral researchers in her own research projects.

Finally, she is a co-editor of the well-established Bulletin of Latin American Research (JCR, Q3) and the Editor-in-Chief of the Latin American Studies book series published by University of London Press, was the editor of an anthropology journal fo



Área Temática:	Ciencias sociales
Nombre:	TULUMELLO , SIMONE
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Título:	Global urbanisation in geographical and comparative perspective: security/violence, housing, imaginaries
Posumon do la Momo	

Resumen de la Memoria:

Centred in human geography, my scholarship is inherently multi- and inter-disciplinary, at the border with critical urban studies, spatial planning and political economy. My work has spanned three main thematic areas:

- my longest research interest, since my PhD (2009-2012) and following up with my post-doc (2013-2018) and Fulbright grant (2016), is the political economy and materiality of urban fear, security and violence a field that intersects urban geopolitics, security policy change and the conceptualisation of urban violence;

- more recently (circa 2016-), I have dedicated significant efforts at building a cluster of housing research, with interest on the links between policy change and political dynamics developing coordination experience in three funded research projects (exPERts, HOPES, Financialization of housing in Southern Europe);

- finally, I am opening a new line of research (project UrbanoScenes, which I coordinate, starting up in 2022) on urban imaginaries, with interest at the way imaginaries have been part of the (re)production of urban politics and policies.

Adjoining these thematic fields is the general goal of contributing to the understanding of the historically dependent and geographically variegated dimensions of global urbanisation, urban change and urban policy. I have been particularly interested in scrutinising the explanatory and strategic power of concepts often used to understand urban change, including neoliberalisation, gentrification, financialisation, planetary urbanisation and smart city. Theory-wise, I have contributed to several fields of conceptualisation: the geographies of fear; multi-scalar patterns of policy change in security and housing; the theorisation of urban violence; multi-scalar, relational and comparative approaches to southern and post-colonial urban critique.

A further transversal factor to my research is an epistemological interest in exploring the relations between local dynamics and global trends, with geographical focus on contexts that have long been at the borderlands of urban theorisation. Southern Europe and the South of the USA. To do so, I have blended four epistemological perspectives:

- case study research, designed to grasp multi-scalar dynamics in the long-run;

- the comparative gesture of global urban studies, to explore the local and regional variegations of global processes;
- the lenses of world-system analysis, to focus on the role of regional patterns of uneven and combined development;
- and a post-colonial approach to urban studies, to enrich theorization from outside traditional contexts of research.

Methods-wise, I have in-depth expertise in gualitative methods (in-depth interviews, participant observation, action-research partnerships, critical discourse analysis over policy documents and media production), usually employed within a case-study design (I teach case-study research in 2 PhDs and a Masters). I have also experience in the use of qualitative GIS, network analysis and scientometric methods.

Resumen del Currículum Vitae:

After defending my PhD (Palermo, 2012), I have developed my career at the Institute of Social Sciences of the University of Lisbon (ICS-ULisboa), as post-doc researcher (2013-2019) and then as assistant research professor (2019 to date). I have held visiting positions at the University of Memphis (as Fulbright Research Scholar; 2016), Polytechnic of Turin (2019) and University of Naples Federico II (2021).

My publication track record is extensive (~120 academic outputs), including 1 monograph, 3 edited books, 6 journal special issues/sections and 30 peer-reviewed articles (e.g. Progress in Human Geography, Urban Geography, Urban Affairs Review, Housing Studies, European Planning Studies).

I have large experience in participating in, writing and managing research projects (e.g. 3 FCT projects, a H2020 MSCA RISE project, an EU-FP7 project, commissioned researches). My funding ID totals ~300,000 contracted under my responsibility, having received funding from: Fulbright Italy-US Commission, Portuguese Foundation for Science and Technology (FCT), US Department of State Bureau of Educational and Cultural Affairs, Association of European Schools of Planning (AESOP), group The Left in the European Parliament, Associazione di Fondazioni e Casse di Risparmio Spa, University of Lisbon, University of Palermo.

I have extensive international relations: at the European level, especially through AESOP; in North America, as a Fulbright Alumnus and with the University of Memphis and the Winston-Salem State University; and with Latin America, within the MSCA-RISE project Contested Territories.

With regard to institutional and editorial service, I am President of ICS-ULisboa s Ethical Committee, adjunct editor-in-chief of leading Portuguese journal Análise Social and coordinator of the thematic section Political Economy of Territory of the Portuguese Association of Political Economy. I have contributed to the founding of one academic journal (plaNext, the journal of AESOP YAs) and two blogs (SHIFT research group and AESOP YAs), as well as serving as member of the editorial board of several journals.

Though holding a research-intensive position, I have significant teaching experience at the under- and post-graduate level (e.g. in the ULisboa PhD in Development Studies and Eurosud International Masters in Southern European Studies), and at supervisioning grad- and post-grad students (2 postdocs; 5 PhDs; 8 Masters/Bachelors). I am currently co-coordinator of the ULisboa PhD in Development Studies.



My expertise has been widely acknowledged internationally. For instance, I have given ~40 invited speeches, done ~100 peer-reviews in virtually all top journals in my field and acted as expert evaluator or advisory board member for H2020 and ORA projects, COST and Uni Catholique Louvain.

The policy relevance of my research is demonstrated by cooperation with institutions at all the governmental levels, e.g.: UN, European Commission, European Parliament, Portuguese parties, Lisbon Municipal Police.

Among my awards are the Scientific Award ULisboa / Caixa Geral de Depósitos in Geography (2019), the ICS-ULisboa Award Outreach in Social Sciences (2020), the 2016 Best Paper Award from journal Finisterra.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	YRIGOY , ISMAEL
Referencia:	RYC2021-033668-I
Correo Electrónico:	ismaelyrigoy499@hotmail.com
Título:	Financialization and Tourism in post-crisis cities

Resumen de la Memoria:

I am a geographer specialized in urban and tourism geography, as well is in political economy. My research analyzes the multilayered process of real estate financialization and the impacts of short-term rentals on housing markets following the 2008 crisis in Spain. It is guided by critical research on human geography and political economy, and particularly on debates on financialization, rentierism and critical approaches to tourism. In my PhD, obtained from the University of Balearic Islands in 2015, I studied how and who urbanized coastal Majorca for tourism purposes. During my PhD studies, I spent 6 months at Lund University (Sweden), creating a network which would be vital for pursuing my career later on.

After earning a Wallanders postdoc at the Department of Social and Economic Geography at Uppsala University (Sweden) in 2017, I shifted my focus to hotel corporations and hotel assets, analyzing the role that banks play via credit in creating large Spanish hotel corporations. Moreover, as I started to collaborate closely with professors Don Mitchell and Brett Christophers, I decided to study as well the relation between housing assets and global corporate landlords. Within this sphere, I have been carrying out research on (i) the role of regulations in boosting the sale of housing assets from Spanish banks to global corporate landlords (ii) the income strategies created by global corporate landlords from rental housing (iii) the social consequences of the acquisition of rental housing by global corporate landlords. Third, I carry out research about the impact of short-term rentals on the rental housing market, demonstrating that devaluation or refurbishment are not a requirement for STRs to appreciate housing assets.

I continued to carry on with the aforementioned research lines as I earned a Juan de la Cierva-Incorporación postoc scholarship in March 2020 and was hosted by Rubén Lois at the University of Santiago de Compostela. I also won in 2020 a large research grant awarded by the Swedish Research Council on Sustainability (Formas) which is currently ongoing. At the University of Santiago de Compostela, I kept publishing on real estate financialization and carried new research on Short-Term rentals incorporating class theory. In October 2021 I earnt a 4-year position as distinguished researcher at the University of Santiago de Compostela, and I was appointed as senior researcher at Uppsala University in November 2021. Currently, I am focusing on creating a research team funded by my own on-going research project and to apply to additional grants in order to enlarge the team and address the following research lines: 1)to analyze the impact of Scandinavian lifestyle migration on coastal Spain housing markets; 2) to dissect the origins of the capital invested by global corporate landlords on the Spanish economy and real estate markets 3) to investigate the social impact of sustainable practices carried out by financial corporations.

The main milestones of my academic career have been securing 500,000 aprox in research grants; publishing 35 peer-reviewed publications, 20 journal articles of which 16 are indexed in JCR and 13 as Q1; and being course leader and lecturer in more than 12 courses in 5 different European universities and supervising more than 25 students at the M.A and B.A levels.

Resumen del Currículum Vitae:

I am a distinguished researcher at the University of Santiago de Compostela and affiliated as a senior researcher at Uppsala University. I am the PI of a 300,000 project awarded the Swedish Research Council on Sustainability, and I am participating in 4 ongoing projects funded by the Spanish Research Agency and 1 project funded by the Swedish Foundation on International Cooperation. In parallel I am affiliated as a senior researcher at the Department of Social and Economic Geography at Uppsala University. Previously, I have been a PhD student at the University of the Balearic Islands (2010-15), visiting PhD student at Lund University, Wallanders Postdoctoral researcher at Uppsala University (2017-20) and Juan de la Cierva postdoctoral researcher at the University of Santiago de Compostela (2020-21).

I have published 35 peer-reviewed contributions, of which 20 are articles published in journals. Out of the 20 articles, 16 are indexed in JCR, 13 are indexed in JCR-Q1 (11 as only/main contributor), 3 articles are indexed in Scopus and 1 in Latindex. Furthermore, I have written 8 book chapters, 6 contributions to conference proceedings and 1 scientific report. According to Google Scholar, I have been quoted 486 times (423 since 2017) and I score a 12 in h-index (9 since 2017) and a 13 in i-index (9 since 2017). I have published several articles dissecting the process of financialization of real estate in Spain in journals such as Antipode, New Political Economy and International Journal of Urban and Regional Research. Furthermore, I carried out one of the earlier cutting-edge top publications about Short-Term rentals in Spain in the journal Urban Studies, followed by another contribution in Antipode and Environment and Planning A I have also studied at length the blossoming hotel corporations as a result of alliances with banks, publishing the main results in global outlets such as Tourism Geographies and Geoforum.

I have also coordinated a special issue at Environment and Planning A, organized sessions at the AAG, RC21 conferences and I am also organizing an international conference to be held in 2022. I have supervised more than 25 M.A and B.A theses in three different universities in Spain and Sweden (International University of Barcelona-UNIBA, Uppsala University, University of Santiago de Compostela). I have also spent hundreds of hours delivering lectures and seminars in at least six different M.A and B.A programs in Uppsala and Santiago. I have been invited to deliver seminars at the Institutet för bostads- och urbanforskning (IBF), Uppsala University; European Tourism Research Institute (ETOUR) at Mid Sweden University; Department of Geography, Umea University; or the Barcelona city council, amongst others. I am also the co-editor of an emerging Spanish peer-reviewed journal, Journal of Tourism Analysis and I have become a member of the Swedish Society for Anthropology and Geography (SSAG). I am now in the process of submitting three research projects as PI to Swedish and Spanish agencies; and I am part of the research team in another submitted Swedish project and three Spanish ones. The aim is to consolidate a research team both in Spain in Sweden in order to multiply the research outputs and create a solid team to apply for large European grants.





Área Temática:	Ciencias sociales
Nombre:	SANCHEZ CRIADO, TOMAS
Referencia:	RYC2021-033410-I
Correo Electrónico:	tomassanchezcriado@gmail.com
Título:	The body and the city: The knowledge and politics of urban accessibility
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Resumen de la Memoria:

As an interdisciplinary researcher at the crossroads of Anthropology and Science and Technology Studies, I have become interested in the analysis of urban dynamics where the body takes centre-stage. In my 15 years of experience as an academic, I have developed an international career working as lecturer and researcher in Spain, the UK and Germany in different departments and centres of Social & Cultural Anthropology and STS.

Since April 2018 I work as Senior Researcher at the Department of European Ethnology, Humboldt-University of Berlin (one of the top anthropology departments in one of the most prestigious universities in Germany). There I currently direct the Stadtlabor for Multimodal Anthropology, a public research platform where anthropologists interested in contemporary urban issues explore multimedia formats of knowledge production, dissemination and intervention in collaboration with other urban actors.

Previously I worked at the leading German technical university, TU Munich, where I held an interesting interdisciplinary position: working as senior researcher at both the Munich Centre for Technology in Society and the Department of Architecture, having the opportunity to forge cross-disciplinary connections and develop experimental pedagogies to make socio-cultural issues relevant to technical professionals.

I have developed my own line of research leading and collaborating in third-party funded projects developing a research career as an expert in urban accessibility, committed to the development of more inclusive cities. As a result of these projects as I explain in depth in the summary of the research career I have contributed to (i) analysing the technologization of policies for urban inclusion; (ii) studying the emerging forms of expertise managing these urban infrastructures; (iii) inquiring on the practices of technoscientific activism politicising urban accessibility issues, singular forms of collective action in close contact with technical professionals; and (iv) undertaking participatory processes and pedagogical work making these issues of relevance for urban design practitioners, such as architects or planners.

This work has been published in more than 50 high-quality indexed publications in English, Spanish, and German (8 articles in Q1 journals, 21 articles in indexed journals, 4 edited books, 5 special issues, 20 book chapters).

In this domain I have not only supervised 3 PhD theses in the last 5 years, as well as a variety of MA thesis, but I have also contributed Europe-wide as member of PhD committees for different candidates. Furthermore, I have also initiated collaborative and public forms of ethnographic research involving urban actors in platforms for collective inquiry, also organizing academic and public events, such as co-creation workshops, and engaging in public dissemination and debate in a variety of genres.

Stemming from the international collaborations my works and publications have forged, I have also had the chance to share my work in prestigious institutions across Europe and the Americas, being regularly invited as a researcher, keynote speaker and lecturer.

Besides, I am member and have been active in several scientific societies and initiatives.

For all these achievements, in 2021 I was recognised AQU Catalunya s Accreditation of Research (Associate Professor rank).

Resumen del Currículum Vitae:

I am an anthropologist interested in the analysis of urban dynamics and their impact in city-making. In my 15 years of research experience, I have developed an international career as an interdisciplinary scholar, working as lecturer and researcher in Spain, the UK and Germany.

Since April 2018 I work as Senior Researcher at the Department of European Ethnology, Humboldt-University of Berlin (one of the top anthropology departments in one of the most prestigious universities in Germany). There I currently direct the Stadtlabor for Multimodal Anthropology, a public research platform where anthropologists interested in contemporary urban issues explore multimedia formats of knowledge production, dissemination and intervention in collaboration with other urban actors.

Previously I worked at the leading German technical university, TU Munich, where I held an interesting interdisciplinary position: working as senior researcher at both the Munich Centre for Technology in Society and the Department of Architecture, having the opportunity to forge cross-disciplinary connections and develop experimental pedagogies to make socio-cultural issues relevant to technical professionals.

I have developed my own line of research leading and collaborating in third-party funded projects studying the knowledge and politics of urban accessibility initiatives trying to develop more inclusive cities. In my research, I have contributed to (i) analyzing the technologization of policies for urban inclusion; (ii) studying the emerging forms of expertise managing these urban infrastructures; (iii) inquiring on the practices of technoscientific activism politicising urban accessibility issues, singular forms of collective action in close contact with technical professionals; and (iv) undertaking participatory processes and pedagogical work making these issues of relevance for urban design practitioners, such as architects or planners.

This work has been published in more than 50 high-quality indexed publications in English, Spanish, and German (8 articles in Q1 journals, 21 articles in indexed journals, 4 edited books, 5 special issues, 20 book chapters).



Turno de acceso general

In this domain I have supervised 3 PhD theses and a variety of MA thesis. Furthermore, I have also initiated collaborative and public forms of ethnographic research involving urban actors in platforms for collective inquiry, also organizing academic and public events, such as co-creation workshops, and engaging in public dissemination and debate in a variety of genres.

Stemming from the international collaborations my works and publications have forged, I have also had the chance to share my work in prestigious institutions across Europe and the Americas, being regularly invited as a researcher, keynote speaker and lecturer.

Besides, I am member and have been active in several scientific societies and initiatives. Most notably: (i) the European Association for Social Anthropologists, where I founded and co-convened the Collaboratory for Ethnographic Experimentation network; and (ii) the European Association for the Study of Science and Technology, where I was part of the council member, also participating in the organisation of the 2016 conference in Barcelona.

For all these achievements, in 2021 I was recognised AQU Catalunya s Accreditation of Research (Associate Professor rank).


AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: Challenges (GLOBALGOV)

Ciencias sociales

ROGER, CHARLES

RYC2021-032242-I

croger@ibei.org Global Governance: Formal, Informal, and Transnational Approaches to Economic and Environmental

Resumen de la Memoria:

I am an Assistant Professor and Beatriu de Pinós Research Fellow at the Institut Barcelona d Estudis Internacionals (IBEI), and a Visiting Fellow at the Robert Schuman Centre for Advanced Study of the European University Institute (EUI). I have a PhD in Political Science (2016) from the University of British Columbia, and I was a Postdoctoral Fellow at the University of Toronto. My research employs theories from the fields of International Relations, Comparative Politics, and International Political Economy to explore the transformations occurring in our system of global governance and how these are reshaping our ability to address cross-border problems. Substantively, it has focused on formal, informal, and transnational institutions involved in the governance of environmental and economic issues.

More specifically, my research agenda has three main dimensions. The first focuses on the politics of informal global governance. I have recently published a book with Oxford University Press entitled The Origins of Informality: Why the Legal Foundations of Global Governance are Changing, and Why It Matters. This work explores how the rise of the regulatory state and the polarization of politics within powerful states have underpinned the growth of informal international organizations. I have also recently been extending this research by exploring processes of institutional change especially, the formalization and informalization of global institutions and the variable impacts of membership in informal bodies on human rights, democracy, and environmental protection.

The second focuses on the politics of transnational governance, looking especially at the complex set of institutions created to govern climate change. Here, I have published articles in journals like Review of International Organizations, International Interactions, and International Studies Quarterly on the role of international organizations in orchestrating transnational climate governance, on the evolution of theories and methods used to study transnational rulemaking, and on how domestic politics and institutions shape the uptake of transnational rules. I have also co-authored an awardwinning book with Cambridge University Press on the growth, effectiveness, and legitimacy of transnational climate governance. And I am presently extending this line of research by studying how the governance ecosystems that transnational rules operate within shape their impact on global sustainability practices.

Finally, my work has explored the political economy of global environmental policymaking. This line of research has included a major cross-national research project and co-edited volume (published with Polity Press) on domestic climate policymaking in developing and emerging economies, and several articles (in Global Policy and Political Studies) examining how global climate governance has been transformed in the wake of the Paris Agreement. Most recently, I have been investigating how institutional design trade-offs shape political cleavages in multilateral environmental negotiations and how policymakers manage these trade-offs across multiple rounds of bargaining by layering new agreements on top of old ones.

Resumen del Currículum Vitae:

I am an Assistant Professor and Beatriu de Pinós Research Fellow at the Institut Barcelona d Estudis Internacionals (IBEI), and a Visiting Fellow at the Robert Schuman Centre for Advanced Studies of the European University Institute (EUI). My research and teaching explore the transformations occurring in our system of global governance and how these are shaping our ability to address global problems. Substantively, it focuses on formal, informal, and transnational institutions governing the environment and economy, including questions related to their institutional design, their complex interactions, and their broader impacts.

My recent books include The Origins of Informality: Why the Legal Foundations of Global Governance are Shifting, and Why It Matters (OUP, 2020) and Transnational Climate Change Governance (CUP, 2014; with Harriet Bulkeley et al.), both of which have received international recognition as leading studies in my field. In 2021, the former was shortlisted for the L.H.M Ling Outstanding First Book Award of the British International Studies Association (BISA) and the latter was runner-up for the 2015 Harold & Margaret Sprout Award of the International Studies Association (ISA), which recognizes the best book on global environmental politics. In addition to several edited volumes, I have also published in many highly ranked journals, including Global Governance, International Interactions, International Studies Quarterly, International Studies Review, Political Studies, and Review of International Organizations.

Throughout my career, I have initiated and managed numerous high-profile projects. Early on, I worked alongside David Held as co-director of the LSE-AFD Climate Governance Programme at LSE Global Governance, overseeing an international team of junior and senior scholars investigating the politics of climate governance in developing and emerging economies. Since then, I have spearheaded collaborative projects with some of the top scholars in International Relations, including serving as a co-editor of special issues of Global Policy and International Interactions with David Held (Durham), Tom Hale (Oxford), and Liliana Andonova (Graduate Institute). Beyond this, I have also regularly organized workshops and lecture series, including the LSE s Ralph Miliband Programme and the Munk School of Global Affairs Environmental Governance Lab (EGL) Workshop. Presently, I am also a co-convenor of the Barcelona Workshop on Global Governance, a premier venue for research in my field.

To support these projects, I have successfully attained over 550.000 of funding through grants and fellowships from institutions like the Agence Francaise de Developpment (AFD), the Centre for International Governance Innovation (CIGI), the European Cooperation in Science and Technology (COST), the Social Sciences and Humanities Research Council of Canada (SSHRC), and the Spanish Ministry of Science and Innovation (MICINN). Finally, I have regularly sought to translate findings from my research into valuable lessons for students via innovative classes, lectures, and activities at IBEI,



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

and for policymakers too. In particular, I have advised the United Nations and other IOs, parts of the business community, and I previously served on the Intergovernmental Panel on Climate Change (IPCC).





Área Temática:	Ciencias sociales
Nombre:	LOZANO RIERA, MARIONA
Referencia:	RYC2021-034487-I
Correo Electrónico:	marionalozanoriera@gmail.com
Título:	The interplay between labor market and family dynamics
Resumen de la Memoria:	

My research interests center on the dynamics between paid work and family responsibilities, with a major focus on gender. I have studied a broad range of topics within these two domains including labor-market trajectories, international migration, non-standard employment, wellbeing, and fertility.

Work-family balance and labor-market conditions were the main subjects of my Ph.D. dissertation (UAB, 2013). It focused on the social determinants of migrant workers occupational mobility in Spain. After graduating, I moved to Canada where I was awarded a postdoctoral fellowship (McGill, 2013-2016). There, I studied the extent to which work-family balance is a source of stress among parents. Three years later, I moved to Edinburgh with a new postdoctoral position within a qualitative study led by Professor Lynn Jamieson (University of Edinburgh, 2016). The project explored the economic determinants of fertility intentions in Europe, and I performed the analysis of the Spanish interviews. In 2018, I was awarded a Juan de la Cierva fellowship from the Spanish Government, and I moved back to Spain where I started working at the Centre for Demographic Studies in Barcelona.

Since then, I am an active member of the DEMFAS (Demography and Family Research) group led by Dr. Albert Esteve, and within this group, I am the main responsible for the Gender and Inequality area. I have developed two main lines of research. First, I am exploring individuals access to job quality and the rise of precarious working conditions over peoples lives. Within this line, I led three research projects funded by Fundación Ramon Areces (2018-2019), La Caixa Social Observatory (2021-2022), and the Spanish Ministry of Science and Innovation (2020-2023). Second, my research is also focused on the association between working trajectories and fertility outcomes. More specifically, I study the consequences of temporary work and job instability on fertility decisions and family dynamics at the micro-level. This line of research is being developed together with Dr. Alícia Adserà (Pricenton University) who has long studied the relationship between unemployment and fertility at the macro level.

Resumen del Currículum Vitae:

I am a sociologist, with post-doctoral training in social demography. I received my Ph.D. from the Universitat Autònoma de Barcelona in 2013 (UAB). This dissertation was granted with UAB s extraordinary award in 2015. In 2011, moved to McGill University in Montreal (Canada where I finished my dissertation there, under the supervision of Axel van den Berg (McGill), who jointly with my advisors from the UAB, Professors Óscar Molina and Antonio Martín, guided me during the writing process. This research stay at McGill was possible due to my participation in an EU-funded project and additional financial support from the Catalan Government.

Later, I gained a competitive scholarship from the Canadian Social Science and Humanities Research Council to work as a postdoctoral fellow in the Department of Sociology at McGill University. I worked with Professor Céline Le Bourdais from 2013 to 2016, and we studied the extent to which work-family balance is a source of stress for parents. During this time, I gained strong quantitative analysis and knowledge of social demography.

In 2017, I conducted qualitative research at the University of Edinburgh. I participated in a project led by Professor Lynn Jamieson that aimed at understanding fertility intentions in Europe. Later this year, I was finally able to return to Spain thanks to a Juan de la Cierva Fellowship, which allowed me to start working at the Centre for Demographic Studies (CED Centre d Estudis Demogràfics) in Barcelona, and I joined the DEMFAS group led by Dr. Albert Esteve. Within this institution, I was additionally awarded a research project funded by the Fundación Ramon Areces. Additionally, I was funded by the Spanish government to do an academic stay at Harvard University (grant from the Sociological Research Centre CIS, 2017), and another at the University of Indiana (grant from the Spanish Ministry of Economy and Competitiveness, 2019).

At the CED, I am currently the PI of two research projects and the lead coordinator (Dean) of the European Doctoral School of Demography (EDSD). Thanks to this role, I acquired fruitful managerial skills, as well as advising and conflict-solving abilities.

During my career, I published 15 scientific papers and 7 technical and dissemination reports. I am the first author in 13 of them.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	BARBULESCU , ROXANA
Referencia:	RYC2021-032148-I
Correo Electrónico:	roxanabarbulesc@gmail.com
Título:	Associate professor in sociology and public policy of migartion

Resumen de la Memoria:

I am a tenured Associate Professor in Sociology and Social Policy at the University of Leeds in UK. As Ramon y Cajal fellow I would be placed within the Departamento de Sociologia Aplicada, Universidad de Compultense. I hold a PhD in Political and Social Studies from the European University Institute Florence (defended June 2013, PhD awarded with no corrections). My research focuses on migration and citizenship studies and takes the challenges they open as unique entry points to explore the foundations of society in the Westphalian nation-state tradition more broadly, the forces of push and pull and the vectors of integration and exclusion in contemporary societies. My research philosophy is firmly rooted in a rights-based and anti-racist approach and in doing so I examine how mobility integration and exclusion regimes gain meaning in practice in everyday lives and how best to intervene with policies to improve the lives of migrant and refugee communities and foster a shared sense on belonging.

To pursue this research agenda, I have developed a track record of publications in the field, I have been awarded research grants and have invested in enhancing research capacity through training and service in my institution and internationally. I am dedicated to student education and have build new connections between research and teaching through innovative learning activities and by bringing ongoing research projects into the classroom.

In my work in the migration and citizenship studies, I have put great emphasis on developing a portfolio of high quality publications with leading journals and publishing houses in the UK and internationally. I have published one single authored research monograph with Notre Dame University Press and edited two books with Polity Press and IMISCOE Series Springer. I have also published in leading international peer review journals in the area of migration. In the coming years I will put my efforts towards consolidating journal article publications working towards a fourth book potentially for a University Press publisher

Resumen del Currículum Vitae:

Dr Roxana Barbulescu is tenured Associate Professor in the School of Sociology and Social Policy at the University of Leeds, UK. Barbulescu received her PhD in Social and Political Sciences from European University Institute in Florence, Italy. She was formerly Research Fellow at the ESRC Centre for Population Change at the University of Southampton, Postdoctoral Research Fellow at the ENT Chair at the College of Europe (Natolin Campus), a Research Fellow at the University of Sheffield, UK. Barbulescu was a Visiting Research Fellow at the European Union Centre for Excellence (EUCE, 2014) at the University of Montreal, GRITIM, the University of Pompeu Fabra (2011) and CEACS Juan March Foundation in Spain (2010) and University of Trento, Italy (2009).

Barbulescu s area of expertise focuses on migrant communities and practices of migration and mobility particularly in connection with migrants' and refugees rights, citizenship, intra-EU mobility, diverse cities, borders, migration control and nations. She is a social scientist with an interest in policy interventions and enthusiasm for comparative research. These areas have been developed in publications, by being awarded research grants and by bringing these expertise and experience to teaching and doctoral supervision.

First, Barbulescu has consolidated my profile by securing research income on key research questions in the field of migration and citizenship as PI and Co-I developing and leading projects as well as working as part of a team. These grants are detailed in section C. In terms of teaching, Barbulescu teaches, marks and oversees on a number of modules at the undergrad and graduate level including SLSP1190 Identities, Inequalities and Policies in Contemporary Societies (Level 1) SLSP2650 Key Debates in Social Policy (Level 2) SLSP2690 Racism, Ethnicity, Migration and Decolonial Studies (Level 2) SLSP5400M Researching Inequality in the Media (MA Level) SLSP5360M Racism Decoloniality and Migration (MA level). Since 2016 she have been personal academic tutor to over 120 students.

Barbulescu has also supervised dissertations in sociology and social policy guiding to completion 30 undergraduate students and 26 MA students.





Área Temática:	Ciencias sociales
Nombre:	YABANCI , BILGE
Referencia:	RYC2021-030859-I
Correo Electrónico:	yabancibilge@gmail.com
Título:	Civil Society and Social Movements under Democratic Regression and Autocratization
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Resumen de la Memoria:

My research is interdisciplinary and connects theoretical and conceptual borders of political science, sociology, and political psychology. I completed my Ph.D. at the University of Bath in 2014. For my dissertation, I developed an integrated theory of local legitimacy of state-building and conflict resolution in unrecognized states based on extensive fieldwork that I carried out in Kosovo and Cyprus.

Following my Ph.D., I established my academic independence through 4 individual fellowships and international mobility. Swedish Institute fellowship funded my postdoctoral project on shrinking civic space and democratic regression. Open Society Fellowship allowed me to expand my fieldwork to a transnational level to include the role of diasporas in autocratization of their home countries. I have received 2 Marie Curie Fellowships (one European and one Global). During the Marie Curie European Fellowship, I expanded my research skills to mixed methods design going beyond my expertise in site-intensive interpretive methodology and trained in statistical research methods.

I can categorize my major scientific contributions in 4 interlinked research streams: 1) democratic regression and autocratization, 2) civil society and social movements, 3) populism, polarization, and democracy nexus 4) religion, nationalism, and the role of emotions and performance in political mobilization.

I theorized the under-researched societal dimensions and non-partisan mechanisms of de-democratization by demonstrating how civil society -a nominally democratic arena- can entrench undemocratic regimes. For this, I carried out an ethnography of coopted civil society to establish that power-abusing incumbents use civil society to flood the public sphere with pro-government alternative facts, render the public sphere univocal and seek societal consensus for undemocratic policies. I have a special focus on civil society and interest group mobilization in the area of gender politics. I have also expanded this research to a transnational level focusing on the question of what motivates diasporas to support undemocratic governance in their home states and investigated the role of diasporic civic space in autocratization.

My research also focuses on the populism, religion, and nationalism relationship. This research combined perspectives from historical institutionalism, cultural sociology, and framing theory. I theorized how and why the nation-building process and collective memory can deepen contemporary populist movements appeal. Relatedly, my scientific contributions extend into the role of affective and performative links between political movements and their constituencies. I contributed to the theorization of political mobilization by showing the mediating role of religio-nationalist imageries, discourses, and performances.

I have added a novel stream into my research with my ongoing Marie Curie Global Fellowship since January 2022. For this project, I combine my previous research on civil society with research on public policies, attitudes and public communication regarding the rights of non-citizens. By utilizing online randomized experiments, I aim to go beyond descriptive methods that dominate social sciences towards theory-testing and solution-oriented findings to counter the systematic marginalization of migrants and refugees for inclusive societies.

Resumen del Currículum Vitae:

I am a Marie Curie Global Fellow at Ca Foscari University of Venice (Italy) and Northwestern University (USA). I have received academic training across Turkey (undergraduate), Sweden (master), and the UK (doctorate). My research career is also international. Between 2014-2017, I was a researcher at the Centre for Policy and Research on Turkey in London and at Luxembourg Institute for European and International Studies. In 2015-2016, I contributed to the Horizon 2020 Project Future of the EU-Turkey Relations in Italy and worked as visiting research fellow at the University of Graz, Austria.

To date, I have received 4 prestigious research grants, totaling 560k euros. Swedish Institute fellowship funded my postdoctoral research at Stockholm University (2017-2019) on the topic of political repression and shrinking civic space. In 2018, I received Open Society Fellowship. I was one of the 13 worldwide recipients. During this fellowship, I collaborated with data scientists, journalists, artists, civil society, and diplomats on topics related to human rights. I also carried out networking and research visits to Bosnia and Herzegovina, Senegal and Mexico. I received 2 Marie Curie fellowships (European and Global). With the European fellowship (2019-2021), I theorized the politicization of civil society and the judiciary under autocratization through a mixed methods research design. With the ongoing Global fellowship, I carry out a project to address the systematic marginalization of non-citizens for more inclusive societies.

I have received other awards and scholarships including the University of Venice Overseas Mobility Grant for Japan (deferred due to COVID 19), University of Bath Research Fellowship for my doctoral research, 2-year postgraduate scholarship to study at Lund University from the Swedish Institute and the Consulate General of Sweden in Istanbul.

I have expertise in site-intensive interpretive research methods that spans over a decade. I carried out fieldwork in 7 countries. In the last two years, I trained in statistical methods at Michigan University ICPSR which I am currently applying in my mixed-method research. I am an active contributor to the scientific community. I have published 12 articles (7 in Q1 and Q2 category, h-index: 8), 5 book chapters, several other publications (review articles, reports, working papers). I communicated the socially relevant aspects of my research through several interviews and opinion pieces. I have organized 8 academic conferences, workshops, and panels. I am also an active peer-review for top journals in my area such as Democratization, Comparative Politics, Party Politics, Politics and Gender, European J. Cultural and Political Sociology.



Besides contributions in research, I have experience in training and mentoring students which I look forward to expanding in the future. During my Ph.D., I taught 2 courses (European Politics and Europe after 1945) for undergraduates. I worked as Master Programme Assistant, undertaking teaching, mentoring (14 MA students), and administrative duties at the postgraduate level. Currently, I externally mentor 2 Ph.D. theses. I was invited to teach at the 2021 'TOMidEast' Summer School at the University of Turin. During the Fall 2021-2022 semester, I designed a new course on Qualitative Research Methods for Political Science and IR students.



AGENCIA ESTATAL DE INVESTICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	MILANO , CLAUDIO
Referencia:	RYC2021-032437-I
Correo Electrónico:	claudiomilanouab@gmail.com
Título:	The politics of tourism mobilities in times of restraints

Resumen de la Memoria:

Based on my research trajectory around the entangled power relations that unfold in tourist destinations, my research interests revolve around the repercussions of the new regimes of (im)mobilities to offer a perspective on the social exclusion devices that are activated concerning (im)mobilities in troubled times. Mobilities restrictions have highlighted the exclusion practices and the tourism economy externalities by showing social inequalities due to dependence on benefits in a context of scarcity and lack of alternatives.

The research proposed in the framework of the Ramon y Cajal Program aims to offer ethnographic and comparative accounts, theoretically grounded, of the transformations of social perceptions and mobilisations, of the labour dimension, and of reactivation strategies of urban environments dependent on the tourist economy. The aim is to discover and understand the unintended consequences of the transformations in the spheres of social life related to the practices and activities of tourism (im)mobilities. In this sense, the current research inquiries will be on how much more vulnerable the sector is to shocks by the pandemic crisis. The anthropological research on contemporary mobilities offers a privileged environment for the critical analysis of the socio-political consequences of borders, identities, cultural boundaries, and the nature/culture relationship. Based on the socio-anthropological analysis, contemporary (im)mobilities provide a valuable tool for the development of critical theories on social classification systems.

The leadership, organizational skills and perseverance capacities have been essential in the development of my research career. As an example of this are the Direction of a Research Group, the coordination of international seminars, the keynotes speeches delivered in international conferences, and the research project design which has resulted in successful financing of Horizon 2020 and European Parliament projects. During these years I have presented my research findings thorough lectures and keynotes in academic seminars and conferences organized by the European Parliament, City Councils, Governmental Institutions and Universities in Europe, Asia, Africa, and Latin America. My teaching and dissemination capacities are also high-profile. I have broad international teaching experience at graduate and postgraduate levels in Europe, Latin America, Asia, and Africa. I supervise two PhD students and I have contributed to 91 academic congresses events as presenter and invited-keynote speaker. During my academic career I have been committed to transfer and disseminate the results of my research beyond academia and indicators of academic impacts. Thus, some of my contributions have had an impact on public policy issues through reports for governmental institutions such as the European Parliament (Peeters et al., 2018, which also count with 326 citations in Google Scholar), the United Nations World Tourism Organization and policy briefs for the European Parliament and CIDOB (Centre for International Affairs). My commitment to socializing the products of my research has resulted in publications in international and national and national newspapers such as The Conversation, The Guardian, El Vanguardia, El Diario and El Salto among others.

Resumen del Currículum Vitae:

I am a social anthropologist with a career background in researching and teaching in different Universities throughout Europe, Latin America, and Asia. I am currently interested in mobilities and tourism policies and their effects on social inclusion in urban settings in euro-mediterranean cities. More specifically, I explore the grassroots organizations involvement in different levels of participatory dynamics of mobilities governance practices. My research has been supported also due to the post-doctoral positions as Visiting Researcher Fellow at the University of Brighton, at the Inholland University of Applied Sciences (The Netherlands), and currently at the Wakayama University (Japan). My latest publication brings together the results of this research Travel and Tourism in the Age of Overtourism (Routledge with Marina Novelli and Joseph M. Cheer). Currently, I am a Beatriu de Pinós/Marie Sklodowska-Curie postdoctoral researcher with a project that aims to explore the role of the new regimes of tourism (im)mobilities in the age of extremes. The postdoctoral position is with the Research Group Anthropology and History of the Construction of Social and Political Identities (AHCISP) at the Social and Cultural Department of the Autonomous University of Barcelona.

During the academic year 2021/22 I have been teaching as an adjunct professor at the Department of History, Culture and Society at the University of Rome Tor Vergata, at the Social and Cultural Anthropology Department of the Autonomous University of Barcelona, and at the Social Anthropology Department of the University of Barcelona. I am engaged in both national and international academic networks as Co-Deputy Chair for the Commission on the Anthropology of Tourism of the International Union of Anthropological and Ethnological Sciences' IUAES and member of the Institut Català d Antropologia (ICA). I am part of the Editorial Board and reviewer of scientific journals for publishers such as Routledge, Edward Elgar, CABI, Taylor and Francis and Emerald Publishing among others. In the last ten years, I have collaborated in the design of international projects, funding, and grants, successfully conceded, such as HORIZON2020, European Parliament (Committee on Transports and Tourism - TRAN), and projects funded by the Ministry of Education and Science of Spain.

I have a total of 35 contributions with 17 papers in indexed journals (14 in Scopus SJR and JCR and 3 in MIAR). I was co-editor of three special issues for the International Journal of Tourism Anthropology, the Journal of Tourism Planning and Development, and Cities: The International Journal of Urban Policy and Planning. Finally, my academic production has 1954 citations in Google Scholar (of which 14 citations Index h and 20 Index i10), and 285 citations in Web of Science (4 Index h).



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias sociales
Nombre:	CRISTANCHO MANTILLA, CAMILO
Referencia:	RYC2021-034558-I
Correo Electrónico:	camilo.cristancho@ub.edu
Título:	Political responsiveness and representation of organized groups in the political agenda
Resumen de la Memoria	· · · · · · · · · · · · · · · · · · ·

My research covers three main areas: Protest, interest groups and collective action; agenda dynamics and political representation; and methodological innovation. These involve work that has been developed in collaboration with multiple scholars from universities all over the world.

Regarding the first area, I have provided innovative theoretical and empirical analysis on collective action, especially looking into social movements and interest group organizations with a focus on outcomes, actions, and public perceptions towards them. My contribution on interest groups research can be summarized in four outcomes: (1) The extent to which the interests of organized groups are represented in the political agenda, and influence and response processes of political elites to the issues raised by organized groups in the legislative arena and social media. (2) How public perceptions of interest groups are determined by the types of contact, interests, and issues. (3) The study of interest groups from a comparative perspective using surveys to organizations and data from public registries of parliamentary and government action. (4) The study of transparency policy by describing the institutional context and how interest organizations get involved in policy definition, as well as explaining how changing regulations transform interest groups behaviours.

Second, my research on representation has focused on political representatives and the interaction of legislative agendas and social preferences with two topics:

1. Inequalities in issue attention, where I have been working on a comparative approach including multiple countries to study (a) issue attention in the parliamentary arena and in social media in order to assess the effect of the parliamentary institutions as compared to the social media arena, where agenda capacity and intervention rules do not constrain the number of topics representatives deal with. and (b) linguistic differences in parliamentary interventions. Differences in the use of language signal an additional dimension than the substantial interest on particular topics. inequalities in political representation.

2. Inequalities in political representation, by studying issue salience in general population surveys broken down by gender, age, socio-economic status, and partisanship in order to explain differences between attention to policy issues by MPs and the most important problem identified by citizens. We use monthly survey data (CIS barometer) and oral questions in parliament in the period 1990-2020.

Third, I have contributed throughout all my research lines with an innovative use of state-of-the-art techniques for data collection and analysis. This has allowed me to create several datasets and analytical approaches such as automatically extracting protest event data from Twitter and news articles, scraping data from official records and political organisations, methods to identify political rhetoric such as policy narratives or movement frames and to classify contents of political text into policy issues or speech styles using machine learning. I currently teach on these methods at postgraduate level in the Data Analyst for Political Analysis and Public Management program at the UB, IBEI, and in occasional workshops for other academic institutions or practitioners.

Resumen del Currículum Vitae:

The output of my research is published on peer-reviewed articles in top journals like the European Journal of Political Research (JCR Q1), Information, Communication & Society (JCR Q1), the Journal of Public Policy (SJR Q1, JCR Q2), European Journal of Communication (SJR Q1, JCR Q2), American Behavioral Scientist (SJR Q1, JCR Q2), Acta Politica (SJR Q1), The International Journal of Communication (SJR Q1), Communications: The European Journal of Communication Research (SJR Q2), Mobilization (SJR Q1), Revista Española de Ciencia Política (SJR Q2), and 3 book chapters for publishers like Routledge, EU-LAC Foundation, and the CIS. I have been invited to different international academic events to speak about findings and methods and I also present my research regularly on political science conferences like APSA, EPSA, ECPR, IPSA, ESA and workshops specializing on methods and protest politics.

I have been awarded two different research projects as IP. Percepciones ciudadanas de los procesos de interacción entre los ciudadanos y sus representantes (AGAUR - 2018 9,200) and Rhetorical representation and influence of organized groups in the definition of public debate and in legislative activity (JIN I+D+i 139.634). I have been a member in three international and eight national research projects, where I have co-led the fieldwork polling individuals and political organizations, designing, and implementing lab and survey experiments, doing automated text analysis of news articles, and surveying demonstrators. I have been responsible for the production, collection, management and analysis of survey, social networks, textual and spatial data.

My teaching areas include collective action, political attitudes, and public opinion; organizations in politics; public policy with a focus on agendas and narratives; and applied statistical and computational methods for text and network analyses techniques on these sub-fields. I have written two textbooks on applied statistical research (UOC). I am an accredited assistant professor (AQU 2018) and lecturer (contratado doctor - ANECA 2021). I have mentored 8 research assistants, directed more than 10 master's theses (3 merit awards), served on 3 PhD committees, reviewed for 17 international academic journals, currently co-supervise of a PhD thesis, and serve as project evaluator for the Research Agency of the Ministry of Science and Innovation.

I have collaborated with different political institutions to implement policy projects (Department of Foreign Affairs, Institutional Relations and Transparency - Government of Catalonia and Diputació de Barcelona).



I graduated from the U. de Los Andes, Colombia in Government and Public Administration in 2007. I finished my MsC in Political Science 2009 and PhD in 2014 by the Universitat Autonoma de Barcelona (PIF grant). My thesis "Political Disagreement in Contentious Politics" was supervised by Eva Anduiza and José M. Sabucedo. I have worked as post-doc with Emiliano Grossman in SciencePo - CEE, 2019; visiting researcher with Stefaan Walgrave (University of Antwerp), Michael Hogg (Claremont Graduate University) and Donatella Della Porta (EUI). I am a member of the Quality of Democracy research group, and academic networks: Comparative Interest Group Survey, Text Mining of Political and Legal Texts (COMPTEXT) and ECPR Standing Group on Political Methodology.



Área Temática:	Ciencias sociales	
Nombre:	LANAU SANCHEZ, ALBA	
Referencia:	RYC2021-030963-I	
Correo Electrónico:	alanau@ced.uab.es	
Título:	Multidimensional poverty and inequality in the early life course	

Resumen de la Memoria:

I hold a PhD in Social Policy (University of Bristol), a MSc in Public Policy (Bristol) and a B.Sc. in Political Sciences (Universitat Pompeu Fabra), both highranking institutions. My research and teaching span across the disciplines of social policy, sociology and development studies.

My research exploits the potential of multidimensional approaches to shed light on both causes of poverty and potential solutions, by uncovering processes that are not obvious when using income based measures. My main areas of expertise include poverty measurement, poverty dynamics and intra-household inequality. Over the years my interest in gender inequality has translated in participation in several projects studying gender violence, sex work, and gender inequality.

My projects often merge applied and academic research. I have led national and international projects, securing over 600.000 through competitive funding, grants and contracts and collaborating with institutions such as UNICEF, the UK Home Office, and the African Child Policy Forum. These ongoing collaborations have resulted in 30+ publications including reports, dissemination pieces, book chapters and academic papers. My work has been published in top journals (9 Q1, 2 Q2) including the Journal of Social Policy, Child Indicators Research and the Journal of Interpersonal Violence. Between 2012 and 2018 I held several teaching positions, and in 2018 became a Lecturer at University of Bristol teaching in their Social Policy, Childhood Studies and Criminology degrees at undergraduate and graduate level, always with very positive evaluations. In 2018 I achieved the status of Fellow of the Higher Education Academy, which certifies excellence in teaching in higher education.

In January 2020 I became a Beatriu de Pinós fellow at Centre d Estudis Demogràfics. The project provides the first in-depth analysis of intra-household inequality between children and adults in Europe, challenging the unitary household model commonly used in poverty measurement. Additionally, I serve as Associate Editor at the Journal of Poverty and Social Justice, and coordinate a public seminar series on demography and social change with La Caixa foundation.

Resumen del Currículum Vitae:

My research exploits the potential of multidimensional approaches to shed light on both causes of poverty and potential solutions, by uncovering processes that are not obvious when using income based measures. My main areas of speciality include poverty measurement, poverty dynamics and intra-household inequality. Additionally, I research gender inequality with a focus on violence and sex work.

I am multidisciplinary by training and practice. I hold a PhD in Social Policy and MSc in Public Policy from the University of Bristol and a BSc Political Science (Universitat Pompeu Fabra). My research and teaching span across the disciplines of social policy, sociology and development studies.

My work to date has resulted in over 30 publications, eleven of which appeared in top journals, and multiple dissemination pieces. My publications have been achieved 388 citations (Google Scholar). I also regularly present my work at conferences and events. A key contribution, published in the Journal of Poverty and Social Justice, has been the development a theoretical and methodological framework for the inclusion of services in poverty measures. The paper (Journal top 5 most read 2020&2021) proposes a solution to the limitations of income measures to consider non-household resources in assessing standard of living by using adapted deprivation measures, an area of research I plan to expand on in the future. My recently submitted ERC Starting Grant application seeks to empirically validate the theoretical model presented in the paper.

In January 2020 I became a Beatriu de Pinos Marie-Curie fellow at the Centre d Estudis Demogràfics (CED). The project provides the first in-depth analysis of intra-household inequality between children and adults in Europe. The analysis of intra-household patterns of resource allocation challenges the unitary model of household consumption commonly used in poverty measurement and has the potential to improve poverty measurement and inform policy development. My work extends existing methodological frameworks for the analysis of intra-household inequality using deprivation indicators and demonstrates the advantages of deprivation measures over more widely used expenditure indicators to study intra-household inequality.

My commitment to academia is a commitment to social change. Hence, my research often merges policy and practice through collaboration with nonacademic institutions. Most recently I worked with UNICEF and the High Commission against Child Poverty for the development of the project for the application of the European Child Guarantee in Spain. Previously I have (co)led collaborations with a range of non-academic institutions including the UK Home Office and African Child Policy Forum, the leading charity for children rights in Africa.

Between 2012 and 2018 I held several teaching positions which culminated in a lectureship (2018-2019) at the School for Policy Studies (Bristol). I taught and acted as unit coordinator in Social Policy, Childhood Studies and Criminology degrees at undergraduate and graduate level, always with very positive evaluations. In 2018 I received the status of Fellow of the Higher Education Academy following a two years course. I currently supervise one PhD student, M. Juni, at CED.

I also act as Associate editor for the Journal of Poverty and Social Justice, and reviewer for the Ministry of Science and Innovation and several academic journals.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	RUIZ HERNANDEZ, EDUARDO
Referencia:	RYC2021-031867-I
Correo Electrónico:	eduruizh@gmail.com
Título:	Responsive theranostic nanosystems for advanced therapy

Resumen de la Memoria:

Advanced (nano)biomaterials offer new solutions to the challenges associated with the non-specific delivery of imaging agents and therapeutics that leads to ineffective diagnosis and treatment, especially in oncology. The development of nanomedicines for the treatment of cancer focuses on the local targeted delivery of chemotherapeutic drugs to enhance drug efficacy and reduce adverse effects. In general, drug delivery nanosystems modify the pharmacokinetics of the loaded drug and enable a more favourable distribution. Given that drug carriers have sizes in the submicrometer range and they are surface-modified by hydrophilic polymers, they can avoid renal clearance and rapid uptake by cells of the immune system, therefore maximizing blood circulation time. Consequently, passive accumulation mechanisms can lead to high drug concentration in certain tissues.

Despite all the efforts in the design of chemotherapeutic agents and their formulation in nanoparticles, hardly any improvement has been translated into benefits for patients' survival. The nanomedicines that are currently approved for clinical use are mainly successful in terms of improved bioavailability and tolerability. While this outperforms free drug regimens, it represents at best a non-specific method of depositing a chemotherapeutic drug depot in a tumour site with no regard for the future development of resistance or the type of tumour being targeted. Additionally, and despite the higher probability of ending up in tumours, there are a number of eventualities that may reduce the chances of a nanocarrier to provide an enhanced drug efficacy.

My main research line aims to explore nanosystems adapted for the treatment of tumours that can achieve site-controlled release of therapeutics in response to the tumour microenvironment. Ideally, these nanosystems should be able to retain the therapeutic cargo until they are in the presence of tumour cells. Moreover, with the help of injectable hydrogel carriers, the local administration of the nanosystems can provide a sustained release of diagnostic agents or drugs that can allow early identification of residual or recurrent cancer cells, and increase the likelihood of successful treatment.

Resumen del Currículum Vitae:

Ussher Associate Professor (tenured) in Pharmaceutical Chemistry of Nanocarrier Drug Delivery Systems and Principal Investigator at the School of Pharmacy and Pharmaceutical Sciences (Trinity College Dublin), Starting European Research Council Awardee in the field of cancer nanomedicine. Funded investigator in the Advanced Materials and BioEngineering Research (AMBER) Centre, the Science Foundation Ireland Research Centre for Pharmaceuticals (SSPC), and member of the Trinity St. James s Cancer Institute.

I am a (bio)chemical engineer and completed my PhD in the Smart Biomaterials Research Group at Universidad Complutense de Madrid in 2010. With more than 17 years experience in the research of advanced biomaterials for the diagnosis and treatment of several diseases (mainly cancer), I have participated in 26 highly multidisciplinary collaborative projects funded by a variety of sources (EU FP6/FP7/H2020, BBSRC, Science Foundation Ireland, CTMM The Netherlands, Spanish MICIIN, CIBER-BBN) across 7 countries in diverse scientific fields including nanomedicine, materials chemistry, drug/gene delivery and tissue engineering. These projects have led to 30+ publications, 1 patent and 50+ contributions to international conferences. My research is supported by more than 2700 citations (h-index 24) and 2 research prizes (Spanish Royal Society of Chemistry and Royal Academy of Pharmacy). I have obtained more than 12M as (co-)PI and more than 650k in scholarships, including a Marie Curie Fellowship (IEF) for career development while being a postdoctoral researcher in the Utrecht Institute for Pharmaceutical Sciences at Utrecht University (The Netherlands). I am an assiduous referee for numerous front-rank international journals such as Nature Materials, Advanced Materials, Advanced Functional Materials, Journal of Materials Chemistry, Dalton Transactions, RSC Advances, Chemistry of Materials, Journal of Materials Science, Journal of Controlled Release, Microporous and Mesoporous Materials, Langmuir, and for grant funding agencies (Agencia Nacional de Promocion Cientifica y Tecnologica de Argentina, ANPCyT 2013, Polish National Science Centre 2021, ICREA 2022). I am also registered as expert for the European Commission in the area of Nanomedicine and have been invited as project evaluator for Horizon 2020 Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing Call for Proposals.

The long-term goal of my research is to enhance the diagnosis and treatment of diseases through targeted delivery of advanced nanomaterial-based theranostic agents. I am currently leading a research on thermosensitive hydrogels loaded with drug delivery systems as potential depots of chemotherapy and diagnostic agents. I have identified brain tumors, particularly glioblastoma (GBM), as ideal target for controlled release systems. By embedding drug-loaded nanocarriers within injectable gels, I hypothesize that an improved treatment as compared to the current gold standard can be achieved. I have sought advice from clinical collaborators and leading international experts to understand the current clinical and surgical management of GBM. As a drug delivery expert, I have experience in coordinating EU research proposals in this field, and in the supervision of graduate students and high-profile postdoctoral fellows (including 3 EU Marie Curie awardees).



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Área Temática:	Ciencias y tecnologías de materiales
Nombre:	VILLALUENGA ARRANZ, IRUNE
Referencia:	RYC2021-034335-I
Correo Electrónico:	irune.villaluenga@polymat.eu
Título:	Novel Block Copolymers and Hybrid Materials for Solid-State Batteries

Resumen de la Memoria:

For seventeen years, Dr. Villaluenga has been conducting important original research into new and efficient technologies (photocatalysis and solidstate batteries). Since 2005, she was involved in research tasks performing the synthesis of natural products in the research group of Prof. Esther Lete and Prof. Nuria Sotomayor at UPV/EHU. In 2006, she was granted with a PhD fellowship by the Fundacion Iñaki Goenaga at Tecnalia Research & Innovation to develop photocatalytic coatings based on polymer and nanoparticles with self-cleaning properties under the supervision of Dr. Yolanda De Miguel. After her PhD, Dr. Villaluenga joined the research group of Prof. Michel Armand and Prof. Teofilo Rojo as postodoctoral researcher in 2011. She changed the research topic, and she started to research in the battery field. In this project, she developed novel polymer and hybrid electrolytes for solid-state batteries. The objective was to replace the organic liquid electrolytes used in lithium ion batteries (LIBs) by safe solid electrolytes, avoiding concentration gradients. In 2013, she joined the research group of Prof. Nitash P. Balsara to develop block copolymer and hybrid materials for solid-state batteries at University of California, Berkeley and Lawrence Berkeley National Laboratory. In 2017, she was promoted to Project Scientist. Dr. Villaluenga synthesized novel hybrid and block copolymer electrolytes, and microporous carbon nanospheres filled with sulfur as cathode active materials for Li-S batteries. Moreover, she developed fundamental understanding to control the morphology of the block copolymers by the addition of nanoparticles, and performed electrochemical studies of transport parameters in terms of Stefan-Maxwell coefficients. In 2018, she joined Blue Current as electrolyte scientist and she was promoted to senior battery materials scientist in 2019. She developed new solid electrolytes and evaluated different electrolytes in lithium-metal cells, and performed the scaling prototype devices to 500 mAh for solid-state lithium-ion batteries. In 2020, she joined POLYMAT as Ikerbasque Research Fellow establishing a new research group. Her main research line is the development of novel block copolymers and hybrid materials for solid-state batteries.

Resumen del Currículum Vitae:

Dr. Irune Villaluenga joined POLYMAT (Spain) in September 2020 as Ikerbasque Research Fellow and Gipuzkoa Fellow establishing a new research group (3 PhD students and 1 Postdoctoral Researcher). Before that, he has held several positions at various organizations accumulating over 7 years abroad since she obtained her PhD in Chemistry at the University of the Basque Country and Tecnalia Research & Innovation (2010) and creating an extensive network of international collaborators. She did post-doctoral stays at CIC Energigune (2011-2012) and Lawrence Berkeley National Laboratory/University of California, Berkeley (2013-2016). In 2017, she worked as project scientist at Lawrence Berkeley National Laboratory. In 2018, she joint Blue Current, Inc. as Electrolyte Chemist, and then, she was promoted to Senior Battery Materials Scientist. She has developed a strong multidisciplinary base of skills and entrepreneurship experiences by working in different research groups in different countries (USA, Japan, Sweden and Spain). In her first year as Principal Investigator (PI), Dr. Villaluenga has secured >700.000 Euros in public funding (Region, National and European level). Her extensive experience (inorganic nanoparticles, block copolymers, hybrid, solid electrolytes, and battery technology), and her results have been patented (10 patents), licensed (2 licenses), and published (27 papers) in the most relevant material science and polymer chemistry journals such as Energy & Environmental Science (IF: 38.53), Progress in Polymer Science (IF: 29.19), PNAS (IF: 12.29), NanoLetters (IF: 11.19), Journal of Materials Chemistry A (IF: 12.73), etc. Her work has received more than 4000 citations. An important aspect of her research is the creative thinking and capacity to develop new materials, which led to develop and recognize the commercial potential of her materials and turn these inventions into commercially viable innovations, leading to 2 licenses and the creation of 2 start-ups in USA (Blue Current, Inc.) and Spain (Nacoalia, SL). As corresponding author, Dr. Villaluenga has published articles in relevant journals of her field such as Macromolecules, ACS MacroLetters, etc. The Excellency of her scientific and technological contributions has led to several awards/grants such as Ikerbasque Research Fellow, Gipuzkoa Fellow, Emakiker Grant, Fundacion Iñaki Goenaga Fellowship, and Best Paper Prize 2015 in Science and Technology of Advanced Materials (STAM). Moreover, some of her scientific works were highlighted on News of Materials Today, and Berkeley Lab News Center. She regularly delivers talks at international conferences and workshops (18 contributions in total), and acts as jury member in PhD thesis, referee for European funding agencies, and peer- reviewed journals, e.g., Nature Communications, Science Advances, Macromolecules, Chemistry of Materials, ACS Energy Letters, etc. Finally, she is battery consultant at a startup in California, USA from July 2020.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías de materiales
Nombre:	SANCHEZ BOTANA, ANTIA
Referencia:	RYC2021-032570-I
Correo Electrónico:	antia.botana@asu.edu
Título:	FIRST-PRINCIPLES CALCULATIONS OF STRONGLY-CORRELATED ELECTRON SYSTEMS

Resumen de la Memoria:

I have been dedicated to full-time research since October 2008, spanning the completion of my PhD in 2013 (at the Universidade de Santiago de Compostela (Spain)), followed by 5 years of postdoctoral experience (first (2013-2015) at the University of California, Davis and subsequently (2015-2018) at Argonne National Laboratory (USA)). Since 2018, I have been an assistant professor at Arizona State University (ASU). Throughout this time, I have worked on various research areas: my PhD dealt with thermoelectric and magnetic properties of transition metal compounds using density-functional theory; my first postdoc focused mostly on heterostructures, and on the development and implementation of ab-initio molecular dynamics; my second postdoc was centered around superconductivity, and I now primarily work on 2D magnetism and nickelate superconductors, with a focus on many-body methods such as dynamical mean-field theory. This experience has given me a wide expertise on electronic structure calculations of strongly correlated electron systems.

My track record includes 49 papers- 24 of them published in the past 3 years (since doing independent research at ASU) in journals like Nature, Nature Materials, Physical Review X, and Nano Letters. I have had 467 citations in 2021 according to Google Scholar. I participate regularly in international conferences (with 7 invited talks in the past two years) and I have developed an extensive network of independent collaborations including experimentalists and theorists at institutions like Harvard, MIT, and Columbia. I have participated in teaching at public universities and in postdoctoral and student supervision (I am now supervising 1 Postdoc and 3 PhD students). Currently, I am the single P.I. of a US National Science Foundation (NSF) CAREER development award (\$522k). This is one of NSF s most prestigious awards in support of early-career faculty who have the potential to serve as academic role models. I also handle a \$500k startup package and I am co-PI in two other NSF projects (\$644k overall) summing up a total of \$1.66 million raised. I have also been elected as a Sloan research fellow in 2022.

Resumen del Currículum Vitae:

I have been dedicated to full-time research since October 2008 spanning the completion of my PhD in 2013 at the University of Santiago de Compostela, followed by 5 years of postdoctoral experience (2 at the University of California Davis and 3 at Argonne National Laboratory (USA)). Since 2018, I have been an assistant professor at Arizona State University (ongoing). My expertise lies on electronic structure calculations of strongly correlated electron systems. My track record built over these years includes 49 published papers (h-index 19, Google Scholar). 24 of my papers have been published in the past 3 years (since doing independent research) in journals like Nature Materials, Physical Review X, and Nano Letters. I have had 467 citations in 2021 according to Google Scholar. Throughout my career, I have worked on various research areas: my PhD Thesis (developed via the FPU program) focused on understanding the thermoelectric and magnetic properties of transition metal oxides and nitrides using density-functional theory. I received the Distinguished Thesis Award of the Physics Department in 2013 for my PhD work. My first postdoc at UC Davis revolved mostly around nitride-based heterostructures and electron pairing in doped insulators, the latter applying and implementing ab-initio molecular dynamics. My second postdoc at Argonne focused on various aspects of superconductivity using numerical and analytical methods.

Since becoming an assistant professor at Arizona State University I have focused on analyzing 2D magnetism and nickelate superconductors with a strong emphasis in many-body methods such as dynamical mean-field theory. In the context of nickelate superconductors, our approach has proven successful through the recent discovery of the second nickel oxide superconductor via our collaboration with Prof. Julia Mundy (Harvard University), published in Nature Materials. In the context of 2D magnetism, we have developed predictions for the realization of skyrmion formation in twisted transition-metal trihalides (published in Nano Letters), and we have provided theoretical support for the first realization of a monolayer multiferroic through our collaboration with Prof. Riccardo Comin (MIT), currently in press in Nature. My latest work reflects the extensive network of international collaborations I have developed in the past 3 years.

Currently, I am the P.I. of a US National Science Foundation (NSF) CAREER development award (\$522k) for the Discovery and Understanding of Layered Nickelate Superconductors. In addition to that, I am a co-PI in two other NSF projects: one on the Discovery and Fundamental Investigation of Emergent Phenomena in Novel 2D Magnets (\$509k, 33% recognition) and another one on the Development of a Compact X-ray Free-Electron Laser Project (CXFEL) (\$4.7mill, 10% recognition). I also have my own startup funds (\$500k). In total, I have raised over \$1.6 million for my own research group. These projects support the 3 PhD students and one postdoc that I am supervising. I have also just been elected a Sloan Research Fellow for 2022. In parallel, I participate regularly in international conferences, with 7 invited talks in the past 3 years. I am a reviewer of R&D projects the Department of Energy; and for NSF. I am also a member of the editorial advisory board of Journal of Applied Physics, and an arXiv moderator.



NVESTIGACIÓN

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	FERNANDEZ RODRIGUEZ, MIGUEL ANGEL
Referencia:	RYC2021-031028-I
Correo Electrónico:	mafernandez@ugr.es
Título:	Soft Colloidal Lithography for the engineering of silicon vertically aligned nanowires

Resumen de la Memoria:

Dr. Fernandez-Rodriguez is a physicist focusing on Material Science, creating new tools and materials for surfaces and interfaces. During his predoctoral stage he focused first on engineering the wettability of titanium implants to promote the osseointegration via selective laser ablation. Next, during his PhD he characterized the interfacial activity of Janus nanoparticles at liquid interfaces, finding that they are better at lowering the interfacial tension than the corresponding homogeneous nanoparticles. During his postdoctoral stage of 3 years and 5 months in ETH-Zurich he specialized in four different topics: i) the soft colloidal lithography, ii) the characterization of the contact angle of individual nanoparticles at liquid interfaces via freezefracture shadow-casting cryo-SEM, iii) the sequential capillary assembly of colloidal ensembles in collaboration with IBM, and iv) the real-time analysis and steering of active microswimmers. In February 2020 he joined the University of Barcelona with a Marie Curie Beatriu de Pinós fellowship to engineer solar cells in collaboration with ICFO, based on silicon vertically aligned nanowires (VA-NWs) produced by soft colloidal lithography. The hypothesis was that the solar cells based on silicon VA-NWs would maintain the efficiency of conventional planar solar cells but with much higher tolerance to defects in the silicon. Thus, we could use lower and cheaper grade silicon wafers, giving use to this cheaper silicon wafers for solar cells manufacturing. In September 2020 he joined the University of Granada (UGR) with a Juan de la Cierva Incorporación fellowship, and since September 2021 he is sole PI of a R+D+i project of the National Plan to engineer hierarchically structured super-hydrophobic coatings for self-cleaning solar cells, based on silicon VA-NWs. The hypothesis is that we can replace the organic super-hydrophobic coatings, available in the market and currently used for this purpose, with these inorganic super-hydrophobic coatings based on silicon VA-NWs, reducing the necessity to replace the organic coatings that degrade under UV sun light exposure and atmospheric conditions. Currently, he is part of the Laboratory of Surface and Interface Physics, and he collaborates with the Laboratory of Nanoelectronics, Graphene, and 2D Materials adapting the soft colloidal lithography to their clean room, and with the Nanoparticles Trapping Lab characterizing the interaction pair-potential between microgels at interfaces with optical tweezers to relate them to their collective self-assembly at interfaces. Both laboratories are placed in the UGR. My mid-term goal is to develop the soft colloidal lithography as a pioneering technique in Spain. My long-term goal is to study the interaction of soft colloids at interfaces to promote and foster the soft colloidal lithography as an inexpensive and scalable technique able to produce self-assembled lithography masks with sub-micrometer features, as an alternative to conventional clean room lithography processes, such as direct laser writing or electron beam lithography.

Resumen del Currículum Vitae:

Dr. Fernandez-Rodriguez is a physicist focusing on Material Science. During his MSc, he developed a laser patterning technique to increase the osseointegration of titanium implants, by engineering their wettability. During his PhD in the Lab of Surface and Interface Physics (LSIP), part of the Biocolloid and Fluid Physics group in the University of Granada (UGR), he characterized the interfacial activity of Janus nanoparticles (JNPs) at water/oil interfaces compared to homogeneous NPs. He demonstrated that JNPs present the combined benefits of amphiphilic molecules and Pickering emulsifiers. He has collaborated with groups from ETH-Zürich, Universities of Fribourg (Switzerland), California Santa Barbara, Santa Cruz, Michigan (USA), Hull (UK), Duesseldorf, FAU, RWTH Aachen (Germany), Monash (Australia), La Sapienza (Italy) and Tel Aviv (Israel). In 2016, he joined the Soft Materials and Interfaces group in ETH-Zurich for 3.4 years. There he explored 4 topics: i) the fabrication of vertically aligned nanowires by soft colloidal lithography, ii) the characterization of the contact angle of single NPs at liquid interfaces by cryo-SEM, iii) the sequential capillary assembly of NPs ensembles in collaboration with IBM, and iv) the real-time analysis and steering of active microswimmers. In 2020 he joined the Soft Condensed Matter Lab in the University of Barcelona thanks to a Marie Curie Beatriu de Pinós grant to develop the soft colloidal lithography and increase the efficiency of solar cell panels. This grant was interrupted to join the LSIP as a Juan de la Cierva-Incorporación fellow. He is corresponding author of 6 publications, including 1 in Nature, and obtained more than 127k in funding as sole PI of a National Research Project 2020, with the title Soft colloidal lithography: super-hydrophobic coatings from vertically aligned nanowires for self-cleaning solar panels . Currently, he collaborates in the UGR with Prof. R. Rica Alarcón, performing experiments of optical trapping of microgels, and with Prof. F. Gámiz Pérez, adapting the soft colloidal lithography technique to his clean room facility. He communicated this activity to his scientific peers in the form of 31 JCR publications with 624 citations (WoS), 1 chapter in the Elsevier s Encyclopedia of Interfacial Chemistry, and a H-index of 15 (WoS), publishing 9 in decile D1 journals (Nature, Nature Communications, ACS Nano, Nano Letters, Lab on a Chip, etc), and 22 in Q1 journals (Nanoscale, Soft Matter, etc). He has participated in 51 conferences, 44 of them international, with 38 oral contributions, of which 4 were invited, 2 plenary talks, and 24 posters. Thanks to 2 contracts with IBM (2017-2020), he trained in their BRNC clean room to fabricate nanostructures by conventional lithography and 2-photon 3D printing. He has supervised 1 Master thesis, 1 Bachelor thesis, 2 Master projects, and 2 Bachelor projects in ETH-Zürich. In UGR he supervised a Bachelor thesis in 2020, and he is supervising a Collaboration grant student, a Bachelor thesis and a PhD thesis on Design and characterization of highly diffusive nanopatterned surfaces to improve the efficiency of solar cells . He refereed 37 times for 17 JCR journals since 2014 (ACS Nano, Advanced Materials, etc), and was referee of the City University of New York Research Program, and international referee of a PhD thesis in UGR.



Área Temática:	Ciencias y tecnologías de materiales	
Nombre:	SERRANO RUBIO, AIDA	
Referencia:	RYC2021-031236-I	
Correo Electrónico:	aida.serrano@icv.csic.es	
Título:	Fabrication and advanced characterization of multifunctional materials with active interfaces and their	
modulation through ex	iternal fields	

Resumen de la Memoria:

Aida Serrano graduated from Physics Ph.D. program at the Universidad Complutense de Madrid (UCM) in 2014, carrying out the thesis work (JAE Fellowship) at the Instituto de Cerámica y Vidrio (ICV, CSIC) with Dr. M.A. García and Dr. O. Rodríguez de la Fuente in the plasmonic field on Au based-systems (Modified Au-Based Nanomaterials Studied by Surface Plasmon Resonance Spectroscopy).

She carried out a first postdoc stay for 10 months at the ICV with Prof. J.F. Fernández, investigating ZnO-based additives and mounting a sputtering system. Later, Aida Serrano moved as a collaborating Researcher at the UCM for 7 months, studying several material and analyzing the interaction effects of complex systems. Afterwards, she worked at the BM25 beamline headed by Dr. G.R. Castro at the European Synchrotron Radiation Facility (ESRF) in France for 2 years, where, in addition to develop her research line, she was responsible of X-ray absorption spectroscopy and high resolution X-ray diffraction experiments (Local Contact of more than 40 experiments).

During her scientific career, she has passed short periods abroad in the Dipartimento de Chimica at the Universita degli Studi di Firenze in Italy (3 months), the Shuller s group at the University of California in USA (1 month), and she has participated as User of more than 54 experiments at ESRF (France), Bessy II (Germany) and ALBA synchrotron (Spain).

Currently, Aida Serrano is developing her scientific career in the CSS group headed by Prof. J.F. Fernández at the ICV (CSIC), with an "Atraccion de Talento Investigador contract from Comunidad de Madrid. Her main research line includes the design and fabrication of multifunctional materials by non-conventional methodologies with active interfaces tailoring the final response for diverse applications and their characterization by advanced techniques. Besides, her work line also includes the investigation of the coupling effects in hybrid systems by surface plasmon resonance, Raman microscopy, synchrotron radiation techniques among other methods, and the development of experimental instrumentation.

One of the highlights is that she usually collaborates with a large number of national and international laboratories. Her strong cooperation has generated a significant number of high impact articles with a 75% of publications as result of international collaborations. Other relevant aspect of her scientific career is the transfer basic knowledge to companies, participating in numerous meetings and carrying out confidential reports for different industrial projects. She has developed 2 patents (1 licensed) and is currently supervising 2 Ph.D. Students.

It is worth noting that she has been able to get funding from different economic sources, both for her recruitment with the individual grant Atraccion de Talento Investigador (80 k) and for developing her research career in an independent way with the project Interfacial magnetism for ultrafast and low dissipation signal processing devices, from Ministerio de Ciencia e Innovación (72.6 k) and a grant for the Preparation of Projects from CSIC (20 k). In addition, she has achieved a large experience in synchrotron radiation facilities with 16 accepted projects as Principal Investigator in publish call projects at the ESRF (France) and ALBA (Spain), and more than 330 k of funding (in total, more than 502 k).

Resumen del Currículum Vitae:

Aida Serrano is co-author of 1 book chapter, 1 book, 2 patents (1 licensed) and over 69 articles in peer-reviewed journals (>9 papers per year in the last 5 years), with over 796 cites (>116 cites per year in the last 5 years), an average impact factor of 5.6 in the last 5 years and an h-factor=16. 85% of publications are within the first quartile and 75% of them are international collaborations. Several of these contributions have been groundbreaking, stablishing novel fabrication approaches of materials and presenting innovative experimental set-ups combining different spectroscopies, opening up new fields of research in the materials science. Among all her publications, we can highlight 2 ACS Nano, 1 Chemistry of Materials, 1 Applied Catalysis B: Environmental, 1 ACS Applied Materials & Interfaces, 1 Materials Today Chemistry, 1 Acta Materialia, 2 Scientific Reports, 3 Physical Review B (1 Editor s suggestion) or 2 Applied Physics Letters. She has been Guest Editor for two Special Issues of Coatings, subject editor of Crystals and Reviewer of international projects and numerous journals.

Her research activity has also been awarded with several prizes and distinctions, including the Ph.D. Extraordinary prize from the UCM, by Springer Editorial for its publication in the book Series Springer Thesis and the Best Poster Presentation at the Workshop 3D Raman Imaging-AFM. It is also worth highlighting a press release about her research in Tribuna Complutense. She has presented more of 115 contributions on Conferences, of which 65 in international Conferences, 69 oral contributions and 6 of them invited. She has contributed in 19 research projects, 5 of them with a private company, 6 European projects and 3 as Principal Investigator. Aida Serrano has generated important industrial developments with companies and has obtained more than 172 k from projects in public calls. Besides, she has been Principal Investigator of 16 accepted projects in publish call experiments with more of 330 k of funding, and she has participated as User of more than 54 experiments at the ESRF (France), ALBA synchrotron (Spain) and Bessy II (Germany). She has also supervised 5 Internships, 3 M.Sc. Students, 1 predoctoral stay and is currently supervising 2 Ph.D. Students (1 funded by an industrial project).

During her scientific career, Aida Serrano has participated in the organizing and scientific committee of several Jornadas de Jóvenes Investigadores at the ICV (CSIC), in the SpLine Meeting 2019 and the LVIII Congreso de la Sociedad Española de Ceramica y Vidrio 2022. She is Member of committee on dissemination, equality and communication at the ICV (CSIC), organizing and participating in events such as Research with CSIC in MediaLab Prado in the Researchers' Night 2019 and 2020, Jornadas de Puertas Abiertas,19th Science and Innovation Week of CAM, 2019 and 2021 and International Day of Women and Girls in Science for 11F, 2019 and 2020. Recently, she has been Promotor in the Hackathon #MadridVenceAlVirus Event 2020. She has also participated as a member of two doctoral tribunals (Cum Laude), Instructor in The European School HERCULES 2017 and 2018 and in XAS practices at The ESRF User Meeting 2017 (France). At present, she has the positive evaluation of the ANECA for assistant professor doctor, contracted professor doctor and private university professor.



VESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	LOPEZ GARCIA, MARTIN
Referencia:	RYC2021-034857-I
Correo Electrónico:	baleabouson@gmail.com
Título:	Bioinspired and natural photonics
	-

Resumen de la Memoria:

My academic career started with a degree in Physics from the University of Santiago de Compostela (USC). Afterwards I pursued my PhD in hybrid plasmonic-photonic self-assembled nanostructures at the Instituto de Ciencias de Materiales de Madrid (ICMM-CSIC) under the supervision of Prof. Cefe Lopez which I obtained in 2011 (best PhD in photonics in Spain 2011- INNOVA award). In 2012 I moved to the United Kingdom to work as a Research Associate to the Photonics Group of the University of Bristol (UoB), a worldwide recognized quantum optics hub, under the supervision of Prof John. G Rarity and Prof. Ruth Oulton. Since 2017, I lead my own Research Group as Principal Investigator (PI) at the Internacional Iberian Nanotechnology Laboratory (INL) in Braga-Portugal (https://inl.int/inl-people/martin-lopez-garcia/) where I founded the Natural and Artificial Photonic Structures and Devices Group (NAPS).

My research career is unique with a highly multidisciplinary profile always at the frontier between Physics, Chemistry and Biology. I often combine optical simulations, materials science and advanced optical characterization with biotechnology. My determination to think out of the box is clearly demonstrated by the large spectrum of my publications as first, corresponding and last author in areas as i) Physics (Physical Review B, APL), ii) Material Science/Chemistry (Small, Advanced Functional Materials), iii) Biology (Nature Plants, as shared first authorship) or interdisciplinary fields (Science Advances, Advanced Science, Nature Communications) (37 in total). This unique multidisciplinary approach is devoted to a career developed in 3 different countries and at 5 different institutions which has supported my nomination as Independent Group Leader and Principal Investigator at INL. I started to be an independent researcher from my early years as a postdoc in the UK, firstly as a pioneer in photonics of photosynthesis and, secondly, obtaining my first research grant as principal investigator in quantum photonics in 2016 (EPSRC - 17276/05). In 2017 I became an independent group leader in Portugal being successful to quickly securing national (2 National projects + 3 national funded PhD) and international funding (HORIZON-HLTH-2021-ENVHLTH-02-02-RIA) to full equip and maintain a new experimental laboratory on biomimetics and natural photonics. Moreover, the excellence of my research has granted me access to the interview phase of the ERC Starting Grant program in 2018.

As a researcher, I am particularly interested in studying the correlations between natural photonic nanostructures and light harvesting and the application of these correlations into bioinspired solutions for sustainable energy harvesting. I am implementing this in three ways: i) using unicellular organisms as biofactories for the production of advanced photonic materials and structures ii) taking the natural photonics structures as a blueprint for implementation of photonic devices with synthetic approaches and iii) combining synthetic and natural approaches. In particular, I am investigating artificial systems with excitonic properties tailored by nanostructures similar to the ones found in some plants and algae. This Ramón y Cajal application is a fantastic opportunity to join my unique research on photosynthesis-inspired quantum photonics to the Spanish scientific community.

Resumen del Currículum Vitae:

I obtained a degree in Physics by the University of Santiago de Compostela and PhD in Applied Physics in 2011 by the same university and the Spanish National Research Council (CSIC) under supervision of Cefe Lopez (Innova Award best thesis in photonics in Spain 2011). In 2012 I wanted to enter the field of quantum optics and I moved to the United Kingdom to work in the Photonics Group of the University of Bristol, There, among other achievements, I opened a new line of research to study the biophysics of natural photonic structures. In 2017 I gained the position of principal investigator at the International Iberian Nanotechnology Laboratory in Braga (Portugal) where I founded my own Group. I set up a whole experimental laboratory from scratch obtaining my own funding to employ postdoctoral Fellows and PhD students. I have supervised/am supervising 3 postdoctoral fellows, 3 PhD and 2 MsC thesis. As PI, I have directly supervised visiting students from several universities including the Universidade NOVA de Lisboa, the University of Bristol in the UK or the University of Vigo.

Currently, my main areas of research are the study and development of bio-inspired and natural photonic materials for high-end applications in photonics with a focus on sustainable environments and energy applications. My international network includes researchers in the most prestigious institutions worldwide including the University of Cambridge, CSIC-Spain, CNRS-France, the University of Texas at Austin-USA or ETH-Zurich. In 2021 I was appointed as SeniorMember of OPTICA.

My track record includes 37 peer-reviewed indexed articles in international journals (1 more under submission, 4 more under preparation) plus another 13 indexed proceedings (50 indexed publications-Scopus, h-index 18 and 1107 citations-Google Scholar, 740 citations since 2017). I am the corresponding author in 5 articles in the last three years. My work is regularly published in the most prestigious journals in my field of research and my work has been highlighted in Science and Nature as well as general public audience publications such as The Daily Telegraph (UK), The Atlantic (online) and The Washington Post. My research has also appeared on the cover of specialized journals such as Nature Plants. I have presented in more than 50 conferences (OSA, SPIE, EMRS,META,etc) including more than 10 invited talks at international conferences and workshops. I am regularly invited to give seminars in international institutions.

I have participated in more than 20 national and international projects. I have been PI/co-PI in 9 projects since 2017. As researcher I have participated in another 12 projects funded by the EU Framework Program 7 (FP7) and H2020. I have been successful at securing funding from national funding bodies of Spain, Portugal and UK as well as several competitive internal projects supported by INL. I have participated in several projects of the former Framework Program 7 (FP7) as well as the H2020 framework. Recently, as PI, I have been involved in more than 10 submissions to H2020, the Horizon Europe program of the EU or transoceanic collaborative programs such as the Human Frontiers Science Program with over threshold evaluations in most cases. The excellence of my research has granted me access to the interview phase of the ERC Starting Grant program in 2018. Moreover, in 2019 and 2020 I was ranked among the first alternate candidates to the Ramon y Cajal progra



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Área Temática:	Ciencias y tecnologías de materiales
Nombre:	GOBBI , MARCO
Referencia:	RYC2021-031705-I
Correo Electrónico:	marcogobbi27@gmail.com
Título:	Advanced materials for spin- and opto-electronics

Resumen de la Memoria:

Throughout his research activities, Marco Gobbi has focused on the possibility to tailor and master the effects taking place at organic/inorganic interfaces for the demonstration of new device concepts. He has pursued this central objective through a variety of experimental approaches. During his PhD at CIC nanoGUNE, he focused on the effects taking place at the interfaces between molecules and ferromagnetic metals, with the purpose of demonstrating novel spintronic devices in which the metal/organic interface plays a central role. Relevant results from this period include

purpose of demonstrating novel spintronic devices in which the metal/organic interface plays a central role. Relevant results from this period include the demonstration of a hybrid spin-valve structure based on a C60 molecular film (Adv. Mater. 23, 1609 (2011)), and the fabrication of a novel device which allows the precise measurement of the energy barrier height at metal/organic interfaces (Nat. Commun. 5, 4161 (2014)).

During his postdoc at the Institute of Supramolecular Science and Engineering (Strasbourg, France), he changed the perspective on organic/inorganic interfaces, focusing on how molecular engineering can modify the opto-electronic characteristics of 2D materials. He showed that a self-assembled molecular adlayer introduces a periodic potential with 1D periodicity on the graphene surface, which might modify its band structure (Nat. Commun. 8, 14767 (2017)). Moreover, he demonstrated that the photoresponsive nature of photochromic molecules can be transferred to 2D Materials (Nat. Commun. 9, 2661 (2018)) and that graphene devices can be used to track the dynamics of on-surface self-assembly in real time (Nat. Commun. 11, 4731 (2020)). He also authored a perspective article that sketches possible future developments in the field of molecular functionalization of 2D Materials, based on his view of the topic.

In 2017, he was awarded a Marie Sklodowska-Curie Individual Fellowship to explore the use of molecular functionalization to modify not only the optoelectronic characteristics of 2D materials but also other intrinsic physical properties, including their magnetism and superconductivity. To achieve this goal, he moved to the Materials Physics Center in San Sebastián, Spain, for pursuing a surface science approach. Among the results of this study, he demonstrated that the critical temperature of the layered superconductor NbSe2 can be modified in a predictable way through molecular functionalization (Nano Letters 21, 136 (2021)).

In 2019, Marco was awarded two Fellowships, by La Caixa Foundation and Ikerbasque, to continue his work on the modification of the physical properties of 2D materials using molecular functionalization. As a result of this research line, he has demonstrated that the magnetic properties of a layered magnetic material can be tailored through organic ion intercalation. This result has been published in the journal Nanoscale, which has selected him as a 2022 Emerging Investigator. Marco is also interested in non-linear effects in the transport properties of low symmetry materials, and he is a corresponding author in a work recently accepted in Nature Materials, which describes the non-reciprocal charge transport in Te nanowires. Eventually, he aims to make the two topics converge, through the characterization of the opto-electronic properties of the hybrid heterostructures in which molecular functionalization lowers the structural symmetry of 2D materials.

Resumen del Currículum Vitae:

Marco Gobbi is a Research Fellow at CIC nanoGUNE, where he has been working as a La Caixa Junior Leader since September 2019. Additionally, he holds an Ikerbasque Fellowship at CIC nanoGUNE and at the Materials Physics Center, in San Sebastian. Before taking up this tenure track position, Marco Gobbi was a Marie Sklodowska-Curie Fellow at the Materials Physics Center, which he joined in 2017 after a 4-year postdoctoral contract at the Institute of Supramolecular Science and Engineering in Strasbourg (France), in the group of Prof. P. Samorì. His PhD thesis, carried out at CIC nanoGUNE under the supervision of Prof. L. E. Hueso, received the "Best Experimental Thesis in Solid State Physics in 2013" award from the Spanish Royal Physical Society.

His current research interests focus on the exploration of 2D material/molecule hybrids and low-symmetry materials for opto- and spin- electronics. The initial funding to explore his interests was granted in 2017 through a Marie Sklodowska-Curie Fellowship. In 2019, the award of the La Caixa and Ikerbasque Fellowships provided him the means to start his independent research activities. A project funded in 2020 by the Spanish Ministry of Science, in which he is PI, consolidated his position as leader of a team in nanoGUNE, where he is currently co-supervising three PhD thesis and two bachelor projects. Moreover, he is the coordinator of a FLAG-ERA project involving four European partners, demonstrating the international character of his research and the scientific excellence of his international network of collaborators.

Marco Gobbi has authored 43 publications, 39 of which are classified as Q1 (Scopus). He is first author in 10 works, last author in 2 (+1 submitted) and corresponding author in 7 (+1 submitted). His work has been published in high-impact journals, including Nat. Mater., Adv. Mater. (7), ACS Nano (5), Nat. Commun. (5), Nano Lett. (2), Phys. Rev. Lett., Chem. Rev, Chem. Soc. Rev. These publications have been cited > 1500 times (ResearcherID), > 1900 (Google scholar). Marco Gobbi s h-index is 22 (ResearcherID).

Marco Gobbi has presented his work at 17 international conferences in the field of nanotechnology, graphene and magnetism. On five occasions, his contributions were invited. Additionally, he has delivered invited seminars in different international research institutes, and has acted as the chairman of an online session on Physics mechanics and magnetism during the Graphene Week 2021.

Thanks to his scientific achievements, he was invited to be Guest Editor for a special issue on Molecular Spintronics in the Journal of Applied Physics, he has been invited to deliver lectures for master and PhD students, and has been selected as a 2022 Emerging Investigator by the journal Nanoscale. Marco Gobbi is Reviewer for several international journals (Nat. Electron., Nat. Commun., Nano Letters, 2D Materials, Nanoscale) and evaluator of proposals for the Spanish Research Agency. He has been involved in several outreach activities, including the "Science week" and Lab visits for high-school students.

Fellowships and Awards:

- 2022 Nanoscale Emerging Investigator
- Ikerbasque Research Fellow 2019-2024
- La Caixa Junior Leader Fellow 2019-2022
- Marie Sklodowska-Curie Fellow 2017-2019





- Best Experimental Thesis in Solid State Physics in 2013



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	JACAS BIENDICHO, JORDI
Referencia:	RYC2021-034994-I
Correo Electrónico:	jjacas@irec.cat
Título:	The quest of high (specific) energy materials and batteries
Desumen de la Manag	

Resumen de la Memoria:

My career as a researcher started at the University of Sheffield, England, where I did a Ph.D. in materials science and engineering under the supervision of Prof. Anthony R. West. I became familiar with various material synthesis and characterization techniques including ac impedance spectroscopy and powder diffraction. My thesis was focused on the electrical microstructure characterization of cathode materials for Li-ion batteries. During the postdoctoral period at Stockholm University, Sweden, and at ISIS neutron source, England, an electrochemical cell was built to monitor electrode structural changes as a function charge/discharge using neutron diffraction. Several articles were published in high-impact (indexed) journals stablishing solid collaborations with the research group of Prof. Kristina Edström, Uppsala University, and Nilar battery company. The electrochemical cell for in-situ diffraction measurements was used to characterize Li-ion, Ni-based and metal-air batteries. In 2015, I started working at the Institute of Energy of Catalonia (IREC) as a researcher in the characterization and optimization of electrochemical energy storage systems including semi-solid flow batteries (H2020 INFLUENCE project) and Li-S batteries (H2020 HELIS project). Later I became main responsible for the battery activities within the Energy storage, Harvesting and Catalysis group which include research activities in supercapacitors, redox batteries, lithium-ion batteries, solid-state batteries as well as metal-air batteries, either in national or European projects. Since 2020, I am the coordinator of the COBRA project (H2020-875568) with a total budget of 12M devoted to the optimization and fabrication of next generation Li-ion batteries for electrical vehicles, and supervises the SOLBAT project (TECSPR18-1-0049) which aims to develop an all solid state Li-ion battery for IoT devices. Along this time, I have also stablished fruitful collaborations with battery industry including national and international companies and institutions such as Applus IDIADA, FAE, CIDETEC, Lurederra, ILIKA and CustomCells. Most recently, I have been appointed director of the BATTECH joint unit to coordinate battery activities between IREC and EURECAT technological center of Catalonia.

Resumen del Currículum Vitae:

My career as a researcher started at the University of Sheffield, England, where I did a Ph.D. in materials science and engineering under the supervision of Prof. Anthony R. West. I became familiar with various material synthesis and characterization techniques including ac impedance spectroscopy and powder diffraction. My thesis was focused on the electrical microstructure characterization of cathode materials for Li-ion batteries. During the postdoctoral period at Stockholm University, Sweden, and at ISIS neutron source, England, an electrochemical cell was built to monitor electrode structural changes as a function charge/discharge using neutron diffraction. Several articles were published in high-impact (indexed) journals stablishing solid collaborations with the research group of Prof. Kristina Edström, Uppsala University, and Nilar battery company. The electrochemical cell for in-situ diffraction measurements was used to characterize Li-ion, Ni-based and metal-air batteries. In 2015, I started working at the Institute of Energy of Catalonia (IREC) as a researcher in the characterization and optimization of electrochemical energy storage systems including semi-solid flow batteries (H2020 INFLUENCE project) and Li-S batteries (H2020 HELIS project). Later I became main responsible for the battery activities within the Energy storage, Harvesting and Catalysis group which include research activities in supercapacitors, redox batteries, lithium-ion batteries, solid-state batteries as well as metal-air batteries, either in national or European projects. Since 2020, I am the coordinator of the COBRA project (H2020-875568) with a total budget of 12M devoted to the optimization and fabrication of next generation Li-ion batteries for electrical vehicles, and supervises the SOLBAT project (TECSPR18-1-0049) which aims to develop an all solid state Li-ion battery for IoT devices. Along this time, I have also stablished fruitful collaborations with battery industry including national and international companies and institutions such as Applus IDIADA, FAE, CIDETEC, Lurederra, ILIKA and CustomCells. Most recently, I have been appointed director of the BATTECH joint unit to coordinate battery activities between IREC and EURECAT technological center of Catalonia.



AGENCIA ESTATAL DE INVERSICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias y tecnologías de materialesNombre:VAZQUEZ BESTEIRO, LUCASReferencia:RYC2021-033818-ICorreo Electrónico:lucas.v.besteiro@uvigo.esTítulo:Theoretical plasmonics

Resumen de la Memoria:

Comencé mi carrera investigadora en la Universidad de Santiago de Compostela, donde estudié las propiedades electrónicas y estructurales de semiconductores III-V nanoestructurados, empleando técnicas computacionales enmarcadas dentro de la Teoría del Funcional Densidad (DFT). Mi investigación se centró en el impacto del confinamiento cuántico sobre la estabilidad de defectos que limitan el dopado de estructuras con distinta dimensionalidad, incluyendo puntos cuánticos, nanohilos y nanotubos.

Al comenzar mi período postdoctoral centré mi investigación al campo de la plasmónica, estudiando las propiedades de estos modos colectivos de oscilación electrónica en nanoestructuras conductoras desde una perspectiva teórica y empleando distintas técnicas de modelado computacional. Los sistemas plasmónicos funcionan como nanoantenas capaces de absorber con eficiencia la radiación electromagnética en frecuencias que van desde el ultravioleta hasta el infrarrojo. Dentro de esta área de investigación, he estudiado las propiedades de nanocristales y metamateriales tanto en estudios de ciencia básica como con cariz aplicado. Entre los aspectos de la plasmónica que he estudiado están, por ejemplo, la caracterización detallada de la interacción entre varias partículas conductoras y la resultante hibridación de sus modos de excitación, el uso de materiales plasmónicos para crear filtros ópticos en aplicaciones tales como vidrios espectralmente selectivos para su aplicación en el ahorro energético, la detección de quiralidad molecular en muestras con baja concentración, o su uso en aplicaciones médicas que emplean partículas plasmónicas como contrastes ópticos o como fotocalentadores capaces de activar procesos de apoptosis en células cancerígenas.

Sin embargo, mi línea de investigación principal dentro de este campo ha sido el estudio de las dinámicas electrónicas internas a cristales plasmónicos ante la excitación óptica, en concreto la posibilidad de excitar lo que se conoce como electrones calientes de alta energía. Estos son capaces superar la barrera de potencial separando el metal de su entorno, y pueden por tanto contribuir a otros procesos físicos y químicos. Los dos ejemplos más relevantes de tales procesos son la generación de corrientes eléctricas, con lo que es posible diseñar fotodetectores con perfiles de detección prácticamente arbitrarios, y la contribución a reacciones químicas en el rol de fotocatalizadores. Actualmente estoy particularmente interesado en el modelado de diversos procesos de transferencia de energía entre los materiales plasmónicos y su entorno, que incluyen esta inyección de electrones de alta energía, dentro del contexto de la fotocatálisis de reacciones químicas. Esto es de particular importancia tecnológica porque las reacciones modeladas son relevantes para los retos impuestos por el cambio climático antropogénico. Como ejemplos, podemos mencionar la generación de hidrógeno a partir de hidrólisis para almacenar energía solar, o la fijación de nitrógeno en amoníaco usando radiación solar en lugar de los combustibles fósiles empleados para alimentar el proceso de Haber-Bosch.

Resumen del Currículum Vitae:

Tras licenciarme en Física por la Universidad de Santiago de Compostela (USC), obtuve un doctorado en Ciencia de los Materiales en la misma universidad, que culminó en una tesis doctoral en el modelado de partículas semiconductoras dentro del formalismo de la Teoría del Funcional Densidad (DFT) premiada con la distinción Cum Laude. En paralelo, y guiado por mi interés en modelar sistemas en Química, Biología y Ciencias Sociales, estudié un master en Física de Sistemas Complejos en la Universidad Nacional de Educación a Distancia (UNED).

Motivado por acercarme más a aplicaciones tecnológicas, con un interés particular en la conversión de energía solar, realicé una estancia postdoctoral en Ohio University, en Estados Unidos, bajo la supervisión del Prof. Alexander Govorov, un experto en el estudio teórico de la plasmónica con reconocimiento internacional. Durante esta estancia trabajé en el modelado de propiedades fundamentales de nanomateriales plasmónicos, así como caracterizando su potencial en aplicaciones tales como fotosensores, fotocatálisis, medida de quiralidad molecular y terapia por hipertermia localizada. En estos tres años desarrollé mi perfil como joven investigador en este campo, acumulando experiencia en plasmónica teórica y computacional, así como comenzando diversas colaboraciones con grupos experimentales.

Fruto de esta experiencia, fui premiado con una beca postdoctoral compartida entre el Institute of Fundamental and Frontier Sciences (IFFS, UESTC, Chengdu China, supervisado por el Prof. Zhiming Wang) y el Institut National de la Recherche Scientifique (INRS, Montreal, Canadá, supervisado por el Prof. Federico Rosei). Con ella, conduje investigación en nanofotónica en muy cercana colaboración con distintos grupos experimentales en ambos centros de investigación. Durante los tres años financiados por esta beca, avancé mi propia investigación en plasmónica teórica, particularmente en sus propiedades ópticas y su aplicación en fotocatálisis, y trabajé en una rica variedad de proyectos con cariz tanto fundamental como aplicado.

En 2020 me uní como PI Junior al Centro de Investigaciones Biomédicas (CINBIO, Universidade de Vigo), en donde avanzo investigación independiente en la aplicación de materiales plasmónicos para la fotocatálisis de reacciones de crítica importancia social, rodeado por grupos experimentales de renombre internacional e intereses semejantes. A día de hoy, mi trabajo de investigación se centra en el desarrollo de técnicas computacionales híbridas para el modelado multiescala de la fotocatálisis plasmónica.

He contribuido a la publicación de 59 artículos en revistas internacionales, con una media en su índice de impacto por encima de 11.5. Soy primer autor en 12 de ellos y autor correspondiente en 6. Mi trabajo ha acumulado más de 2200 citas (WoS), con mi perfil investigador alcanzando un índiceh de 23, y he presentado mis resultados en 20 charlas en congresos internacionales, con 5 como ponente invitado, y he visto financiados 4 proyectos de investigación como único IP, entre ellos un proyecto Retos Investigación de la Agencia Estatal de Investigación. En 2018 fui nombrado Outstanding Postdoctoral Fellow por la UESTC y se me concedió una beca Juan de la Cierva Incorporación (declinada). En 2022 el IFFS me premió con un Young Talent Contribution Award .



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	NAVLANI GARCIA, MIRIAM
Referencia:	RYC2021-034199-I
Correo Electrónico:	miriam.navlani@ua.es
Título:	Design and development of nanostructured catalysts for environmental applications

Resumen de la Memoria:

My research interests are mainly focused on the design and development of nano-sized materials for environmental application. I finished my PhD on Materials Science in 2014. During my PhD I did several stays in national and international research centers. After that, I moved to Osaka University (Japan), where I developed my activities as Assistant Professor (2015-2017). After that, I was awarded a highly competitive postdoctoral grant for excellent young researchers (JSPS Postdoctoral Fellowship for research in Japan) awarded by The Japan Society for the Promotion of Science (2017-2019). Then, I was awarded a CDEIGENT contract for researchers with an international profile (GenT Plan, Generalitat Valenciana), which I took up after nearly 4 years of research experience abroad. Thanks to this contract I was reintegrated into the Spanish research system, and I am currently a Distinguished Researcher at the Inorganic Chemistry Department and Materials Institute of the University of Alicante, where I lead a research line focused on the development of nanostructured heterogeneous catalysts for the production of H2 and CO2 valorisation. I have published > 40 papers in international peer-review scientific journals (h-index 22), being the 1st author in half of them, which demonstrates my direct participation in the conceptualisation, experimental tasks and writing. I am the corresponding author in a number of those publications, demonstrating my leadership. I published 4 book chapters, and I am co-author of 1 patent that was subjected to examination. I have participated in more than 15 research projects, being the PI in 3 of them (secured research funding ~390,000). I have >50 communications to congress, and I have given invited and keynote lectures in international workshops. I have 2 positive six-year term research evaluations by AVAP, and the accreditation for Assistant Professor, Contracted Professor and Professor of Private University, by the ANECA. I was the recipient of a Marie Sklodowska-Curie Actions Seal of Excellence, awarded by the European Commission. I have also received several distinctions. I have participated in conference organisation. I have participated in scientific committees, and I have been co-Editor of Special Issues published in scientific journals. I have co-supervised end-of-degree projects and end-of-Master's projects, and I was the researcher in charge of an international student within the framework of the Erasmus+Mobility for Traineeships programme academic (2020-2021). I have participated and coordinated several teaching networks related to Chemistry and in dissemination activities.

Resumen del Currículum Vitae:

My research interests are focused on the design and development of nanosized materials for environmental applications. I have published >40 papers in international scientific peer-reviewed journals (h-index: 22). I am the corresponding author in a number of those publications. I have also published 4 book chapters and 1 patent subjected to examination. I have been awarded highly competitive postdoctoral grants, such as the Postdoctoral grant APOSTD/2017/019, awarded by Generalitat Valenciana, the JSPS Postdoctoral Fellowship for research in Japan, awarded by The Japan Society for the Promotion of Science, and a CDEIGENT contract for researchers with an international profile (GenT Plan (Talent Generation), Generalitat Valenciana), which I took up after nearly 4 years of research experience abroad. Thanks to this contract I was reintegrated into the Spanish research system, and I am currently a Distinguished Researcher at the Inorganic Chemistry Department and Materials Institute of the University of Alicante, where I lead a research line focused on the development of nanostructured heterogeneous catalysts for the production of hydrogen and CO2 valorisation. I have participated in >15 research projects, and I have been the PI in 3 of them (total secured research funding ~390,000 euro). I have contributed with more than 50 communications to national and international congress and meetings, and I have given invited lectures and a keynote lecture in international workshops. I have received 2 positive six-year term research evaluations by the Agència Valenciana d'Avaluació i Prospectiva (AVAP). I also received the accreditation for Assistant Professor, Contracted Professor and Professor of Private University, by the ANECA. I was the recipient of a Marie Sklodowska-Curie Actions Seal of Excellence, awarded by the European Commission, as the institution managing Horizon 2020, the EU Framework Programme for Research and Innovation 2014-2020. I have also received several distinctions for some of my contributions presented in conferences and for the publication of one of my papers (Rising Stars prize from Frontiers in Materials Journal for the article entitled "New approaches toward the hydrogen production from formic acid dehydrogenation over Pd-based heterogeneous catalysts" (I am the 1st and corresponding author)). I have also participated in conference organisation, such as the 8th International Conference on Carbon for Energy Storage and Environment Protection. I am a member of several scientific societies. I am a reviewer of international scientific peer-reviewed journals. I have participated in several scientific committees and Doctoral Thesis Tribunal. I have been an Editor of Special Issues published in several scientific journals. Furthermore, I have cosupervised several end-of-degree projects and one end-of-Master's project of students who successfully continued their research careers. I was the researcher in charge of an international student within the framework of the Erasmus+ Mobility for Traineeships programme academic (2020-2021). I have participated as a teaching collaborator in many subjects taught at the Faculty of Science of the University of Alicante, as well as supervising and mentoring international students at the University of Osaka. I have participated in several teaching networks related to Chemistry.





Área Temática:	Ciencias y tecnologías de materiales
Nombre:	CONTRERAS CACERES, RAFAEL
Referencia:	RYC2021-032447-I
Correo Electrónico:	rafcontr@ucm.es
Título:	Desarrollo de nanoestructuras híbridas para aplicaciones biomédicas

Resumen de la Memoria:

Mi trayectoria como investigador ha dado como resultado la publicación de 52 artículos científicos y 4 capítulos de libro, con más de 1945 citas, teniendo un H index de 21. Mi tesis doctoral fue defendida en junio de 2011, con una calificación de Sobresaliente Cum Laude, se basó en la síntesis y caracterización de nanosistemas coloidales híbridos de estructura núcleo@corteza (core@shell) formados por nanopartículas de Au encapsuladas por un microgel termo-sensible (N-Isopropilacrilamida). Se consiguieron encapsular varias morfologías como nanoesferas, nanocilindros, nanotriángulos, nanooctahedros y nanoestrellas de Au, además de sistemas bimetálicos de AuAg e incluso nanopartíclas magnéticas. Estos sistemas proporcionaron aplicaciones en SERS, catálisis y encapsulación y liberación de fármacos. Este metodología de recubrimiento permite encapsular nanopartículas de Au con un micorgel pH-sensible (4-vinilpiridina). Utilizando estos sistemas híbridos como partículas semilla, conseguí fabricar sistemas coloidales de morfología núcleo@corteza@satélite (core@shell@satellite), que proporcionaron mejores resultados en cuanto a catálisis y espectroscopía SERS. Además, los sistemas híbridos núcleo@corteza fueron la base para fabricar microgeles huecos, tanto termo-sensibles como pH-sensibles, que mejoraron considerablemente la encapsulación y liberación de fármacos quimioterapéuticos. Otra de mis líneas principales de investigación, desarrollada durante mis distintas etapas postdoctorales, fue la síntesis de nanopartículas de Au de morfología no esférica, como nanotriángulos y nanooctahedros. Para los nanotriángulos conseguí desarrollar un método para sobrecrecerlos hasta alcanzar tamaños que proporcionaban máximos en la región del infrarojo cercano (NIR), lo que tiene potenciales aplicaciones en hipertermia plasmónica. Además, los nanotriángulos de Au se utlizaron como semilla en la fabricación de superestructursas formadas por nanotriángulos de Au con nanoesperas de Au incorporadas en su superficie. Actualmente, en relación a la fabricación de sistemas coloidales híbridos, estoy llevando a cabo la fabricación de sistemas multi-respuesta mediante la técnica de electrospraying para la liberación controlada de fármacos. Los sistemas coloidales están formados por un polímero biodegradable con nanopartículas fotoluminiscentes de Ag2S, además de nanopartícula magnéticas de Fe3O4. Además, durantedos de mis etapa postoctorales trabajé en la funcionalización de superficie de silicio (silicon wafers) con los denominado polymer brushes, además de perfluoro moléculas mediante reacciones de hidrosililación y "click chemistry". Estas metodologías permiten la incorporación a sustratos de silicio de nanocilindros de Au y bimetálicos de AuAg, moléculas de etilenglicol, derivados de isiquinolinas, y oligo-para-fenilenos, para la mejora de la espectroscopía SERS, inhibición de la adsorción celular y no específica de proteínas, y en la potencial fabricación de sistemas en la mejora del impulso nervioso.

En resumen, con el desarrollo de mi principal línea de investigación (síntesis de nanosistemas coloidales híbridos para SERS, catálisis y liberación de fármacos)he sido capaz de publicar 19 artículos científicos con más de 1012 citas. Aparte de los artículos desarrollados con la otras dos líneas de investigación desarrolladas durante mi carrera científica.

Resumen del Currículum Vitae:

Actualmente, disfruto de una beca Atracción de Talento, Modalidad 1, de la Comunidad de Madrid en el Departamento de Química en Ciencias Farmacéuticas de la Facultad de Farmacia en la Universidad Complutense de Madrid. Mi línea de investigación está enfocada en la fabricación de nanopartículas poliméricas biocompatibles, al que se le incorporan nanopartículas y fármacos utilizados en quimioterapia. Mi trayectoria investigadora me ha permitido publicar 52 artículos y 4 capítulos de libro, tener más de 1945 citas y un H index de 21. Además, mis trabajos en investigación han sido presentados en 25 conferencias (nacionales e internacionales). En junio de 2011 defendí mi tesis doctoral en la Universidad de Almería, gracias a una beca de la Junta de Andalucía (P06-FQM-02353 UAL). Durante la tesis realicé dos estancias, una de ellas nacional, en el grupo de química coloidal dirigido por el Prof. Luis Liz-Marzán, en la Universidad de Vigo, y otra internacional, en la Universidad de Bayreuth (Alemania), bajo la dirección de Tomas Hellweg. La línea de investigación se enfocó en la fabricación

Mi primera estancia postdoctoral la llevé a cabo en el Intitut of polymer research (IPF) en Dresden (Alemania), trabajando en el grupo del Prof. Manfred Stamm, en la funcionalización de superficies de silicio (silicon wafes) con "polymer brushes" para la incorporación de nanocilindros de Au y bimetálicos AuAg. Posteriormente, en 2012, obtuve una beca Marie Curie cofund, que consistía en una estancia de 24 meses en el Departamento de Química Orgánica de la Universidad de Houston (USA) y 12 meses en el Departamento de Química Orgánica de la Universidad de Málaga. La investigación llevada a cabo se enfocó en la funcionalización de superficies de silicio con moléculas de fluoropolímeros y etilenglicol, para fabricar sustratos con alta resistencia a la adhesión no específica de proteínas. Además desarrollé un método para la síntesis de nanopartículas de Au no esféricas, como nanotriángulos y nanooctahedros. En 2015 regresé al IPF bajo la supervisión del Prof. Andreas Fery para trabajar en el sobrecrecimiento de nanotriángulos de Au y la fabricación de superestructuras compuestas por nanotriángulos de Au con nanoesferas de Au incorporadas a su superficie. En 2017 regresé a la Univesidad de Málaga y trabajé en la síntesis y caracterización de nanosistemas coloidales híbridos denominados núcleo@corteza@satélite. Finalmente, en 2019 obtuve una beca Atracción de Talento, Modalidad 1, y me incorporé al Departamento de Química en Ciencias Farmacéuticas de la Facultad de Farmacia en la Universidad Complutense de Madrid.

Durante toda mi etapa investigadora he obtenido una beca predoctoral de la Junta de Andalucía, una Marie Curie co-fund, una beca Atracción de Talento y un proyecto del plan propio de la Universidad de Málaga.

He dirigido 3 TFG), 2 TFM), y 3 tesis doctorales (PhD), además actualmente dirijo una tesis doctoral en la UCM.

Durante mi trayectoria investigadora he impartido 509.5 horas de docencia repartidas entre las Universidades de Almería, Málaga, Complutense y la UNED.

Tengo 12 artículos publicados como primer autor y 15 como autor de correspondencia, en revistas como Advanced Materials, Advanced Functional Materials, Chemistry of Materials, Nanoscale, Applied Materials and Interfaces. Además de haber participado en 10 proyectos.



Ciencias y tecnologías de materiales
MARTIN GARCIA, BEATRIZ
RYC2021-034836-I
b.martingarcia@nanogune.eu
Development of tailor-made 2D materials for optoelectronic devices

Resumen de la Memoria:

My research has been focused on the modulation of optoelectronic properties of different materials (nanomaterials, 2D materials and metal-halide perovskites) by chemical-design and surface functionalization strategies for their integration in solar cells, photodetectors, and memories. With a multidisciplinary expertise involving Materials Science, Chemistry, spectroscopy, and devices, I carry out from the materials design, synthesis, and characterization until their integration/testing in proof-of-concept devices. My strong scientific background with international experience and demonstrated responsibility, leading, experimental, technical and communication skills, is supported by 62 articles (52-Q1, 37-D1, 4 corresponding author); 9 oral contributions in international conferences; and being co-PI of a MICINN-funded project.

My PhD thesis in Physical-Chemistry (University of Salamanca) dealt with the modulation of composition, surface interactions and assembly of nanomaterials to use them as building blocks for technological applications. I was involved in teaching of undergraduate students, management at the Department Committees and outreach activities.

During my postdoc at Istituto Italiano di Tecnologia (Italy) inside the Graphene Flagship, I worked on the development of solution-processable strategies based on colloidal quantum dots, metal-halide perovskites and 2D materials for fabricating stable, large-scalable, and high-performance photovoltaic devices. I was dedicated to materials synthesis and functionalization, photoluminescence/Raman spectroscopy, and fabrication/characterization of optoelectronic devices. I carried out researchers training and participated in outreach activities.

Since February 2020, I am independent researcher at CIC nanoGUNE, leading a new research line studying 2D materials by spectroscopy techniques to gain insight into the crystal structure-optoelectronic/magnetic properties relationship to drive the selection of desired properties for their integration in optoelectronic, memories or spintronic devices. I am co-PI in Molding2D-project (MICINN), aiming to modulate the physical properties of superconducting/ferromagnetic 2D materials by molecular engineering towards novel spintronic phenomena. I supervise a PhD and an undergraduate student. I am responsible for the micro-Raman equipment integrated with cryostat and electrical measurements.

Resumen del Currículum Vitae:

I am an independent Gipuzkoa researcher fellow at CIC nanoGUNE awarded through the Modelfoto2D project, which aims to modulate the photoluminescence (PL) properties of 2D materials by physicochemical strategies. I am co-leading a national funded project Molding2D, which targets the molecular control of magnetic properties in 2D materials. These projects comprise my mid-to-long term scientific interests focused on the design and development of innovative layered materials for optoelectronic devices, namely involving metal-halide perovskites and 2D materials. The goal is to gain novel insight into the crystal structure-optoelectronic (and magnetic) properties relationship by crystal characterization and in-depth Raman spectroscopy study complemented by PL spectroscopy (and magnetic characterization) for their integration in functional devices. The research line is supported in my recent publications: ACS Energy Lett., 2020, 5, 642; J. Mater. Chem. A 2020, 8, 17516; J. Phys. Chem. Lett. 2021, 12, 280; Chem. Mater. 2021, 33, 8524 & Adv. Mater. 2022, 2106160. Inside these projects, I am currently co-supervising a PhD student with Prof. L.E. Hueso and overseeing an undergraduate student. I have co-supervised a Master student with Prof. F. Casanova. I have an established, fruitful and international collaborative network: Profs. L. Manna & R. Krahne (IIT), Prof. I. Moreels (Ghent University) & Prof. V. Lesnyak (TU Dresden).

Before this independent position, I started my PhD at the Chemistry-Physics Department (University of Salamanca) being awarded with a European Social Fund and Regional PhD fellowship. I worked on the synthesis and characterization of guantum dots and graphene related materials; and gained hands on UV-vis PL spectroscopy by a research stay at Instituto Superior Tecnico in Lisbon. Then, I moved as postdoctoral researcher to Istituto Italiano di Tecnologia inside the Graphene Flagship. There, I worked on tailor-made nanomaterials and 2D materials synthesis/preparation, specialized in steady-state and dynamic UV-vis-NIR PL and Raman spectroscopy. I was fully dedicated to the design, fabrication and characterization of optical and electronic devices (solar cells, photodetectors & memories). I demonstrated my leading and teamwork skills with two projects in which I am first author and co-corresponding author. I oversaw the training of 2 MSc, 9 PhD & 5 Post-docs for UV-vis-NIR PL spectroscopy, thermal evaporator, solar cells fabrication and solar simulator. I made a research stay at ICFO developing moisture-resistant quantum dot-based solar cells. I collaborated with international research groups in Germany, Belgium, Greece, Canada, USA & Israel, demonstrating remarkable organizational and coordination skills. I actively participated in outreach activities to disseminate the research work among the schools, general public and industrial community. Nowadays, I continue promoting these outreach activities with a special attention to strengthen the presence of women in Science.

To sum up, I have authored 62 peer-reviewed papers (52-Q1 & 37-D1 source JCR): 14 as first author, 9 as second author and 4 as corresponding author, reaching a h-index=21 and >1380 cites - source WoS. Results have been presented in 20 international conferences and gave rise to two patents. I am reviewer of 12 international journals (16 reviews in 2021-Publons).



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales	
Nombre:	ROJAS MACIAS, SARA	
Referencia:	RYC2021-032522-I	
Correo Electrónico:	srojas@ugr.es	
Título:	Polímeros de Coordinación Porosos con aplicación en biomedicina y medioambiente	

Resumen de la Memoria:

Throughout my research career, I have been involved in the most important fields of chemistry, materials science and biology, acquiring a wide unconventional multidisciplinary scientific experience. The starting point of all these fields of research is the design and synthesis of new porous coordination polymers or MOFs (Metal-Organic Frameworks). Particularly, my research career has been focused on the design, synthesis and application of MOFs in three important fields: biomedicine, environment and energy.

I was introduced in the field of MOFs during my Master and continued during my PhD. The first period of my research carrier was dedicated to the preparation of formulations based on MOFs for the controlled release of non-conventional anticancer drugs (Chem. Comm. 2011). I faced this challenge by investigating the effect of their structure, pore size and chemical nature (Inorg. Chem., 2016), and by developing original drug(s) adsorption methods (CrysEngComm. 2013, J. Mater. Chem. B 2014, Inorg. Chem. 2016, Chem. Commun. 2017). Strong international collaborations were stablished with pioneer groups in the field. The results of the PhD thesis were recognized with a Cum Laude distinction.

During my first-year postdoc in the UGR, I obtained financial to perform my own research in the development of novel non-conventional anticancer drugs (J. Inorg. Biochem. 2017).

My experience in the biomedical application of porous materials was further increased in the Institut Lavoisier (France), thanks to the financial support of a Marie Sklodowska Curie individual fellowship granted in 2015. I was introduced to the development of biological studies at different levels (in vitro, ex vivo and in vivo). We made an important contribution by originally suggesting the use of MOFs as adsorbents of toxins in the treatment of drug oral overdoses (JACS 2018, ACS Appl. Mater. Interfaces, 2019).

In 2018, I joined the IMDEA Energy Institute (Madrid) thanks to the Talento fellowship. I was engaged in three different research lines (biomedicine, environment and energy), achieving important contributions in all these fields. Among them, we have developed the first formulation based on MOF for the pulmonary administration of drugs (ACS Appl. Mater. Interfaces 2020), or prepared novel phosphonate-based MOFs as electrolytes in PEMFCs (Patent P201931095). Most importantly, I have stablished my independent research line focused on use of MOF in the elimination of emerging contaminants from water thanks to a regional (Industrial PhD) and a national (Retos) research projects. In this line we continue studding the potential real application of MOFs in wastewater plants.

Finally, I obtained the Juan de la Cierva Incorporación grant to return to the UGR, where I am developing my expertise in the design and synthesis of new MOF-type materials for their implementation in sensors with applicability in biomedicine, environment, and energy.

As main responsible, I have supervised 4 MSc, 5 PhD, 2 BSc students, and 1 laboratory technician trainee. Actually, I am supervising 3 PhD thesis.

Resumen del Currículum Vitae:

Sara Rojas (38 years old) received her grade in Chemistry from the University of Barcelona, Spain (2007), and a Master in Chemistry by the University of Granada, Spain (UGR, 2011), where she initiated her scientific career. Thanks to an Excelecia grant awarded from the Junta de Andalucía regional government, she completed her PhD in Chemistry in October 2014, focus on the preparation of porous materials and their application in drug controlled release, a totally new topic in her research group. During her PhD period, she performed a 3-months placement at the University of Saint Andrews (Scotland), and the Institut Lavoisier (ILV, France). She continued for one year more at the UGR as postdoctoral researcher obtaining her own project. In 2016, she obtained the prestigious grant Marie Curie Individual Fellow to develop porous materials for the treatment of intoxications at the ILV. In 2018, she was awarded with the Atracción del Talento grant from the regional government of the Comunidad de Madrid (Spain) to join the IMDEA Energy Institute (Madrid, Spain), where she worked in the development of novel porous materials in environmental related applications. Finally, in 2020 she joined the UGR thanks to a Juan de la Cierva Incorporación grant, where she expects to become an Associated Professor as civil servant through this Ramón y Cajal call. Her multidisciplinary scientific background (chemistry, materials science and biology), and her large frame of national and international collaborations, made possible to be involved in 10 highly multidisciplinary projects (7 National and 3 International projects, directing as PI 4 national projects.

Her 12-years scientific carrier has resulted in 2 book chapters, 1 book, 1(+1) patents and 32(+3) published or accepted publications, 17 of them as first or corresponding author (29 Q1, medium impact factor 6.020). With a h index of 13 (Scopus) or 17 (Google Scholar), the scientific quality and interest of her research is evidence by the publication of her results in high-impact journals (IF > 4) e.g., 1 Chem. Rev., 1 Coord. Chem. Rev., 1 J. Am. Chem. Soc., 3 Chem. Commun., or 2 J. Mat. Chem. B, and the important number of citations: more than 684 (>651 without self-citation) with over 168 citations per year in the last three years (76, 141, and 287 for 2019, 2020, 2021, respectively). In this sense, 4 articles have been cited more than 100 times. She has combined research with teaching at different levels, with the supervision of students of various degrees, including 4 MSc, 5 PhD students, 2 BSc, and 1 laboratory technician trainee. She has also performed evaluation activities, acting as reviewer several journals, and expert evaluator in different project calls.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales	
Nombre:	VEGA VEGA, JESUS MANUEL	
Referencia:	RYC2021-034384-I	
Correo Electrónico:	dosbajm@hotmail.com	
Título:	Tailored corrosion protection and evaluation: from fundamental to applied research	

Resumen de la Memoria:

Dr. Vega completed his PhD in Chemistry (Cum Laude) from Complutense University of Madrid-UCM (Spain) in 2011 with the support of a JAE Predoctoral Fellowship from CSIC, including 3 different pre-doctoral stays: Oxford University (UK) (3 months, 2008) and The Ohio State University (U.S.A.) (4 months in 2009 and 3 months in 2010). He moved to The Netherlands with a R&D private contract as a post-doctoral researcher in M2i and TU Delft. After 27 months, he was hired at Fundación CIDETEC (Spain) in 2013 as a Senior Researcher and 14 months later he got a Torres Quevedo Fellowship. Since November 2018 he was promoted to Head of Corrosion and Tribology (C&T) group (newly created) and from November 2021 it changed to C&T research line . Since 2019, a total of 1,780k funding has been obtained under his leadership.

His scientific output includes 35 publications with 29 papers in international peer-review journals (22 Q1, 14 in collaboration), 1 book chapter and 42 communications to conferences. He has been researcher in 40 R&D projects (20 as main researcher/leader) with 18 funded through competitive calls. Regarding to training, Dr. Vega has been the supervisor of 2 PhDs (other one ongoing); 3 technicians; master students; teaching (seminars, courses); dissemination activities (workshops and articles); reviewer of manuscripts; inventor of 2 patents and responsible for setting a laboratory up. The main research line is based on corrosion science, mainly focused on aqueous (electrochemical) corrosion. His main contribution is creating innovative protective systems (ion-exchange pigments, self-healing polymers, hybrid coatings via sol-gel, metallic, etc.), establishing monitoring

methodologies based on non-destructive testing (NDT such acoustic emission) and studying the corrosion mechanism using conventional and localized techniques with high resolution (SKP, SECM, SVET). A tailored characterisation is required using sophisticated surface analysis techniques (Synchrotron XAS, XPS, ARXPS, AES). Related to atmospheric corrosion, it is need to find a robust correlation with other type of tests (e.g., accelerated, electrochemical, etc.). Dr. Vega has address this challenge using empirical data capable: (i) to build dose-response function able to predict the degradation do cultural heritage materials (e.g., cast-bronze and Portland limestone), (ii) to develop novel methodologies based on chemometric strategies able to correlate accelerating corrosion tests and electrochemical techniques. In addition, corrosion can occur combined with other phenomena such wear, provoking tribocorrosion.

Resumen del Currículum Vitae:

Currently, Dr. J.M. Vega is the Responsible of the Corrosion and Tribology research line at CIDETEC. Since Corrosion and Tribology was created in 2018, the total funding obtained up to date is around 1,780k under his leadership. From a total of 35 publications, including 1 book (his own Phd), 1 book chapter, 4 dissemination articles and 29 papers in international peer-review journals (14 in collaboration, 5 as first author, 9 as a corresponding and 3 as last author), the most relevant are 22 papers in Q1 (h-index = 14, 622 citations, 79 cites/year). His contribution has led important progress in the following fields/topics: corrosion (atmospheric corrosion of cultural heritage, corrosion inhibitors, corrosion monitoring using NDT techniques, modelling), evaluation and development of self-healing and protective coatings (organic, hybrid and inorganic), tribocorrosion, materials characterization (FE-SEM/EDX, XPS, AES, GD-OES, FTIR, XRD), electrochemical techniques (EIS, potentiodynamic polarization curves) and cutting-edge technologies such as localized techniques (i.e., SKP, SECM, SVET) and Synchrotron. It was developed at international and national level thanks to several contracts (pre-doc, post-doc and senior researcher) as well as 9 Fellowships/Grants: 1 Alfa-Teclimin (EU), 4 pre-doctoral (1 JAE of 4 years + 3 shortstays), 1 Torres Quevedo, 1 Synchrotron proposal and 2 private in companies (Ercros and ASML) through universities (UCM and TU-Delft, respectively). The most important achievements are to be inventor of 2 patents (one is under sampling to potential costumers), participation in 40 R&D projects: 18 funded through competitive calls (10 European, 4 National, 4 Regional) and 22 non-competitive contracts (6 European, 4 National and 12 Regional). He has been the main project leader in 20 (out of 40) R&D projects: 2 European through competitive calls (Coordinator of 2 Clean Sky 2 projects within Horizon 2020 framework) and 18 under non-competitive calls (5 European, 1 National and 12 Regionals). The dissemination of the research was triggered in 42 communications in conferences (22 oral) at International (37) and National (5) level, including one as invited speaker. Additional dissemination activities were related to promote corrosion awareness day (from 2019) and 4 dissemination articles (from 2019) among others. Since November 2018 he was appointed Head of a new group (8 people) called Corrosion and Tribology and currently (November 2021) is

Responsible of the Corrosion and Tribology research line. Regarding to training of young researchers, has been supervisor of: (i) 2 PhDs (1 more ongoing), (ii) 3 technicians, (iii) master students, and (iv) hosting 3 international short stays. Teaching through seminars, courses and dissemination activities (workshops, courses). Member of the evaluation committee of 2 PhD defences (Udine, 10/2021) and a Master defence (2016). Evaluator of a National R&D Project (2018) and reviewer in journals. Member of the Young-European Federation of Corrosion (EFC) (2018) and from the EFC (2019). He was setting a lab of localized corrosion up in 2015 after getting 100.000 of regional funding via FEDER.

He was also granted for ALBA¿s Synchrotron (Barcelona, Spain) to use their facilities. Finally, he has been involved in different activities such teaching and consultancy in companies.



Área Temática:	Ciencias y tecnologías de materiales
Nombre:	GALBIATI , MARTA
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Título:	2D materials for spintronics
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Resumen de la Memoria:

Dr. M. Galbiati is currently a la Caixa Junior Leader Retaining Fellow at the Instituto de Ciencia Molecular (University of Valencia). Her scientific record prioritizes quality over quantity and includes 31 publications (10 as 1st, 5 as 2nd, 1 as last and 4 as corresponding author) in well-indexed peer review journals (~50% in D1): 2 Adv. Mater. (IF: 30.8), Nature Chem. (IF: 24.4); Nature Comm (IF:14.9); 3 ACS Nano (IF: 15.8); Adv. Func. Mat. (IF:18.8); 2 Angew. Chem. (IF: 15.3); JACS (IF:14.6), PRL (IF: 9.1), Chem. Mater. (IF: 9.8), Chem. Sci. (IF: 9.8), ACS AMI (IF:9.2)..., 2 reviews (1 as 1st author), 1 book chapter and only author of 1 book. 4 manuscripts in preparation.

Her findings gave rise to >100 contributions in national and international conferences (she personally presented 28 talks, 6 invited talks (e.g. MMM-Intermag Conf. 2016) and 1 invited seminar). She has been PI of 5 projects and she actively took part to 15 European (9) and National (6) projects, rising funds for >550 k as PI and >10 M as Team member.

As master student, she worked on light-matter interaction and studied polariton condensation processes in photonic molecules (PRL) in the Laboratory for Photonics and Nanostructures (France).

During her PhD, she became involved in the innovative area of molecular and organic spintronics. She worked on the development of new molecular spintronic devices paying special attention to the tailoring opportunities that arise from the FM metal/molecule hybridization at the interfaces (the so-called spinterfaces). She was able to functionalize an air stable half-metallic LSMO FM electrode with SAMs for the first time (ACS Nano), leading to their successful integration into spintronic devices (Adv. Mater). She has been also able to observe and modulate "spinterface" effects up to room temperature in a semiconductor molecule device (Galbiati, Springer, 2016). Her expertise in spinterface area was recognized when she was invited to contribute to MRS Bulletin as 1st author.

As a post-doc and Marie Curie Fellow she joined the group of Prof. E. Coronado at the Instituto de Ciencia Molecular. She focused her research on the investigation of 2D materials for spintronics and other applications as energy storage (Adv. Funct. Mater.) or multifunctional electronics (Nat. Chem.). She also extended her studies to investigate the electrical properties of other 2D molecular materials, such as ultra-thin layers of metal-organic frameworks (MOFs) for applications in electronics and gas sensing (Adv Mater, 2 Angew. Chem., Chem. Sci., Chem Mater.).

She also started to develop her own research line on 2D materials for spintronics where, among others, she obtained reference results showing the highest magnetoresistance in 2D-MTJs with: MoS2 (ACS Appl. Mater. Interf. and PRApplied, as corresponding author), WS2 (ACS Nano), graphene (Nat. Comm), or other 2D materials (manuscript in review, as corresponding author). Moreover, she started to develop a cutting-edge fabrication technique that allows to successfully incorporate air-sensitive 2D materials in spintronics devices (ACS Appl. Elec. Mater. as corresponding author). To consolidate her research line on the investigation of novel 2D materials for spintronics she recently obtained 2 projects as PI: the highly competitive "la Caixa" Junior Leader Retaining grant and a Spanish MICINN Project.

Resumen del Currículum Vitae:

Dr. Marta Galbiati presents a top academic record that proves her taste for mobility to receive the best training and to follow her scientific interests. She graduated in Physics Engineering at Politecnico di Milano. Then, she moved to France (Erasmus Fellowship and Master Excellence Fellowship) to obtain her Master in 2010 in Materials Science and Nano-Objects by École Polytechnique.

Attracted by spintronics, she was selected for a joint academy/industry PhD on organic and molecular spintronics by A. Fert (Physics Nobel Prize 2007) Spintronics group at the Unité Mixte de Physique CNRS/THALES (CIFRE thesis fellowship). In 2014 she obtained her PhD in Physics from the University of Paris Sud. Her outstanding work was awarded with the international Springer Thesis Prize, leading to its publication in a book.

As post-doctoral researcher she joined the group of Prof. E. Coronado at the Instituto de Ciencia Molecular (María de Maeztu unit of excellence since 2016) at the University of Valencia. During her post-doc she gained different competitive fellowships: Marie Curie IF, JdC Formación, APOSTD-2018, JdC Incorporación, la Caixa Junior Leader Retaining Grant, (she was in the reserve list of RyC 2020 call). She focused her research on the investigation of 2D materials and 2D molecular materials for spintronics, energy storage, and sensing applications. She also carried out a long post-doctoral stay at the Unité Mixte de Physique CNRS-Thales (France) to enlarge her research on 2D materials integration in spintronic devices, then re-incorporating at ICMol with a JdC-Incorporación Fellowship and a la Caixa Junior Leader retaining grant to develop her own research line on novel 2D materials for spintronics.

Her ability to self-finance and reach a position of professional maturity is illustrated by the several fellowships she received all along her career (8), the 5 research projects as PI and 2 international awards (PhD Challenge 1st Prize, Springer Thesis Prize). Since her Master internship she gave proof of strong autonomy, as reflected by the large number of publications as 1st author (10: PRL, Adv. Mater (2),ACS AMI), 5 as 2nd , 1 as last and 4 as corresponding author). During her career she also weaved a robust and broaden network of international and national collaborators the fruit of which is reflected in most of her postdoctoral publications and in her participation in 15 European (9) and National (6) projects, rising funds for >550 k as PI and >10 M as Team member. She also demonstrated her leadership abilities being in charge of several projects both as PI and as team member, and through the supervision and mentoring of 5 student works and 4 PhD candidates.

As senior researcher she has been coordinator of students and young researchers grants in a EU COST-Action project. Committee member of 1 PhD thesis defense. Reviewer for journals of the ACS, AIP, Elsevier...Expert evaluator for "la Caixa" PhD and Postdoctoral fellowships, and for the Spanish AEI.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Her capacity to transfer knowledge both at a scientific and academic level are reflected by her teaching activity (253 h teaching Physics at Master and Bachelor level), her involvement in the organization of scientific meetings, many dissemination and outreach activities and in the mentoring and supervision of junior research students (currently co-supervisor of 1 PhD candidate).



Área Temática:	Ciencias y tecnologías de materiales
Nombre:	ANTON SOLANAS, CARLOS
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Título:	Quantum Optics with Quantum Materials
Título:	Quantum Optics with Quantum Materials

Resumen de la Memoria:

Recently, I obtained a competitive project financed by the German Federal Ministry of Education and Research as PI to develop Quantum Key Distribution systems with single-photon sources based on 2D materials. In 2021, I obtained 2 competitive projects (La Caixa Junior Leader, and Attraction de Talento - Modalidad 1) to research on high-dimensional photon entanglement and become an independent research leader in Spain. I am starting my tenure position at the U. Autónoma Madrid (UAM) in Feb. 2022.

In Germany (2019-2022), I am a team leader in the Schneider s group (U. Würzburg & Oldenburg). The relevance of my research in polaritonics with 2D materials is supported with the 1st demonstration of bosonic condensation of exciton-polaritons in 2D materials at cryogenic temperatures (1st author, Nat. Mater. publication) and at room temperature (last author, Nat. Commun. publication). My main collaborators are S. Höfling (U. Würzburg), S. Tongay (U. Arizona), and A. Kavokin (Westlake Univ.). I presented these works as oral talks in international confs. in 2021: OECS and CLEO-Europe, and also as an invited seminar in the Youtube Polaritonics Seminar Series.

In France (2015-19), as a team leader in the Senellart s group (CNRS), I generated new ideas, and experimental results by pioneering the use of the photon-number Fock base to generate deterministic quantum superposition (1st author, Nat. Photon. publication) and entanglement (last author, Nat. Photon. publication) from the emission of semiconductor QDs. The results triggered the creation of new theory on photon-number time-correlations, obtained in collaboration with the theory groups of A. Auffèves (CNRS) and C. Simon (U. Calgary), and it has been awarded 2 invited conferences (PLMCN, and Jaszowiec International Conference). My relevant experimental collaborators were A. White (U. Queensland), R. Osellame (Politec. di Milano), F. Sciarrino (U. La Sapienza) and H. Eisenberg (Hebrew Univ. of Jerusalem). I participated in 2 R&D activities with the startup Quandela: (1) developing the optical-fiber pasting onto micropillars to directly collect photons in a fiber; (2) benchmarking the quantum performance of single-photon emitters in its 1st commercialized sample to Andrew White s group (Univ. Queensland). I obtained a competitive Marie Sklodowska-Curie grant, I gave >15 invited seminars, >5 invited conferences and >10 talks in international conferences.

During my PhD (2015, U. Autónoma Madrid (UAM), FPU grant), I investigated non-equilibrium exciton-polariton condensates in semiconductor microcavities, studying their fundamental properties, and implementing testbed polariton devices. I published 13 articles, 8 as 1st author. I contributed as speaker in >5 international conferences. I obtained 3 thesis prices.

Resumen del Currículum Vitae:

I have published 37 peer-reviewed papers (+2 under review), 14 [2] as 1st [last] author: 3 Nat. Photon., 1 Nat. Mater., 1 Nat. Nanotech., 3 Nat. Comun., 3 Optica, 5 PRL, 8 PRB, 3 APL. Some of these publications are:

- 1 Shan, H.; et al; Antón-Solanas, C. 2021. Nature Commun. 12, pp. 6406(1)-6406(7).
- 2 Wein, S. C.; et al; Antón-Solanas, C. 2021. arXiv:2106.02049 (accepted in Nature Photon.).
- 3 Iff, O.; et al; Antón-Solanas, C.; Schneider, C. 2021. Nano Letters. 21, pp. 4715-4720.
- 4 Antón-Solanas, C.; et al; Schneider, C. 2021. Nature Mater. 20, pp. 1233-1239.
- 5 Antón, C.; et al; Senellart, P. 2019. Optica. 6, pp. 1471-1477.
- 6 Loredo, J. C.*; Antón, C.*; et al; Senellart, P. 2019. Nature Photon. 13, pp. 803-808. (*equally contributing)
- 7 Lackner, L.; et al; Antón-Solanas, C.; Schneider, C. 2021. Nature Commun. 12, pp. 4933-4933.
- 8 Ollivier, H.; et al; Anton, C.; Senellart, P. 2021. Phys. Rev. Lett. 126, pp. 063602-063606.
- 9 Antón, C.; et al; Lanco, L. 2017. Optica. 4, pp. 1326-1332.
- 10 De Santis, L.; Antón, C.; et al; Senellart, P. 2017. Nature Nanotechnol. 12, pp. 663-667.

Some of the competitive projects that I obtained as PI:

1 High-dimensional entanglement with semiconductor quantum dots Atracción de Talento Modalidad 1- Comunidad de Madrid. Ref. 2020-T1/IND-19785. Universidad Autónoma de Madrid. 25/02/2022-24/02/2027. 199.735 .

2. A quantum-secure campus network based on sub-Poisson quantum light sources German Ministry of Education and Research. Ref. tubLAN Q.0. Coordinator of the network (6 partners): Tobias Heindel (Berlin Institute of Technology). 15/01/2022-14/01/2025. Total: 2.302.000 of which 307.000 assigned to C. Antón-Solanas. University of Oldenburg. Pl of the University of Oldenburg partner.

3 Photonic hyper-entanglement for quantum communication and computation Declined. La Caixa Junior Leader 2021. Ref. 104324. La Caixa Foundation. Univ. Autónoma de Madrid. 01/06/2021- 30/05/2024. 300.000 .

I am member of: Spanish Royal Physics Society and Condensed Matter Physics Division (2013-); Society of Spanish Scientists in the Federal Republic of Germany (2020-); German Physical Society (2021-).

I am a referee for the APS journals PRL, PRX, PRA and PRB, Nature Photon., Science Advances and Adv. Quantum Tech.

Without any official academic recognition, I co-supervised 8 PhD students and 3 bachelor students, and I trained 6 postdocs.

As a habilitant in Oldenburg, I created a new lecture Solid State Quantum Photonics for the Master in Physics (2h/week, winter semester 2021). I gave the Structure of Matter tutorials (2h/week, Physics degree, summer semester 2021) and the Atomic and Molecular Physics tutorials (6h/week, Eng. Physics degree, winter semester 2020).

I was a member of the organisation committee of the Intern. Conf. on Integrated Quantum Photonics (Paris, 2018) and the XVII Young Researchers Meeting (UAM, La Cristalera, 2014).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I was nominated for the research prize of the University Society Oldenburg e.V (July 2021). During my PhD, I obtained 3 prices: Best experimental Thesis (Condensed Matter Physics Division-RSEF, Jan 2016), Extraordinary Doctoral Thesis Prize (Faculty of Sciences- UAM, May 2016), and Young Researchers Prize in Materials Science (Inst. Nicolás Cabrera, Dec 2013).



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	DEL VALLE GRANDA, JAVIER
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Correo Electrónico:	javiervallegranda@gmail.com
Título:	Metal-Insulator transitions: mechanisms and applications

Resumen de la Memoria:

I started my scientific career in 2011 when, after being awarded an FPU fellowship, I joined the group of Prof. Jose Luis Vicent at Universidad Complutense de Madrid. My thesis, entitled Mesoscopic effects and characteristic lengths in superconducting systems, focused on how to control the motion of of superconducting vortices using material nanostructuration.

In March 2016 I moved to the USA, where I joined the group of Prof. Ivan Schuller at the University of California-San Diego as a postdoctoral researcher. During that time, I earned a Ramón Areces Postdoctoral Fellowship that financed part of my salary. In my postdoc I shifted into a completely different research area: correlated oxides, metal-insulator transitions and their applications for neuromorphic computing. In January 2020, I moved on to a more senior position at the University of Geneva after securing a competitive Ambizione Fellowship from the Swiss government. This funding allows me to pursuit my own, completely independent research as a junior PI within the group of Prof. Jean-Marc Triscone.

My work since 2016 has focused on the insulator-to-metal transition (IMT), specially its voltage-triggering. My most salient contribution concerns the dynamics of this transition i.e. how do these materials evolve when a voltage is applied to them, and how do they relax when the voltage is removed. My work filled a knowledge gap and led to two seminal publications (J. del Valle et al. Nature (2019), J. del Valle et al. Science (2021)).

A big part of my research focuses on how to use the phenomenology of IMTs to engineer realistic applications for emerging hardware technologies, particularly neuromorphic and probabilistic computing (J. del Valle et al. Nano Lett. (2022)). I have a broad perspective on the objectives and challenges that must be faced in the field, having authored a review paper (J. del Valle et al. J. Appl. Phys. (2018)) as well as original research papers ranging from proof-of-concept devices to benchmarking calculations. My work in this topic has allowed me to attract more than 800.000 Euros in funding since 2019, 662.000 of them as a PI and the rest as a Co-PI. I have used the money for setting up my own sputtering system and measurement equipment in Geneva, as well as hiring a postdoctoral researcher.

Resumen del Currículum Vitae:

I started my scientific career in 2011 when, after being awarded an FPU fellowship, I joined the group of Prof. Jose Luis Vicent at Universidad Complutense de Madrid. My thesis, entitled Mesoscopic effects and characteristic lengths in superconducting systems, focused on how to control the motion of superconducting vortices using material nanostructuration.

In March 2016 I moved to the USA, where I joined the group of Prof. Ivan Schuller at the University of California-San Diego as a postdoctoral researcher. During that time, I earned a Ramón Areces Postdoctoral Fellowship that financed part of my salary. In my postdoc I shifted into a completely different research area: correlated oxides, metal-insulator transitions and their applications for neuromorphic computing. My research output in the US was very prolific, allowing me to return to Europe to work in a more senior position. In January 2020 I moved to the University of Geneva after securing a prestigious Ambizione Fellowship from the Swiss National Science Foundation. This funding allows me to pursuit my own, completely independent research as a junior PI within the group of Prof. Jean-Marc Triscone. My experience in these two internationally recognized labs has procured me a broad network of international collaborators in Europe and America.

My work since 2016 has focused on the insulator-to-metal transition (IMT), specially its voltage-triggering. My most salient contribution concerns the dynamics of this transition i.e. how do these materials evolve when a voltage is applied to them, and how do they relax when the voltage is removed. My work filled a knowledge gap and led to two seminal publications (J. del Valle et al. Nature (2019), J. del Valle et al. Science (2021)). In addition to switching dynamics, I have made key contributions to other aspects of the voltage-triggered IMT such as high-resolution imaging of filament percolation or assessing the role of Joule heating and E-field effects.

A big part of my research also focuses on how to use the phenomenology of IMTs to engineer realistic applications for emerging hardware technologies, particularly neuromorphic and probabilistic computing (J. del Valle et al. Nano Lett. (2022)). I have a broad perspective on the objectives and challenges that must be faced in the field, having authored a review paper (J. del Valle et al. J. Appl. Phys. (2018)) as well as original research papers ranging from proof-of-concept devices to benchmarking calculations. My work in this topic has allowed me to attract more than 800.000 Euros in funding since 2019, 662.000 of them as a PI and the rest as a Co-PI. I have used the money for setting up a sputtering system and measurement equipment in Geneva.

I have also used part of the funding to hire a postdoctoral researcher, whom I supervised exclusively. In addition, during my time in the USA I also supervised two PhD students and one undergraduate whose projects all led to publications. I also have experience teaching in different languages, both during my PhD at the Universidad Complutense and in my current position in Geneva.

In total, I have published 37 papers (including 11 in high impact journals), 13 of them as a first author. I have been invited to talk in 7 international conferences and workshops and have secured prestigious funding at every stage of my career.



Área Temática:	Ciencias y tecnologías de materiales
Nombre:	WICKLEIN , BERND
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Título:	Green Paper Materials

Resumen de la Memoria:

My principal research at the ICMM is focused on Green Paper Materials with a circular emphasis concerning production, application and recycling. The prime objective of this research line is to tackle questions of sustainability and clean energy in agreement with AE5 Clima, Energía, Movilidad of the 2021-23 Spanish national research plan. Therefore, the paper materials are assessed in diverse applications ranging from renewable energy generation, paper electronics, sustainable insulation materials and environmental remediation. Finally, different end-of-life options are evaluated to close the materials loop. The Green Paper Materials line is divided in 3 sub-research lines; 1) revalorization of biomass, 2) materials for energy and 3) multifunctional materials.

1) I participate in fundamental studies concerning the physical-chemical characterization of lignocellulosic compounds from biorefinery and their revalorization as advanced materials like electrodes, paper sensors and adsorbents.

2) I investigate lignocellulosic materials for improved energy storage and conversion as well as more efficient thermal insulation foams. Regarding the latter, my present JIN project on advanced foams, triboelectric nanogenerators and intelligent insulation concepts is an important stepping stone toward my long-term goal of enhancing urban sustainability. I aim at developing smart building envelopes for simultaneous harvesting of environmental energy and increased energy efficiency using revalorized biomass.

3) In the cross-cutting research line on multifunctional materials, I study nanocomposites and hybrid materials with a multitude of optical, magnetic, electrical and electrochromic functions. Here, I am especially interested in green chemistry synthesis aspects of using earth-abundant and renewable natural nanomaterials and green processes like self-assembly or templating methods.

My main contributions to the generation of knowledge are the development of superinsulating, flame retardant nanocellulose foams that could significantly improve the thermal management of buildings. Furthermore, I contribute to the systematic analysis of autochthonous Iberian lignocellulose feedstock for extraction of added-value lignins and nanocelluloses. I also expanded the field of biomimetic lipid interfaces to solid supports like clay minerals that proved useful in influenza vaccines, rapid flu sensors and biocatalysis.

Concerning my trajectory, in 2012, I moved to Stockholm University to study nanocelluloses and develop sustainable superinsulation materials, which we published in Nature Nanotechnology 2015 (>860 citations). I also coordinated fruitful collaborations with the Univ. of Melbourne on liquid crystals formed by self-assembled cellulose nanocrystals (Soft Matter 2015) and the MPI Potsdam on organic-organic hybrid membranes (Chem. Comm. 2014). My PhD thesis (2008-11) in Prof. Ruiz-Hitzky s research group (ICMM-CSIC) laid the ground work for my research interests concerning functional hybrid materials. Herein, I studied solid-supported, bioinspired interfaces based on self-assembled lipid bilayers. These materials are suitable as sensitive electrochemical biosensors, efficient biocatalysts and efficacious influenza vaccines (Adv Funct Mat 2013, Adv Mat 2011, ACS Appl Mat Interf 2011). In 2007, I graduated in Materials Science from Stuttgart University.

Resumen del Currículum Vitae:

My academic background is in Applied Physical Chemistry (PhD, 2011, ICMM) and Materials Science (MSc, 2007, Stuttgart Univ.). I also hold a MSc. in Climate Change & Development (2021, Univ. of London). In 2007, I worked as a materials engineer at Robert Bosch GmbH (Germany) in the area of ceramic composite materials.

My postdoc period of 30 months was at Stockholm University (2012-14) in one of the leading groups in the field of nanocellulose (Prof. Bergström). Currently, I am a Principal Investigator (PI) at the ICMM-CSIC financed by a JIN project (2020-23, AEI) about sustainable triboelectric nanogenerators. Since my reincorporation in 2014 at the ICMM after my postdoctoral period, I have been gradually gaining independence as researcher and consolidated my research line of Green Paper Materials. For instance, in 2016 I obtained a Juan de la Cierva-Incorporacion contract and in 2018 I was co-PI of an industrial research contract (SUMLIT) financed by the German company Carl Zeiss Vision. My leadership capacity is reflected by the research funding I acquired as PI (312,000), the projects and contracts I received (3), the human resources I secured (2 lab technicians, 6 graduate students), the (inter)national collaborations (8x) I established, the high number of senior authorship positions (5x last author, 10x corresponding author), the quality of my scientific production in the last 5 years as PI (17 in Q1, of which 7 in D1) and the reception of the I3 certificate of excellence (2021).

In my research career I have participated in a total of 15 research projects (3 as PI) funded by various public and private funding agencies. I am coauthor of 43 research articles in high impact journals (incl. Nat. Nanotechnol, Adv. Mater.). These works have received more than 1750 citations and my h-index is 19 (Scopus). I am co-author of 6 book chapters as well as co-inventor of 1 patent (PCT/EP2017/078239). I gave 8 oral presentations at intern. congresses (41 communications) and delivered 6 invited seminars at intern. research centers.

The international outreach of my research career as manifested by 7 short-term research missions (15 months) and a position as work package leader in the EU COST Action MP1202. I am also engaged in organizing scientific events like symposia at the E-MRS 2015 and MRS 2018 congresses and I served as guest editor of two special issues on hybrid materials (Adv. Funct. Mater.) and porous materials (J. Mater. Sci.). I received recognition as a project referee (5x AEI, 1x DFG), PhD Thesis evaluator (3x) and peer-reviewer (>70x).

I supervised a total of 23 students including 3 Master students at Stockholm University and the ICMM and 20 students from different universities during their practicas externas and TFG as well as foreign visiting students. I obtained the accreditation for profesor PAD, PCD, PU by the ANECA in 2016.

During the various stages of my career I have developed leadership by setting up my own research line of GREEN PAPER MATERIALS. I gained expertise in the revalorization, preparation and characterization of these materials and their application in areas like clean energy, sustainability, environmental remediation and health. Herein, earth abundant and environmentally benign nanocomposites based on celluloses, biopolymers, clays, metal oxides, nanocarbons etc. are the main object of my studies.



Área Temática:Ciencias y tecnologías de materialesNombre:LAJAUNIE , LUCReferencia:RYC2021-033764-ICorreo Electrónico:luc.lajaunie@uca.esTítulo:Development of sustainable catalysts for clean hydrogen production: insight from advanced TEMexperimentsEnterto de tatalysts for clean hydrogen production: insight from advanced TEM

Resumen de la Memoria:

My main lines of research lie currently in the synthesis, structural and chemical characterization of 1D and 2D photo- and electrocatalysts, in particular in the relationship between structure and properties. My main tools are based on advanced transmission electron techniques that I combine with DFT-based theoretical calculations and image simulations.

I did my PhD at the laboratory Pprime (University of Poitiers, France) thanks to a competitive PhD grant and worked as post-doc in three Centers of excellence: laboratory IMN (University of Nantes, France), Nanoscience Institute of Aragon (Spain) and the Inorganic Chemistry Department of the University of Cádiz (Spain).

I published 50 publications in IJCR journals with 36 papers in Q1 and 18 in the first decile D1. I published 13 publications as first author, 5 as "Co-first author", 11 as second author, 3 as senior author and 16 as corresponding author. I prioritized quality over quantity, as reflected by the journals where I published: Adv. Funct. Mat. (×2, IF 18.8), Nature. Comm. (IF 14.9), ACS Nano (13.9) My h index is equal to 20 and I received more than 1.000 citations. The last 4 years, I received an average of 173 citations per year with an increasing trajectory.

I am PI of 2 Projects for about 108.000 . I participated in 16 competitive projects including 4 EU projects. I am also participating in 1 OTRI contract. I developed long-term collaborations with several groups of international renown including groups of Pr. Tenne (Weizmann Institute, Israel), Dr. A Ramasubramaniam (U. Massachusetts, USA) and Dr. D Voiry (U. Montpellier, France). I also developed a strong collaboration with ACERINOX. I am a frequent reviewer for several IJRC journals and an Evaluator for the Spanish Agencia Estatal de Investigación.

I was awarded the Seal of Excellence by the EU in 2018, I received the best student talk award at the EMRS conference and a PhD competive grant in France of 71k . In 2021, I was also on the reserve list for the last Ramón y Cajal call.

I am dedicated to foster young researchers. I directed 1 End-of-Degree student (TFG) and 3 End-of-Master students (TFM), all related to the synthesis of 2D materials and their photo- and electrocatalytic applications. I am also currently directing 2 PhD students and 1 TFG student. All my former students are currently doing a PhD in my group or are working.

I am involved in many divulgation activities at the destination of secondary school students and citizens in France and Spain: Action+ 2009, Fête de la Science 2010 to 2013, Semana de la Ciencia 2018 and 2019, Noche Europea de los Investigadores 2018, Ciencias around you 2020. My work has also been widely presented to the public by traditional media in journal articles and webpages (La Voz de Cádiz, El Diario de Leon). I am also strongly involved in teaching activities, mostly for first year s students in Chemistry (U. Poitiers, Fr and U. Cádiz, Spain). I also organized several workshops and international conferences. I am also accredited as Pr Ayudante, Pr Contratado Dr and Pr de Universidad Privada by the ANECA.

Resumen del Currículum Vitae:

My main research focus lies in the synthesis, structural and chemical characterization of 1D and 2D photo- and electrocatalysts, in particular in the relationship between structure and properties. In 2006, I joined the U. of Poitiers (Fr) thanks to a competitive PhD grant of the Region Poitou-Charentes (71k). In 2009, I defended my thesis and I received the highest mark. I was then ranked first in a competitive process of the French Ministry of Education which allowed me to work at the U. of Nantes during 4 years where I developed my own research lines dedicated to the study of Mo-based materials. In 2014, I started working as an EU ESTEEM2 and EU Graphene Flagship postdoctoral fellow at the U. of Zaragoza with Dr R. Arenal to study a novel kind of inorganic nanotubes. I also worked on graphene devices in collab. with several Spanish companies (Graphenea, Avanzare and Grupo Antolin). In 2018, I joined a Post-Doctoral Program of Excellence of the U. of Cádiz in the group of Pr. JJ Calvino where I developed a strong collaboration with ACERINOX, one of the largest producer of stainless steel in the world.

I published 50 publications in international journal with review committee (IJRC), with 36 papers in Q1 (72%) and 18 (36%) in the first decile D1 (source WOS). I published 13 publications as first author, 5 as "Co-first author", 11 as second author, 3 as senior author and 16 as corresponding author. I prioritized quality over quantity, as reflected by the journals where I published: Adv. Funct. Mat. (×2, IF 18.8), Nature. Comm. (IF 14.9), ACS Nano (13.9), ACS Catalysis (13.1), Appl. Catal. B (11.7), Chem. Mater. (×3, IF10.2. My h index is equal to 20, my i10 is equal to 28 and I received more than 1.000 citations. The last 4 years, I received an average of 173 citations per year with an increasing trajectory. My works on the characterization of Carbon and Mo-based materials are now considered as a references in the scientific community dedicated to these materials.

I demonstrated leading capacities by triggering new research lines within my host groups and developed long-term collaborations with several groups of international renown including groups of Pr. Tenne (Weizmann Institute, Israel), Dr. A Ramasubramaniam (U. Massachusetts, USA) and Dr. D Voiry (U. Montpellier, France). I have developed a strong collaboration with ACERINOX, we have 3 projects together (1 as PI), 1 OTRI contract and we are directing together 1 Industrial PhD Thesis.

My work was presented 71 times at international and national conferences and seminars, including 30 oral communications at international conferences as first author, 2 as senior author, 4 invited talks and 11 proceedings.



I am PI of 2 Projects funded through national and regional competitive calls for a total of over 108.000 . I participated in 16 competitive projects, including 4 EU projects, 6 national, 3 regionals (J. de Andalucía) and 2 industrial projects (CDTI). I am also participating in 1 OTRI contract.

I am a frequent reviewer for several IJRC journals including Inorg. Chem. (×2,Q1), Mater. Today Nano (Q1), Mater. Sci. Semicond. Process. (×2,Q1), Dyes and Pigments (Q1), Int. J. Hydrogen Energy (×8,Q2), J. Rare Earth (Q2), Beilstein J. Nanotechnol (Q2), Micron (×3,Q3) and J. Semicond. Technol. Sci. (Q3). I am an Evaluator for the Spanish Agencia Estatal de Investigación, I evaluated calls from 2020 National Research Project Call and regional excellence program (GenT) among other



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	ARROYO HUIDOBRO, PALOMA
Referencia:	RYC2021-031568-I
Correo Electrónico:	p.arroyo-huidobro@lx.it.pt
Título:	Tailoring light-matter interactions beyond conventional materials with plasmonics and metamaterials

Resumen de la Memoria:

The study of light-matter interactions is a common area of strong efforts in fields including Physics, Material Science, Chemistry and Electrical Engineering. Fundamental understanding in this area has resulted in advances in the way we exploit light for different purposes: from harvesting light at the nanoscale for efficient solar energies, to developing quantum optical devices or controlling and manipulating matter at the nanoscale. My research is focused on understanding light-matter interactions in nanostructured materials and proposing metamaterials that permit new forms of interactions between light and matter.

After receiving my PhD from Universidad Autónoma de Madrid I conducted my postdoctoral research at Imperial College London (2014-2019). Since 2019 I am based at the Instituto de Telecomunicações (Instituto Superior Técnico-University of Lisbon) where I lead a research group devoted to the theory of light-matter interactions and metamaterials. My main current research lines, which build on the strong background in the field that I acquired during my PhD, are centred in developing topological, dynamic and quantum nanophotonics, metamaterials, and metasurfaces. During all my career, I have developed various theoretical techniques that include analytical or semi-analytical approaches (transformation optics, homogenisation theory, Green s functions theory), developing my own numerical codes (coupled dipole approximation, modal field expansions, etc.) and implementing full wave simulations in electromagnetic solvers.

The relevance of my work in the field is reflected in my publication track record (46 peer reviewed articles, over 1600 citations), my participation in international conferences (over 30 personal contributions including 18 invited talks), and the highlights that 11 of my publications have received. Furthermore I am the recipient of fellowships and awards. Finally, I have supervised students, contributed to the community through panels, boards and meeting organisation, and I am currently the PI of 2 projects.

Resumen del Currículum Vitae:

I graduated in Physics in 2008 and obtained an MSc in Condensed Matter Physics and Nanotechnology in 2009 at Universidad Autónoma de Madrid. Winning scholarships both at the undergraduate and graduate level allowed me to start research in the field of light-matter interactions in plasmonics and metamaterials (including La Caixa Scholarship for Master studies and FPU scholarship for PhD studies from Spanish Ministry of Science). My PhD was recognised with an Extraordinary Prize of PhD Thesis (2014).

In 2014 I started my postdoctoral research at Imperial College London. My research output in the area of plasmonic metasurfaces and transformation optics includes one publication in Science. I received the Dan David Prize scholarship for young researchers in 2016 for my work in this area. Between 2016 and 2018 I was funded by a Marie Sklodowska-Curie Fellowship which allowed me to start research in the topic of topological nanophotonics. During this period at Imperial College London I co-supervised three PhD students, three master students and one undergraduate student.

In 2019 I joined IT Lisbon as a Researcher, following the award of a Junior Researcher Fellowship from the Portuguese Science and Technology Foundation (FCT). In 2021 I subsequently obtained an Associate Researcher Fellowship. My research group at IT Lisbon is devoted to developing theory of nanophotonics, with a particular focus on dynamic, quantum and topological metamaterials. So far I have supervised a visiting PhD student. Currently, I am PI of two projects, and I supervise one master student and one postdoctoral researcher. I have secured funding for one more postdoctoral researcher.

My publication record lists 46 publications, of which 36 are a result of work carried out after my PhD, in journals including Science (1), PNAS (1), Physical Review Letters (3), ACS Nano (3) or Optica (1). Since 2018 I have published 10 papers as last or corresponding (senior) author. I have also published one book and one book chapter. My work has received over 1650 cites according to Google scholar (January 2022), with more than 300 citations per year in the last two years. Additionally, 7 of my publications have been highlighted as Editor s suggestion of the Physical Review, the OSA or the IoP, and another 4 have been featured in scientific press.

In addition, I have participated in over 30 national and international conferences, with 12 contributed and 18 invited talks. I have also been invited to give seminars in world-wide universities such as MacQuire University (Australia), Cardiff, Exeter and Birmingham Universities (UK), or Ben Gurion University (Israel), and online workshop series such as MetaMAT. I am a co-organiser of scientific meetings, including a very successful workshop in the area of time-dependent metamaterials (1000 participants registered for the first online session, highlighted in Nature Photonics), and the Complex Nanophotonics Science Camp, a workshop that champions diversity in Photonics as highlighted in a Nature Physics editorial. I have also taken part in the evaluation panel of 2 PhD thesis and reviewed grant proposals for Argentina, Israel and the UK. Currently, I am a guest member of the Editorial board of Journal of Applied Physics where I am co-editing a Women in Physics collection.





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Área Temática:	Ciencias y tecnologías de materiales
Nombre:	KAMRA KAMRA, AKASHDEEP
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Título:	Spin phenomena in magnets, superconductors and their hybrids
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Resumen de la Memoria:

I am a theoretical condensed matter physicist with a broad interest in spin phenomena in magnets, metals, superconductors, and their hybrids. I research phenomena at the intersection of fields such as quantum optics, superconductivity, and magnetism, leading to valuable cross-fertilization. My work addresses fundamental scientific questions, e.g. spin entanglement in magnetic phases, as well as phenomena bearing technological value, e.g. gate-voltage controlled superconductivity. I collaborate with experimentalists regularly.

During my PhD (2011-2015) in Delft, I worked on several topics in classical magnetism and spintronics. These include magnetoelastic waves, spin Seebeck effect, and magnetic textures. My work on magnetoelastic coupling predicted hybrid magnon-polaron quasiparticles, which have since been observed and studied vigorously.

As a Humboldt postdoc fellow (2016-2018) in Konstanz, I worked on (i) quantum theory of magnets and their excitations, bringing together the fields of spintronics and quantum optics, and (ii) spin-dependent effects in superconductor-magnet hybrids. I developed the theory of magnonic spin current noise and correlations, demonstrating them to be effective tools for probing the quantum nature of spin excitations and transport. This work laid some of the foundational stones in a field which is now called quantum magnonics. Several of my theoretical predictions have since been realized experimentally, some including me as a collaborator.

Working as a Researcher (2018-2021) with scientific independence and a permanent contract in Trondheim, I employed my freshly discovered quantum properties of magnons towards uncovering novel phenomena, e.g. magnon-mediated high-Tc superconductivity, and applications, e.g. magnon Hanle effect and spin transistor.

My ongoing and future research, likewise, exploits these quantum properties for entanglement, unconventional superconductivity, and spin-based information technology in a novel composite quantum material magnet/metal hybrid.

Since April 2021, I am a Junior Group Leader at IFIMAC, Universidad Autónoma de Madrid. Here, I have been setting up my research group, thanks to a 150 k grant associated with my group leader position. My group is fully functional by now and presently consists of two PhD students and one bachelor student.

Resumen del Currículum Vitae:

I am a theoretical condensed matter physicist with a broad interest in spin-dependent phenomena hosted by magnets, metals, superconductors, and their hybrids. Working with different theoretical tools, such as Green s functions and Boltzmann transport equation, I have delineated novel phenomena ranging from spin entanglement in magnets to magnon-mediated high-Tc superconductivity. In particular, I have made some pioneering contributions to the emerging field of quantum magnonics. While being a theorist, I have worked closely with experimentalists throughout my career. Sometimes I have provided theory support in understanding intriguing data. Often, I have driven collaborations towards realization of my theory predictions.

I obtained my PhD in 2015 from Delft, Netherlands under the supervision of Prof. Gerrit E. W. Bauer. During this time, I spent extended periods visiting and collaborating with groups in Munich, Germany and Sendai, Japan. Then, I obtained Humboldt Research Fellowship (2 years) for working with Prof. Wolfgang Belzig in Konstanz, Germany. Accomplishing the projects as I proposed in my Humboldt application, I uncovered intriguing quantum properties of magnons and made predictions regarding their experimental consequences thereby laying foundational stones in a field that is now called quantum magnonics. Several of these predictions have recently been experimentally corroborated in collaborative papers involving myself, and have been hailed as breakthroughs by the community. Several other predicts are being pursued.

In 2018, I joined the Norwegian center of excellence on quantum spintronics as a Researcher with scientific independence. In 2019, my position there was made permanent. This high potential demonstrated earned me a position as IFIMAC junior group leader at Universidad Autónoma de Madrid along with a generous starting grant. I assumed this position in April 2021.

My various research stays in Germany, Netherlands, India, Norway, and Japan have exposed me to some of the best research environments in the world. These have also allowed me to establish my own strong network of collaborators. Taking my ongoing (manuscripts published in 2021) experimentalist collaborations as an example, I am working with groups in MIT, USA (Moodera), ETH Zuerich (Gambardella), TU Munich (Gross, Huebl, and Althammer), and Konstanz (Goennenwein).

I am considered a young leader in the magnetism and spintronics community. This is evident from the various invited talks that I have delivered at international conferences as well as universities. I was also elected chair by the community for the Gordon Research Seminar on Spin Dynamics in Nanostructures 2019, one of the most prestigious international meetings in the field. Further, I am a guest editor for a special issue on ``Advances in Chiral Spintronics in the journal Frontiers in Physics. I have enthusiastically contributed to the community by, for example, organizing workshops and mentoring younger researchers.



Besides the international community, I have strongly contributed to teaching and mentoring young students, fulfilling administrative responsibilities, and organizing events (professional and social) at all my host institutes. I feel happy that I am remembered as a very positive influence on the research and social environment by all my host groups.


AGENCIA ESTATAL DE INVESTICATION

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

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Resumen de la Memoria:

My ambition is to lead a research lab on development of soft nanomaterials for applications in energy, healthcare, and environment. In specific, I want to work in the newly recognized field of out-of-equilibrium self-assembly to design bioinspired nanomaterials for drug delivery.

My research experience ranges from soft nanomaterials, nanotechnology to organic chemistry for a variety of applications. I did my PhD in India at Jawaharlal Nehru Centre for Advanced Scientific Research (ranked among the world top 10 academic institutions in 2018 by Nature index). During my PhD, I was investigating the dynamic self-assembled nanomaterials which respond to biochemical signals like adenosine phosphates. Furthermore, my work also involved developing soft electronic materials for potential applications in smart devices. The work resulted in 13 JCR articles (9 first author) all in Q1 journals. My work also generated commercial interest resulting in one US patent. My PhD was recognized with best PhD thesis award (cum laude equivalent). During this period, I also supervised 4 master students for their research projects which resulted in 3 publications.

My 5 years of postdoctoral training provided me independent research experience at City University of New York (USA). Here I worked with amino acid controlled nanostructures to form nanowires with time programmable electrical conductivity for potential applications in soft electrical interfaces. During this period, I had 10 publications (all Q1 articles) including first author Nature Chemistry as cover article and three corresponding author articles. I received La Caixa junior leader fellowship consisting of a research grant worth 292,500 euros. Therefore, I joined Institute for Bioengineering of Catalonia (IBEC) in Spain to perform research on nanomaterials for drug delivery. Currently, I am the main PI of 1 PhD student. I am also co-supervising 1 PhD student and 1 master student.

My PhD and postdoctoral research were completely funded by public agencies through grants and fellowships. Currently, I have a personal research grant from La Caixa foundation. I have also written two research proposal with Prof. Ulijn, both of which were successfully funded. I was also selected for Beatriu de Pinós fellowship which I declined. My work is well recognized among the scientific community with a total of 24 Q1 JCR articles (13 first author, h-index: 14, total citation: 1195) and one US patent. I have wide experience in writing scientific papers, writing grants, supervising young researcher (PhD, Master and Bachelor thesis), teaching a number of university courses. I have been invited to scientific conferences and have also engaged with general public through outreach activities to explain my science to larger community. I have enjoyed collaborations with researchers from various scientific background like physicists, engineers, theoreticians, chemists.

Thus, given wide experience in bio-inspired nanomaterials and Organic Chemistry and the impact of my research and the capacity of my projects to attract funding, I expect to consolidate my leadership in the particular niche. In particular, my research interest in out-of-equilibrium soft material will provide complementary expertise to the Spanish material science community where we can mutually benefit and collaborate.

Resumen del Currículum Vitae:

1) I have extensive international research experience, involving 4 research labs. I have worked in Bangalore-India (2009-2015), New York-USA (2015-2020), California-USA (April 2017) and Barcelona (2020 onwards).

2) I qualified for a 5-year fellowship from the Council of Scientific and Industrial Research, Govt. of India to fully fund my PhD and my thesis won the best PhD thesis award (cum laude equivalent) in the Physical Sciences division of the university.

3) With 7 years after my PhD, I have published a total of 24 journal articles (14 first author, 4 as corresponding author, 24 in first quartile-Q1 journals, 18 in first decile journals) and 1 US patent granted, total citation: 1195, h-index: 14 (as of Jan 31, 2022, source google scholar)

4) My first author article in Nature Chemistry (impact factor = 21.687) (Nature Chemistry 10, 696-703) appeared in the cover page of July 2018 issue. This also received media attention both within USA and internationally and has been cited 130 times.

5) I have won the La Caixa Junior leader fellowship. This included a research grant on 292,500 euros where I am the PI. Thus, I am the main supervising of 1 PhD student who is funded by my research grant. I am also co-supervising 1 more PhD student and 1 master student. I have been invited to write a critical review for a special issue of a Q1 journal, which was published in Jan 2022.

6) I was also selected for Beatriu de Pinós post-doctoral fellowship (2020 call) worth 144,300 euros. But, I declined due to my existing La Caixa fellowship.

7) I have co-written two grant proposal with Prof. Ulijn which were submitted to United States-Israel Binational Science Foundation (300,000\$) and to Army research office (555,421\$), both of which were successfully funded. Both grants funded my postdoctoral research in New York. I also wrote ERC-starting grant in 2019 where I was selected for the interview stage.

8) I have mentored 2 master students for their thesis along with several undergraduate students. 4 of these works have already resulted in publications in international journals. I mentored a Ph.D. student which led to my first corresponding author paper (Chemistry - A European Journal, 2019).

9) My teaching experience includes Polymer and Macromolecular Chemistry course for master students in India and Introduction to Nanotechnology class for undergraduate students in USA. I have also participated in the Science Coaches program organized by American Chemical Society to train high school teachers.

I have been invited for two international conference talks, two oral presentations in conference and two invited department seminars. I have participated in more than 20 international conferences with oral presentations and posters, more than 5 of them were selected for best poster award.
 I have received two travel grants: 1) From Dept. of Science and Technology, India (nearly 1880\$); 2) From CUNY (New York) Postdoctoral award program (1500\$) to attend international conferences.

12) I have been independent reviewer of journal articles for Angewandte Chemie, ACS Applied Materials and Interfaces, ACS Nano, ChemBioChem, Communications Chemistry etc.

13) I have initiated a number of collaborations with physicist, chemical engineer, neuro scientist, environmental scientist which have resulted in 6 publications in Q1 journals.



Área Temática:	Ciencias y tecnologías de materiales
Nombre:	TEIXEIRA CASTRO LOPES, ANA CATARINA
Referencia:	RYC2021-032277-I
Correo Electrónico:	catarinalopes83@gmail.com
Título:	Advanced Functional Materials

Resumen de la Memoria:

I got the PhD in Science - Physics at the Universidade do Minho, Portugal, in 2013 with the support of a PhD national grant. I have been working on electroactive polymers, particularly on piezoelectric PVDF and its composites. My contribution was essential to understand the effect of the filler s surface charge in the crystallization of the PVDF, by melting, in the piezoelectric phase, as well as in the clear distinction between the beta and gamma phases of the polymer. I also worked on the development of methods to prepare both polymer and polymer composites in the form of films, porous membranes and nanofibers. I have hardly worked on the influence of porous materials (with different type of ions and molecules encapsulated) in the properties of PVDF, with a strong focus on their dielectric relaxation properties.

In 2015, I joined BCMaterials, Spain, as a researcher and in 2016 I was awarded with a Marie Skłodowska-Curie Individual Fellowship under the project BIDMAG, also in BCMaterials. I created and led the research line focused on the development of smart hybrid surfaces specific for a specific target, onto magnetoelastic substrates (MER). These materials, which are deformed under the application of an externally applied magnetic field, show a modification of their resonance frequency when the resonator mass or damping is affected, and so they can be used to follow the capture of a target analyte. We have been working in the optimization of MER s composition and shape to reach a higher mass sensitivity and corrosion resistance. We have also been focused on the functionalization of MER with Metal Organic Frameworks (MOFs). Different MOFs structures and deposition methods were tested to reach a real sensor device. Beyond to have developed a real volatile organic compound sensor device based on MER functionalized with MOFs, I would highlight the disruptive idea of playing with the MER s geometry to increase the sensitivity of the device. We unequivocally proved that the rectangular MER, that have always being used, should be replaced by rhombus or triangular shaped ones in order to increase the device sensitivity. In 2020, I joined CICenergiGUNE under the European project HIGREEW, devoted to the development of the next generation of advanced redox flow batteries (RFB). Later on, I was awarded with an Ikerbasque Research Fellow, directed to promising young researchers, with the intent to become a leader in the area of advanced functional materials. I booted the research on composite polymer membranes for RFB applications, exploring the high capacity of MOFs to store charged species as well as their sieve capacity in the development of selective ion separation membranes.

To better conciliate my professional and personal interests, on December 2021, I moved my Ikerbasque Research Fellow to the University of Basque Country (UPV/EHU), joining the group of Macromolecular Chemistry. I am having the opportunity to bring together the different areas where I have been previously working on: magnetoelastic based sensors s line and electroactive polymers line. Currently, I am exploring the development of magnetoelastic based sensors with electrospun nanofibers for environmental and bio applications and, at the same time, I continue exploring the design of a cost-effective ion-selective membranes for application in RFB.

Resumen del Currículum Vitae:

I felt challenged by the interrelation of different disciplines in the area of materials very soon. During all my research life I had the opportunity to work in universities (with a more fundamental research), in research centers (where the research is more oriented to the resolution of problems), and I also had the opportunity to collaborate with the industry. That experience gave me the tools to manage my own research. I have special interest on smart and advanced functional materials with applications in the area of sensors/actuators as well as in area of environment and energy.

The maturity of my research enabled me to author and co-author 39 articles in indexed journals, receiving more than 2700 citations (h-index=20), and to present my work in the form of oral and poster communications, in several international conferences. Most of publications are within the first quartile (Q1), such as: Sensors and actuators B- Chemical (Impact factor- IF- 7,460), Journal of Materials Chemistry (IF: 7,393) Materials and Design (IF: 7,991), European Polymer Journal (IF: 4,598), Progress in Surface Science (IF: 6,071), Progress in Polymer Science (IF: 29,190), Journal of Physical Chemistry C (IF: 4,126).

Additionally, I am the first, last or corresponding author of 22 of these papers. I am also the only inventor of a patent of BCMaterials about a method of manufacturing a polymer in the piezoelectric phase and with a 3D-shape.

I was awarded with a PhD grant from the Fundação para a Ciência e Tecnologia (Portuguese National funding agency for science and technology), a Marie Skłodowska-Curie Individual Fellowship (Horizon 2020), a Juan de la Cierva- Incorporación) (2019) (Agencia estatal de Investigación-Gobierno de España, not accepted) and an Ikerbasque Research Fellow (Basque Government, Spain).

I was the Guest Editor of a special issue entitled Polymer composites for Energy Applications in the journal Polymers and referee of multiple peer reviewed journals. Moreover, I actuated as Master committee and PhD committee. Currently, I maintain a close collaboration with the German company Vacuumschmelze GmbH (through Dr. Christian Polak), one of the world leading companies in the field of development, production and application know-how of soft, hard and semi-hard magnetic materials. That collaboration allows me to expand my network within research and industry partners. Meanwhile, I participated in three regional (Elkartek), one national projects (Proyectos I+D +i "Rectos investigación") and one European project, apart from the Marie Skłodowska-Curie project.

Furthermore, I enjoy being deeply involved in the education of young researchers.

I have collaborated in training students by supervising five undergraduated students at the Universidade do Minho (Portugal). In Spain, I have supervised a summerinternship training student (under Erasmus + program) (BCMaterials) as well as two Master students (BCMaterials and CICenergiGUNE) and a PhD student (BCMaterials and UPV/EHU). All of them are successfully continuing their careers in academia.

Finally, I am a usual participant in several activities of science popularization, what includes high schools presentations, participation in Zientzia Astea Bilbao (semana de la ciencia) and a presentation in the Pint of Science Festival, among others.



 Área Temática:
 Ciencias y tecnologías medioambientales

 Nombre:
 FERNANDEZ MARIN, BEATRIZ

 Referencia:
 RYC2021-031321-I

 Correo Electrónico:
 beatrizfermarin@gmail.com

 Título:
 LET_IT_VE: Low Environmental Temperature, high Irradiance and desiccation Tolerances: conVErgence and trade-offs in photosynthetic organisms

Resumen de la Memoria:

As a young woman in science (PhD 2012 with CumLaude, European Doctorate Mention, and Extraordinary Award by the University of the Basque Country, UPV/EHU) my mobility experience out of the UPV/EHU accounts for 61.5 months. My international research experience has come to 39.5 months of research stays out of Spain and to 62 JCR-papers (80% in the Q1, from which 55% as first/last/corresponding author) plus 4 scientific book chapters (2 as 1st author) with 148 co-authors from 18 countries. I have presented 88 communications at conferences (50 international, 23 oral, 3 invited). My WoS h-index is 21 (Google Scholar 24). After the prestigious postdoctoral fellowships Marie-Curie IEF (2014-2016, Austria) and the Juan de la Cierva-Incorporación (2016-2018, Spain), I am Assistant Professor at the University of La Laguna (ULL) where I manage as PI: LAMELI (H2020 grant No. 730938); DINERO (MICIU+ULL Ref. 1184_2020); ECOSCAN (Spanish National Parks Call. 2751/2021). I have supervised 1PhD, 14MSc and 5BSc theses and I am supervising 1Postdoc, 2PhD- and 3BSc- students. I am also active disseminator of science, having organised more than 30 outreach events in Spain and Austria.

During my PhD, I started the exploration on the biological diversity of functional responses to desiccation, demonstrating that the formation of the photoprotective carotenoid zeaxanthin can occur in darkness. This finding broke a paradigm: the light requirement for the activation of the photoprotective xanthophyll cycle, having also practical, functional, and applied implications. I later (postdoc) expanded my research to other model systems such as seeds, lichens and spores, and established universal rules to define carotenoid composition in leaves. With a novel methodological approach DMTA I demonstrated for the first time that cell vitrification, induced during extreme desiccation, restricts enzymatic activity in leaves, what set the baseline for current research in this area. I also developed a new non-invasive approach to assess seed viability through thermal imaging. Based on previously gained knowledge, and at the forefront of knowledge I conduct pioneering research now on the vitrification of tissues under freezing/desiccation and on the interplay between hydraulics and photochemistry. These are keys to unravel the success of photosynthetic organisms and their responses to a forecasted global change in some of the most hostile, but also vulnerable, environments on Earth, and where I conduct my research (Arctic, Antarctica, high mountains, deserts or Mediterranean ecosystems).

I have earned funding for my entire career in competitive calls. I am an internationally recognized scientist, frequently invited as lecturer and serve as reviewer for 27 SCI-Journals, and for Hungarian, Chilean, Czech, and Spanish research agencies. I am also editor in the JCR-journal Trees Structure and Function. A R&C grant is the jump I need to lead my own group in Spain and lead it towards an excellent international ranking.

Resumen del Currículum Vitae:

My research is focused on the ecophysiological mechanisms that determine organism survival and that drive fitness in response to environmental constraints, covering an extraordinarily diverse bench of wild taxa, with a multidisciplinary approach (physics, biochemistry and ecology), and from a multiscale perspective: from single molecules to whole ecosystems.

I initiated my scientific career at the University of the Basque Country (UPV/EHU) working on photoprotection mechanisms of desiccation tolerant plants. As main output, I demonstrated that the formation of zeaxanthin, a carotenoid with relevant role in human nutrition, can occur in darkness. This finding broke a dogma: the light requirement for the activation of the photoprotective xanthophyll cycle, what had crucial functional and applied implications. I received the Extraordinary Award of PhD Thesis by the UPV/EHU (2012) and the recognition of the Spanish Society of Plant Physiology (2009) because of this research.

During a first postdoctoral period (2012 to 2014 including four months abroad in Estonia, Chile and Austria) I expanded my research to other biological systems such as seeds and spores. Most importantly, I developed a novel methodological approach and, by using DMTA (typically used in physicochemistry), I demonstrated for the first time that vitrification, induced during extreme desiccation, restricts enzymatic activity in leaves. This set the baseline for current research in this area and represents one of my genuine topics of research. In my second postdoc, with a Marie Curie individual fellowship I moved, from 2014 to 2016, to the University of Innsbruck (Austria). There, I grew up as an independent scientist working in a very international and motivating environment. Among other highlights, I deepened into seed and lichen hydration dynamics, I established universal rules to define carotenoid composition in leaves and I developed a novel non-invasive approach to assess seed viability through thermal imaging. Back to Spain with a Juan de la Cierva-Incorporación grant I merged my fields of expertise to start my own line of research on cross-tolerance to desiccation and freezing and on natural long-photoperiods (i.e. arctic and antarctic ecosystems). I described for the first time the double tolerance to desiccation and freezing in higher plants.

In 2019 I got my current position as Assistant Professor at the University of La Laguna (ULL). Here, I lead my research line in plant acclimation to extreme environments managing as PI: LAMELI (H2020 grant No. 730938); DINERO (MICIU+ULL Ref. 1184_2020); ECOSCAN (Spanish National Parks Call. 2751/2021).

At this stage of my career, I am a mature scientist (I3 Abilitation in 2020) as evidenced in my capabilities so far for (i) science dissemination: >30 national and international outreach events organised, 62-JCR manuscripts published (80% in Q1) H-index 24, citations 1842 in GoogleScholar (ii) mentoring and training: 1PhD, 14 MSc, and 5BSc theses supervised; (iii) attraction of funding and salary, all in competitive public calls; and considering also my international recognition as scientist: frequently invited lecturer, reviewer for JCR-journals and for research agencies, editor of the JCR journal Trees, Structure and Function.



	Turno de acc
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	FORTUNY TERRICABRAS, JOSEP
Referencia:	RYC2021-032857-I
Correo Electrónico:	josep.fortuny@icp.cat
Título:	Computational Paleobiology

Resumen de la Memoria:

The candidate is a vertebrate paleobiologist who holds a degree in Biology (2006, Universitat Autònoma de Barcelona) and a PhD in Earth Sciences (2011, Universitat de Barcelona). His research is inter- and multidisciplinary based on digital imaging and functional and computational analyses. His expertise in 3D modelling and computational biomechanics in vertebrate paleontology allowed establishing himself as a leading authority in these fields, with multiple national and international scientific collaborations.

His PhD dealt with Permian and Triassic vertebrates using digitization and functional analyses to study these faunas. After his PhD, he was visiting postdoc researcher at the International Centre for Theoretical Physics (Italy) and associate researcher at the Universitat Politècnica de Catalunya (Spain). In both cases, he acquired skills in μCT scanning and engineering techniques to be applied to extant and fossil taxa, allowing him to test multiple research questions, using late Paleozoic-early Mesozoic vertebrate groups as case-studies. Later, he moved to the Muséum National d Histoire Naturelle (France) as Beatriu de Pinós MCSA-COFUND fellow. There, he focused on faunal paleoecology around the greatest end Permian mass extinction, developing hypotheses on the evolutionary mechanisms behind feeding ecology and its evolutionary implications to understand evolutionary changes before and after the end Permian events.

Currently, he is the head of the Computational Paleobiology research group at the Institut Català de Paleontologia Miquel Crusafont (ICP). The group intensively research on how different biotic and abiotic variables (as mass extinction events) affect vertebrate taxa and evaluate the ecomorphological response of vertebrate faunas analyzing their feeding ecology, locomotory abilities, etc. Group members have skills in an important range of methods to test research questions using digitization (X-ray and neutron μ -Computed Tomography, synchrotron, photogrammetry, UAV/drones, etc.), but mainly functional and computational (Finite Element Analyses, FEA; Computational Fluid Dynamics, CFD; etc.) simulations.

Resumen del Currículum Vitae:

Josep Fortuny is a vertebrate paleobiologist interested in early tetrapods, amphibians and reptiles but also on a variety of tetrapod groups mostly from the late Paleozoic and early Mesozoic. His works on feeding mechanisms and their evolutionary implications using computational methods have been pioneering in these fields merging engineering methodologies under a paleobiological envision. Nonetheless, he keeps publishing in the field of systematic paleontology. He leaded +40 paleontological excavations and member of international teams for fieldwork in different countries (Spain, France, Russia, Morocco).

He has participated in multiple (>20) research projects: principal investigator of one R&D project (2021-2025) funded by the Spanish Ministerio de Ciencia e Innovación, plus one under review, and other projects financed by the Catalan Government (2014-2017, 2018-2021) and Culture Department of Insular Council of Mallorca (2020-2022). He has been research member of two transnational projects funded by the European Commission: COST action project (2012-2016) and an ongoing H2020-MSCA-ITN (2020-2024).

His scientific outputs include 74 papers published in SCI journals (of which 30 as first or senior author and 19 as corresponding author), including most prestigious multidisciplinary as well as specialized journals in the areas of paleontology, zoology, biology, and geosciences. He edited one eBook, and authored 5 book chapters, 7 science dissemination articles, and 134 abstracts. He has 964 citations in Scopus (h-index = 19) and >1300 citations in Google Scholar (h-index = 21). He organized 3 international meetings and has been invited speaker in international meetings.

He has an extensive international experience with multiple international collaborations from different countries as France, Germany, Poland, Argentina, Russia or China. He has made long and short research stays abroad in top research institutions from Paris, Berlin, San Francisco and Moscow. He was visiting postdoc (2013) at the International Centre for Theoretical Physics (Italy) and associate researcher (2014) at the Universitat Politécnica de Catalunya (Spain) acquiring skills and expertise on digital imaging and computational biomechanics applied to vertebrate paleontology. He joined the Muséum National d Histoire Naturelle (Paris, France) for 2 years (2015-2017) as Beatriu de Pinós MSCA-COFUND Fellow. In 2019 he was appointed as junior head of the Computational Paleobiology Research Group of the Institut Català de Paleontologia Miquel Crusafont.

He has teaching experience as Master degree professor of the Master in Paleontology (Universitat Autònoma de Barcelona - Universitat de Barcelona) (2008-2014) and the Master in Paleobiology and Fossil Record (2018-2020). Regarding early investigators training, he has supervised 8 undergraduate students (plus one ongoing) as well as fourteen master theses plus one ongoing. Lastly, he has supervised three finished PhD and is currently supervising two PhD students. He also has been member of 5 PhD committees. He has made several conferences about popular science and outreach actions as press releases, covered by different media. He acted as reviewer for renowned (>20) journals of paleontology, evolutionary biology, or multidisciplinary sciences for many years as well as reviewer for international scientific program committees.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	KERSTING , DIEGO
Referencia:	RYC2021-033576-I
Correo Electrónico:	diegokersting@gmail.com
Título:	Long-term assessment of global change impacts on marine ecosystems: observing the present,
reconstructing the past	t and modelling the future

Resumen de la Memoria:

Since 2000, my research career has been focused on studying impacts of global change on marine ecosystems and vulnerable species in order to provide useful insights for their conservation. Before and during my PhD, I worked 12 years as Scientific Coordinator in the Columbretes Islands Marine Reserve (Spanish Ministry of Fisheries/Environment). During this period, I set up a long-term monitoring program that is still running today (>20 yrs) and is considered one of the longest in the Mediterranean Sea. Among other achievements, this monitoring allowed to describe for the first time the long-term association between warming and mass mortalities of benthic invertebrates, has contributed with crucial information about vulnerable and invasive species, and led recently to the description of a coral survival strategy that was only known from fossil corals. A total of 31 scientific publications have resulted from this monitoring program.

My PhD dissertation (University of Barcelona, UB, 2014) focused on the ecology and conservation of the Mediterranean coral Cladocora caespitosa. An important part of my current research still relates to this endangered reef-builder. In parallel, I have been working on the conservation of the endangered fan mussel Pinna nobilis. I coordinated the P. nobilis Red List assessment (Critically Endangered, 2019) for the UICN and I am currently coordinating the international Pan-Mediterranean P. nobilis larval collectors network , which aims to assess the recovery potential of the species at Mediterranean level after the widespread mass mortality.

To contextualize current environmental changes beyond observational and instrumental data, I also work on climatic and ecological paleoreconstructions. I worked three years (2016-2019) at the Freie Universität Berlin (FUB, Germany) where I led as PI a DFG-funded project to develop paleoreconstructions using coral skeletons. This period at the FUB boosted my internationalisation and independence as researcher.

These lines of research have been continued and expanded during competitive postdoctoral fellowships in Spain, i.e., my current Beatriu de Pinós-MSCA position (2021) and a previous Juan de la Cierva-Incorporación (2019-2021) at the UB. It is in this interdisciplinary environment, bridging the disciplines of ecology and paleontology, where I want to continue my research to deepen our understanding of species long-term responses to environmental change, not only related to mortality and declines, but also to recovery and resilience. With the aim of contributing to marine conservation and providing information of crucial relevance to a society inevitably doomed to worry and deal with the problems associated to global change.

My research has attracted worldwide attention. As an example, my discovery of the living evidence of rejuvenescence, a survival strategy that was only known from extinct fossil corals (Science Advances, 2019) was covered by 27 news outlets, including The Guardian, which chose it as the first of the ten wildlife success stories of 2019. It also led to invitations to write related outreach publications in Nature Ecology and Evolution and in The Science Breaker.

Resumen del Currículum Vitae:

During my career, I have authored 44 scientific publications, 1 book and 3 book chapters and have contributed with >40 presentations in international conferences. I have also written >20 reports for the Spanish Ministries of Fisheries and Environment. I have participated in 26 national and international research projects and contracts, having managed 15 of them as PI (~350,000), among which, a DFG (main German funding agency) project which I led as PI at the Freie Universität Berlin (FUB) (169,265), two projects from competitive calls to study the coral Cladocora caespitosa in the Biosphere Reserve of Menorca (8,955) in total), and several contracts with the Spanish Ministries of Fisheries and Environment to monitor global change in the Columbretes Islands Marine Reserve (84,069) in total).

I undertook my PhD in parallel to my professional duties as Scientific Coordinator of the Columbretes Islands Marine Reserve and afterwards as freelance consultant for national and international agencies. It was defended in 2014 at the University of Barcelona (UB).

I moved to Berlin (Germany) in 2016, where I developed my research as invited researcher at the FUB. In 2017 I was granted by the DFG with a researcher position at the FUB. I came back to Spain in 2019 with a Juan de la Cierva-Incorporación, and am currently funded (2021) by a Beatriu de Pinós-MSCA, both at the UB.

I have been involved in teaching (>200 hours) and student supervision at FUB and UB: 2 master and 2 graduate theses finished, and currently supervising 2 PhD and 1 graduate students. I hold the AQU teaching accreditation as associate professor.

I have also acted as consultant and adviser for national and international agencies. The Spanish Climate Change Office (OECC) invited me in 2015 to write the report/book Cambio climático en el medio marino español , a review of climate change effects in Spanish seas. I collaborate with MedPAN (Network of MPA managers in the Mediterranean) as scientific contents editor since 2016. I have also collaborated with other conservation agencies such as the IUCN, participating in two Red List assessments (C. caespitosa and P. nobilis) and in the European Red List of Habitats (IUCN+EU Commission); and SPA-RAC (Specially Protected Areas Regional Activity Centre) in elaborating the Mediterranean list of marine habitats (in press). I have acted as an expert reviewer in 3 IPCC reports (WGII Sixth Assessment Report, Global warming of 1.5°C, Special report on the ocean and cryosphere in a changing climate). I have reviewed grant applications for the DAAD (German Academic Exchange Service), the OeAD (Austria s Service for International Mobility and Cooperation Programmes in Education, Science and Research) and for National Geographic. I have acted as reviewer for 18 scientific journals.

I am a member of the consolidated research group Medrecover and hold a non-remunerated associate researcher position at the FUB.



NVESTIGACIÓN

Ciencias y tecnologías medioambientales
DOMENECH APARISI, TERESA
RYC2021-033336-I
t.domenech@ucl.ac.uk
Industrial Ecology, sustainable manufacturing and the Circular Economy

Resumen de la Memoria:

Teresa Domenech is Associate Professor in Industrial Ecology and the Circular Economy at University College London (UCL) Institute for Sustainable Resources. Teresa has a PhD in Industrial symbiosis, industrial ecology and sustainable industrial development which combines elements of engineering, environmental science and sustainability assessment and transitions. She has over 15 years (including PhD) of experience as researcher and lecturer in the field of environment, resources and sustainability with expertise in the areas of green manufacturing, industrial ecology, sustainable resources, environmental assessment and the Circular Economy. She has demonstrable expertise in several environmental modelling approaches including Material Flow Analysis, Life Cycle Assessment and complex system modelling. Her research interests lie around three complementary and interconnected lines of research within the field of Industrial ecology and the circular economy: 1) eco-industrial development and industrial symbiosis networks; 2) the role of critical materials in the transition towards a low carbon economy and 3) sectoral circular pathways, exploring opportunities to increase circularity in key sectors of the economy. Transversally across these three areas is her interest in advancing the knowledge around integrated and hybrid modelling approaches, combining material and energy system modelling, life impact assessment and macro-economic and social aspects of sustainability. Her work across these three areas is well-recognised in the literature, backed up by a clearly ascending publication record of over 52 publications, 22 of which are indexed publications, and over 1603 citations, mostly as first and second author. Her 2018 paper in the Q1 Journal of Industrial Ecology has received over 400 citations and won the award to the most cited paper of the year. In 2020, she published an original research paper in Q1 journal Nature Sustainability reporting the findings from a dynamic material flow analysis of critical material requirements for the transition to green mobility. Her main goal is to establish a leading research group in Spain in industrial ecology and circular economy. Her research interests and expertise are complementary and fit well within the remit of leading Spanish research institutes in the area of environmental modelling, some of which she has collaborated in the past. She has had initial discussions with the Instituto Universitario de Investigación en Ingeniería Energética, Universidad Politecnica de Valencia and INGENIO, a joint research centre of the Spanish National Research Council (CSIC) and the Universitat Politècnica de València (UPV), which have been very supportive of her application the Ramon y Cajal Scholarship. If awarded the grant, she endeavours to work towards influential and internationally leading publications in this area while securing international research funding to consolidate a research team and acquire capacity and recognition. The main lines of research that she aims to develop fit under the overall research question of: Identifying key Circular Economy strategies to contribute to decarbonization pathways and a sustainable use of resources and developing advanced hybrid modelling approaches for integrated sustainability assessment of circular interventions .

Resumen del Currículum Vitae:

Teresa Domenech Aparisi has a permanent faculty position as Associate Professor in Industrial Ecology and the Circular Economy (CE) at the University College London (UCL), ranked eighth place in the 2022 QS World University Rankings. Over the past five years, Teresa has successfully consolidated her research networks both in the UK and internationally in the field of the Circular Economy (CE). Through these collaborations Teresa has not only gained experience as senior researcher and project coordinator of large international consortia but has also built a research portfolio, both as PI and Col adding to a total funding of over £6.9 mill. (aprox. EUR 7.2 mill.). Main awarded projects as PI and Col include: 1) EEA Sustainability Transitions (co-I); 2) Feasibility study for the creation of a EU level platform for Circular Economy (DG GROW) (PI), total funding £0.5 mill, 3) JPI/H2020-UK ESRC: Cities of Making on green urban manufacturing (Co-I- total funding £1mill; 4) UKRI Designing out Plastic Waste (CoI), total funding £1.03mill., 5) UKRI Circular Economy Centre on Construction Minerals (CoI), total funding £4.5 mill, 6) Net Zero Innovation Programme, Circular Regeneration of Industrial Areas Towards Net Zero (PI, £32K total funding), 7) Material flow analysis and carbon implications of Textile Flows (CircTex), (PI, total funding £50K), 8) Impact Assessment of Environmental Taxes (CI, £120K). Projects 6-8 are currently active. In the last five years she has consolidated a research group at her department in the circular economy which she leads. Her research group currently employs 3 post-doctoral Research Associates and total cohort of 10 PhD students. She has also supervised over 100 Master dissertation projects. Between 2016-2019 she designed, launched and consolidated a new MSc programme in the area of Sustainable Resources, which soon became a referent in the field of Circular Economy and which attracts yearly hundreds of applications from international students. Despise her intense teaching role, Teresa has developed a publication record with over 52 publications, 22 of which are indexed publications in Q1 high impact journals (impact factors ranging from 3-10), most of them as first or second author. Her h-index is currently 14, her iH-index 16 in Google Scholar with over 1603 citations and h-Index 8 and over 677 citations in the Web of Science. In the past year, she has acted as guest editor of three special issues in Q1 journals with Impact Factors in the range of 2.5-4. She is member of the British Standard Institution (BSI) and the International Standard Organisation (ISO) and currently part of the ISO Technical Committee 323 which is drafting a family of standards in the Circular Economy. She has authored reports for UNEP, OECD and UNIDO and collaborated with transnational organisations such as Apple, Unilever, CEMEX and MACE as advisor to their CE strategies. She has been appointed member of an international jury to evaluate funding proposals for the Swedish Environmental Agency and of the Environmental Agency of Ireland.She is founding co-director of the interdepartmental UCL Circular economy Hub and the UCL Plastic Innovation Hub.



	l'urno de acceso
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	RIVAS LARA, IOAR
Referencia:	RYC2021-032781-I
Correo Electrónico:	ioar.rivas@gmail.com
Título:	Air pollution exposure and impacts on health

Resumen de la Memoria:

My educational background (BSc in Environmental Sciences, MSc in Environmental Studies, MSc in Sustainable Development) is widely multi- and transdisciplinary.

In 2012 I started my PhD in Environmental Science and Technology (November 2015, UAB; Cum Laude and Extraordinary Doctorate Award), supervised by Xavier Querol and Jordi Sunyer, in the context of the BREATHE Project at the Cenre for Research in Environmental Epidemiology (CREAL). During my PhD, focused on air quality in schools, I gained expertise in aerosol and air pollution science, indoor and outdoor air pollutants monitoring, and children s exposure assessment. I did a 3-month secondment at Queensland University of Technology (QUT) in Brisbane, Australia, with Prof. Lidia Morawska.

After my PhD, I started a 1-year postdoc at the University of Surrey (UoS, UK) where I expanded my expertise on personal exposure assessment to air pollutants in different transport modes. In there, I led the analyses and publications of the ASTRID Projects. The project was an international collaboration involving the University of São Paulo (Brasil), where I spent two weeks training on sampling techniques and instrumentation to the local researchers for their own sampling campaign.

Afterwards I joined the Barcelona Institute for Global Health (ISGlobal, Spain formerly CREAL) for 5 months, where I started my secondary line of research (health impacts of air pollutants). During this period, I learned about advanced statistical models for environmental epidemiology and assessed the impacts of air pollution on neurodevelopment with data from BREATHE.

In 2017 I obtained a Marie Curie Individual Fellowship (MSCA-IF-2016) and I joined King s College London (UK). The project focused on sources of ultrafine particles and their effects on health (mortality). I used source apportionment techniques for which I was trained at the University of Birmingham (2 months). I also applied environmental time series analysis to assess the effect of the identified sources of ultrafine particles on mortality. This project joined my two research lines: aerosol science (particularly aerosol physics) and environmental epidemiology as it evaluated the impacts on health of ultrafine particles through epidemiological time series analysis.

I submitted a proposal to the Beatriu de Pinós and the MSCA-IF calls of 2018. I joined ISGlobal when I obtained the BdP fellowship and shortly after, I became Assistant Research Professor and I switched to my second MSCA-IF (current position). The project is framed within the the Barcelona Life Study Cohort (BiSC) study, a study in which I had been involved since its inception. I am currently evaluating the effects on maternal mental health and their offspring s neurodevelopment of the exposure to air pollutants during pregnancy. During the last two years and a half (except during my pregnancy-related sick and maternity leave 5 months) and among other research related duties, I have been coordinating the collection of the environmental data (air pollution, noise, etc.) from BiSC participants homes (pregnant women).

My research experience resulted in the publication of 49 papers in peer reviewed journals and the marked international and interdisciplinary character of my career. My research has gained attention of the media, including several interviews.

Resumen del Currículum Vitae:

After my BSc in Environmental Sciences (Autonomous University of Barcelona, UAB, 2008) and two MSc, one in Environmental Studies (UAB, 2010) and another in Sustainable Development (Polytechnic University of Barcelona, UPC, 2013) I gained expertise in aerosol and air pollution science, indoor and outdoor air pollutants monitoring (particularly in school settings), and children s exposure assessment to air pollutants during my PhD (completed in November 2015, UAB; Cum Laude, European Mentions, and Extraordinary Doctorate Award) at the Centre for Research in Environmental Epidemiology (CREAL) and at the Institute for Environmental Assessment and Water Research (IDAEA CSIC). During my PhD, I did a 3-months secondment at Queensland University of Technology (QUT) in Brisbane, Australia, where I received intensive training in air pollutant monitors and I started a collaboration.

In January 2016 I got my first postdoctoral contract (1-year) at the University of Surrey (UoS, United Kingdom) where I expanded my knowledge and expertise on personal exposure assessment to air pollutants in different transport modes. The project at UoS was an international collaboration with the University of São Paulo, where I spent two weeks transferring my knowledge on sampling techniques and instrumentation. Afterwards I spent 5 months as a postdoctoral researcher at Barcelona Institute for Global Health (ISGlobal), where I started the trainings on environmental epidemiology that would allow me to close the circle and go beyond the air pollution exposure assessment to the evaluation of the impacts of air pollution on health. In 2017 I obtained a Marie Curie Individual Fellowship (MSCA-IF-2016) and I joined the Environmental Research Group at King's College London. I performed source apportionment of ultrafine particles (using Positive-Matrix Factorization), for which I was trained during my secondment at the University of Birmingham. I also applied environmental time series analysis to assess the effect of the identified sources of ultrafine particles on mortality. During this time, I prepared a new proposal within the framework of the Barcelona Life Study Cohort (BiSC) study. With a Beatriu de Pinós 2018 fellowship, I went back to ISGlobal and joined the BiSC team. Some months after, I became Assistant Research Professor and I started my second Marie Curie Individual Fellowship (MSCA-IF-2018). I am currently working on evaluating the effects on maternal mental health and their offspring s neurodevelopment of the exposure to air pollutants during pregnancy.

These periods boosted the marked international and interdisciplinary character of my research career (>150 co-authors from >40 different institutions). My research experience resulted in the publication of 49 papers in peer reviewed journals (44 in JCR Q1, 27 in the 1st decile, 10 as 1st author, > 2350 citations, h-index: 29). My research has gained attention of the media, I have been interviewed several times and I have collaborated with a number of journalists. Moreover, I participated in a long list of communication and dissemination events involving a non-scientific audience, particularly secondary school students.



AGENCIA ESTATAL DE INVESTICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias y tecnologías medioambientalesNombre:CATALAN GARCIA, NURIAReferencia:RYC2021-033714-ICorreo Electrónico:ncatalangarcia@gmail.comTítulo:Contributing to understand C cycling: organic carbon degradation across inland waters and its response to
global change

Resumen de la Memoria:

Inland waters do not merely transport the carbon (C) fixed by terrestrial vegetation towards the oceans; they process part of this C during its transport, becoming a key component of the global C cycle. My work, aims to contribute to our understanding of C processing across inland waters and its evolution in response to global change. It does so by pivoting around four facets of aquatic biogeochemistry: 1) studying the effects of hydrological and landscape changes on C biogeochemistry, 2) identifying the biogeochemical role of aquatic ecosystems when they are dry; 3) exploring the links between organic C degradation and microbial ecology and 4) understanding the relevance of organic C on the fate and transport of pollutants.

These research lines have developed from a well-grounded experimentalist perspective into an Earth System Models conception. During my Bsc in Environmental Sciences and my MSc in Ecology, I already started to learn some experimental and analytical techniques that have become paramount for me, such as bioassays or optical spectroscopy of dissolved organic matter (DOM). My PhD, obtained in 2013, focused on the DOM dynamics of a Mediterranean catchment, built on those grounds and allowed me to develop into a very well-trained experimental biogeochemist, trying throughout my entire career to use front-line approaches, such as high resolution mass spectrometry to determine DOM composition, or continuous models to study DOM reactivity. Throughout my eight and a half years as a post-doctoral researcher, five of which in Sweden, USA and France, I have been consolidating my research lines, my international network and my leadership skills.

Among the main achievements of my career, I would like to highlight 1) the relevance of my publications (51 peer-reviewed articles with 1510 citations, 90% in Q1, 10 as 1st author and 19 as senior author); 2) the significance of those works across the geosciences community; 3) the critical mass we have generated around a previously overlooked process: greenhouse gas emissions from dry sediments ; 4) my role in empowering early career researchers and work for the achievement of gender equity in science; 5) the use and development of cutting edge experimental methodologies; 6) a high success ratio (grants/applications); 7) a highly internationalized and cooperative profile, with close collaborators in Xile, USA, Australia, Denmark, Sweden, Germany, France, Italy, Switzerland, Austria or Canada (without taking into account colleagues involved in collaborative initiatives); 8) the strong independence throughout my career and solid leadership skills; 9) the recognition and visibility within the geosciences and aquatic sciences communities, with multiple invitations to scientific events and panels, including two plenary talks; 10) my success in communicating science the general public and my committment to transfer research to society. I aim at producing results that push forward our basic understanding of biogeochemical cycles but also that are useful for policy-makers to develop strategies of adaptation to global change that have at their core our ecosystems.

Resumen del Currículum Vitae:

My research grounds on ecology, limnology, biogeochemistry, and microbiology. I focus on the empirical study of carbon (C) cycling across aquatic ecosystems, paying especial attention to those most affected by global change. With a BSc in environmental sciences, I completed my PhD in Ecology (cum laude) in 2013 at the University of Barcelona. My career has led me to 5 years of experience abroad, with post-docs in Uppsala University (Sweden), ICRA (Spain), USGS (USA) and LSCE-CNRS (France), all of them funded through competitive individual grants (Wenner-Gren, Juan de la Cierva, Beatriu de Pinos, and Marie Sklodowska-Curie)- and short stays in 12 institutions of 7 countries (including those <1month).

Since 2013, I issued 51 peer-reviewed papers (90% in Q1; 1510 citations; 10 as 1st author; in multidisciplinary journals such as Nature geosciences, nature communications or Scientific reports) and presented 21 conference talks (2 plenary and 4 invited). These contributions show my understanding of C biogeochemistry, my high level of internationalization and my capability as leading author, student supervisor and group coordinator. I have raised more than 400k of funding as PI and participated in a total of 24 research projects (4 EU-funded, 15 National-funded, 5 others) totaling 11M . I have also coordinated grassroots and collaborative efforts, leading teams of > 40 people. I have supervised or co-supervised 10 students including two PhD (one at present) and have been recognized with the accreditation of associate professor (Agregat-AQU).

I participate very actively in scientific societies (AIL, ASLO, EGU, GLEON), to foster the development of young scientists and achieve gender equity, being founder of the "Gender and Science" AIL group, recognized with the AEET award for diversity and inclusion in academia 2021. I am very committed to transfer my research to society through outreach activities, with emphasis in the young. Finally, I have been special editor, reviewer for >20 indexed journals, four national research foundations and the 6th report of the IPCC.



Área Temática:Ciencias y tecnologías medioambientalesNombre:PEREZ CARMONA, CARLOSReferencia:RYC2021-032871-ICorreo Electrónico:perezcarmonacarlos@gmail.comTítulo:Using trait-based approaches to understand the consequences of global change

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 (7 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 three PhD students (I also co-supervise another two PhD students from universities in Chile and UK) and one postdoctoral researcher. Our research, focused on exploring macroecological patterns of functional diversity for plants and vertebrates, has led to recent high profile publications both as first and last author.

Since my first paper in 2012, I have published 58 papers in peer-reviewed journals listed in ISI (18 as first author, 17 as second author, 8 as last author; 43 of the as result of collaborations with colleagues from non-Spanish institutions). I also co-wrote a book (Cambridge University Press) that provides an overview of the field of trait-based ecology and providing R tools to implement the different approaches. I have created software tools in the open language R to implement some of the methods that I have developed in my research (R packages 'TPD' and 'DarkDiv', to implement functional diversity methods and probabilistic estimations of species pools and dark diversity, respectively), that have been downloaded more than 35,000 times from the CRAN repository. I have supervised a completed PhD thesis and four postdocs, and I am currently supervising five PhD students (2 as main supervisor) and one postdoc. I have been granted >600,000 in research projects as a PI.

Resumen del Currículum Vitae:

I have a Master in Forestry Engineering (Universidad Politecnica de Madrid, 2006), a Master in Ecology

Universidad Autonoma de Madrid, 2010), and a PhD in Ecology (Universidad Autonoma de Madrid, 2012; Extraordinary Award) funded by the FPI program. I have more than 7 years of postdoctoral experience in international universities and research centres (Norway, Czech Republic, Estonia). I have been an active member of 16 research projects funded in competitive national and international calls, being PI in five of them. Since 2014, I have been developing projects in which I have been the PI, always obtaining funding through highly-competitive calls, including a Marie Curie Intraeropean Fellowship (European Commission), a Mobilitas Pluss postodoctoral research grant (Estonian Research Council) and a Starting Grant (Estonian Research Council). Altogether, in my projects as PI, I have been granted >600,000 in funding (plus other >500,000 in projects that were granted but I declined due to compatibility reasons). Currently, I am an Associate Professor in the University of Tartu (Estonia), where I lead a research group including three PhD students (I also co-supervise another two PhD students from universities in Chile and UK) and one postdoctoral researcher.

My research is focused on improving our understanding and predictive ability about the effects of global change on the assembly and functioning of ecological communities. For this goal, I mostly use functional trait-based approaches, and focus on plant communities, although I collaborate with colleagues working in a variety of organisms (including ants, beetles, birds, freshwater fish and mammals). I have mostly worked on grassland ecosystems, where I combine observational and experimental approaches, studying a diverse set of topics, including effects of global change drivers on diversity, development of novel methods and clarification of existing ones, plant experimental ecology, and macroecology.

Since I published my first paper in 2012, I have published 58 peer-reviewed papers (17 as first author, 8 as last author) in international journals. I also co-wrote a book (Cambridge University Press) that provides an overview of the field of trait-based ecology and providing R tools to implement the different approaches. My research has a growing impact on the scientific community, as shown by the increasing citation to my published work (2012-2021>1700 citations, h-index=23; Google Scholar). I am also actively involved in many other activities, including the supervision of PhD students (one finished thesis supervised, currently main supervisor of 2 PhD students, and co-supervisor of three more), and postdoctoral researchers (4 supervised researchers in 2019-2021). I am in the Steering Committee of DarkDivNet, and was in charge of coordinating the initial deployment of the network (2018-2020), including finding participants, guiding them through the sampling design and protocols, and handling communications between participants and the Steering Committee. To date, DarkDivNet participants have successfully sampled >100 study areas (>40,000 vegetation and traits plots) in all continents except Antarctica. I have editorial responsibilities (Associate Editor in Functional Ecology) and I am an active reviewer for international journals. I have presented my research results in several conferences, including the organisation of one session in a conference and two international workshops.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso generalÁrea Temática:Ciencias y tecnologías medioambientalesNombre:SBRAGAGLIA, VALERIOReferencia:RYC2021-033065-ICorreo Electrónico:valeriosbra@gmail.comTítulo:AN INTEGRATIVE APPROACH TO MARINE ECOLOGY AND FISHERIESResumen de la Memoria:

I am an integrative marine ecologist with a strong interdisciplinary interest in fisheries. My current integrative line of research can be subdivided in two major branches.

(1) The first one focuses on behavioural ecology and fisheries-induced evolution. In particular, I aim to understand how animal behaviour affects fisheries and ecological processes, and vice versa, how fishing affects animal behaviour and thus ecological and evolutionary dynamics. In this context, I contributed to understand the genetic control and ecological modulation of circadian rhythms in crustaceans and how such behaviour can affect fisheries. Furthermore, I advanced our understanding of the evolutionary effects of size-selective harvesting (a common pattern in many fisheries) on mating behaviour, individual and group behaviour, circadian system, and ecological dynamics of exploited fish populations.

(2) The second one aims to integrate citizen science and digital data from social media into marine ecology and fisheries management. I demonstrated the power of using local ecological knowledge of recreational fishers to study climate change effects on fisheries and biodiversity. Most importantly, I showed for the first time that social media data can be used to characterize recreational fisheries from an ecological and social perspective using the emerging approaches of conservation culturomics and iEcology (use of digital data for studying human-nature interactions and ecological processes). My research contributed to the expansion of these two emerging research approaches from the terrestrial to the aquatic realms. This was a strategic key step in advancing my maturation, independence and leadership as a scientist and to build the fundaments of my innovative line of research, which integrates biological and social sciences (Fig. 1).

I developed my research activity in 6 different countries (Fig. 1), and I am currently working at the Institute of Marine Sciences (ICM-CSIC; Spain) with the overarching goal to expand my expertise in social and ecological effects of climate change on fisheries and biodiversity. I am particularly interested in using marine recreational spearfishing as a model system. During the RyC fellowship, I am planning to complete my maturation as scientist by using my integrative research approach to develop transdisciplinary research in the context of marine ecology and recreational fisheries. Beyond my personal scientific production, I feel the necessity to communicate science to the public, which motivates my extensive outreach activity and engagement with specific groups of stakeholders.

Resumen del Currículum Vitae:

I am an integrative marine ecologist interested in understanding how animal behaviour influences fisheries and, vice versa, how fishing influences animal behaviour. I published 45 peer-reviewed papers (21 as first/last/corresponding author), including first-author papers in top journals, such as Trends in Ecology and Evolution, The American Naturalist, Journal of Animal Ecology, and Journal of Experimental Biology (total citations=732; H-index=15).

During my PhD, I used a multidisciplinary approach to characterize the genetic control of circadian clock in crustaceans and its response to ecological stressors. These results advanced the basic knowledge of circadian clocks (I was awarded with an international prize), and provide useful information for the assessment of the model species. During my first postdoc, I tested basic research hypotheses using experimental evolution and zebrafish. I discovered that size-selective harvesting (a common evolutionary stressor in many fisheries) triggers evolution of the circadian system as well as changes in individual and collective behaviour. Most recently I integrated citizen science, conservation culturomics and iEcology into my line of research with specific focus on social media and marine recreational fisheries. My research contributed to the expansion of conservation culturomics and iEcology from the terrestrial to the aquatic realms. I proposed innovative approaches for characterizing the ecological and social dimensions of recreational fishing in a climate change scenario publishing papers in well-respected journals such as Global change biology, ICES Journal of Marine Science, and Review in Fish Biology and Fisheries.

My integrative research approach includes gene expression analysis, animal behavioural tracking, video monitoring, modelling and simulation, local ecological knowledge, social media data mining, content and sentiment analysis. I acquired such variety of skills by developing a strong independent international network of collaborations through an intense mobility as I carried out my career in 6 different countries. Finally, I have been awarded 13 grants/awards with a competitive selection process and I have participated in 10 projects (>230K mobilized), including two research projects as PI. At the moment I am also a member of one EU international tender consortium (EASME/OP/2020/0021), involved in a EU-funded project (FutureMares: 2021-2024), and in the working group of the Spanish national project (ProOceans; 2022-2024).

My achievements are not limited to the scientific world, but they have already reached society. My research approach in conservation culturomics and iEcology has been proposed as an innovative monitoring technology for recreational fisheries by FAO-GFCM and ICES working groups. I have been extremely active in outreach activities in the context of recreational fisheries. Moreover, I am a scientific consultant for the working group on recreational fishing that is funded by the Catalan Government through ICATMAR. Finally, I recently coordinated the creation of the first international video contest for fostering sustainable recreational spearfishing.

I served as peer-reviewer for journals such as Trends in Ecology and Evolution, Conservation Biology, Fish and Fisheries (>30 papers reviewed). I have also peer-reviewed 4 research projects



Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	RODRIGUEZ MARTIN, AIRAM
Referencia:	RYC2021-032656-I
Correo Electrónico:	airamrguez@gmail.com
Título:	Ecological consequences of light pollution

Resumen de la Memoria:

I am interested in conservation biology and human-wildlife conflicts. My research lines have changed through my career, although they can be summarized (in order of interestest) in ecological light pollution, marine plastic pollution, and the natural history of island ecology. I graduated in Biology from Univ. of La Laguna (2005). In 2006, I obtained a post-graduate I3P grant at IPNA-CSIC and I conducted lab and field experiments on seed dispersal of lizards and birds on island ecosystems. Our contributions found the body size reduction of dispersers (lizards) as a consequence of ontogenic or defaunation processes affects the qualitative (n of consumed fruits) and quantitative (% of germination) components of seed dispersal. In addition, we assessed the role of waterbirds as secondary seed dispersers of fleshly fruits. Thanks to a pre-doctoral I3P grant at EBD-CSIC, I defended my PhD at University of Seville (2012). My PhD revealed the wintering areas of threatened migratory birds and assessed migratory connectivity among wintering and breeding populations by using technological innovations (geolocators) and genetic markers (MHC genes). My contribution was relevant for threatened migratory species as it lets to develop conservation actions in the wintering areas. As a complement to my education, I performed a 3-month stay at the University of Turku, Finland, and a 2-month stay at the Division of Forestry and Wildlife, Hawaii. During 2011-12, I was hired as part of the team of the AEROMAB project at EBD-CSIC, where I combined the use of GPS loggers and environmental information recorded by drones to study habitat selection of a raptor in a highly dynamic landscape. As a post-doc, I gained 2 excellence awards. A Marie Curie IOF allowed me to focus on my main current research line, the ecological effects of artificial lights on seabirds, becoming the world s most prolific scientist on this issue. I completed my outgoing phase in Phillip Island Nature Parks, Australia (2014-15) establishing productive collaborations with foreign researchers and my return phase, at EBD-CSIC (2016). In 2017, I gained a JdIC Incorporación fellowship to expand my main research on the ecological consequences of light pollution from the conservation and eco-evolutionary perspectives, letting me establish a new research line I have opened in Spain. Through a complementary project from Fundación Santander, I expanded my research to other taxa studying the role of artificial night lighting as a driver of urban colonization by a nocturnal raptor, performing a 2-month stay in Argentina. As an independent researcher, I have been the responsible scientist of 2 international research projects (LuMinAves INTERREG and an ACAP project). During this stage, I have expanded my research interests collaborating in projects focused on research topics that complement my main research lines. Thus we have proposed that contrasting stripes present in group-living animals could be used as visual cues to coordinate their collective movements in response to predator attacks and a timeline for the urbanization of wild birds according to the fossil record and written sources. Since November 2021, I am a professor at the Ecology Department of UAM where I have asked for 2 research projects at Plan Nacional and I co-supervise 1 PhD and 1 MSc projects on the effect of lights on birds.

Resumen del Currículum Vitae:

During my career, I have gained 5 competitive national and international research grants/fellowships (I3P postgraduate, I3P predoctoral, FPU, MC-IOF, and JdlC-Incorporación) and researched in 10 research centers in 5 countries and collaborated with >162 researchers from 35 countries. I have been the Principal Investigator in 4 projects and 1 contract (MC-IOF, JdIC-Incorporación, Fundación Banco de Santander, ACAP, and MITECO), gaining total funding of 291,000, and led the scientific program of 2 international research projects (INTERREG LuMinAves granted to SEO/BirdLife and ACAP granted to me as PI). I have published 68 scientific papers (59 in SCI journals; 35 as first or last author), which accumulate >1,538 citations (H-index = 21; i10-index = 36), 1 book, 15 book chapters (most of them under invitations by editors), 19 popular articles, and 5 posts on online blogs. I have participated in >31 international and national conferences and congresses (with >10 invited talks/seminars). I am an Associate Editor of Journal of Zoology (Zoological Society of London) and Scientia Insularum (Univ. de La Laguna). I have reviewed >60 papers in journals of high relevance, such as Science, Conservation Biology, Global Change Biology, or Philosophical Transactions of the Royal Society B and 2 international research projects (Northern Contaminants Program, Canada, and North Pacific Research Board, USA). I have supervised 4 MSc students from 4 countries (Portugal, Univ. of Azores; Spain, Univ. Pablo de Olavide; France, Univ. of Bordeaux; and Australia, School for International Training, Middlebury College). I have participated in 2 PhD thesis tribunals at Univ. de Barcelona and Univ. Pablo de Olavide. I was a member of the Management Committee of the Action COST Loss of the Night Network (LoNNe) representing Spain in 2013. I am accredited as Profesor Contratado Doctor and, in 2019, I obtained the certification 13, which acknowledges the quality of my scientific activity. I have transferred my skills and knowledge as a scientific assessor to the Spanish, Australian, and Canarian Governments, producing 7 technical reports and contributing to the Australian National Light Pollution Guidelines for Wildlife. These guidelines are a pioneering effort from a national government on how to assess and manage the light pollution impacts on protected wildlife, endorsed by The Convention on the Conservation of Migratory Species of Wild Animals during the 13th Conference of Parties in 2020. I have also contributed to the conservation of an endemic taxon, the Canarian Manx shearwater, by describing a new subspecies, updating the conservation category, drafting the conservation action plan for the Canarian Government, and writing the sections for the Red Book of Birds of Spain. I am a founder member of Red Española de Estudios sobre Contaminación Lumínica REECL, and Grupo de Ornitología e Historia Natural de las islas Canarias GOHNIC. Currently, I am a Professor at Universidad Autónoma de Madrid, where I co-supervise 1 international PhD project (Univ. of Azores) and 1 MSc project in UAM on the impacts of light on birds.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

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Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	CARACAUSI , ANTONIO
Referencia:	RYC2021-033270-I
Correo Electrónico:	antoniocaracausi@gmail.com
Título:	Active Volcanic Systems: from the magma plumping to the geothermal research

Resumen de la Memoria:

I am geochemist working with high precision stable isotopes and noble gases analysis to address key questions in Earth Sciences mainly regarding: (i) volcanism, (ii) the mantle heterogeneities, (iii) Earth degassing in continental regions and (iv) the role of fluids in tracing tectonic discontinuities and their relationship with the seismic processes.

My scientific activity involves processes of magma degassing and monitoring of active volcanic systems. More in detail my research is focussed on the use of the fluid geochemistry for the understanding of the processes that occur in the magmatic systems and related to the volcanic eruptions. In fact, the geochemistry of the volcanic fluids allows to recognize the depths at which the magmatic volatiles degas from melts, the P-T condition of degassing, how magmatic volatiles feed geothermal systems etc.

Furthermore, I study the outgassing of volatiles from quiescent volcanic systems. It has been recognized that these volcanoes continue to be big emitters of volatiles (e.g., CO2) notwithstanding the last eruption occurred thousands or hundreds of thousands of years ago. Of course, these results open the new challenge in Earth science for understanding diverse issues as the budget of volatiles in atmosphere, the relationships between magma degassing and volcanic activity and the hazards of volcanic lakes.

I also worked with the outgassing of mantle-derived fluids in continental regions far from volcanic systems to understand the role of tectonic in the transfer of fluids through the whole crust. The outgassing of mantle derived fluids in continental regions is an evidence, however the transfer of mantle fluids through the deep ductile crust is still enigmatic. I approached the problem by using a multidisciplinary approach that combine the fluid geochemistry with seismicity and deep geology. This study highlighted that the active faults are able to transfer fluids also through the deep crust. Furthermore, the outgassing of mantle volatiles can also occur in a compressional geodynamic regime. I also worked with the geochemistry of mantle-derived fluids in collaboration with the scientists of the Centre de Recherches Pétrographiques et Géochimiques, CNRS (Nancy, France) to investigate the heterogeneity of the Earth's mantle.

Recently, I m getting particularly fascinated to understand the earthquake nucleation process and fluid involvement in rock deformation and seismicity with the idea that faults are complex systems whose mechanical properties evolve over time. It is crucial to work in the direction of long-term infrastructures that provide multidisciplinary and high resolution near fault data and high-level scientific products (the road to integration; https://www.epos-ip.org).

Changes of physical properties of rocks can modify the release and transfer of volatiles through the crust. The fracturing of rocks under physical stress, with the consequent generation of new surfaces, can produce episodic release of the accumulated volatiles. Working in a multidisciplinary scientific community it has been demonstrated that in tectonically active regions, the crustal release of fluids can episodically occur and powered by seismicity. These results furnish new tools for the understanding of the preparatory phases of the high magnitude earthquakes.

Resumen del Currículum Vitae:

Education:

Master degree 1999, Univ. Palermo, Italy

PhD 2019, Univ. Lorraine, France

Editorial Activity:

-Associate Editor of TerraNova (Wiley), since 2022;

-Editor of special volume, Journal of Marine and Petroleum Geology, Fluid-rock-tectonics interactions in basins and orogens, vol.55, 2014; -Editor of special volume, Chemical Geology, The noble gases as geochemical tracers, vol. 480, 2018;

Selected publications:

1) Lustrino M., Ronca S., Caracausi A., Ventura-Bordenca C., Agostini S., Faraone D. B. (2020). Strongly SiO2-undersaturated, CaO-rich ultrapotassic Pleistocene magmatism in central Italy (San Venanzo volcanic complex) as result of shallow depth limestone assimilation. Earth Science Review; 2)Broadley M.W., Barry P.H., Bekaert D. V., Caracausi A., Balentine C.J., Marty B. (2020). Chondritic krypton and xenon in the Yellowstone mantle plume. Proceedings of the National Academy of Sciences, PNAS;

3)Buttitta D., Caracausi A., et al., (2020) Evidences of the role of seismicity on degassing of volatile through the crust, Scientific Reports;

4)Bekaert D.V., Broadley M.W., Caracausi A., Marty B. (2019). Novel insights into the degassing history of the Earth s mantle from high precision noble gas analysis of magmatic gas. Earth and Planetary Science Letters;

5)Caracausi A. & Sulli A., (2019) Outgassing of mantle volatiles in compressional tectonic regime away from volcanism: the role of continental delamination. Geochemistry, Geophysics, Geosystems;

6)Caracausi A., Avice G., Burnard P. E. Furi, Marty B. (2016). Chondritic Xenon in the Earth s mantle. Nature;

7)Paonita A., Caracausi A., Martelli M., Rizzo A. (2016). Time variations of He isotopes in volcanic gases quantify pre-eruptive refill and pressure buildup in magma reservoirs: The case of Mount Etna, Geology;

8)Caracausi A. & Paternoster M., (2015) Radiogenic helium degassing and rock fracturing: a case study of the southern Apennines active tectonic region, J. Geophys., Res.- Solid Earth;

9)Caracausi A., Paternoster M, Nuccio P.M. (2015). Mantle CO2 degassing at Mt. Vulture volcano (Italy): relationship between CO2 outgassing of a volcano and the time since its last eruption. Earth Planet. Sci Lett.;

10)Caracausi A., et al. (2005). Changes in fluid chemistry and physico-chemical conditions of geothermal systems caused by magmatic input: the recent abrut outdegassing off the island of Panarea (Aeolian Islands, Italy). Geochemim. Cosmochim. Acta.

Recent contributions at congress as invited speaker:



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

- Deep conference (2021), Beijing, International Symposium on Deep Earth Exploration and Practices: "Degassing, tectonics and seismicity: new insights from the recent geochemical investigations in Italy."

- Goldschmidt (2019), Barcelona, "Geochemical signals of magma degassing in active and quiescent volcanic systems", invited-key;
- Goldschmidt (2017), Paris: Xenon in the mantle below Europe: constrains on mantle plumes and implications for early Earth s differentiation;
- JpGU-AGU (2017), Tokyo: Chondritic Xenon in a Mantle Plume: new constraints on a mantle plume feeding magmatism in Europe;
- Goldschmidt (2016), Yokohama: Chondritic Xenon in a Mantle Plume beneath Eifel (Germany): Implications for Early Earth s Differentiation.

Recent International conferences: (convener, organizer):

-2018 School of Limnology, Monticchio lakes (Scientific committee);

-2019 International Conference on Gas Geochemistry (Convener, Scientific committees)



Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	BALBOA MENDEZ, SABELA
Referencia:	RYC2021-031220-I
Correo Electrónico:	sabela.balboa@usc.es
Título:	Disentangling bacterial diversity
	-

Resumen de la Memoria:

I got my degree in Biology from the University of Santiago de Compostela in 2004 and I obtained my PhD in 2012 (GIPA group, USC) with a FPI scholarship. I focused my research on the taxonomy and biodiversity of bacteria in marine environments, specifically on the study of intraspecific variability and virulence of the clam pathogen Vibrio tapetis. During my thesis, I have optimized methods for detection (PCR) and isolation of this microorganism, considered fastidious. The central part consisted of an exhaustive analysis of the population at genetic level, studying its evolution at temporal, geographic and hos-origin level. Also, I got into the virulence mechanisms enjoying stays in Sweden and the United States. I published 5 research works, besides 10 papers in collaboration.

After obtaining my PhD, I got a postdoctoral grant of the I2C Program, Modality A of the Xunta de Galicia with which I joined the Dpt. Infection and Immunity of the University of Sheffield from 2013 to 2015. During this stage, I changed to a more functional, molecular research by focusing on the study of the role of the second c-di-GMP messenger in the regulation of the lateral scourge of Aeromonas caviae and its relevance to the lifestyle of this bacterium, whether it decides to live as a unicellular and mobile form or in a community forming biofilms.

In May 2015, I returned to the GIPA group of the USC in the framework of the I2C program. In 2016 I was awarded with the I2C modality B that allowed me to continue 2 more years with funds to carry out my own project as PI, developing my own research line: persistence mechanisms of Vibrio in the aquatic environment.

During my postdoc stages, I codirected 1 PhD thesis, 2 master thesis and 8 undergrad projects. Besides, I have published 25 research and 3 review papers and 3 book chapters.

In 2019, I got a turn in my career by joining the Biogroup (Chemical Engineering Department, USC) as a CRETUS postdoctoral researcher, where I have initiated a new research line funded by a Retos-JIN project (PlasticBugs) and Distinguished fellowship (Xunta de Galicia): Effect and fate of Microplastics in sewage treatment plants and plastic-degrading bacteria.

From September to December I was setting up a laboratory in United Arab Emirates,.

During these 2 years I have stablished several collaborations becoming a relevant asset of the group, being the person who implemented the molecular biology techniques. So far I solidly collaborate in 3 lines of the group, having directed one master thesis (2 more in course) and being supervisor of 4 undergrad students. I have participated in 4 research articles submitted to publication, 8 conference publications and I am codirecting 2 PhD thesis. As an outstanding example of this activity, during the COVID-19 alarm state, I developed a project to detect SARS-CoV-2 in wastewater treatment plants resulting in 2 publications and one agreement with companies.

I spent 4 months in UAE setting up a laboratory and training a team, validated in an international interlaboratory comparison and still am the technical responsible of the project. Besides, and got a collaboration with the Emirati water agency to work in my project, PlasticBugs.

Resumen del Currículum Vitae:

With an index H = 17, and a FWCI of 1.87, I have collaborated in the publication of a total of 45 articles in indexed scientific journals and 3 book chapters and 76 conference communications.

51% of my publications are in collaboration with international groups, while 15.5% are with national groups. I accumulate 1169 citations, with 740 in the last five years

Two of my publications are scientific reviews that accumulates 172 and 128 citations, 3 book chapters and one editorial.

I participated in agreement with Ecofloat in technology development and designing and production of fish vaccines for different companies. I led the agreement with Augas de Galicia for AlertaCovid-USC/AdG and I am consultant and set a laboratory for Agualia-Mace (UAE).

I have co-directed a doctoral thesis, achieving the qualification Cum laude (7 papers, 10 in collaboration, awarded to best thesis in its section of the Spanish Society for Microbiology).

I am currently supervising another 2 PhD students, one related to my project, and the other one in collaboration with a French group. In addition, I have co-supervised 3 Master thesis (another 2 in progress), 8 Final Degree projects (another 4 in progress).

I was part of the organization of Vibrio 2011 and Taxonomy 2016 (Secretary). In June will be cochair of the Microplastic session of the prestigious conference Micropol.

I have coauthored 3 outreach papers, in SEM@foro (2) and 1 in Sync agency, and I am part of the teaching innovation group MIKROBIOS. I have participated Microworld Initiative, an international initiative for raising awareness about the good use of antibiotics based on the learning and service methodology.

I have participated in the first free online course on microbiology via Twitter (#microMOOK) organised by Spanish Society of Microbiology and collaborated in one of the videos the Teaching collection videos of the USC and participated. I have been part of the Ciclo de Conferencias Aida Fernández Ríos organised by the Real Academia Galega de Ciencias to provide schools with research conferences of high-profile female researchers. I am an engaged member of the international scientific community, participating in PhD committees, organizing national and international conferences, reviewing papers for more than 10 international journals (Q1) and evaluating PhD grants for Diputación de A Coruña, project proposals for the Spanish State Research Agency (AEI) and Poland.

My teaching experience accumulates 636 h in 5 different degrees in a total of 10 different courses. I have obtained grades always above 4 (scale of 1-5).

In 2015 I taught in the Advanced course Advanced Course on Safety Management in Bivalve Molluscs organized by FAO, CIHEAM and IAMZ. In 2019 I was invited by the Peruvian National Fisheries Health Agency (SANIPES) to give a 36h course as only docent (Lima, 2019), "Introduction to the sequencing of bacterial genomes: assembly, annotation and phylogeny

I am accredited to be a "Professor hired doctor", "Professor assistant doctor" and "Professor of Private University".



Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	NOGUERA AMOROS, JOSE CARLOS
Referencia:	RYC2021-032100-I
Correo Electrónico:	josec.noguera.amoros@gmail.com
Título:	Life history evolution and phenotypic plasticity

Resumen de la Memoria:

Throughout my research career as an evolutionary biologist, I have developed my current expertise and research lines in life-history evolution and phenotypic plasticity. During my doctoral research (University of Vigo), funded by competitively awarded scholarships from the MINECO (FPI program, 2007‐2011), and the two following postdoctoral research periods (IBAHCM, Glasgow University, funded by Marie-Curie Actions and AXA Foundation, 2012‐2016), I particularly studied physiological mechanism underlying life-history trade-offs, phenotypic plasticity and developmental programming, with a special emphasis in the nutritional modulation of ageing trajectories. During these postdoctoral periods in which I was the Co-PI of two research projects, together with my stays in some of the most important research laboratories in evolutionary ecology (e.g. EGI, Oxford University or UNAM, Mexico), allowed me to grow up as an independent researcher, start establishing an international research career and collaborate with different international researchers groups, with whom I still collaborate and participate in different research projects. In my current institution, Universidad de Vigo, I have successfully broadened my research topics and established my laboratory and research group (firstly funded by Juan de Cierva-Incorporación fellowship, MICIN and more recently by the Programa de Retención de Talento) on social information use, embryonic communication, and more recently, on the evolutionary ecology of sexual behaviour in insects. In particular, the strength of my research relies on its multidisciplinary view as I normally combine theoretical works and scientific tools from different scientific disciplines (e.g. epigenetics, molecular ecology, immunology, etc). The quality and the impact of my studies in these cutting-edge fields of research is evidenced by my publications in some of the most important scientific journals (e.g. PNAS, Nature, Mol Ecol or PRSB), the high number of citations and the coverage received by the media (e.g. the New York Times, Scientific American, The Guardian etc). Currently, as a Distinguished researcher (Univ. Vigo), I am PI of an I+D project funded by FEMP (EU) and the leader of my research group. I am also broadening my research interests and getting involved in different collaborative projects with national and international researchers (e.g. Exeter University, UK; Williams College, US, University of Turku, Finland; IPHC-CNRS, France; MNCN-CSIC, Spain, etc), mentoring new MS and PhD students and training new postdoctoral researchers to help them to develop their research career and developing new scientific skills. During my research career, I have always been the main responsible for the original ideas behind all my contributions as the first author, which of course have been enhanced in helpful discussions with other co-authors.

Resumen del Currículum Vitae:

I have published 38 articles in Sci Journals (25 as first author, 25 Q1), I currently have 1160 citations, an H-index of 20 (i10 of 25) and the I3 Research certificate. My first-authored papers include those published in PNAS, Nature ecology & evolution, Molecular Ecology and Proc R Soc B among others. I have more than 9 years of postdoctoral experience and I have received several national and international awards (FPI Fellowship, Marie-Curie IEF, AXA Foundation, Juan de La Cierva, etc), including a Distinguished Researcher contract at the University of Vigo (2019). I have also done research stays at Oxford University (UK; 4 months), UNAM (Mexico; 1 month), IREC-CSIC (Spain, 4 months), University of Glasgow (UK; 1 month). I have supervised 3 MS students, 5 undergrad students, 2 external students, and a PhD student (2nd year, ongoing). I have participated in 11 R & D Projects funded by different institutions, being the Co-PI of two of them and currently, I am the PI of an I+D project founded by FEMP. I have also participated in 17 national and international conferences (6 poster presentations, 8 oral communications, 3 invited talks) and given guest lectures at the University of Antwerp (Belgium), Williams College (US), University of Bern (Switzerland), IPHC-CNRS (France), Miguel Hernandez University (Spain) and Konrad Lorenz Institute of Ethology (Austria) or IBAHCM (UK). Moreover, since 2014 to date I am an editorial board member (Editor-reviewer) for Frontiers in Ecology and Evolution, I am a reviewer for a number of top-ranking scientific journals and I have been the external examiner in 5 PhD dissertations. I am also a member of different international networking schemes (e.g. SERG, MCRFA) and I am accredited as a University Senior Lecturer (ANECA) with more than 9 years of teaching experience.



Área Temática:Ciencias y tecnologías medioambientalesNombre:ANDUJAR FERNANDEZ, CARMELOReferencia:RYC2021-034291-ICorreo Electrónico:candujar@um.esTítulo:Evolutionary ecology and phylogenetics of arthropod biodiversity

Resumen de la Memoria:

I am an evolutionary biologist with a research profile that unites my interests in arthropod biodiversity, phylogeny, biogeography, community ecology, conservation biology, and soil science. My research brings these elements together to understand the eco-evolutionary processes that both generate biodiversity, and influence its structure in space and time. My primary research line is the development and implementation of high throughput sequencing (HTS) approaches to reveal the mechanisms involved in generating biodiversity and its distribution, from the level of communities down to individual lineages, with emphasis on the diversity, phylogenetics, and biogeography of soil biodiversity. Throughout my scientific career, I have published 63 scientific articles, of which 46 are in SCI journals (32 Q1; 28 1st percentile; 19 1st author; 14 2nd author; 3 senior author). I obtained my PhD at the University of Murcia (UMU) (Sept. 2012), working on the molecular systematics and diversification of Carabus. In February 2013, I moved to Imperial College London (ICL) & the Natural History Museum of London (NHML) as a postdoctoral researcher for 4 years. During this period, I developed my own research line working on novel HTS approaches to the study of biodiversity, with a focus on soil arthropods. In 2016 I moved to the IPNA-CSIC in Tenerife with a Marie Skłodowska-Curie IE contract (90,000), became a father, and subsequently obtained a 3-year Spanish National Plan JIN project (166,000) to study the effects of insularity, vegetation, aridity, and introduced species on soil biodiversity across the Canary Islands. During the last 5 years, as a PI of my own projects, I have gained experience leading a research team and have consolidated a strong network of international collaborators from more than 12 countries and 25 international institutions. I have been successful in obtaining additional funding, including 3 science transference projects (Cabildo de Tenerife; 82,789.48), a soil metabarcoding dedicated project (Fundación CajaCanarias; 53,700), and 2 projects for the molecular characterization of soil pests (Canadian Food Inspection Agency; 61,336.75). I have been responsible for the hiring of 5 people (young biologists that I have trained), and I am currently co-supervising 3 PhD theses. Over my career I have participated in 36 research projects (10 international), 9 of them as PI or co-PI with a total income of 404,126.23 . I have contributed to 24 national and international conferences and workshops (5 as invited speaker). In 2018 I was awarded the prestigious international 20th R.J.H. HINTELMANN SCIENTIFIC AWARD for evolutionary biologists by the Zoologische Staatssammlung München (Germany). I have reviewed grant proposals for the Research Councils of Estonia and Czech Republic, and the "ANEP" (Spain), and manuscripts for 25 SCI international journals. I serve as Associate Editor for Metabarcoding and Metagenomics and Frontiers in Ecology and Evolution. I have over 150 hours of teaching at the UMU, ICL, and ULL, and I have participated in multiple outreach activities at the NHML and the IPNA-CSIC. The key academic achievement of my research career has been to establish my own research lines, gaining recognition as a leader in the application of metabarcoding for biodiversity genomics, while simultaneously establishing my independence.

Resumen del Currículum Vitae:

(1) Number of scientific SCI publications = 46 (19 as first author, 14 as second author, 3 as senior author; 32 of them Q1, 28 first percentile), including: Molecular Biology and Evolution (x1), Ecology Letters (x1), Molecular Ecology (x11), Cladistics (x1), Methods in Ecology and Evolution (x3), Molecular Ecology Resources (x3), Journal of Biogeography (x3); Molecular Phylogenetics and Evolution (x2), BMC Evolutionary Biology (x1), Proceedings of the Royal Society B (x2), Zoological Journal of the Linnean Society (x1), Zoologica Scripta (x1), Arthropod Systematics & Phylogeny (x2), Systematic Entomology (x1), Frontiers in zoology (x1), Mitochondrial DNA (x3), Zootaxa (x3), Acta Entomologica Musei Nationalis Pragae (x1), Zookeys (x1), Subterranean Biology (x2), Journal of Zoological systematics and Evolutionary Research (x1), PlosOne (x1); (2) Number of scientific non-SCI publications = 13; (3) Number of book chapters = 4; (4) H-index = 19, i10-index = 29, Citations = 1203 (Google Scholar 26/01/22); (5) Projects as PI/co-PI = 9, Total income as PI/co-PI 404,126.23 Euros; (6) Projects in which I have participated = 36 (10 of them international); (7) PhDs currently supervising = 3; (8) Competitive predoctoral/postdoctoral fellowships = 3 (1 predoctoral: FPU program, 2 postdoctoral: IE MARIE SKLODOWSKA-CURIE, and PN2015 PROY I+D+I JIN-RETOS; (9) Number of research centres in which I have worked = 6 (3 international: Imperial College, Natural History Museum, University of East Anglia; 3 national: Universidad de Murcia, Universidad de Castilla-La Mancha, and IPNA-CSIC); (10) Number of contributions to national and international conferences/workshops = 24 (5 as invited speaker); (12) Number of journals for which I have reviewed = 25; (13) Institutions for which I have reviewed project proposals = 3 (ANEP, Estonian Research Council, Czech Republic Research Council); (14) Editorial board member = 2 (Metabarcoding and Metagenomics, Frontiers in Ecology and Evolution).



Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	VECINO BELLO, XANEL
Referencia:	RYC2021-030966-I
Correo Electrónico:	xanelvecino@gmail.com
Título:	Application of circular economy and bioeconomy strategies for waste conversion into value-added products
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Resumen de la Memoria:

My PhD Thesis (2011-2014) have focused on the revalorization and integral utilization of two agro-industrial wastes (vineyard pruning waste and corn steep liquor) to produce value-added products (biosurfactants and bioadsorbents). During this period, I have been financed by a predoctoral fellowship from the University of Vigo. During my PhD, I have developed various predoc stays in prestigious Universities for a period of 5 months: in Chemical and Biomedical Engineering department at the University of South Florida in EEUU (position 97 in the Shanghai Ranking of Universities), and in the Biotechnology department at the Norwegian University of Science and Technology in Norway (101-150 position). These stays allowed me to achieve the International PhD mention. Also, I have involved in several Spanish projects as well as collaborated with different private companies and international researchers. Hence, my thesis comprised 11 JCR articles (all as first author) and 4 patents, 3 of them about the biosurfactant obtained from corn steep liquor (ES2527366B1; ES2435324B2/WO2014044876A1; ES2424399B2) and 1 of them about encapsulated peat process (ES2430248B2). I would like to highlight that, 1 of them is extended to various European countries (WO2014044876A1) and 2 of them (ES2435324B2 and ES2430248B2) are licensed by PER SPA Limited (Italy) and BICOE SL (Spain) companies, respectively. All this research derived of my thesis allow me to achieve an Extraordinary PhD award. After my PhD, I have conducted an international project (based on the production of biosurfactants using secondary raw materials) as principal investigator (PI) at CEB-Centre of Biological Engineering of the University of Minho (Portugal) funded by a competitive international program of the FCT-Fundação para a Ciência e Tecnologia (2015-2016), where I demonstrated my capacity to lead and coordinate international projects. During this postdoctoral position, the results were reflected on 5 JCR papers (80%-Q1), 3 book chapter and 4 works in international conferences. Additionally, in the University of Minho, I have supervised 1 mobility master student. In 2016, I switched to a new postdoctoral position "Juan de la Cierva-Formación" at Universitat Politècnica de Catalunya (UPC), achieving the 1st position in this research call. Also, I obtained the Juan de la Cierva-Incorporación at the same university in 2018 (5th position). The lines of research have been focused on the development of integral processes using adsorption and membrane technologies for resource recovery from agro-industrial streams, obtaining 22 JCR papers (82%-Q1), 5 book chapters and presented over 55 works in national and international conferences. Furthermore, I have supervised 4 mobility students, 5 master theses, 10 degree theses and 1 PhD student (deposited). Currently, I am PI of a JIN-type I+D+i project, from the call «Proyectos Retos Investigación 2019», based on the recovery of biosurfactants from corn steep waters by membrane technology. This allows me to lead my own line of research in the University of Vigo, in collaboration with the UPC, achieving, under the topic of the JIN project, 1 patent, 1 JCR paper, 5 works presented in conferences, and I have supervised 2 degree theses and 1 PhD student (ongoing).

Resumen del Currículum Vitae:

I am a recognized researcher in the field of secondary raw materials to obtain valuable products promoting a circular economy and bioeconomy strategies under the goals of the of Agenda 2030 and the Ecological Transition European Mission. In fact, I am an internationally recognized expert on the biosurfactant field : from the 97 publications, indexed in the JCR and published by Spanish researchers in the last 7 years (2021-2015, Scopus), I have participated in 24 of them (1/4 of the articles). Also, I am a senior researcher with a solid scientific production: I have published 74 JCR articles (of which 86% are relevant merits in Q1+Q2; and 49% of which as a sum of first author; corresponding author or last author), 1 book, 15 book chapters, 8 conference papers, and I have presented around 150 papers to national and international conferences. I have been cited 1381 times resulting in a h-index of 21 (7/2/22, Scopus). Also, I have supervised 24 students from different universities: 5 mobility students, 12 degree theses, 5 master theses, and 2 PhD students.

During my scientific career, I have realized several predoc and postdoc stays in different countries including EEUU, Norway and Portugal, for a period of 18.5 months. Regarding technology transference, I am co-author of 5 patents, related with the use of secondary materials to obtain valuable products promoting a circular economy framework. One of these patents is from the JIN project, 1 is extended to various European countries and 2 of these patents are licensed by international (PER SPA Limited, Italy) or national (BICOE SL, Spain) companies. I have been Editorial Board Member and Guest Editor (7 special issues) of MDPI, and I have acted as evaluator of national (6, Spain) and international (5, Italy, France) R&D projects. Currently, I am a PI of a JIN-type I+D+i project, from the 2019 call, inside the Science and Environmental Technologies (CTM) area, funded by the Ministerio de Ciencia e Innovación with 169,521. The project is based on the recovery of biosurfactants from corn steep waters by membrane technology, and then apply the recovered surface-active compounds in different sectors including food, cosmetic, pharmaceutical, and environmental industries. Due to the novel work development inside the JIN project, the first results obtained have been sent for patent evaluation, also I have published 1 article, presented 5 works in conferences and supervised 2 degree theses and 1 PhD student. Additionally, I am participating in a technology transference Proof of Concept project with a TRL of 7, funded by the Xunta de Galicia, which goal is to bring to the market the biosurfactant extracts from corn steep liquor protected by the patents of EQ10 team, including the patent from the JIN project leaded by me. Moreover, I have participated in 19 R&D projects: 5 regional and 5 national projects at UVigo, 1 of them as PI (JIN project); 2 national projects at University of Minho, 1 of them as PI (FCT project); 1 regional, 3 national projects and 3 international projects at UPC, 1 of them as PI (JdC-Incorporación project); as well as I have networking with several researchers from EEUU, Portugal, Tunisia, Iran who are my co-authors in peer-review articles; and I have collaborated with several industrial companies and technological centers (e.g., Cargil, CETaqua, Cavisa).



5
Ciencias y tecnologías medioambientales
EL KENAWY EL SAYED, AHMED
RYC2021-031539-I
kenawy@mans.edu.eg
Climate variability and change in arid and semiarid regions

Resumen de la Memoria:

With more than 79 peer-reviewed contributions (60 in Q1 journals), 10 book chapters, and more than 40 conference papers, Dr. Kenawy has established himself as a respected scientist in the field of climate change research. He has more than 3300 citations (Google Scholar) and a Hirsh index of 27/30 (Scopus/Google Scholar). Among Dr. Kenawy's accomplishments as a scientist is his work on i) assessing climate variability and changes over the Mediterranean and the Middle East and North Africa region on different spatial and temporal resolutions, ii) attributing this regional climate variability to circulation mechanisms, iii) constructing scenarios of climate change for the Mediterranean and MENA regions, iv) assessing the accuracy of remote sensing data in replicating the observed surface climate, v) retrieving historical climate data from a variety of sources, and vi) identifying the patterns and drivers of urban climate shifts across different major metropolitans. Importantly, his research spans different countries and continents worldwide, with numerous studies conducted not only in Spain, but extended to United States, China, Ethiopia, South America (e.g. Peru; Ecuador; Bolivia), the Mediterranean (e.g. Syria, Lebanon, Turkey), North Africa (e.g. Libya, Egypt), Arabian Peninsula (e.g. Saudi Arabia, Oman, Qatar, Emirates, Kuwait), Middle East (e.g. Iraq, Jordan, Iran), and even on a global scale. Nearly 170 of Dr. Kenawy's coauthors hail from a wide range of countries spanning Europe, the Americas, Asia, Africa, and Australia. He has been exposed to different international research centers in Spain, the US, the UK, South Korea, Saudi Arabia, and Oman, where he has maintained long-term collaborations. Even though researchers in developing countries face many challenges, Dr. Kenawy has reached a level of professional maturity through his ability to secure funding for his own research efforts. Three of his international projects were under his direction, and he was also a part of nine others; all of which were supported by well-known sponsors like FP7, Water-JPI Horizon2020, Plan Nacional de I+D+I, FP7, and EU-COST. Dr. Kenawy taught over 950 hours at prestigious universities in Egypt, Saudi Arabia, and Oman, and guided the work of one PhD and five MA students, combined with tutoring 37 undergraduate students. Over the course of his career, Dr. Kenawy serves on the editorial boards of seven journals, including Springer and Elsevier publications. Among them are Frontiers in Earth Science-Hydrosphere, the Journal of Water and Climate Change, Scientific African, and the Euro-Mediterranean Journal for Environmental Integration, Sustainability in Environment. According to Web of Science data (https://publons.com/researcher/1418673/ahmed-kenawy/), he has +130 verified editorial tasks in these journals. Dr. Kenawy currently serves as a Guest Editor for a special issues of Frontiers in Earth Science (IF=3.498) and an editor for two upcoming books in El Sevier and Bentham publishers. Nearly 70 peer-reviewed journals, mostly in the field of atmospheric and environmental sciences, rely on Dr. Kenawy's expertise as a reviewer. According to WoS statistics, Dr. Kenawy has provided +320 verified reviews for these journals (https://publons.com/researcher/1418673/ahmed-kenawy/). In 2018, he was awarded the Publons Peer Review Award for his review activity.

Resumen del Currículum Vitae:

Dr. Kenawy serves as a faculty member at Mansoura University (MU) in Egypt. He is a climate scientist, with a strong multidisciplinary background in geography, atmospheric dynamics, numerical modeling, and data analysis for better understanding of the atmospheric system, its processes, and human-environment interactions on different spatial and temporal scales. Dr. Kenawy has a good track record, with 79 peer-reviewed articles (60 in Q1 journals, coauthored with +170 scientists), 10 book chapters, and over 40 conference papers. With 3300+ citations and a Hirsh index of 30 (Google Scholar), Dr. Kenawy has published in complementary and multi-disciplinary fields, focusing on natural hazards (e.g. droughts, aridity, and heat waves), as well as human-induced warming effects (e.g. heat urban islands), constructing climate change scenarios for some Mediterranean, North African, and Middle East regions. Among the nine international scholarships he has received are the Ford Foundation Fellowship (2004) and the Juan de la Cierva Fellowship (2015). Dr. Kenawy has been awarded numerous prizes, such as the most distinguished Arabian Scientist in climate change in 2020 and the Omani National Prize for Research in 2021. He has been involved in several national (e.g. NNCF/ASRT/20/20207589, 283,000\$), and EU projects funded by FP7 and Water-JPI Horizon2020 (e.g. ERA-NET FOR CLIMATE SERVICES, 600,000). With more than 118 verified editorial tasks, Dr. Kenawy has served on the editorial boards of seven national and international journals, as well as a guest editor for two special issues. Also, he reviewed more than 320 articles for JCR journals, taught +950 hours at prestigious universities in Egypt, Saudi Arabia, and Oman, and guided the work of one PhD, five MA, and 37 undergraduates students. He currently leads three different research teams at MU (Egypt), Sultan Qaboos University (Oman), and Qatar University (Qatar), focusing on climate change in the Middle East and North Africa.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías medioambientales	
Nombre:	FELIPE LUCIA, MARIA	
Referencia:	RYC2021-032828-I	
Correo Electrónico:	maria.felipe.lucia@gmail.com	
Título:	Land management effects on social-ecological interactions at multiple spatial scales	

Resumen de la Memoria:

My research investigates the effects of land management on social-ecological interactions at multiple spatial scales, from the local site to the region, including large scale interactions (telecouplings). I analyse these relationships across three main axes: i) biodiversity and ecosystem services, ii) social-ecological interactions, and iii) sustainable rural landscapes. To study these relationships, I focus on agroecosystems and have acquired extensive interand transdisciplinary skills for data collection and analyses, including social and ecological surveys, use of Geographical Information System (GIS) tools and statistical modelling in order to develop successful sustainable management policies.

My work has contributed to consolidating and advancing knowledge of social-ecological interactions. During my PhD, I pioneered the combined analysis of social and ecological data, examined ecosystem services at multiple spatial scales, and incorporated the study of power asymmetries into ecosystem services research. During my postdoctoral stage, I investigated ecosystem responses to land use intensification, promoting a social-ecological approach in land-use intensity measures. In my current position as group leader, I investigate the consequences of management policies for sustainability, i.e. considering both ecological multifunctionality and social equity aspects, including telecoupled and time-lagged effects. In the coming years, my research will significantly contribute to sustainability transformations by developing novel analytical methods to integrate new and existing social-ecological information and provide actionable research for decision making.

My main contributions to axis Biodiversity and Ecosystem Services (with 343 citations in Google Scholar) are: i) the combined analyses of a large number of ecosystem services to better understand synergies and trade-offs at multiple spatial scales, ii) the novelty of the statistical methods used to understand the mechanisms by which land management affects ecosystem services. My main contribution to axis Social-Ecological Interactions (482 citations in Google Scholar) are the development of several conceptual frameworks and methodological approaches to incorporate the social dimension to ecosystem services research, which have resulted in new research lines: i) to guide the social valuation of ecosystem services to enable comparative studies, analyse different perceptions by stakeholders, and assess changes through time; ii) to incorporate the analysis of power relations in ecosystem services research across spatial scales; iii) to disentangle the role of natural and anthropogenic interactions in ecosystem services co-production; iv) to use social-ecological networks in ecosystem services analyses. My main contribution to axis Sustainable Rural Landscapes (292 citations in Google Scholar) are: i) the development of tools to integrate knowledge from different disciplines, ii) highlighting the importance of combining information on multifunctionality and equity in the access to those services by a range of stakeholders in order to define truly sustainable management actions informed; iii) the operationalization of conceptual frameworks in real world case studies to test their feasibility, and iv) the contribution of coherent evidence to inform decision-making in agroecosystems.

Resumen del Currículum Vitae:

Author of 26 high impact scientific publications (>50% as lead author) in Q1 peer-reviewed journals, such as Proceedings of the National Academy of Sciences, Nature Communications, Ecology Letters, Trends in Ecology and Evolution, Environmental Research Letters, Current Opinion in Environmental Sustainability, Journal of Applied Ecology, Biological Conservation, a book chapter in Advances in Ecological Research and in the Encyclopaedia of the World's Biomes. My H-index as of 25/01/2022 is 14 in Scopus/Web of Science with 802/737 citations, respectively.

Throughout my career, I have acquired extensive inter- and transdisciplinary skills in data collection and analysis, including social and ecological surveys, GIS and statistical modelling. I have more than 6 years of postdoctoral experience in Switzerland (3 years postdoc at the Institute of Plant Sciences, University of Bern) and Germany (3 years senior scientist position at the Helmholtz Centre for Environmental Research-UFZ and German Centre for Integrative Biodiversity Research- iDiv), as well as 10 months of short stays in leading international research centres (UK, Canada, France, Germany). I was selected for two competitive leadership programmes: COMET (Switzerland) and Postdoc Academy for Transformational Leadership (Germany). Currently, I am Deputy Head of the Ecosystem Services Department at UFZ/iDiv since 2020, where I lead my own research group on Ecosystem Service Change since 2018, co-directing 6 PhD students (to be completed in 2022/2023), 5 MSc students (1 active). I have participated in two international research projects as a postdoctoral researcher, one as a collaborator and am currently principal investigator of three funded projects in Germany amounting to approximately 380,000 euros. I have received the UFZ Young Scientist Award for Applied Research 2021, the Cum Laude for my PhD and the extraordinary bachelor's degree award.

I have been invited to join several international research networks, such as the Ecosystem Service Partnership (ESP), where I co-lead the Global Flows of Ecosystem Services and Equity in Ecosystem Services working groups; the Future-Earth Programme for Ecosystem Change and Society (PECS); and the Global Land Use Programme (GLP). I have taken part in a large number of international events, including 8 invited talks (Germany, Switzerland, Spain and France), 44 conferences and 13 workshops. I have participated as a scientific committee member in two international conferences, co-organised 16 sessions and symposia at international conferences, acted as a reviewer for 20 different peer-reviewed scientific journals (42 reviews) and as Guest Editor for a special issue of Basic and Applied Ecology (ongoing). I have been reviewer for research projects for the Ville de Paris (2021), external examiner for three PhD theses from Spanish universities, one MSc thesis from University College Dublin, and in two PhD committees from Spanish universities. As a scientific advisor, I have contributed to the technical document "Strategic Plan for Green Infrastructure and Connectivity and Ecological Restoration" for the Ministry of Agriculture, Food and Environment. My results have been communicated to the scientific community through press releases in English, German and Spanish, institutional website news and magazines.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

 Área Temática:
 Ciencias y tecnologías medioambientales

 Nombre:
 CAMARA LERET, RODRIGO

 Referencia:
 RYC2021-031285-I

 Correo Electrónico:
 rcamaraleret@gmail.com

 Título:
 Human-Plant interactions

Resumen de la Memoria:

My research is focused on human-plant interactions. Since obtaining my PhD at the Univ. Autónoma de Madrid (2014), I have published 27 peerreviewed articles. I am lead author of 10, including one in Nature, two in PNAS, and one in Science Advances, Nature Plants, and Nature Sustainability. I am second author in eight articles (signalling substantial contribution) and last and corresponding author in three (signalling leadership). Except for one, all articles are without the presence of my PhD advisor.

During my first Postdoctoral fellowship (Aarhus Univ.), I introduced trait- and phylogeny-based approaches into ethnobotany. This was crucial to understand whether functional traits and species ranges explain human utilization of tropical palms (Cámara-Leret et al. Nature Plants 2017). That work was selected for the Special Collection on Alexander von Humboldt's Legacy in Nature Ecology & Evolution.

In my second Postdoc (RBG Kew) I made four key contributions. First, I made the first large-scale review of New Guinea ethnobotany documenting >3,000 useful species (Cámara-Leret & Dennehy Economic Botany 2019) and showed that only 20% of New Guinea s species are documented as useful, that 19% of its Indigenous groups have been studied, and that cultures with endangered languages make up only 25% of the studied groups (Cámara-Leret & Dennehy Nature Sustainability 2019). The Nature Sustainability study was featured in the Global biodiversity policy post-2020 Collection in Nature. Second, I co-founded the Indonesian Forest Monitoring Network (Brearley, Adinugroho, Cámara-Leret et al. Annals of Forest Science 2019). Third, I quantified the potential impacts of climate change on New Guinea s biocultural heritage (Cámara-Leret et al. Science Advances 2019). That work was featured in the Transformations in Climate and Biodiversity Collection in Science Advances. Fourth, I founded the New Guinea Research Team (uniting 99 scientists from 56 institutions) to build the first expert-verified checklist to the vascular plants of New Guinea (Cámara-Leret et al. Nature 2020). For that work I was awarded the 2021 Marsh Director s Choice Publication Award.

In my third Postdoc (Univ. of Zurich), I introduced network science perspectives into ethnobotany and coined the term Indigenous knowledge networks representing the wisdom of Indigenous people on plant species and the services they provide (Cámara-Leret et al. PNAS 2019). As Senior Researcher at the University of Zurich I showed that the extinction of human languages will trigger a loss of Indigenous knowledge on medicinal plants (Cámara-Leret & Bascompte PNAS 2021). That study was highlighted in the essential round-up of science news in Nature for showing that most medicinal plants are known in only one language, and those languages are at risk of extinction and in the Year in Review in Nature Plants. It was featured in 127 websites and reached a potential audience of 584 million people (Univ. of Zurich press office).

In sum, after my PhD I have consolidated my independence as a researcher and introduced novel approaches into ethnobotany that, according to independent evaluators, have made a significant academic impact. To the best of my knowledge, no ethnobotanist at such an early stage of their career has consistently published in top inter-disciplinary journals as I have.

Resumen del Currículum Vitae:

My research is focused on human-plant interactions and is firmly rooted in natural history. I have authored 41 peer-reviewed articles in top international journals, including Nature (1 article) and PNAS (2), Nature Sustainability (1), Nature Plants (1), or Science Advances (1).

Over the past years I have developed novel frameworks for studying and understanding human-plant interactions at macroecological scales. These have been published as a series of high impact papers that are becoming highly cited. Four examples include:

- 1. Introducing functional trait-based approaches and Maslow s hierarchy of human needs (Nature Plants 2017; 48 citations).
- 2. Introducing ecological rarity frameworks to study plant services (Nature Sustainability 2019; 23 citations).
- 3. Introducing network science frameworks and simulations from physics (PNAS 2019; 37 citations).
- 4. Linking indigenous knowledge with language and plant endangerment (PNAS 2021; 9 citations).

As a tropical biologist, I am puzzled by the fact that conservation research and capacity-building are not sufficiently happening where they are most needed: the world s mega-diverse countries. To contribute to reverse this trend, I have pursued four types of actions.

1. Supervised ten students who have developed their research projects in tropical biodiversity, including three Colombians and one Singaporean. All of them are now successfully employed either in science, NGOs, or in policy-related jobs.

2. Founded big scientific networks such as the New Guinea Research Team (uniting 99 botanists from 56 institutions) or co-founded the Indonesian Forest Monitoring Network (43 Indonesian and international ecologists).

- 3. Disseminated research widely across important newspapers, radio programs, and podcasts
- 4. Led capacity-building workshops in the tropics (see below).

Since 2012, I have lectured every year. I have taught in bachelor, MSc and PhD courses, as well as North-South capacity-building workshops. For example, in Thailand I led the teaching of three 5-day workshops to bring ecoinformatics tools to taxonomists. As a result, 65 students published new websites which accelerated dissemination of their taxonomic work for the Flora of Thailand. In New Guinea, I led a 1-week workshop that enabled Papuan forestry students to establish a 1-hectare permanent forest plot and independently recensus it. That was my first experience teaching with the assistance of Papuan teachers as translators. My latest teaching at the University of Zurich in 2020 and 2021 combined lectures about socio-ecological systems with hands-on modelling exercises. Teaching in top European Universities and leading applied workshops in Asia helped me grow as a teacher and paved the way to lead University courses.



In sum, I have introduced novel inter-disciplinary frameworks to study human-plant interactions which have been published in prestigious journals, mentored ten students, founded large scientific networks, and led significant capacity-building efforts to advance research in the tropics.



AGENCIA ESTATAL DE INVESTICALIDA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Ciencias y tecnologías medioambientalesNombre:CORDOBA SOLA, PATRICIAReferencia:RYC2021-031153-ICorreo Electrónico:patriciacs.cordoba@gmail.comTítulo:CONTAMINACIÓN INDUSTRIAL

Resumen de la Memoria:

My research vision as Environmental Geochemist is to identify, control, and eliminate sources of pollutants or hazards from the industry affecting the environment. After several years pursuing my research field in industrial pollution, I aim, in the upcoming years, to consolidate this ongoing career, which allows me to do research through direct experience of working with industrial processes and industry.

The interest in the preservation of the environment motivated me to start a PhD to evaluate the emission abatement capacity for inorganic trace pollutants at two Spanish power plants at IDÆA-CSIC. The significance of my findings in the environmental and health impacts caused by Hg emissions led me to investigate about this phenomenon at UNNOTs (UK). Later, as a result of the inconsistent treatment success in reducing total Selenium concentrations in these two coal-fired power plants, I joined the UFRO (Chile) to elucidate the causes of this issue. In 2013, I became a Doctor in Natural Resources and Environment with European distinction by UPC.

In 2014, I started my postdoctoral research on oxy-fuel combustion, a promising technology for the capture of CO2 in power plants, at HWU (Scotland). In this research, I worked at CIUDEN s CO2 capture to evaluate the emission abatement capacity for inorganic trace pollutants of this new technology. The successful outcomes of this research led me to join in 2016 the U.S. EPA to operate a 50kW oxy-fuel combustion unit to examine the formation, characterisation and mitigation of gas and particulate pollutants and to develop research on Se speciation in desulphurisation wastewaters as contribution to the US Clean Water Act.

My postdoctoral research at the HWU and US EPA allowed me to gain expertise on the management of major critical aspects from power generation processes, from emissions to generation of residues, to perform a key role in providing impartial advice to industry.

In 2018, I joined IDÆA-CSIC as leader of the Industrial Pollution field where I carry on my research through direct experience of working with industrial processes and industry. My research line has broadened to the treatment of residues from wastewater and recycling plants to copper primary production. To this end, I have initiated novel research on the recovery of critical raw materials from the residues of the primary production of copper. In my actions, it is included an EU fast-track and an upscaling EU project, in which I stand as PI and project coordinator. RECOPPs upscaling project is funded by the EIT Raw Materials (H2020). This achievement has meant a big repercussion not only for my career, but also a major contribution for the Industrial Pollution field, the one I lead, and more importantly, for the Cu metallurgical sector in EU.

I am undertaking strategic fundamental research and performing a key role in providing impartial advice to the industry and the public sector. The combinations of such acquired and existing skills have broadened my current knowledge on the recovery of critical raw materials in order to develop myself as a competent and independent scientist. To this end, I am establishing a consolidated and multidisciplinary group of people able to work as a team to develop research, from Master and PhD students to future Postdoctoral researchers, and form a network around this research area.

Resumen del Currículum Vitae:

Grants and funding As Principal Investigator: 2021-2024: RECOPPs upscaling project (2.3M) Funding: EIT Raw Materials, EU Commission 2019: RECOPP fast-track (50k) Funding: EIT Raw Materials, EU Commission As participant: 2018-2021: Research Fund for Coal and Steel; (Grant Number-754205) 2018-2021: National Science Foundation of China (grant 41972180) and Generalitat de Catalunya (AGAUR 2017 SGR41) 2010-2013: Plan Nacional, Ministerio de Medio Ambiente (UCA 2009020083) 2009-2013: CONICYT/CSIC (2009CL0062) 2009-2013: Research Fund for Coal and Steel; (RFCS-CT-2006-00006) 2011-2013: VAMOS Project, Ministerio de Medio Ambiente (CGL2010-19464) 2007-2010: Plan Nacional DOASUR, Ministerio de Educación y Ciencia (CGL2007-62505/CLI) 2007-2010: Plan Nacional, Ministerio de Medio Ambiente (B026/2007/3-10) Scholarships and fellowships 1. Severo Ochoa Postdoctoral fellowship by the Agencia Estatal de Investigación (AEI) from the Spanish Ministry of Science and Innovation and the IDAEA-CSIC, Centre of Excellence Severo Ochoa (CEX2018-000794-S). 2. Juan de la Cierva-Incorporación (IJCI-2016-2755) funded by the Ministerio de Ciencia e Innovación. 3. ORISE Postdoc fellowship (EPA-ORD/NRMRL-APPCD-2015-05) funded by the U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (EPA). 4. Postdoctoral Research Fellow (EP/F012098/1) funded by the School of Engineering & Physical Sciences, Heriot-Watt University.

5. JAE predoctoral Fellowship (JAEPRe-100) funded by the Junta de Ampliación de Estudios, Consejo Superior de Investigaciones Científicas (CSIC)

6. FPU predoctoral program (AP2009-0191, renounced)





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

7. Research Fellow (GR/NH/08 and IC/GS/03) funded by Universidad Miguel Hernández de Elche (UMH)

Publication s metrics

47 Scientific papers, 3 book chapters (senior author of two of them) and 1 technical report (first author). 887 citations (I do believe that my work in terms of publications is under cited by the academia due to the following reasons: industry partnership are not usually published because of confidentiality agreements and industry papers-related are conceived for specific industry activities and industry sector).

Conferences, seminaries, and workshops 9 international and 3 nationals (5 in the US, 1 in UK, 1 in Ireland, 3 in Spain) conferences; 3 workshops (Spain); 4 seminaries (Spain).

Patents

Invention 1 (2020-0250): Method for the selective recovery of bismuth from dust contained in the exhausted gas from converter. Invention 2 (N/Ref.: 1.2021.0069/BAR): Separación de arsénico de antimonio y bismuto en un eluato

Experience supervising doctoral thesis and/or final year projects 2021-ongoing: Doctoral thesis: Samanta Rojas Castro (IDAEA-CSIC), UAB (Social Sciences) 2021-ongoing: Doctoral thesis: Farshid Basirifar (IDAEA-CSIC), UPC-Barcelona Tech (Natural Resources and Environment) 2019-2020: Final year project: Raul Horno Bosc (Chemical Engineering; IDAEA-CSIC) 2019-2020: Final year project: Laura Planas Massanas (Chemical Engineering; IDAEA-CSIC) 2017-2018: Final year project: Luis Sanabria Moreno (Chemistry; IDAEA-CSIC) 2015-2016: Master Thesis: Leïla Cherqaoui (Renewable Energy Engineering; HWU, Scotland).

Academic/Teaching Experience

100 hours of laboratory of Fundamentos Químicos de la Ingeniería to Mechanical Engineering during 2008-2009 at Universidad Miguel Hernández de Elche (UMH).



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	TABOADA MORENO, SERGIO
Referencia:	RYC2021-031521-I
Correo Electrónico:	sergiotab@gmail.com
lítulo:	Patterns of biodiversity, connectivity and hybridization in marine benthic invertebrates

Resumen de la Memoria:

Soy investigador en el campo de la biología, ecología y evolución de los invertebrados marinos. Doctorado en Biología en la Universitat de Barcelona (UB) (2012), donde trabajé en ecología, conectividad molecular y filogenética de invertebrados bentónicos marinos. Trabajé en conectividad molecular de la fauna de aguas profundas en el Natural History Museum of London (NHM) (2015-2018) y luego me trasladé a la Universidad Autónoma de Madrid (UAM) durante 2 años con un postdoc Juan de la Cierva-Incorporación (2018-2020). En septiembre de 2020 me trasladé a la Universidad de Alcalá (UAH) y desde diciembre de 2020 soy Profesor Ayudante Doctor en la Universidad Complutense de Madrid (UCM).

He participado en diferentes proyectos relacionados con la evaluación de la biodiversidad, filogenia, genética de poblaciones y filogeografía en diferentes hábitats, estudiando diversos grupos de invertebrados, lo que demuestra mi versatilidad en investigación y enfoques. Tengo un sólido historial de publicaciones (62 artículos científicos, 36 como primer o segundo autor y 6 como senior) con el 77% de ellos publicados en revistas del Q1 en los últimos 5 años (impact factor > 2), y con 9 artículos con impact factor > 4.

Actualmente soy IP de un proyecto del Ministerio de Ciencia e Innovación, y en los últimos 5 años he participado en 5 proyectos (2 proyectos financiados por la UE) y liderado 1 proyecto sobre la conectividad molecular de una gorgonia en el Mediterráneo. Tengo una amplia experiencia trabajando con la industria, con más de 10 años elaborando estudios de impacto ambiental como consultor de taxonomía. He obtenido 9 becas pre- y postdoctoral, y he impartido conferencias en la UB, NHM, Harvard University, Museo de Ciencias Naturales de Madrid y UAH.

Soy miembro del Consejo Editorial del Journal of Natural History y revisor de varias revistas relacionadas con las ciencias marinas. He presentado 65 comunicaciones en congresos nacionales e internacionales, 28 de ellas en los últimos 5 años (15 como primer autor y 25 comunicaciones orales). He sido miembro del comité organizador en 4 congresos internacionales y actué como moderador en dos de ellos. He supervisado a un estudiante de doctorado y actualmente co-superviso 1 más. Tengo una amplia experiencia supervisando estudiantes en la UB (5 Msc y 5 estudiantes de grado), University College London (5 Msc), Imperial College of London (1 Msc) y Universidade do Algarve (1 Msc). He impartido >200 horas lectivas en la UAM y la UCM a estudiantes de grado y máster. He sido reconocido por la ANECA (Agencia Nacional de Evaluación de la Calidad y Acreditación) como Profesor Contratado Doctor, Profesor Ayudante Doctory Profesor de Universidad Privada. Soy Profesor Honorario de la UAH (2017) y Scientific Associate del NHM (2020).

He participado en campañas en la Antártida (4), el Mar Cantábrico (2) y el Pacífico abisal (1), y tengo una amplia experiencia en el buceo con inmersiones en el Mediterráneo, Atlántico y Antártida.

Resumen productividad científica (20/12/2020): Artículos científicos: 62; 2 capítulos de libro Porcentaje de artículos científicos en Q1 (69%), Q2 (21%), Q3 (6%), Q4 (2%) y No SCI (2%). Últimos 5 años Q1 (77%), Q2 (20%) y No SCI (3%).

Índices de impacto (Google Scholar 19/01/2022): Número de citas: 1314 (700 desde 2017) índice h: 19 (17 de 2017) índice i: 37 (30 desde 2017)

Resumen del Currículum Vitae:

I am a researcher in the field of biology, ecology and evolution of marine invertebrates. I received my PhD in Biology at the Universitat de Barcelona (UB) (2012), where I worked on ecology, molecular connectivity and phylogenetics of marine benthic invertebrates. I worked on the molecular connectivity of deep-sea fauna at the Natural History Museum in London (NHM) (2015-2018) and then moved to the Universidad Autónoma de Madrid (UAM) for 2 years with a Juan de la Cierva-Incorporación postdoctoral fellowship (2018 2020). In September 2020 I moved to the Universidad de Alcalá (UAH) and since December 2020 I have been an assistant professor at the Universidad Complutense de Madrid (UCM).

I have participated in different projects related to the evaluation of biodiversity, phylogeny, population genetics and phylogeography in different habitats, studying various groups of invertebrates, which demonstrates my versatility in research and approaches. I have a solid publication history (62 scientific articles, 36 as first or second author and 6 as senior) with 77% of them published in Q1 journals in the last 5 years (impact factor > 2), and with 9 with impact factor > 4.

I am currently PI of a project of Spanish Research Council, and in the last 5 years I have participated in 5 projects (2 EU-funded projects) and led 1 project on the molecular connectivity of a gorgonian in the Mediterranean. I have a wide experience working with the industry, with >10 years elaborating environmental impact assessments as taxonomy consultant. I have been awarded 9 fellowships at predoctoral and postdoctoral level, and have delivered lectures at the UB, NHM, Harvard University, Museo de Ciencias Naturales de Madrid and UAH.

I am member of the Editorial Board of the Journal of Natural History and reviewer of several journals scientific journals. I have presented 65 communications at national and international conferences, 28 of them in the last 5 years (15 as first author and 25 oral presentations). I have been member of the organizing committee in 4 international conferences and acted as Chairman in 2 of them. I have supervised 1 PhD student and I am



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

currently co-supervising 1 more. I have a wide experience supervising students at the UB (5 Msc and 5 undergraduate s students), University College London (5 Msc), Imperial College of London (1 Msc), and Universidade do Algarve (1 Msc). I have delivered >200 teaching hours at the UAM and UCM to undergraduate and master students. I have been recognized by ANECA (Agencia Nacional de Evaluación de la Calidad y Acreditación) as Associate Professor (Profesor Contratado Doctor), Assistant Lecturer (Profesor Ayudante), and Private University Lecturer (Profesor de Universidad Privada). I am Honorary Professor at the UAH (2017) and Scientific Associate at the NHM (2020).

I have participated in sampling cruises in the Antarctic (4), the Cantabrian Sea (2), and the abyssal Central Pacific (1), and have a wide experience scubadiving in the Mediterranean, Atlantic and Antarctica.

Summary scientific productivity (20/12/2020): Scientific papers: 62; 2 book chapters Percentage of scientific papers in Q1 (69%), Q2 (21%), Q3 (6%), Q4 (2%) and No SCI (2%). Last 5 years Q1 (77%), Q2(20%) and No SCI (3%).

Impact indexes (Google Scholar 19/01/2022): N citations: 1314 (700 from 2017) h-index: 19 (17 from 2017)



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

 Área Temática:
 Ciencias y tecnologías medioambientales

 Nombre:
 CUARESMA FRANCO, MARIA

 Referencia:
 RYC2021-034640-I

 Correo Electrónico:
 maria.cuaresma@dqcm.uhu.es

 Título:
 Sustainable production of microalgal biomass and derived products in the frame of the Bioeconomy and

 Circular Economy
 Electrónico:

Resumen de la Memoria:

Main research line focused on the search of new and sustainable strategies to produce interesting metabolites by using microalgae in the framework of the Bioeconomy, in order to provide new, innovative, cost-effective and sustainable resources to satisfy society demands while protecting environment. Since 2003, she has been focused on the optimization of the production of interesting metabolites with added value in the food/feed and health sector -mainly carotenoids, lipids and exopolysaccharides- with different commercial microalgal strains, as well as newly isolated ones from extreme environments. During the postdoctoral stay at WU, she gained experience in the production at pilot scale, and the postdoctoral period at UHU strengthened her capabilities to supervise students, to coordinate scientific activities and to obtain funding.

Currently, she is hired by UHU as Substitute Teaching Tutor in the Area of Biochemistry, Faculty of Experimental Sciences. In the last 4 years, she has strongly reinforced her leading capabilities and she is currently the Co-IP of the Biotechnology of Microalgae Unit at Center of Natural Resources, Health and Environment (RENSMA-UHU), with responsibilities in the coordination of competitive projects and 68/83 Research Contracts, as well as in the management of a team of 8-10 scientists -hired by UHU and from private companies. It resulted in the publication of scientific papers with a privileged authorship position (53%). Moreover, she is active as referee for different entities (national and international) (H2020 Programmes, CONICYT (Chile)) and she belong to the Scientific Advisory Board Member of the company UVera (Poland).

Regarding the procurement of funding, she is highly active and successful in attracting funding from private and public entities. She is the IP in 4 R+D projects and in 4 Research Contracts with foreign companies. All this implies a total budget of 1.4M (59% in R+D projects) and 84% of that amount has been obtained from international entities/companies.

Her research line has a clear focus to the transference, exemplified by the attainment of Contracts with companies (national and international) (4 68/83 contracts as IP or Co-IP), all of them with a clear focus in the implementation and scale up of technology. This contributes to the economic and social development of the region -scientists trained and hired- and it helps to locally switch to a more sustainable Biobased Economy.

Finally, her scientific career has a strong international dimension (PhD and pre- and postdoctoral stages in Netherlands, 47% of papers with international collaborators, etc.). All this allowed the candidate to set a broad and interesting contact network with public and private entities. Indicators of guality:

- Accreditations: I3/2019/1108 (Área CTM); PCD 2015-9039; PUP 2015-9041; PAD 2015-9040
- H index: 20
- 34 papers (5 reviews) + 6 under preparation + 2 books + 14 book chapters + 1 application note (38% published papers in the last 4 years)
- Q1: 21 (62%) (with 6% as D1); Q2: 7 (21%)
- Privileged authorship position: 18 (53%) and Senior author since 2018: 6 /13 (46%)
- Total citations: 1,631 and Average citations per article: 37.8
- Participation in competitive projects: 20 (3 FP7, 2 MINECO, 7 J.A, 3 INTERREG, 1 F. Ceimar, 1 Innovación Docente, 4 Others) + 2 submitted

Resumen del Currículum Vitae:

Double doctorate degree in Bioprocess Engineering (Wageningen University (WU), Netherlands, 2011) and in Environmental Sciences (University of Huelva (UHU), 2012). PhD Thesis awarded by 2 institutions (Netherlands and Spain). Postdoctoral stay of 21.5 months at WU (2011-2012) where she initiated the co-supervision of PhD, MsC and BsC students and she started to show leading capabilities (role as Scientific Coordinator of several projects (EU 7th Framework Programme, Dutch Government, etc)).

In December 2012, hired as postdoctoral researcher at UHU. In 2016 obtained ANECA accreditations (PCD, PUP, PAD) and awarded by MINECO grant Juan de la Cierva- Incorporación" (June 2017-Sept 2019). In 2020 obtained "I3 Certificate". The candidate acted as Scientific Coordinator in the frame of 2 international projects (7th EU Framework Programme) and she participated from the rest of the scientific activities/projects of the group.

Since 2018, strong leadership dimension, and she is the Co-IP of the Biotechnology of Microalgae Unit at UHU (associated to RENSMA, 8-10 scientists, laboratory and pilot facilities). In total, she published 34 papers (53% privileged position of authorship, 47% international collaborations) and she is preparing 6 more. She presented more than 100 communications in international congresses (including several oral presentations).

Thanks to her experience in International competitive projects, she has an interesting contact network. As a result, she is/has been IP in 68/83 Contracts with foreign companies and in R+D projects funded by EU, Junta de Andalucía-Fondos FEDER-UHU and Fundación Ceimar. In total, more than 1.4M funding obtained (84% from international entities, 48% in the last 3 years). Finally, the researcher acts as referee of R+D proposals for different private (SGS ICS IBérica) and public entities (H2020 Programs, CONICYT (Chile)). She also belongs to the Scientific Board of the company UVERA (Poland) and she acts as referee for several scientific journals.

As Contributions to society, she has a strong activity in the transference of results. In the field of human resources, she has supervised students from Technical Schools and is responsible of full-time working contracts of scientists in the frame of the 68-83 contracts, allowing young scientists to work in a scientific environment, with the stabilization prospection in international companies. In the Economic sector, she is IP/Co-IP in projects with companies (68/83) -around 600.000 - which implies a great opportunity for the development of the region. Finally, dissemination activities are frequent (European Research Night, Semana de la Ciencia, interviews, and talks in schools and high schools). She is also volunteer in the Association Inspiring Girls, which aim is the motivation of girls in the STEM careers.

As Contributions to young people formation, she supervises 4 PhD students (1 Industrial) and has supervised 2 others (Cum Laude awarded with International Mention). Moreover, during her posdoctoral stay at WU she supervised 3 PhD students. She also supervises BsC Degree Thesis (7), MsC Degree Thesis (8), internship students (6: U. of Bochum, U. of Brno, U. of Wageningen, U. of Lisboa), and students in external curricular internships (12: FP, Bsc and MsC). Finally, she acted as referee in 5 Doctoral Thesis Defenses.



VESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Ciencias y tecnologías medioambientales Nombre: PRIETO AGUILAR, IVAN **Referencia:** RYC2021-033081-I **Correo Electrónico:** ipria@unileon.es Título: Plant ecological strategies and adaptation to climate change in water-limited ecosystems

Resumen de la Memoria:

Through my scientific career my main research line is the analyses of the impacts of climate change on the ecophysiological and functional adaptations of plants in Mediterranean ecosystems, particularly on their water and nutrient use strategies and their biogeochemical functioning. This line tries to fill the knowledge gap on whether leaf physiological traits linked to plant water use are an integral part of our current understanding of plant ecological and resource use strategies (leaf economics spectrum or LES). During my extensive scientific career (4 years as pre- and 10.5 as postdoctoral) my main contributions to science have been the following: 1) I discovered that the redistribution of water by plants at night was a crucial adaptation for plant survival in dryland ecosystems (PhD); 2) I proved for the first time, in collaboration with top researchers in the field (Drs. Eric Garnier, Catherine Roumet and Cyrille Violle), the existence of a worldwide root economics spectrum at the community level, with implications for decomposition and nutrient and C cycling (postdoc abroad); 4) I demonstrated that climate change had strong detrimental effects on plant physiology, nutrient status and water use strategies in dryland ecosystems reducing plant survival and productivity (postdoctoral period at CEBAS-CSIC with an FPDI (JdC) grant in collaboration with Dr. Ignacio Querejeta) and that 3) traits linked to resource economics are strongly linked to plant water use in water-limited ecosystems (my own research project). In March 2021, I gained an Assistant professor position at the University of León to establish my own research group (1 PhD, 2 graduate students) in collaboration with an established network of international and national leading researchers on plant and soil ecology.

All this research has been supported by my participation as PI in 3 national projects and grants demonstrating my leadership ability in raising funds through competitive calls. I also participated as researcher in 1 European project (>2.500.000), 3 international (1.600.000) and 10 national projects (>1.000.000 euros). This leadership ability is complemented with the direction of research groups in CEBAS and the ECO-FUN group at the University of León.

My main scientific objective for the Ramón y Cajal position is to evaluate the impacts of plant strategies and their functional adaptations (the link between water use and the resource economy) at a global scale. This objective represents a challenge in my research line because currently waterlimited environments account for nearly half the land surface on Earth and for 20 percent of all known plant species and according to future predictions dryland ecosystems are among the most vulnerable to global change. The results will contribute to understand the vulnerability of plant communities to climate change and develop plans for an adaptive management of Mediterranean ecosystems that mitigate the impacts of climate change. I have demonstrated my capacity to achieve difficult challenges, and in this case I plan to create and lead a global network with international researchers collaborations to answer this global question.

Resumen del Currículum Vitae:

I am a biologist specialized in the study of the impacts of climate change on the ecophysiological and functional adaptations of plants in Mediterranean ecosystems, particularly on their water and nutrient use strategies and their biogeochemical functioning. Since my PhD (EEZA-CSIC, FPI grant), I combine several approaches (manipulative field and greenhouse experiments, global databases) and tools (plant functional traits, stable isotopes, ecophysiological measurements) to fill the knowledge gap on whether leaf physiological traits linked to plant water use are an integral part of our current understanding of plant ecological strategies and the impacts of climate change on plant water and resource use. In 2021, I secured an assistant professor position (1st ranked by ACSUCYL) at the University of León where I started my own research group (1 PhD and 2 graduate students) and fostered strong collaborations with national and international leaders on plant and soil ecology (Manu Delgado-Baquerizo IRNAS-CSIC, Eric Garnier CEFE-CNRS).

I have a 10.5 post-doctoral experience (POP); 3.5 abroad at a leading center in functional ecology (CEFE-CNRS, France) and 7 at CEBAS-CSIC with leading researcher in stable isotopic ecology. My scientific production during the POP period was 33 JCR articles (12 as first and 4 as senior author). In total, I have 42 SCI articles (60% D1, 95% Q1), 19 as first author (18 Q1) and 4 as senior author (2 D1 and 2 Q1). Average IF is 5.0 (JCR) including a high impact article in Nature Plants as a first author and others in top ecology and plant science categories (5 with IF>10 and 12 with IF>5). My works have been cited 1519/2062 times and My H index is 21/23 (Scopus/Google Scholar).

I have solid leadership skills and independence supported by 3 competitive projects as PI (>90000) and 129,810.00 in research grants. I have participated in an EU-funded project (2,900,000) and 10 research projects (>5,000,000). I am supervising a PhD thesis (FPI) and two graduate students (TFG). I have supervised 2 MsC students (Italy and Chile) and mentored pre- and postdoctoral researchers (Chile, China, Italy). I developed my international experience in top research institutions (13 research stays abroad at CEFE-CNRS, USU, University of La Serena, CATIE, IRD) that allowed me to build an extensive international network publishing with top international researchers (Drs. Cahterine Roumet, Cyrille Violle, Ronald J. Ryel, Richard Bardgett). I have transferred my knowledge through i) a research contract (17000), ii) oral presentations in 15 international (8 upon invitation) and 26 national (1 upon invitation) congress; iii) the participation in 2 international workshops, iv) special sessions chaired in international (Medecos, SIBECOL) and national conferences (AEET), v) coordinating the Plant-Soil Interactions Working Group AEET (3 years), vi) Participating in international (NCN, Fondecyt, ANR) and national (Retos and Parques Nacionales) evaluation panels, 1 PhD and two MsC theses committees, vii) being Associate Editor in Frontiers in Plant Science and PlosONE and regular reviewer for >20 SCI journals (e.g. PNAS and Nature communications). Scientific outreach: national (x6) and International (x3) press releases, web documentaries (x1), Science fairs (x4), Pint of Science (x1), short web videos (x2) and social media (Twitter @iprietoaguilar).



AGENCIA ESTATAL DE INVESTICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

runo de acceso general		
Área Temática:	Ciencias y tecnologías medioambientales	
Nombre:	MARIGO CORTES, JUDIT	
Referencia:	RYC2021-034366-I	
Correo Electrónico:	judit.marigo@gmail.com	
Título:	Evolutionary history of the primates: origins and human evolution in a multidisciplinary perspective	

Resumen de la Memoria:

I focus my research on different topics using several techniques, which makes my expertise multidisciplinary. I have published widely in the fields of Vertebrate Paleontology and Evolutionary Anthropology, doing research with clear links to Paleobiology and Paleoecology. I am deeply interested in applying leading-edge phylogenetic and morphometric techniques, as well as doing research related to functional morphology, biomechanics, phylogeny and anatomy. I have concentrated my investigation in taxonomy and systematic of Paleogene primates during my predoctoral stage, changing later during consecutive postdoctoral contracts, into a more diversified and multidisciplinary research line, including 3D geometric morphometrics, Finite Element Analyses as well as phylogenetic comparative methods and macroevolutionary analyses, thus proving my rapidity for learning new concepts and my capability for working with different research teams and leading several research lines. My main research lines include:

- Taxonomy, systematics, phylogeny and paleobiogeography of early primates
- Locomotion and paleobiology of extinct primates using state of the art techniques.

These studies can provide a greatly enriched perspective on primate faunas from Europe in an anatomical, taxonomic, evolutionary and locomotor behavioural sense. They will increase the amount of information available for reconstructing ecological scenarios for primate origins, and clarifying patterns of primate phylogeny. My research lines can make research done in Spain crucial for understanding past events of early primates as well as hominoids, and thus be in the scope of internationally debated topics regarding evolution in the dawn of human lineage. These lines have excellent potential to change perceptions of fossil primate communities, and will result in original and novel results on the link between behavior, evolution, form and function of the whole material available for many primate taxa and beyond.

Resumen del Currículum Vitae:

1. Outstanding research record: 42 publications included in the SCI (Publons, Web of Science - WoS), 90% in Q1, 70% of them in the first decile of their categories (D1). Editor of 5 books (ISBNs: 978-84-608-8773-7; 978-84-615-3110-3; 978-84-615-3001-4; 978-84-614-5858-5; 978-84-613-3650-0) and author of 1 book chapter (ISBN: 978-84-457-3437-7), author of 27 scientifico-technical reports for the Generalitat de Catalunya. Total number of citations: 292 (WoS). Average number of citations/year: 24.7 (WoS). h-index: 12 (WoS). More than 60 abstracts published related to scientific communications, most of them at international meetings.

2. Capacity for obtaining funding and leading capabilities. Predoctoral and postdoctoral contracts thanks to competitive projects and grants obtained. Principal investigator (PI) of three competitive research projects, one national (PID2020-116908GB-I00); another one regional (CLT009/18/00069), and another one international. Total money awarded in projects as PI: 246,516.88 . Leader of the research lines of these projects, and director of 27 paleontological fieldwork interventions.

3. Capacity for communicating scientific results and interest in outreach activities, concretized in more than 60 communications in scientific meetings, most of them international, several invited talks and organization of professional meetings and symposia, as well as many collaborations with museums, media, geoparcs, universities and private companies working for Science dissemination. Organizer of courses for scientists as well as the general public in collaboration with other colleagues or institutions.

4. Teaching experience. More than 400 hours of teaching at university level in Universitat de Barcelona (UAB) and Duke University (USA). Participation in in Innovative Teaching projects (Programa Argó) and conferences (CIDUI).

5. Student supervision and mentorship. Currently co-supervising my first doctoral tesis on-going thanks to a competitive predoctoral contract (2021 FI_B 00524). I have directed different students of final degree projects (TFG) and master's degree projects (TFM) at UAB, and I am co-directing an Erasmus TFM of the University of Firenze. Likewise, I have supervised 12 external internship students at the UAB, and numerous volunteers in excavations and in the field.

6. Reviewer experience for several specialized journals and for national and international research institutions and societies concerning competitive projects and grants, demonstrating my capability of developing other tasks in parallel to my research activity, as well as the professional recognition of my work by both national and international colleagues.

7. Mobility and internationalization. More than 4 years abroad (USA and France), most of the time in competitive postdoc contracts or gants. I have worked with 4 different research groups abroad, I am also member of several international projects, and I am collaborating with many researchers abroad, as demonstrated by my publication record. During my predoctoral stage, I visited many European museum collections also thanks to 5 competitive short stay grants (France and Switzerland, several institutions). Invited as a speaker in meetings and symposia, and participation in academic committees in Spain and abroad.



AGENCIA ESTATAL DE INVESTICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	runio de deceso general
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	JIMENEZ MEJIAS, PEDRO
Referencia:	RYC2021-031238-I
Correo Electrónico:	pjimmej@gmail.com
Título:	Evolución en el género megadiverso Carex (Cyperaceae)
Resumen de la Memoria:	

TIMELINE

Since I was very young I have been fascinated by biodiversity. I started my professional connection with botany as an intern at the Pablo de Olavide University, where I later made my PhD (FPU). Later I spent a postdoc at the Real Jardín Botánico (Madrid, Spain, 2 years), and then moved to the USA, where I have enjoyed postdoctoral positions at the Washington State University (Pullman, USA, 3 years), New York Botanical Garden (New York, USA, 1 year), and the Smithsonian Institution (Washington, USA, 1 year). In this last one, I was awarded a fellowship from the Smithsonian Postdoctoral program, one of the most prestigious competitive calls of the USA. Now I am Associate Professor at UAM.

MAIN LINE

My professional career is characterized by transversality and multidisciplinarity. In my research, state-of-the-art techniques (genomic analysis) are combined with traditional botany. I have worked in a wide range of fields of biology: taxonomy, systematics, phylogenetics, evolution, phylogeography, population genetics, palaeobotany, and bioclimatic niche evolution, among others.

My main line of research is study of the systematics and evolution of angiosperms and the reasons that explain their distribution, with a special focus on the hyperdiverse (>2000 spp) genus Carex (Cyperaceae). This can be explained as follows: (1) Understand the evolution of angiosperms, including those processes that produce diversification and speciation, as well as the evolutionary dynamics of morphological, ecological and morphophysiological traits. (2) Understand the geographical distribution of plants as consequence of their evolutionary history. (3) Contribute to the accurate account of the World plant biodiversity through the preparation of revised systematic and taxonomic frameworks.

I use Carex as a model to gain insights into multiple hypotheses in plant evolution, with a special focus in South America and the Mediterranean.

Resumen del Currículum Vitae:

ACHIEVEMENTS

Currently I am (co)PI of two projects (Madrid Regional Government and MICINN) that account together over

200.000, and lead my own independent research team, formed by two technicians, one predoctoral student, and a postdoctoral fellow.

I am co-author of more than 80 indexed journal publications (1601 citations and an IF 18 according to Scopus, 2204 citations and IF 22 according to Google Scholar), 35 of them in the first quartile of their fields. From the total I have been first author (or equal contribution) of 34 and senior author (or equal contribution) of another 13. I have described 5 plant genera and 14 plant species new to science and I have authored 32 book chapters on plant taxonomy.

My international collaborations extend to Europe, North and South America, China, and New Zealand. I am one of the primary members of the research consortium Global Carex Group (over 30 researchers from more than 12 countries) which prepares collaborative research on the genus Carex.

SOCIAL IMPACT AND RESULTS TRANSFER

I have a solid compromise with outreach and science dissemination. I am one of the founding members of the SEBOT s Working Group in Systematics and Evolution, which prepares activities and courses during the year, including the successful Bioblitz of Spanish Flora (Biomaratón de Flora Española), in which I was involved as one of the main organizers. I have also participated in seminars and written popular science articles. I have prepared IUCN conservation plant assessments to make our research results on plant conservation available to consultants and the administration.

SERVICE AND MENTORING

At the present I am fully independent at UAM and lead my own research team. Currently I have funding from two different sources (Madrid Regional Government, and Plan Nacional) that allows bringing together four people (two pre- and postdoctoral researchers, and two technicians) that develop our different research lines. Summarizing my mentoring history I have co-supervised two PhD students, and I am currently supervising another three (one defending in June), all them focusing on plant evolution and systematics. I have also mentored a number of students in lab techniques and database management during my pre- and postdoctoral stages in both Spain and the USA. Eventually, I have taken part in six PhD committees, three of them international. I am thematic associated editor for two indexed publications and have served as such for other two, as well as a reviewer for more than 30 journals. I have edited a special issue on sedges evolution for the journal JSE (Q1) and was part of the scientific committee of the I Spanish Botany Conference (Toledo, 2021).



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	i uno de acceso general
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	VILLEGAS RIOS, DAVID
Referencia:	RYC2021-032594-I
Correo Electrónico:	chirleu@gmail.com
Título:	Ecologia del comportamiento y conservación marina

Resumen de la Memoria:

I am a marine scientist with broad interests in the ecology, evolution and conservation of aquatic resources.

During my PhD at the Institute of Marine Research in Vigo, I focused on understanding how the life-history of several fish species (reproductive behaviour, growth patterns, energy allocation) determined individual fitness and vulnerability to fishing.

During my postdoctoral phase (2014-present) I strongly focused on understanding why aquatic animals behave the way they do and what are the implications for ecology, evolution and conservation.

In 2013 I obtained my first Marie Curie Postdoctoral Fellowship at the Institute of Marine Research of Norway to investigate the ecological and evolutionary consequences of consistent individual behaviour in wild marine fish.

What is the degree of behavioural variation within populations?

Do individuals within populations consistently behave differently over time, and across contexts in the wild?

What are the implications of consistent behaviour for the evolution of behavioural phenotypes?

I was amongst the first to explicitly show that individuals of several aquatic populations display consistent behavioural traits and responses to environmental variations.

In 2017 I obtained a second Marie Curie Postdoctoral Fellowship at the Mediterranean Institute for Advanced Studies (Mallorca, Spain) to explore links between spatial personality traits and conservation:

What are the implications of consistent behaviour for the conservation of aquatic resources?

What is the effect of protection by marine reserves on behaviour?

What is the effect of behaviour on marine reserve effectiveness?

I revealed that by displaying spatial consistent variation in their tendency to move within and outside MPAs, individuals also differ in the amount of protection granted by MPAs, which can entail evolutionary consequences.

I have tackled these and other related questions by means of robust data analysis, telemetry techniques, stable isotopes and genomics using a wild approach (I investigate behaviour displayed in the wild).

In the future, I plan to explore how social behaviour, a neglected dimension of aquatic animals, can explain the resilience of aquatic populations. I also plan to undertake long-term telemetry studies using long-term tags to understand ontogenetic changes in behaviour at the individual level and how they link to environmental change.

Resumen del Currículum Vitae:

My CV lists 40 scientific publications (38 SCI), plus 6 under review. Idm the first author of 17 of them. Twenty-six (68%) of my SCI papers are in Q1 journals and 14 (37%) in D1 journals. Thirty-two (84%) of my publications do not include my PhD supervisors. My research output is particularly high-impact since my PhD defence (31 papers since 2014) with 75% of them in Q1 journals and 45% in D1 journals. My work has been cited 625/440 times and my H-index is 14/13 (Google Scholar/Scopus). My research is eminently international with 98 co-authors from 17 countries (Scopus). I have participated in 3 European projects (two as PI). Most (>80%) of my career has been funded by competitive grants including graduate, MSc, PhD (FPU) and postdoctoral grants. I was awarded two prestigious Marie Sklodowska-Curie (MSC) Postdoctoral Fellowships by the EU (2013, 2017). I have received ~400,000 as PI. I have published primary research, opinion, review and methods papers in the best journals of the fields of Ecology and Conservation. I was amongst the first to investigate individual variation of behaviour of aquatic animals in the wild (personality) and its impact on conservation science. I have hypothesized that marine reserves can exert unexpected selection pressures of aquatic populations opening a new research avenue that has gained much interest in recent years. I have participated in 19 international conferences and workshops, totalizing 23 presentations. My research has impacted the labs that I have visited.

I have disseminated scientific activities and results in multiple ways including websites (villegasrios.wordpress.com), social media (@BemarProject), blogs, radio, TV and newspaper interviews, visits to schools and science fairs. I have written articles for the specialized magazine The Marine Biologist . Ident the founder of the Scientific Association Ecoloxía Azul and the popular science blog Blue Ecology (>100,000 visitors/year). My research was featured in the documentary Tagged for survival . In 2017-2018 I collaborated with the local fishing industry through the assessment of shellfish resources of a fishing guild in Galicia. I have collaborated with conservation stakeholders such as the administration of the Illas Atlanticas National Park by providing policy briefs of my research results. I often give talks about my projects and results to local fisher s associations with whom I also develop fish tagging trips. In 2020 I was involved in a project (DESTAC) about bycatch survival of coastal elasmobranchs. Results have been forwarded to managers and politics and will serve to prepare an exemption to the Discards Ban policy of the EU directly impacting the activities of thousands of local fishers in the North Atlantic.

During my postdoctoral phase (2014-present) I have interacted with multiple graduate, MSc and PhD students. I have supervised 3 MSc students and have acted as a jury in one PhD defence. I¿m a member of the review panel of the short-term scientific missions of one COST action. I¿m a member of the European Tracking Network, the Spanish Biologist Professional Association and the Conservation Biology Society. I have co-organized 2 International Conferences and 2 international workshops. I have reviewed 29 papers for journals such as TREE, ICES or CJFAS.



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: palaeoenvironment Ciencias y tecnologías medioambientales DIAZ MARTINEZ, IGNACIO RYC2021-032396-I idiaz@unrn.edu.ar

Looking for recurrent patterns in the ichnological record: locomotion, palaeoecology, and

Resumen de la Memoria:

My research goal is to define recurring patterns in the ichnological record that serve as tools for 1) studying the palaeobiology of producers in their evolutionary context, 2) analysing the processes of formation and preservation of their traces, and 3) performing accurate palaeoenvironmental and palaeobiogeographic reconstructions. To achieve this goal, I study vertebrate tracks of North Africa, Europe, and South America from the Permian-Triassic transition to the present produced by different taxa such as lepidosaurs, dinosaurs or mammals, among others. This research line has allowed me to discuss the aim and scope of the ichnology itself, and its use in records even outside of the Earth, i.e., the traces left by the astronauts on the moon or the debated evidence of life on Mars.

I obtained a PhD in 2013 at Universidad de La Rioja (Spain). In 2014, I joined the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) (Argentina), as a postdoctoral fellow. From 2019, I am a permanent member of CONICET with a degree of Assistant Researcher. Moreover, from 2018 I am an Associate Professor at the Universidad Nacional de Río Negro (Argentina), teaching in the Geology and Palaeontology degrees and postgraduate programs. Recently, I have obtained the María Zambrano grant at the Universidad del País Vasco (start in May 2022).

I have authored/co-authored over 70 scientific papers, 44 (23 in Q1) of them in journals of the SCI with more than 130 different co-authors from 15 countries. I have also led or co-authored about 40 communications in national and international conferences. I am a regular reviewer of high-impact journals (>30 manuscripts) and Guest Editor of two Special Issues. I am part of the editorial board of two scientific journals and member of the Planetary Research Group of the SEPM. I have supervised/co-supervised two PhD thesis (one in course and one completed), four Bachelor degree thesis (three in course and one completed) and supervised one visiting researcher. Finally, I have also demonstrated my independent research by obtaining and managing four projects as a Principal Investigator and also partaking in other Spanish and Argentinian projects.

Resumen del Currículum Vitae:

My main research interest is based on vertebrate tracks making special emphasis on the palaeobiological and palaeoenvironmental information extracted from their study. I led three research projects on this topic in Argentina. I have been able to delve into various aspects within this discipline and have achieved some milestones among my publications (about 70, 44 in JCI). For instance, through the study of the traces left by the astronauts on the moon, I discussed the objectives and scope of the ichnology itself, redefining the technofossil concept and proposing a new one, that of technotrace. I have described four new ichnogenus and ichnospecies of dinosaurs and mammals. Moreover, I have inferred gregarious behavior in Cretaceous dinosaurs, Miocene artiodactyls, and Pleistocene hominids according to their trackway patterns. In a recent publication, I have also analysed the speed of one of the fastest dinosaurs of the word and have defined how the theropods ran. The taxonomic diversity of the trackmakers, the temporal span of the record and the disparity of environments in which the tracks are preserved make my capacity for transdisciplinary collaboration extremely important in order to succeed with this research.

My enthusiasm for science extends beyond academia. In 2017 and 2018, I organized periodic seminars at the UNRN intending to generate a discussion forum about scientific advances and their impact on society. I scripted the content and was a tutor in the MOOC course organized by EDX, from 2019 to 2021, called Dinosaurios de La Patagonia with more than 1000 students in each of the three editions. Thanks to a blog, El Vinosaurio, which I had for 5 years, I was able to venture into the dissemination of science, mainly palaeontology. Moreover, I participate in seminars, talks, science week, or presentations for high school students, university students, and the public in general, indeed some of them are uploaded on YouTube.

I am continually working with undergraduate and recent graduate students. They are part of my projects and accompany me both in the fieldwork and in the office. I have directed/am directing four CIN grants, that is, economic helps for advanced degree students in which they begin to venture into scientific research with the help of their supervisors. Moreover, I have experience in the direction of bachelor s degree thesis with one defended the last year, three early to finish and two starting. I also supervised two PhD thesis, one ongoing and one completed in 2020.

I serve as a member of the editorial board of the Spanish Journal of Paleontology and Serie de Correlaciones Geológicas and I have served as guest editor for Lyell Collection of Geological Society of London and Journal of African Earth Sciences. I have also been examiner/reviewer for four PhD and four Bachelor theses, and reviewer for research grants for several national and international panels including: the Centro Interuniversitario Nacional; Agencia Nacional de Promoción Científica y Tecnológica and the Italian Antarctic Scientific Committee.

I am in a continuous update of my knowledge. In recent years I have taken several 3D modeling courses taught by both private companies and public universities. I am also a UNRN postgraduate student entitled "Especialización en Docencia Universitaria" with which I hope to improve my role as a teacher.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	Ciencias y tecnologías medioambientales	
Área Temática:		
Nombre:	ESPIN LUJAN, SILVIA	
Referencia:	RYC2021-033598-I	
Correo Electrónico:	silvia.espin@um.es	
Título:	Contaminant-driven effects on physiology, growth and survival of wildlife species	

Resumen de la Memoria:

I am an ecotoxicologist conducting research to evaluate contaminant exposure and effects in wildlife. My interests are based on four main topics: -Identifying, quantifying and assessing the contaminants to which wildlife species are exposed to.

-Evaluating the stressor-driven effects on physiology, reproduction, growth and survival of wildlife and the pathogenic mechanisms of contaminants using a multi-biomarker approach.

-Assessing the protective role of calcium and other essential nutrients in birds inhabiting polluted environments.

-Providing warning of contaminant problems and key data for decision makers to prioritize substances for risk assessment and establishing protective actions.

During my research career, I have acquired solid skills and ample experience designing and executing fieldwork/experiments, developing cutting-edge lab techniques, and evaluating contaminant-driven effects. I have created a research line at the forefront of science based on almost 9 years of postdoc experience, showing my independence and leading potential. Some of my top contributions include the first reports on 50 element levels and related effects in wildlife, new blood threshold concentrations at which metals alter avian physiology, first ecotoxicological studies on avian species not previously studied, set up of state-of-the-science techniques for contaminants and biomarkers using non-destructive matrices and small sample volumes, and preparation of sampling protocols to ensure harmonization and increase capacities worldwide. I have worked 3 years and 8 months in international top-ranked institutions in UK, Norway and Finland. I have consolidated a wide international, multidisciplinary and long-lasting collaboration network involving researchers from >20 countries, with 258 co-authors according to Scopus.

My research has high impact in the scientific community, endorsed by a strong publication record (52 articles in top-ranked peer-review journals and 5 book chapters), a high number of citations (Scopus 884/Google Scholar 1225) for my career stage, and international recognition supported by invitations to collaborate in international projects with excellent results (Principal Investigator of 2 research projects and active researcher in 7 projects/international networks). All of this, combined with my dedicated role as mentor of students (1 PhD thesis, 14 Master/Degree theses) and teaching activities (425 ECTS in Degree/Master studies) for which I have received a Docent Innovation Project and positive student evaluations. These numbers are a positive outlier for a 36-year-old researcher who completed her PhD less than 9 years ago.

Resumen del Currículum Vitae:

I developed my PhD at the Univ. Murcia, UM (2013, International mention, cum laude and Extraordinary Doctoral Award). During my PhD studies I received a CIMO (Centre for International Mobility) and an ERASMUS grant to stay 3 months at the University of Turku, UTU (Finland). I have almost 9 years of postdoc experience. I was awarded my first postdoctoral grant by the European Science Foundation (ESF) and I spent 4 months (2013) in research centres in Norway and UK. From Nov 2013 to Dec 2016, I was postdoctoral researcher at UTU (Finland), developing both teaching and research. After that, I performed postdoc periods with a Saavedra-Fajardo contract (Séneca Foundation, 2017-2019) and a "Juan de la Cierva-Incorporación" contract (2019-2021) at UM, being Principal Investigator. I have received the I3 certificate (I3/2020/012). I have attained the following main achievements:

-Strong publication record: 61 publications, including 52 articles in top-ranked peer-review JCR journals (21 as 1st author, 19 as postdoc/cosupervisor/2nd author, 4 as last author/director, 8 in other positions; 16 without my PhD supervisors), accumulating 884/1225 citations, h-index: 17/19 (Scopus/Google Scholar). I have published 5 book chapters (2 as 1st and 3 as 2nd author) + 1 under review in recognized editorials (Elsevier/Springer/Wiley), 1 protocol, 1 SETAC Science Brief, and 2 non-indexed peer-review articles. Work presented in 80 international/national communications.

-Attraction of competitive funding and independence: Principal Investigator of 2 research projects (26,000 for research + my salary), researcher with active role preparing proposals in 2 national projects in Spain (228,967), researcher with active and pivotal role in 4 international networks/projects (2,218,905), and collaborator in other projects (476,060).

-Dedicated mentor: supervisor of 10 Master, 4 Degree theses (2016-2021) and 1 PhD (2021). Supervisor of 2 scientific missions in COST Action and host of international researchers.

-Internationalization: I have established a broad long-lasting collaboration network of international researchers through my active role in the ERBFacility COST Action, the Research Programme EURAPMON (ESF), and during my stays in Norway, UK and Finland. Overall, I collaborate with researchers from >20 countries.

-Position as associate editor in Ecotoxicology (Springer) and guest editor in Toxics (MDPI), and served regularly as reviewer for over 10 top-ranked international journals. Member of 2 PhD and 15 MSc theses defense committees. Organizer of 8 international workshops/conferences. Chair and organizer of 2 sessions in the SETAC Europe Meeting 2021 and 2022. Reviewer of Grant Proposals for the Natural Sciences and Engineering Research Council of Canada, the Research Foundation-Flanders (FWO), and member of the reviewer board of the Agencia Estatal de Investigación (AEI).

-Teaching Toxicology in Degree and Master studies at UTU and UM (425 ECTS). Docent Innovation Project awarded at UM 20/21 (Coordinator). Accredited (ANECA) to Profesor Contratado Doctor (02/2019). Positive student evaluations at UM (4.33/5 in 19-20 and 5/5 in 20-21).

-Dissemination: protocols, interviews in newspapers, talks, training sessions, news and videos published periodically in personal/institutional webpage and Twitter, among others.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general Área Temática: Ciencias y tecnologías medioambientales Nombre: MUÑOZ SOLORZANO, ANGEL GARIKOITZ **Referencia:** RYC2021-034691-I **Correo Electrónico:** agmunoz@iri.columbia.edu Título: RyC Ángel G. Muñoz - Climate Prediction & Services

Resumen de la Memoria:

I m an Associate Research Scientist (ARS) at the International Research Institute for Climate and Society (IRI), working for both Columbia University s Climate School and the Earth Institute at Columbia University. At the IRI, I lead multiple research and development (R+D) teams and projects, mainly focused on Latin America and the Caribbean (LAC), and North America.

My main research interests are:

(a) physically-based diagnostics and prediction of climate variations across timescales from intra-seasonal to climate change;

(b) development of cross-timescale prediction methodologies and reliable forecast systems of society-relevant variables especially but not only in developing countries; and

(c) the development of climate services for food security, climate-and-health, and climate-related hazards around the world.

My work has followed a demand-driven approach to directly co-develop with local and international partners the best possible climate services for society. Hence, my work can be roughly divided in 50% research, and 50% implementation of operational products.

In terms of research, I have made important contributions on assessing how cross-timescale (non-linear) interferences of climate modes impact predictability and models predictive skill at subseasonal-to-interdecadal scales; how these interferences can be used to diagnose process-based biases in state-of-the-art climate models; the development of tailored, reliable prediction systems across timescales; predictive skill evaluation; local and pattern-based model calibration methods; and the development of publicly-available software to conduct all these tasks.

My main societal contributions consist on supporting the co-development of climate services with decision makers around the world, by combining analysis of past information and monitoring present conditions to provide context to decision makers, and then using that context to produce and interpret calibrated, reliable and tailored predictions across timescales of both climate and non-climate user-relevant variables. An important component of my climate services work has to do with how to best translate, transfer and use the co-developed products into decision-making frameworks, and how to use financial instruments (e.g., index-based insurance and forecast-based financing) to increase society s resilience to climate hazards.

Resumen del Currículum Vitae:

I hold a MA, a MPhil and a PhD in Earth and Environmental Sciences from Columbia University s Department of Earth and Environmental Sciences (DEES), under the supervision of Dr. Lisa Goddard; and had a 2-year PostDoc joint position at Princeton University s Atmosphere and Ocean Sciences (AOS) Program and NOAA s Geophysics Fluid Dynamics Laboratory (GFDL), under the supervision of Dr. Gabriel Vecchi. I studied Physics at Universidad del Zulia (Venezuela), originally working on General Relativity and Cosmology, before migrating to Climate Physics.

To date, my career has focused on (a) process-based diagnostics and prediction of climate variations at multiple timescales, (b) developing crosstimescale prediction methodologies and reliable forecast systems especially in developing countries--, and (c) the development of climate services for food security, climate-and-health and climate-related hazards around the world. IRI s approach, and my work in particular, directly benefits society through the co-development of climate services; it is a demand-driven approach involving a strong component on operational climate services development, rather than a research-only approach focused on academic productivity.

I have published 64 peer-reviewed papers so far -29 since 2018-, with 3 others being right now in review, and 3 more about to be submitted. Most of these publications illustrate my main contributions to the scientific community and also to society, as they describe my work on how cross-timescale non-linear interferences of climate modes impact predictability and models predictive skill of (extreme) climate events at subseasonal-to-interdecadal scales; how these interferences can be used to diagnose process-based biases in state-of-the-art climate models; and how we can support the development of climate services around the world, by combining analysis of past information and monitoring present conditions to provide context to decision makers. This knowledge is then used to produce and interpret calibrated, reliable and tailored predictions across timescales of both climate and non-climate user-relevant variables. An important component of my climate services work concerns how to best translate, transfer and use the co-developed products in decision-making frameworks, and how to use financial instruments (e.g., index-based insurance and forecast-based financing) to increase society s resilience to climate hazards.

At Columbia, I have been directly leading and supervising a team of 4 PhD students, 1 PostDoc, 1 Staff Associate III, 1 Staff Associate I, 1 Senior Staff Assistant, and have also contributed to the research outcomes of 3 other PhD students at DEES, and 2 PostDocs, 3 computer scientists and 2 earlycareer climate scientists at the IRI. While Associate Professor in Venezuela, I supervised 3 Physics undergrad and 2 Physics master students. As a team leader at the IRI I have been directly responsible to secure about US\$1.4 million in R+D funding as PI, and I have contributed as CoPI/CoI/Country Lead to bring more than US\$2 million to the IRI.

Another very important component of my international work involves training and technological transfer activities, reviewer for top scientific journals and participation in scientific committees. I presently serve as co-chair of several international committees.



	Turno de acce
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	RUH , JONAS
Referencia:	RYC2021-031331-I
Correo Electrónico:	jonas.ruh@erdw.ethz.ch
Título:	Numerical modelling of tectonic processes
	-

Resumen de la Memoria:

As a structural geologist and geodynamicist, my research goa lis to increase our understanding of the mechanics and dynamics of lithospheric deformation across diverse spatial and temporal scales. To reach this goal, I apply numerical techniques combined with structural field geology and geophysical, sedimentological, and petrological data aquisition, such as paleomagnetism, low-temperature thermochronology, and provenance analysis.

During my PhD at ETH Zürich, I combined field observations with the development of the first 3D numerical sandbox experiments of accretionary wedges that allow for large strain along narrow shear zones mimicking imbricated thrusts. I furthermore conducted magnetistratigraphic sections in southern Iran to measure the timing of fold rotation during accretion, allowing for a direct comparison and validation of numerical results.

As a Marie Curie PostDoc fellow at the Sorbonne University, Paris, I presented numerical experiments that could explain how crustal terranes may get detached and exhumed along subduction zones. Furthermore, at the ICM CSIC in Barcelona, I developed 3D numerical experiments of seamount subduction indicating their impact on upper plate deformation and demonstrating their importance for subduction zone seismicity.

With a single-PI grant (250,000) as an SNSF PostDoc fellow at the Geo3BCN CSIC in Barcelona, I presented new insight in the temporal and structural evolution of the Kopet Dagh mountains and the greater Arabia-Eurasia collision zone by conducting a truly integrated approach including numerical modelling, LT thermochronology, provenance analysis, and paleomagnetism. Results showed that the Kopet Dagh uplift dates back to ~30 Ma affected by the Zagros continental collision farther to the south.

As a lecturer at ETH Zürich, I focus on further developing my numerical tools, which resulted in many collaborations, shifting my action towards supervision and mentoring, while I still conduct individual research. I conducted integrated field and numerical studies investigating the effect of textural and grain-size-related weakeing for the initiation of small-scale shear zones and furthermore tested the effect of grain-size reduction for mantle rheology affecting the strength of plate boundaries.

In the near future, my plan is (1) to develop necessary numerical tools that allow a fully coupled fluid-solid flow for large-scale tectonic systems and (2) to investigate the importance of grain size on mantle and crustal rheologies that strongly affect the overall strength and seismogenic potential along plate boundaries, aiming at increasing our understanding of Earth material mechanics and rheology. Such findings are crucial to investigate intraplate seismicity, where elastic loading and stress release by rupture is mainly controlled by the rocks, in which they appear. These plans can best be accomplished by an interdisciplinary approach at the Institut of Marine Sciences (ICM) CSIC in Barcelona, where numerical models can be integrated with world-leading subsurface geophysical data aquisition from active plate margins and sedimentary basins.

Resumen del Currículum Vitae:

My research focuses on lithospheric deformation across all spatial and temporal scales. This includes micro- and mesoscopic processes like dynamic grain size evolution, fluid flow as a response to transient seismogenic processes, but also the large-scale and long-term tectonic evolution along plate boundaries. To address these topics, I combine a range of geological and geophysical techniques including mechanical numerical modelling, structural fieldwork, paleomagnetism, geo- and thermochronology, and seismic data interpretation allowing for a comprehensive approach to solve timely scientific questions.

I obtained a BSc, MSc, and PhD (for which I received ETH Silver Medal) from ETH Zürich (1st worldwide in Earth Sciences). I was a Marie Curie PostDoc at the Sorbonne University in Paris and the ICM CSIC in Barcelona. I was an SNSF PostDoc at the Geo3BCN CSIC. Currently, I am lecturer at the ETH Zürich.

I develop and permanently improve open-source numerical codes that simulate complex tectonic processes (Norma : DOI: 10.3929/ethz-b-000490633). These codes allow for a wide range of application, which include cm-scale evolution of brittle-ductile shear zones, crustal-scale structural evolution of mountain belts, and mantle-scale subduction dynamics. This numerical tool resulted in scientific recognition across the geoscientific community, allowing me to conduct independent research at the highest level, and prospering collaborations with scientists from top institutes around the globe.

I conducted extensive structural fieldwork and data sampling for paleomagnetism, geo- and thermochronology, provenance analysis in the Himalayas, the Alps, the Andes, and the Makran, Zagros, Alborz, and Kopet Dagh mountains in Iran, with the aim of integrating fieldwork, geophysical data collection and numerical experiments to obtain a more comprehensive insight into lithosphere- and mantle-scale processes.

As a lecturer at ETH Zürich, my teaching includes structural geology, geological mapping, numerical modelling, and structural field courses at the Bachelor and Master level. I currently supervise and previously (co-)supervised 5 PhD, 5 MSc and 4 BSc students and I am an active collaborator in scientific projects across the globe, including several MSc, PhD and PostDoc fellow that apply my numerical codes. My track record includes 28 SCI journal articles (14 first author, 4 single author, 7 second author) with a total of ~500/680 citations, an i10-index of 14/19 and an h-index of 12/13 (WoS/GoogleScholar). I am furthermore committed to serve the scientific conferences, and a proficient reviewer for scientific journals (25+ reviews per year).



	runo de acc
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	BENITEZ LOPEZ, ANA
Referencia:	RYC2021-031737-I
Correo Electrónico:	abenitez81@gmail.com
Título:	Global change biology and Macroecology

Resumen de la Memoria:

I am an ecologist with broad interests in spatial ecology, macroecology, biodiversity conservation and global change biology. I am interested in the factors that determine species distributions and species abundance, with an emphasis on the effect of anthropogenic drivers and how these may drive local populations or species to extinction.

I collate, curate and synthesize existing wealth of data from a myriad of studies to conduct systematic reviews and meta-analyses, and combine these with datasets from diverse sources, including remote-sensing products, trait databases, and phylogenetic trees, to answer questions in macroecology, global change biology and conservation science. I also collect data in the field using camera traps, acoustic monitoring, and GPS trackers, and analyze these data using statistical models of varying complexity. I work at the interface between local scale ecology studies, macroecology and (large-scale) conservation, by swiftly transferring data and tools from one discipline to the other in order to better understand the mechanisms, interactions and impacts of global change drivers on ecological communities and ecosystem functioning.

I have established functional response curves describing density reductions in vertebrates in order to quantify the spatial footprint of roads at global scale. Further, I have developed a novel modelling framework to predict hunting-induced defaunation patterns across the tropics, and have made publically available the first high resolution maps of mammal defaunation due to hunting impacts, a pressure that was previously not considered in large-scale biodiversity assessments due to data paucity. Three follow-up projects stemming from my defaunation models quantify the synergistic effects of land use change and hunting pressure in mammal communities in the Gran Chaco and across the tropics. I am also involved in extinction risk research via the development of tools that can assist Red List assessments (sRedList). Further, my research has contributed to strengthen the scientific underpinning of the model GLOBIO, which is routinely used to inform the IPBES and governmental bodies on the status and trends of biodiversity for the present and for future socio-economic pathways.

My JdC project has been focused on the quantification of the cascading effects of defaunation on the ecosystem functioning of tropical forests. I am interested in understanding how the population declines and loss of seed dispersers, seed predators and herbivores may result in altered patterns of forest regeneration in the tropics via disruptions in fruit removal, seed dispersal and seedling recruitment.

I have just been awarded an EMERGIA grant to study the consequences of defaunation for community assembly, ecological networks, functional diversity, and forest regeneration in the tropics. This project aims to enhance our knowledge of the spatial relationship between carbon storage and tropical biodiversity in order to maximize conservation co-benefits which can inform climate change mitigation schemes such as REDD.

A parallel line that I am developing tries to elucidate macroecological patterns of trait variation in vertebrates along latitudinal and thermal clines (Bergmann rule) and the effect of different selective pressures on insular body size evolution (Island rule).

Resumen del Currículum Vitae:

I started my research career as a junior researcher at the Netherlands Environmental Assessment Agency (PBL), evaluating the impacts of infrastructure on vertebrate populations. Then I got my PhD in 2014 from University of Castilla-La Mancha, with a thesis on the ecology, niche partitioning and conservation of sandgrouse species which resulted in 6 peer-reviewed scientific papers. During my postdoctoral years at Radboud University in the Netherlands I steered my research towards large-scale conservation research, macroecology and global change biology, with a particular interest on the behavioural, demographic and functional responses of wildlife to global change drivers (land use change, overhunting and climate change). I also started to develop a new research line looking at the factors governing body size variation along latitudinal clines or under selection pressures in insular environments. In 2019 I moved back to Spain funded by a JdC-Inc grant to join Pedro Jordano s lab at Estación Biológica de Doñana (EBD-CSIC) in Sevilla. During my JdC grant I published 22 papers and mentored two MSc students whose theses were published in peer-reviewed journals. I also secured funding for the project GANGAMOVE awarded by the Organismo Autónomo de Parques Nacionales (OAPN).

To date my research has resulted in 41 publications (40 published, one accepted), 2 books chapters and one book, with >1900 citations (h= 17, i10 = 25, 48 cit./paper, Google Scholar). I have published 63% of my papers as first, second or senior author, and the rest as middle author. Most of my articles have been published with international collaborators (28/41, 68%). I am or have been Principal Investigator in 3 research projects and 3 international research contracts, and have participated or participate in 10 national and international R&D projects. Total research funding amount to 2 960 889 (483 016 as PI). I have presented my research as lead author in multiple national (4, 2010 and 2021) and international events (8, 2016-2021). Additionally I have given 11 invited talks in national and international institutions including the University of Queensland (AU, 2021), University of Sevilla (ES, 2021), or Oxford University (UK, 2021). The total media attention of my research is 4604 according to Altmetric, including 10 Wikipedia pages, more than 100 news outlets worldwide, and multiple policy documents. I have supervised 15 MSc and 1 BSc theses, which have resulted in 3 scientific papers and one popular science article. I am currently supervising 3 PhD theses. I teach and co-coordinate 1 MSc course at the Universidad Rey Juan Carlos (URJC, Spain), and I have taught 1 MSc course at Radboud University (RU, Netherlands) for 4 years. I also serve as Senior Editor of the journal Diversity and Distributions (2019-2021 as AE) and as Associate Editor of the journal Environmental Evidence. I have reviewed more than 90 papers for scientific journals. I also have served as expert reviewer in several funding calls for Agencia de Evaluación de la Investigación (AEI, 2021), European Research Council (ERC-SYG, 2020) and Agence Nationale de la Recherche (ANR, 2019). I have been in the evaluation panel of 2 doctoral theses, and 2 MSc theses programs (URJC, UPO, 2019-2020). I am a member of the Scientific Committee of the 6th ECC



Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	MORENO AZANZA, MIGUEL
Referencia:	RYC2021-034473-I
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Título:	Biominerals, reproduction and the tree of life

Resumen de la Memoria:

The most productive areas for research advancement and excellency often lie at the intersection of disciplines. I have developed my career at the interface between Mineralogy and Palaeontology, incorporating tools from Material Sciences and Geochemistry. I have studied fossil and recent eggshells of amniotes that produce mineralized eggshells, focusing my research on how the eggshell is formed, and what eggs and eggshells teach us about the behaviour and physiology of extinct animals, including parental care, embryo development and nesting strategies. I also focus on egg taphonomy, not only to rule out possible artefacts of fossilization that might mask eggshell features, but also to infer the conditions of the depositional environment in which the fossils are found.

I have developed an analytical protocol for studying fossil eggshells using electron backscatter diffraction (EBSD), a material science tool that only in the last decade has been incorporated into the analysis of palaeontological materials. I use this in combination with other analytical techniques such as atomic force microscopy, x-ray diffraction, and scanning and transmitted electron microscopy, to gain a better understanding of how the biomineralization of eggshells occurs. This methodology has been followed by several foreign institutions and is becoming the standard in fossil eggshell biomineralization and taphonomy studies,

I am submitting my proposal to secure funding for myself and continue with my current projects on eggshell biomineralization and fossilization. I plan to build a lab to continue this line of research and extend these methodologies to other modern and fossil biomineralized tissues, exploring osteogenesis and bone fossilization. I want to further expand the methodologies listed above to the study of fossil and recent bone, with particular interest in the early stages of fossil-diagenesis, and how these affect the physical properties of the specimens, seeking an answer to one of the main questions of palaeontology: how fossils are formed, and what is needed for a specimen to be preserved.

Resumen del Currículum Vitae:

Palaeontologist with background in geology and mineralogy. Main interests in vertebrate evolution and biomaterials. PhD in Earth Sciences at the Universidad de Zaragoza (Unizar, Excellent Cum Laude and European Mention). Specialist in amniote eggshell structure. Author of 63 publications and +60 communications, with invited talks in Spain, Portugal, Argentina, Japan, and China.

Expertise with analytical techniques, capable of operating an electron microscope. I developed an experimental procedure for characterizing eggshell structure using electron backscattered diffraction (EBSD) in fossil eggshells, to explore eggshell formation and fossilization. This procedure is now being followed by palaeontologists in Europe, the US, and South Korea.

Preference for field palaeontology, I direct yearly field works in Spain and Portugal. I have documented over 100 new palaeontological sites.

Proficient in parsimony and model-based phylogeny, I work on a variety of vertebrate clades, including archosaurs and mammals. I have named 8 species and 5 ootaxa. I have published scripts for cladistic analysis.

I undertook research internships at Liverpool University (UK), Montana State University (US) and Universidad Nacional de Río Negro (Argentina) and shorter internships in Italy, Australia, and Spain. I am currently a Maria Zambrano researcher at Unizar, after two postdoctoral positions (6 years) at the Universidade Nova de Lisboa (UNL, Portugal). I have an extensive international collaboration network, co-authoring papers and working on projects with researchers from in Spain, Portugal, UK, Argentina, US, Hungary, Romania, Slovak Republic, China, and South Korea.

I lead a team of 7 researchers working on the evolution and formation of archosaurian eggshell, funded by Portugal (FCT) with over 237 000 , including researchers from the UNL, the Universidade de Aveiro, as well as contracts with Montana State University and Unizar.

I was recently awarded a second FCT grant, over 249 000 , to explore the role of the Iberian Peninsula in the paleobiogeographic distributions of vertebrates. I am PR of 18 researchers from UNL and Universidade de Aveiro (Portugal), and Universidad Complutense de Madrid and Unizar (Spain). Extensive teaching experience, (ANECA Profesor Ayudante Doctor). I have directed 3 master theses. Currently supervising 3 PhD theses. I taught

Vertebrate Palaeontology at the UNL, where I currently teach Taphonomy as invited professor.

Director of a large dig in the Pyrenees, featured in +100 media. I am building a lab/museum, to manage the fossil preparation and dissemination of this project. I secured over 30 000 from local institutions. This site is the heart of a project funded by MCIN with over 350 000.

Interested in the transmission of knowledge, I wrote, codirected, and presented 2 documentaries, one of them awarded with 4 prizes. I worked as museum designer at PALEOYMAS, writing museums, outdoor routes, and apps. I lead the outreach program: MicroSaurus (29 000), using collaborative science for collecting Jurassic microfossils.

I am vice-president of the Sociedade Portuguesa de Paleontologia, working on the draft of the Paleontological heritage law of Portugal, aimed at providing legal framework for fossil protection and paleontological work in the country. I have 33 verified reviews in Publons, and editor of Earth Sciences Journal.


Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	LURGI RIVERA, MIGUEL
Referencia:	RYC2021-032551-I
Correo Electrónico:	miguel.lurgi@icloud.com
Título:	Towards a mechanistic understanding of the assembly and disassembly of complex ecological networks
Desument de la Manag	i

Resumen de la Memoria:

I received my BEng degree in Computer Engineering from the Universidad Simón Bolívar, Caracas, Venezuela. During these early stages of my academic career, I became interested in different aspects of bio-inspired computation that I would later on apply to the development of artificial intelligence (AI) and eventually to the understanding of ecological systems. During my degree I developed genetic algorithms, artificial neural networks, and other bio-inspired computational techniques to solve classification, search, and optimisation problems. I continued the development of my interests in AI and bio-inspired computation at the University of Sussex in the UK, where I obtained a MSc degree in Evolutionary and Adaptive Systems. Incorporating ideas from evolutionary theory, I developed an evolutionary robotics approach to implement autonomous classical conditioning in artificial agents.

My previous research experience on multi-agent systems and background in bio-inspired computation allowed me to develop an interdisciplinary research project bringing together business and informatics, as a Research Fellow at the University of Edinburgh, UK, while at the same time completing an MRes degree in AI. The aim of this project was the development of a digital business ecosystem to promote collaboration among small and mediumsized enterprises. This research focused on the development of ecologically inspired networks of autonomous interacting agents. I developed ecological and evolutionary rules for interactions and coordination between autonomous virtual agents that facilitated the emergence of complex networks of interactions between them, in similar ways to those observed in real ecological systems.

The potential for the implementation of autonomous, intelligent systems using ecologically inspired techniques, sparked a personal interest that I have always had for nature and to understand how complex ecological systems work. Armed with the necessary computational skills to study and analyse complex ecological systems I decided to focus my academic career on developing a better understanding of ecological systems using computational approaches. In 2014, I completed a PhD in Terrestrial Ecology. I developed my postgraduate research jointly at the Centre for Ecological Research and Forestry Applications of the Autonomous University of Barcelona, and the Marine Sciences Institute of the Spanish National Research Council in Barcelona. My PhD research focused on the assembly and disassembly of complex ecological systems. This research theme has persisted throughout my academic career.

Throughout different postdocs at the University of Adelaide in Australia, the Theoretical and Experimental Ecology Station of the CRNS in France, and more recently as a Senior Lecturer at Swansea University, UK, I have developed cutting-edge research in several ecological research areas such as:

Understanding and predicting the effects of global change on complex ecological networks

The influence of multiple interaction types on the assembly and disassembly of ecological networks

The assembly of complex microbial communities.

The scaling of complex ecological networks across space: From local to global

Addressing applied ecological conservation challenges through mechanistic models

Landscape-scale dynamics of disease spread

Resumen del Currículum Vitae:

My research focuses on investigation of biodiversity patterns, in particular the organisation of complex networks of ecological interactions across temporal and spatial scales. An important aspect of this research is the understanding of the mechanisms that give rise to these patterns. My research has generated new knowledge and ideas on their ecological and evolutionary drivers. Another central topic of my research is the application of the knowledge thus generated to a better understanding and prediction of the effects of different aspects of global change on natural communities, and more recently, of the drivers of disease transmission in wildlife populations. My research findings have revealed how ecological communities and networks of species interactions have responded, and are expected to respond, to environmental perturbations such as climate warming, habitat loss, invasions and species loss.

I adopt an interdisciplinary theoretic-empirical approach merging the development of computational and mathematical theoretical models for ecological systems, with the analysis of large, complex datasets using sophisticated analytical tools. With the aim of developing general knowledge across ecological scales, I focus on both macroecological systems such as continent-wide vertebrate terrestrial communities or marine rocky shore intertidal communities, and microbial systems such as the microbiome associated with marine sponges. My multidisciplinary background, encompassing aspects of computer science such as artificial intelligence and complex systems, and more recently (after my PhD), ecological theory, complex networks and community ecology, have allowed me to develop an integrated set of scientific-technical capabilities that allow me to tackle challenging problems in ecology.

This highly interdisciplinary (encompassing computer science, mathematics, theoretical and empirical ecology -both microbial and macroecological-, and biogeography) is reliant on my extensive network of scientific collaborations, and has developed over the last few years when I have taken research positions in different research institutions around the world, including the University of Adelaide in Australia, the CNRS in France, and Swansea University in the UK. I have developed collaborations in several institutions around the world such as the University of New South Wales and the Australian Institute of Marine Science, Australia (for microbial research), the Coastal Marine Research Station of the Pontifical Catholic University of Chile (intertidal communities), the University of Grenoble, France (biogeographical terrestrial networks), the Theoretical and Experimental Ecology Station of the CNRS, France (theoretical and analytical aspects of networks and community ecology), and the University of Tasmania, Australia (for research on disease dynamics).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

My research has resulted in the publication of over 40 scientific articles, book chapters and papers in peer-reviewed conference proceedings. These publications have collectively attracted nearly 1900 citations (Google Scholar, 2nd Feb 2022) with i10- and h- indices of 20 and 17 respectively. I have been awarded research funds for different aspects of my research by different organisations such as Microsoft Research, the British Ecological Society, the European Commission, and governments and research councils (Spain, Wales, Chile).



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

 Área Temática:
 Ciencias y tecnologías medioambientales

 Nombre:
 LEVERKUS , ALEXANDRO B

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 RYC2021-033366-I

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 Título:
 Conservación de la biodiversidad, regeneración de ecosistemas y restauración ecológica ante cambios en el clima y los regímenes de perturbaciones

Resumen de la Memoria:

My main research lines are on plant regeneration, disturbance ecology (incl. fire ecology), and the conservation and restoration of ecosystem services. In my dissertation, I assessed the factors affecting the post-fire natural and assisted colonisation by oaks under multiple post-fire management scenarios. I study plant-animal interactions influencing recruitment such as seed dispersal including the modelling of dispersal kernels, granivory and herbivory, and the performance of regeneration through resprouting, germination, seeding and plantation along environmental gradients. I use ecophysiological assessments in greenhouse and field experiments to gain insights on the drivers of plant abiotic stress. I co-invented the seed shelter, a device to protect seeds for reforestation with two patents that are under commercial exploitation.

I am interested in the factors that govern whether seedlings perform better through plantation or direct seeding during assisted regeneration. Under several collaborations and my ongoing grant from the Ministry of Science, I am pursuing a systematic review on the balance of seeding vs. planting globally, following a published review protocol. I recently proposed an experiment on seeding and planting with native oaks across Europe, for which I published an peer-reviewed open-access study protocol, and which is being replicated at dozens of sites in 16 countries. In an additional field experiment, I am assessing the mechanisms that drive effects of revegetation methods under climate change for species with contrasting traits related to water demand. I have also collaborated in two projects funded at IFAPA Andalucía on the assisted regeneration of dehesas. Ultimately, I aim to propose ways forward to improve the science of restoration ecology and its practice.

I am conducting field and review studies to assess how multiple disturbances affect the provision of ecosystem services and alter plant communities. Under a recent grant by the British Ecological Society (BES), I studied the effect of multiple disturbances on plant regeneration in Doñana. A LifeWatch scheme is funding the resampling of post-fire management experiments after nearly two decades of succession. I participate in several global reviews on disturbance ecology and/or plant regeneration led by myself and scientists from other European and North American countries. A key project I already accomplished was a systematic review on the environmental effects of post-disturbance logging, which produced several high-impact publications including a systematic map, two meta-analyses, a conceptual paper, a policy paper, and three open-access datasets, as well as strong international collaborations and specific management recommendations. My ongoing review, funded by the BES, addresses the effects of single vs. multiple disturbances on plant community functional composition. The ultimate aim is to understand, predict, and properly manage interacting disturbances included those directly imposed by humans under intensifying disturbance regimes.

Resumen del Currículum Vitae:

I am researcher at the University of Granada (UGR), PI of a grant from the Spanish Science Ministry. I previously held postdoctoral fellowships at the U. of Würzburg (UW), U. of Alcalá (UAH), and UGR. In Nov 2015, I defended my Ph.D. at UGR (cum laude, International award, best-PhD award). Through international research stays, I have spent 22.5 months at Imperial College London (UK), U. of Padua (Italy), UW, and SLU (Sweden). I participate in in two Working Groups of a funded COST action and in 3 funded projects (by LifeWatch, FEDER and IFAPA) besides those that I lead (one by the Spanish Government and one by the British Ecological Society).

I have received research grants by the British Ecological Society (twice), its Spanish counterpart (AEET), and the Spanish Government. Since Jan 2019 I am Associate Editor at Journal of Applied Ecology, where I also prepared a cross-journal Virtual Issue involving 6 journals. I have taught university courses at UGR (Bach. in Biology and Environmental Science), UAH (Master in Ecosystem Restoration and Bachelor in Environmental Science), Menéndez Pelayo International U. (Master in Tropical Biodiversity), and the Study Abroad Programme of Arcadia U. (PA, USA, undergrad. course in English). I have communicated my research in ~50 talks, seminars and posters in Spain, Germany, Sweden, France, Belgium, UK, USA, Mexico, and online. I am a proficient speaker of English, German, and Spanish, and intermediate of French.

My scientific output includes 54 peer-reviewed publications, 2 commercially exploited patents, and several technical and outreach publications. I have obtained 16 personal funding grants and participated in 16 research projects funded locally to internationally, incl. 4 as Pl. My 43 publications in JCR-indexed journals are mostly in Q1 or Q2 of Ecology, Multidisciplinary, Forestry, and Environ. Sci. They include 23 as lead author, 3 led by my Ph.D. student, and 10 as co-author from international collaborations. I have published as lead or senior author in Science, Nat. Comm., Front. Ecol. Environ., Glob. Ecol. Biogeo., Environ. Res. Lett., Ecology, J. Ecol., Ecol. Appl., etc. My papers include an array of research methods and output types, including local field-based studies on basic and applied scientific questions, systematic reviews and meta-analyses, policy papers, short communications, opinion pieces, protocols, conceptual advances, and pilot tests for new inventions. I have obtained 1069 citations; h = 19; i10 = 27 (GS). I have peer-reviewed 47 papers for 21 journals and reviewed proposals for AEET, BES, and the Spanish Research Agency.

I have directed 7 master s projects and 1 undergraduate thesis, and co-supervised one Ph.D. thesis (one more in progress). I have had 5 student assistants (alumnos internos) and am currently responsible for 4 technical staff; one Margarita Salas postdoc will work with me in 2023. In 2021, I proposed a continental-scale experiment and published the methods thereof; at present, 73 researchers from 16 countries have confirmed their participation and replicated the experiment.

I was granted Profesor Titular by ANECA, Investigador Nacional by the Mexican Science Council, and Profesor Honorífico by University of Alcalá. I have made several press releases about research findings, written outreach publications, and made interviews for newspapers, radio, and TV.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

runio de deceso Seneral
Ciencias y tecnologías medioambientales
ALCALDE MARTIN, JUAN
RYC2021-033872-I
juan.alcalde.martin@gmail.com
Geophysical characterisation and modelling of the subsurface to combat climate change

Resumen de la Memoria:

I am currently a Juan de la Cierva-Incorporación Research Fellow at Geociencias Barcelona (Geo3Bcn-CSIC) since January 2020. I have a PhD in Earth Sciences with International mention from the University of Barcelona. After completing my PhD, I have held postdoctoral research positions at the University of Edinburgh (UK) for 1.3 years, at the University of Aberdeen (UK) for 3 years and at the Institute of Earth Sciences Jaume Almera (ICTJA-CSIC) for 2 years and my current fellowship at Geosciences Barcelona for 2 years.

My research focuses on geophysics, subsurface geology, structural geology, tectonics and cognitive science. My work integrates acquisition, processing and interpretation of reflection seismic combined with other geophysical/geological data to image and understand the architecture and evolution of subsurface structures, with particular focus on their use for geoenergy applications in the Energy Transition (carbon capture and storage, underground hydrogen storage, geothermal energy), geo-resources exploration and structural/tectonic interpretation. I carry out both fundamental and applied research, and transfer research results to non-academic communities, including public engagement. I have participated in several large research consortia and international projects funded both by public funding bodies and industry, including EU Horizon2020 & Horizon Europe. I have participated in 20 research projects (with a total budget of >22 Million), and I have been principal investigator of three of them (with a budget of 300,000). My research topics are structured in three lines of research:

My first line of research focuses on the characterisation, resource potential appraisal and risk assessment of geological structures for their use in different subsurface applications to fight climate change, achieve the Energy transition and secure our sustainable future. My research focuses on different subsurface applications, such as carbon capture and storage (CCS), underground hydrogen storage, risk assessment of subsurface operations and sustainable exploration of raw materials.

My second line of research, involves the development and use of geological and geophysical methods for the multiscale characterisation and modelling of subsurface structures and processes. This line aims towards exploring the nature, composition, evolution and current configuration of the different elements that constitute the solid Earth. To address the study of our planet, I combine geological and geophysical methods to constrain and model subsurface geological structures and processes across multiple scales, from the lithosphere, where tectonic forces control plate scale deformation, to the near surface, which yield most of the raw materials that support our society.

My third line of research involves the study of uncertainty in the interpretation of geological and geophysical data to minimise cognitive biases and improve interpretation outcomes. Unlike other scientific disciplines Geoscience is fundamentally an interpretational discipline. This interpretational component makes the process of geological knowledge generation particularly sensitive to the effect of cognitive biases. I use tools from Psychology and Cognitive Science to identify and analyse these effects and propose potential mitigating factors to improve the interpretational results.

Resumen del Currículum Vitae:

I hold a BSc in Geology (2009) from the University of Salamanca, an MSc in Geophysics (2011) and a PhD Cum Laude with International Mention in Earth Sciences (2014) from the University of Barcelona, funded by a CIUDEN Foundation fellowship. I have eight years of postdoctoral experience, including five years of international experience in highly ranked research institutions (universities of Edinburgh and Aberdeen, UK). I currently hold a Juan de la Cierva-Incorporación fellowship at the Geosciences Barcelona (Geo3Bcn-CSIC) institute.

My publication record includes 35 peer-reviewed journal articles (five more in review) and 1 book chapter. 28 publications are indexed in Web of Science (17 in Q1 journals, 10 of them in journals in the first decile), 11 of these as first author and 8 as second, and my work has been cited 560 times (h-index=12, Google Scholar). I won the Best Recent Paper Award by the American Association of Petroleum Geologists (AAPG) in 2018. I have participated in multiple dissemination and outreach activities, including talks in universities, private companies, social associations, etc., appearing in press media (TV shows, radio and newspapers).

I have obtained 287,000 in funding in three projects as Principal Investigator (PI) or co-PI. In total, I have participated in 20 research projects (total funding of over 22 million) funded by the Spanish, Chinese and British Governments, as well as the European Commission via ERANET, EIT, Horizon2020 and, more recently, Horizon Europe (two projects as Task Leader, funded with 7.5 million each).

I have supervised to completion 1 PhD thesis (2021), 9 MSc theses (2017-2021) and 1 BSc thesis (2022). I am currently supervising 1 PhD thesis and 1 MSc thesis, and will supervise 1 Phd and 1 postdoctoral researcher from 2022 as part of a new project awarded as PI. I have been principal lecturer at different courses at the University of Edinburgh and Aberdeen, and I regularly teach different courses at the Reservoir Geology and Geophysics master at the University of Barcelona. I hold the accreditations of Professor Lector (2019) by the Catalan University Quality Assurance Agency (AQU), and Profesor Ayudante Doctor , Profesor Contratado Doctor and Profesor de Universidad Privada by ANECA (2021). I was panel member of 1 PhD thesis at the Universidad de A Coruña (2016). I have reviewed articles for 16 different journals (e.g. Nature Climate Change, Solid Earth, Tectonophysics), 2 books and an IPCC Report (2022). I have been editor of two Special Issues at Solid Earth and I am currently editing a book from the

GSL Special Publications.

I have more than 80 contributions to conferences in a wide range of national and international events (e.g. EGU, AGU, AAPG, EAGE, Geological Society, SGE etc) and invited talks at different events (seminar series, summer schools) in Spain, Italy, Netherlands and the UK. I have been convener of six different sessions at EGU (2018-2021), EAGE (2020) and SGE (2021) and member of the organising committee of the 21st DRT International Conference (2017). As convener, I led the organisation of the SIT4ME workshop in 2020, attended by 100+ participants from 25 countries. I have done funded research stays at Uppsala University (Sweden) in 2011 (4 months, predoctoral) and 2012 (14 days, predoctoral) and ICM-CSIC (Spain) in 2018 (4 months, postdoctoral).



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	ANTON GAMAZO, ANDREA
Referencia:	RYC2021-033047-I
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Título:	Towards a better understanding of global change on marine ecosystems

Resumen de la Memoria:

I am a marine biologist interested in understanding the effect of global change on ecosystems. More than 90% of my professional scientific career has taken place in foreign universities. I completed my Master (Dauphin Island Sea Lab 2007) and PhD (University of North Carolina-Chapel Hill 2013) in the USA, specialising in marine pollution and invasive species. After defending my PhD, I took a career break of over 2.5 years to start a family. In 2016 I began a 4.5 yearlong postdoctoral position at KAUST (Saudi Arabia), where I joined a vibrant research group, expanded my research lines on ocean warming and invasive species, and began collaborations with top international researchers. In 2020 I joined IMEDEA-CSIC (Spain) with a competitive national Juan de la Cierva-Incorporación fellowship to further develop my research skills in global change biology. In 2021 I was awarded a Fundación BBVA Beca Leonardo, one of the most prestigious grants for Early Career Researchers in Spain, to advance a novel research line as a principal investigator to explore the mitigation of global warming through nature-based solutions.

My work has contributed to a new line of research in marine ecology predicting the resilience of species and communities to ocean warming based on the physiological response of marine organisms to temperature. Utilizing this valuable experimental approach, I am able to predict current and future vulnerability of marine biota in a warming planet as a strategy to understand, forecast and mitigate the effects of climate change. My research also includes the use of meta-analyses to identify global patterns in marine ecology. As a postdoc, I have acquired senior research skills through participation in securing grant funding, leading successful international working groups, mentoring graduate students, and authoring within 5 years more than 25 publications, some of them in high-impact journals (Nature Ecology and Evolution, Nature Communications, Science Advances), all of which demonstrates my capacity to lead a successful research group.

Resumen del Currículum Vitae:

I am currently a Juan de la Cierva-Incorporacion postdoctoral fellow at IMEDEA-CSIC (Spain) and a principal investigator of a Leonardo Grant by the Fundacion BBVA (2021). I was a postdoctoral fellow at King Abdullah University of Science and Technology for over 4.5 years. I obtained a PhD in Ecology by the University of North Carolina - Chapel Hill (2013), which was followed by a career break (maternity) of over 2.5 years. My h-index is 16 and have more than 1400 citations (Google Scholar 04/02/2022). I authored 36 papers published in peer- review scientific journals (including Nature Communications, Nature Ecology and Evolution, and Science Advances). I am currently directing the theses of 2 master students. I was the chair of a special session at ASLO Ocean Sciences Meeting 2021 and an external reviewer for the ERC Consolidator Grants 2020. I taught an undergraduate course (Environment and Society) at the University of North Carolina (USA) for 3.5 years and was the instructor of a graduate course (Basic Statistical Analyses using R) at King Abdullah University of Science and Technology (Saudi Arabia). I was awarded both a Graduate Mentor Support Award in 2009 by the University of North Carolina and an Impact Research Award in 2013 by the State of North Carolina (USA). As a graduate student, I won 3 Presentation Awards from international conferences. During my PhD, I was awarded two fellowships by the University of North Carolina: a Dissertation Completion Fellowship and an Off-campus Research Fellowship. I was the leader on one scientific cruise and participated in five additional scientific cruises. I conducted research stays for 2 weeks or longer in 9 international research institutions. As a postdoc, I led 2 synthesis working groups with >10 international scientists. I am a reviewer in 15 scientific journals and contributed to presentations in 31 international conferences. I am strongly involved in outreach and gave environmental presentations for students in Kinder Garden, Elementary, Middle and High Scho



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	runo de deceso general
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	MAGRACH GONZALEZ, AINHOA
Referencia:	RYC2021-032351-I
Correo Electrónico:	ainhoamagrach@hotmail.com
Título:	Spatial and temporal dynamics in natural ecosystems

Resumen de la Memoria:

My research explores the consequences of global change on the relationship between biodiversity, ecosystem functioning and the delivery of ecosystem services. Throughout my research career, I have had the opportunity to work across temperate and tropical systems across the globe. This has allowed me to have a global perspective of the threats faced by natural ecosystems and to identify pressing issues.

In particular, my experience has led me to identify the maintenance of biodiversity and ecosystem services within human-dominated production landscapes as one of the wicked problems facing our society. The unprecedented rates of biodiversity loss we are witnessing in the past decades exceed by far those suffered before the 19th century, and many of them are driven by the expansion of agriculture. Farmland currently occupies 35% of ice-free areas and agriculture is expanding and intensifying to meet the growing demands of an ever-expanding population. It is unlikely that we will be able to sustain pristine habitats within human-dominated landscapes but we can at least maintain areas able to retain maximum biodiversity levels. To this end we need to understand how to combine ecosystem conservation with development within agricultural landscapes.

The overarching goal of my research thus lies at the interface between basic and applied research focusing on the following main objectives: 1) To develop and apply sound ecological theory to understand the effects of different forms of disturbance on the processes controlling species diversity and ecosystem functioning 2) To evaluate the effect that alternative management practices have for biodiversity and for the aspects of ecological functions that enhance productivity (ecosystem services) aiming at the creation of multifunctional landscapes 3) To find ways to synthesize and apply my research to inform and guide policy-making.

Using pollinators as model systems, due to their key role in ecosystem functioning by mediating plant reproduction, I propose to further our understanding of ecological theory and to use this knowledge to explore the effect of different disturbances for pollination services to wild and crop plants. My aim is to then work within interdisciplinary teams to inform conservation practices aimed at maximizing biodiversity conservation and food production in the face of further global change. This is a particularly pressing issue in the case of pollinators, threatened worldwide by different global change drivers like habitat loss and climate change. The time is thus ripe to assemble knowledge on ecosystem function responses to agricultural expansion and intensification processes and use it to balance conservation efforts with the delivery of ecosystem services.

Resumen del Currículum Vitae:

As a community ecologist, my research targets the effects of global change on ecosystem functioning. My PhD explored how forest fragmentation affects biodiversity and species interactions involving plants, their pollinators and seed dispersers. Shortly after, I was granted a fellowship to work in Australia combining the study of forest fragmentation, selective logging and oil palm plantations in Borneo. Our work advanced our understanding of disturbance effects for different taxonomic groups and was used to devise a cost-effective method of protecting biodiversity under limited conservation budgets. In parallel, I was involved in the creation of the updated global map of the Human Footprint, a global map that measures the cumulative impact of direct pressures on nature from human activities. In 2013, I received funding from ETH Zurich to conduct research on aligning conservation and development outcomes within agricultural landscapes. Specifically, my work focused on pollination services to coffee plantations in India as tools for conservation. Two years later, in 2015, I started a position at EBD-CSIC to explore the effects of crop expansion on plant and pollinator communities within a European project. Since 2017, I work at BC3 leading research on different aspects of pollination research, including basic (e.g., temporal dynamics within plant-pollinator interactions) and applied research questions (e.g., which management activities promote crop pollination services).

In June 2018, I was selected as an Ikerbasque Research Fellow, which is a highly-competitive tenure track position funded by the Basque Foundation for Science (Ikerbasque). This position recognizes the most competitive and promising researchers in different scientific fields. My research has received funding from several prestigious funding bodies, including a Leonardo Fellowship from the Spanish BBVA Foundation, which distinguishes highly innovative projects by researchers in the early stages of their independent career, a I+D project Generación del Conocimiento from the Spanish Ministerio de Ciencia, Innovación e Universidades and the JRS Foundation, specifically targeting applied research being conducted in Africa.

Throughout my career, I have combined observational and experimental studies with the synthesis of big datasets to answer general questions from complementary perspectives. I incorporate theory and sound statistical methods to obtain robust and generalizable results. I have published 39 papers, 2 book chapters and been cited > 3,050 times. I have supervised one PhD (3 more currently), three master theses. I engage with the scientific community as reviewer for different journals, referee of international funding schemes, Associate Editor for Journal of Animal Ecology, organizer of different mentoring initiatives, founding member of an outreach non-profit association, and part of the Board of Directors of AEET. I have expertise in mentoring both students and technicians and I have acquired a great deal of autonomy, scientific and transferable skills, which enable me to design and to perform my research effectively. I have successfully acquired competitive funding to work at distinguished research centers across the world, regularly attend scientific meetings and believe in open sharing of data to stimulate advances.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	i urno de acceso general
Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	O'BRIEN , MICHAEL
Referencia:	RYC2021-032049-I
Correo Electrónico:	mikey.j.obrien@gmail.com
Título:	Disentangling the drivers of plant responses to climate change: exploring physiological mechanisms
plant plant interaction	ns and adaptive capacity

Resumen de la Memoria:

I started my research career developing, implementing and publishing my own PhD project (2010-2013) on the impacts of drought in tropical forests (University of Zurich, Switzerland). During this time, I taught myself field techniques and theory to understand plant physiology in a changing climate. For my first postdoc, I joined the University of Zurich Research Priority Program on Global Change and Biodiversity to oversee data collection and project management at the Borneo research site in Malaysia. I spent 2 years (2013-2015) managing and maintaining that project before obtaining my own funding to carry out independent research projects. I have been awarded nearly 500,000 over the last 6 years as the PI of 4 projects exploring plant physiology and plant plant interactions that mediate individual, population and community response to climate change. I have carried out these projects in tropical forests and Mediterranean ecosystems with organizations including the Estación Experimental de Zonas Áridas - CSIC, Spain from 2016 to 2017, South East Asia Rainforest Research Partnership, Malaysia from 2016 to 2019, ETH-Zürich, Switzerland in 2018 and Universidad Rey Juan Carlos, Spain since 2019.

I developed a large network of international collaborators in recent years through my affiliations with 4 different research consortia (CTFS-ForestGEO - forestgeo.si.edu/; URPP-GCB - gcb.uzh.ch/en.html; SEARRP - searrp.org; ITMN - https://www.tree-mortality.net/). I also have collaborative projects with laboratories from more than half a dozen universities, including Cambridge University, Imperial College London, Oxford University, University of Montana, University of Minnesota, ETH-Zurich, University of Zurich and the University of Aberdeen. I am the principal investigator of 2 large-scale, decade long experiments across a tropical land use gradient of primary forest (50-ha CTFS-ForestGEO plot) and secondary forest (Sabah Biodiversity Experiment).

These more than 8 years of postdoctoral experience have provided me with a solid foundation as a global change ecologist. My research focuses on understanding and predicting plant resistance and recovery to land-use and climate change. My current research focus is on 1) environmental mechanisms that mediate plant resilience to global change drivers, 2) the adaptive capacity of plant species across spatial scales and 3) spatial and temporal dynamics of populations under climate change scenarios.

I have published 41 articles in high impact journals in the areas of environmental sciences, climate and plant sciences. Since 2017, I have published 30 articles of which 53% in journals in the top 10 percentile and 80% in journals in the top 25 percentile (JCR). My articles have more than 1800 citations in the last five years (>2000 total) and during that time my h-index is 19 and i10-index is 27 (GoogleScholar). I have been an invited seminar speaker at various universities around the globe and presented talks at more than 10 international conferences. I am also an editor of the Journal of Plant Ecology, a member of the Faculty Opinions and a member of 2 international ecology organizations. I have also gained experience teaching (>900 hours taught) and supervising (1 Bachelor, 1 Master and 4 Doctorates).

Resumen del Currículum Vitae:

My h-index is 20 and i10-index is 27 (GoogleScholar as of 01.02.2022). I am the author of 41 articles in 24 different scientific journals ranging from plant to multidisciplinary science. I am the lead or corresponding author of 20 articles. I have 5 articles in Nature journals (O'Brien et al. 2014, Nature Climate Change; O'Brien et al. 2017, Nature Ecology & Evolution; Adams et al. 2017, Nature Ecology & Evolution; Zhang et al. 2021, Nature Communications, Ng et al 2021 Communications Biology). Since 2017, I have published 30 articles of which 53% in journals in the top 10 percentile and 80% in journals in the top 25 percentile (JCR). Three of my articles are designated as in the top 1% of cited articles in their fields in the last 5 years (O'Brien et al. 2014 in Nature Climate Change, Adams et al. 2017 in Nature Ecology & Evolution and Hartmann et al. 2018 in New Phytologist). My articles have more than 1800 citations in the last five years (>2000 total) and during that time my h-index is 19 and i10-index is 27 (GoogleScholar). My article in Nature Climate Change (O'Brien et al. 2014, Nature Climate Change; ranked 1 of 104 journals in Environmental Science, JCR) averages approx. 45 citations per year with over 300 total citations and is ranked in the top 1% of cited articles in the Environment/Ecology field (WOS). My global review of drought mortality and functional traits (O'Brien et al. 2017, Journal of Applied Ecology) has been cited over 127 times in 5 years. I have been working as an independent researcher since 2015, financing myself with four fellowships for a total of nearly 500,000 euros. I am a member of the Editorial Board of the Journal of Plant Ecology and have reviewed for more than 30 journals. I have co-supervised or been a committee member of 1 bachelor's, 1 master's and 4 doctoral students. I am an affiliate member of 4 research networks: the Southeast Asia Rainforest Research Partnership (SEARRP), the URPP on Global Change and Biodiversity in Zurich, the Global Tree Mortality Network, and the Smithsonian Institution's Global Forest Earth Observatory. I am Principal Investigator of the Sabah Biodiversity Experiment (one of the world's oldest and largest forest biodiversity experiments) and the CTFS-ForestGEO plot in the Danum Valley Conservation Area, both located in Borneo, Malaysia.



Ciencias y tecnologías medioambientales
FEENEY , WILLIAM
RYC2021-034135-I
william.e.feeney@gmail.com
Ecology and evolution of species interactions

Resumen de la Memoria:

The staggering diversity of the natural world is a product of interactions within and between species, and their environment. I have dedicated my career to understanding how species interactions operate, as well as how these key eco-evolutionary processes generate and regulate biodiversity. During my PhD, six research-only fellowship positions and my current role as an Assistant Professor, I have utilised both marine and terrestrial study systems to address major questions on this broad topic. For example, my past work has sought to understand how antagonistic interactions, such as those between parasites and hosts or predators and prey select globally generalisable patterns of cooperative behaviours both within (Feeney et al. 2013 Science, demonstrated that brood parasitism and cooperative breeding are coevolving breeding systems in birds) and between (Feeney et al. 2019 Ecology Letters, demonstrated that size-limited predation can explain the recurrent convergent evolution of fish-anemone mutualisms over the past 50 million years) species. My work has also aimed to understand how these interactions can select for deceptive phenotypes, such as mimicry (e.g. Feeney et al. 2015 Proceedings of the Royal Society B: Biological Sciences, presented the first evidence of aggressive mimicry in an adult brood parasitic bird; and Cortesi, Feeney et al. 2015 Current Biology, presented the first evidence of phenotypically plastic bidirection mimicry in a coral reef fish) as well as explore how prey can overcome these attempted deceptions via social learning (Feeney & Langmore 2013 Biology Letters, presented direct evidence of social learning in a brood parasite host). More recently, my work has extended on these more traditional research themes, and has begun using predator-prey and parasite-host interactions to explore the evolution of adaptations that have traditionally been thought of as key to the success of early humans (e.g. Brooker et al. 2020 Nature Communications, presented evidence that predation has selected domestication of planktonic shrimps by algae-farming coral reef fishes; and Yang et al. 2020, presented evidence that the costs associated with ecto-parasitism has led to the emergence of herbal medicine use behaviour in sparrows note that I am senior author on these two papers) as well as exploring how these biological interactions are impacted by environmental change (e.g. Besson, Feeney et al. 2020 Nature Communications, showed that exposure to anthropogenic stressors disrupts key endocrine processes during metamorphosis in juvenile coral reef fish, which impedes sensory system development and ultimately results in them becoming more vulnerable to predation). Ultimately, the eco-evolutionary importance of species interactions makes their study key for understanding how biological diversity is generated and regulated under natural conditions. It is my career ambition to gain new insights into biological phenomena, which is key for both increasing our understanding of the natural world, and informing effective ecosystem management decisions.

Resumen del Currículum Vitae:

Since finishing my PhD (2011-2014, Australian National University) I have held six Independent Research Fellowship positions and an Assistant Professorship, which have enabled me to gain substantial international experience at many of the world s leading research institutions (2015, Endeavour Postdoctoral Research Fellowship, University of Cambridge [GBR]; 2015-2019, University Research Fellowship, University of Queensland [AUS]; 2016, Fulbright Research Fellowship, University of California, Berkeley [USA]; 2018, Winston Churchill Memorial Trust Research Fellowship, Cornell University [USA]; 2019-2021, University Research Fellowship, Griffith University [AUS]; 2020-2021, Alexander von Humboldt Research Fellowship, Max Planck Institute for Ornithology [DEU]; 2022-present, Assistant Professor, Durham University), and through which I have developed my research program. I have also been awarded, but declined, two further research fellowships (Royal Society Newton International Postdoctoral Research Fellowship, University of Oxford [GBR]; and an IUI Postdoctoral Research Fellowship, Inter-University Institute of Marine Sciences [ISR]) as they were incompatible with other opportunities. I have secured approximately ~ 1.1 Million in fellowship and grant funding, and I have generally led these efforts (i.e. lead or sole applicant on 32 of 33 [95%] of funding applications). Since publishing my first paper in 2012, I have published 38 papers (average of 4.2 per year; 1372 citations, H-index = 14, i10-index = 15) and I have a record of publishing in the world s leading journals, such as: Science (1st author, Impact Factor = 41.06); Annual Review of Ecology, Evolution and Systematics (1st author, Impact Factor = 14.04); Nature Communications (co-1st author [listed senior] and 2nd author, Impact Factor = 12.12); Biological Reviews (2nd author, Impact Factor = 10.70); Current Biology (1st, 2nd and senior author, Impact Factor = 9.60); Ecology Letters (1st author, Impact Factor = 8.66). I play a major role in my papers, being first author on 50% (19 of 38), senior on 21% (8 of 38), second on 21% (8 of 38) and a co-author on 8% (3 of 38). My work regularly attracts the attention from the popular press, including coverage in: Al Jazeera, BBC, Der Spiegel, National Geographic, The Washington Post and Xinhua. I also write popular science articles myself, and my 21 popular science articles have generated over 300,000 unique views to date. I have delivered 25 invited seminars, including at the world s most prestigious universities, such as: University of Oxford; University of Cambridge; Harvard University; Yale University; Princeton University; and the University of California, Berkeley. I am also highly collaborative, having published with researchers from over 40 institutions (e.g. Cornell University, Harvard University, Princeton University, University of Cambridge, University of Oxford, and Yale University), and have ongoing long-term monitoring projects that I run in collaboration with researchers from Cornell University, Max Planck Institute for Ornithology and the University of Cambridge.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:
Nombre:
Referencia:
Correo Electrónico:
Título:

Ciencias y tecnologías químicas CRESPO , GASTON RYC2021-032058-I gacp@kth.se

Wearable electrochemical devices based on nanostructured materials for sport and wellbeing

Resumen de la Memoria:

My research career has been focused on understanding the fundamental role of nanostructured materials and to employ them to develop innovative electroanalytical devices able to provide solutions to both sport and health fields. With a master s degree in Nanoscience and Nanotechnology, and a PhD in the same program but with high emphasis in analytical chemistry and electroanalysis, I was the first to conceive a solid contact ion-selective platform based on carbon nanotubes and its derivatives. This investigation has changed the manner to devise solid contact ion-selective electrode and moreover spark many ideas and scenarios in which electrochemical sensors could be applied for. This own idea contributed to other papers, research directions, doctoral theses, patents, startup, and allow me to step up my research horizons with a postdoctoral contract in a top rank university such as University of Geneva in Switzerland and supervised by the well-recognized Prof. Eric Bakker. In that time, I explored new ion concepts based on electrochemical luminescence and photo switchable molecules as well as controlling ion-fluxes for protamine-heparin quantification in intensive care units. This later idea was patented and assigned to a large company in the sector. In the role of senior research and teaching assistant known as Maître-Assistant or Oberassistent , I continue working in several research directions involving health and environmental measurements, though, I understood the necessity to bring new in-situ evidence of the charging process in nanostructured materials. Therefore, I was granted with seven synchrotron beamtimes in Elettra and Melbourne (~1000h) to design an XPS/NEXAFS experiments. Many outcomes related to sensing materials, energy and catalyst were published in top journals. More recently, and as Assistant, and later, as Associate Professor at the Royal Institute of Technology (KTH), I merged all the scientific knowledge, experience and skills resulting from my previous positions to create a research group with the aim to develop wearable electrochemical platforms and likely to bring new digital information to sport and health fields. I look forward to discovering new concepts that allow us: i) to scientifically advance in this domain, and ii) to build innovative platforms that will positively impact on our society and industries.

Resumen del Currículum Vitae:

I have a bachelor degree in Chemistry from the University of Buenos Aires; a Master and a Ph.D in Nanoscience& Nanotechnology from the Universitat Rovira I Virgili, and a Docent degree from The Royal Institute of Technology (KTH, Sweden) the highest degree in the Nordic countries which allows one to be the main supervisor of PhD candidates. I conducted a postdoctoral research activity at the University of Geneva (Switzerland) supervised by Prof. Bakker, and later, I was promoted to a Senior Research and Teaching Assistant in same university. In 2017, I was appointed, in a competitive process, as Assistant Professor at KTH and promoted to Associate Professor in 2020. My research career has been focused on understanding the fundamental role of nanostructured materials in diverse electrochemical configurations; and to use them to make analytical devices with superior features for sport and wellbeing. My scientific contributions cover a wide spectrum among multidisciplinary chemistry, electroanalytical chemistry, materials&sensors. I have published ~115 papers in peer reviewer journals (103 original papers & 12 invited reviews) highlighting 1 Nature Chemistry, 1 Science Advance, 3 Angewandte Chemie It. Ed., 1 JACS, 39 Analytical Chemistry, 5 Chem. Comm, 6 Biosensors&Biolectronics, 5 ACS Sensors, 2 TrAC, 1 Annual Review in Analytical Chemistry among others. The biometrics indicates the well-acceptance of my scientific discoveries with h-index=39, 4360 citations, 87% in the first quartile (Q1). Many papers received the recognition from the journal and readers as hot papers, most viewed papers and many were published as cover/or back cover. I am the corresponding author of ~40 papers, most of them achieved since 2015, and this indicating my scientific independence and ability to attract competitive grants; and 13 papers as first author of key original papers conceived by myself (PhD and early postdoctoral stage). Important achievements to be highlighted: i) attraction of ~2M EUROS in research and industrial grants as PI; ii) exploitation of 3 own patents with the subsequent creation of 2 start-ups; iii) graduation of PhD students as main supervisor; vi) establishment and consolidation of my research group (PI), at one of most prestigious technical university in the Nordic countries, focused on wearable sensors for sport and wellbeing, with personnel of 4 PhD, 6 postdoctoral researchers, and master/bachelor students, vii) recipient of ~1000h in synchrotron field tests; viii) ~1400h of teaching at bachelor, master and doctoral levels, ix) several invited, keynote and oral presentations (>50 presentations) in Pittcon, Annual Meetings of the International Society of Electrochemistry (ISE), and International Meetings of Electrochemical Sensors among other satellite conferences and workshops, x) recipient of the Young Investigator 2019 and Young Electrochemist 2014 from Sensors MDPI and Electrochimica Acta, respectively.



Área Temática:	Ciencias y tecnologías químicas
Nombre:	CUARTERO BOTIA, MARIA
Referencia:	RYC2021-032054-I
Correo Electrónico:	maria.cuartero8@gmail.com
Título:	Chemical Sensing based on Interconnected Charge-Transfer Processes

Resumen de la Memoria:

I have a BsC in Chemistry, MsC in Advanced Chemistry and PhD in Chemistry (2014) by the University of Murcia (Spain). I performed two research stages during my PhD studies at the University Rovira i Virgili and University of Porto. I did two postdoctoral stages, first at the University of Geneva in Switzerland (2014-2017) and then at the Royal Institute of Technology in Sweden (2018-2020). For this later, I received a Marie Curie Invidual Fellowship (VolThinSens project) that allowed me to start with an independent career in the Academia. In the early 2020, and coinciding with the obtaining of an ERC Starting Grant (Conquerions project), I get a position in competitive process as Assistant Professor at KTH and I obtained a Docent degree in Chemistry. Currently, I am the lead of the Chemical Sensing group at KTH, with ca. 15 people. I am in constant search and development of sensing principles with the ambition to digitalize (bio)chemical processes mainly related to health and the environment. I understand chemical digitalization in a context where levels of any (bio)marker can be acquired, interpreted, and used to build up a complete assessment of the process under investigation. The sensing principles that I have put forward along my scientific career are based on chemical recognition connected to electrochemical transduction, with a thorough analytical evaluation in terms of performance, accuracy, and reliability. A key term continuously present in my investigations is in-situ information, which implies a paradigm shift in the analysis path perse, as the sensors are conceived to work in a total decentralized manner. For example, the sensors can be placed inside a submersible probe for eutrophication monitoring or in a nanotip for intracellular measurements. Overall, the philosophy behind my research is to generate fundamental knowledge about sensing strategies for relevant analytes and then, translate it into specific platforms/devices able to reach an endless number of applications classified as challenging while crucial for the society. My recent research achievements have targeted those aspects through: (i) the nanoconfinement of all the elements that tailored the sensor, and also the sample, towards better calibration approaches and enhanced selectivity, (ii) interconnected ion-transfer and electron-transfer processes as the main mechanism to generate the sensing event, (iii) the tandem of different techniques towards better sensitivity and discrimination, (iv) rationalization of sensing concepts with calibration-free potential, and (v) rationalization of sensing concepts compatible with in-situ measurements. Concerning the ambitioned applications, the following key advances are noticiable: (i) single-cell measurements based on electrochemical nanotip sensors that allow for dynamic profiling of concentrations from extra to intracellular medium, intracellular measurements in response to drugs administration, identification of cancer cells, etc.; (ii) biosensors configured to analyze biological fluids different than blood towards non-invasive solutions for healthcare; and (iii) in-situ water monitoring through electrochemical submersible probes to trace water quality and any biogeochemical process in the system.

Resumen del Currículum Vitae:

Currently, I am Assistant Professor and Docent at the Royal Institue of Technology (KTH) in Sweden. I am the lead of the Chemical Sensing group, with ca. 15 people. My research career has been focused in the constant search, discovery, and development of new sensing principles with the ambition to digitalize (bio)chemical processes mainly related to health and the environment. The sensing principles are based on chemical recognition connected to electrochemical transduction, with a thorough analytical evaluation in terms of performance, accuracy, and reliability. Accordingly, most of my scientific contributions are framed in the analytical chemistry and electrochemistry domains, but also in general chemistry. I have published 88 papers in peer-review journals (h index=26, 1838 citas), being 88% of them in Q1 journals, such as Analytical Chemistry (21 papers), Electrocheimica Acta (9), ACS Sensors (5), Angewandte Chemie (2), Science Advances (1). I am the corresponding author of 30 papers, coinciding with the starting and maturing of my independent career. I have more than 50 contributions to international conferences and events, including 2 invited keynotes and 6 invited oral presentations. I am co-inventor of 2 patents, co-founder of 1 startup (Idro BV), 1 IPR agreement based on my research outcomes and I have participated in 2 EIT projects with companies. Since 2018, I have attracted more than 3 million EUR in projects as the PI, including a Marie Curie Individual Fellowship and an ERC Starting Grant, the Vetenskapsradet Projekt 2019 (Swedish Research Council), HMT-21 Project (The Region Stockholm, Healthcare) and others from private foundations (also in competitive calls, OES, Aforsk, Wenner-Gren and Carl Trygger). I have supervised (and co-supervised) around 8 PhD students, 11 postdocs, 9 MsC students, 6 BsC students and 4 research visitors, including 1 PhD graduated in June 2021. My teaching duties have been ca. 1100 h at all the levels (BsC, MsC and PhD), including lectures, exercises and labs in three different institutions (UMU, UNIGE and KTH). I published 1 educational paper about inquiry-based-learning perspective. I am part of the Early Career Advisory Board of Analysis & Sensing and the Topic Board in Chemosensors. Among other prizes, I was awarded with the PhD Thesis Award in Analytical Chemistry by the Spanish Society of Analytical Chemistry (2015) and the Early Career Analytical Electrochemistry Prize by the International Society of Electrochemistry (ISE, 2018). Active participation in outreach activities and scientific societies (Women in Science, Summer Schools, ISE synmposia, etc.). My networking includes prestigious scientists mainly in Sweden, Spain, Portugal, Italy, China, and Australia as well as companies in the field of healthcare and the environment. I very act as reviewer, ca. 25 papers per year, in different journals in the field of my research.



AGENCIA ESTATAL DE INVESTIGATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	BERGUEIRO ALVAREZ, JULIAN
Referencia:	RYC2021-034705-I
Correo Electrónico:	julian.bergueiro@gmail.com
Título:	Helical peptides for Biological Interactions & Novel Plasmonics Assembly

Resumen de la Memoria:

My scientific career can be divided into 5 stages (S) in which I acquired the necessary multidisciplinary knowledge that converged in my current research lines (RL): S1) PhD (Lopez-USC): total synthesis and organometallic catalysis; S2) Postdoc (Riguera/Freire-CiQUS): helical polymers and chiral amplification; S3) Postdoc (Calderon-FUB): nanodevices for anticancer applications; S4) Postdoc (Aida-TU): supramolecular polymerization and biomolecular interactions; and S5) Associate researcher leading independent projects at CiQUS (Granja-Montenegro): peptide chemistry, assembly, and bio-interactions.

My strong productivity during these stages is reflected in a total of 34 publications so far (+3 under review). Always maintaining a preference for quality and excellence over quantity. My publication record is divided through the different stages as follows: S1(7); S2(4); S3(16); S4(2); S5(5). My leadership and independent career productivity are also reflected in 2 high-impact factor publications (ACIE and ACS AMI) where I am listed as corresponding author (+2 under review as corresponding author).

I have achieved different competitive fellowships that have allowed me to establish my international profile: CONICET-DFG fellowship (Strumia Group Argentina), Dahlem International PostDocs Fellowship (Postdoc at Calderon Germany and Aida Japan groups), Juan de la Cierva Incorporación (Montenegro/Granja Group Spain).

I have supervised more than 20 researchers (currently co-directing 2 PhD theses). The international projection of my career is reflected in the 62 months of abroad research in prestigious institutions of Europe, America, and Asia. I have always been engaged in research dissemination and outreach activities by participating in more than 30 international conferences and invited talks. Moreover, I was appointed as RSC Nanoscale Horizons community board member.

In addition, I have directly secured international competitive research funding by writing my own grants as independent PI: i) Focus Area Nanoscale (30k), ii) Royal Society IE (7k); and as co-PI: iii) EIG CONCERT-Japan (100k), iv) Xunta de Galicia Consolidación (400k). Recently, I applied to the prestigious HFSP - Young Investigators grant, where our proposal was selected on the final stage as fundable (1.0 M\$), but finally appointed to resubmission according to reviewer s suggestions in the next call.

My success in securing funding in combination with the knowledge acquired across my trajectory permitted me to establish and consolidate with independent funding and publications my own research lines (RL): RL1) Helical peptides for biological interactions (combining helicity, supramolecular, and peptide chemistry) and RL2) Novel plasmonic assemblies (combining plasmonics, supramolecular chemistry, and biological applications)

Resumen del Currículum Vitae:

My M. Sc. and Ph. D. (2013) research was focused on the total stereoselective synthesis of retinoids using metal-catalyzed cross-coupling reactions like Hiyama and Sonogashira (Prof. Lopez) at the USC. The high productivity of my Ph.D. is reflected in the 7 publications in relevant journals.

In 2012 I joined Freire/ Riguera group at the CiQUS (USC) to work on chiral amplification in helical polymers and self-assembly of highly dynamic helical polymers and their combination with inorganic nanoparticles. Despite my short stay of over a year, my production in this group is reflected in 4 publications in excellent multidisciplinary journals (Chem. Sci., Small, Nanoscale Horz., etc.).

In 2013 I moved to Prof. Calderon group at the FUB thanks to an SFB765 postdoctoral fellowship for working on the synthesis of thermoresponsive nanogels for anticancer applications. As subgroup leader, I supervised bachelor, master and PhD students working on the synthesis and characterization of hybrid nanogels for different anticancer therapies. In 2014 I was granted with a CONICET-DFG fellowship that allowed me to make a stay in Prof. Strumia group at the Universidad Nacional de Cordoba (Argentina) to work on magnetic nanogels, publishing 3 papers in field specialized journals like Nanoscale in this internship.

In 2015, I was granted with a Dahlem International Network PostDocs Fellowship for conducting an international research project to perform supramolecular plasmonic nanosystems. This highly competitive international fellowship from the German Excellent Initiative allowed me to move to Tokyo University with Prof. Aida to work in supramolecular functional polymers. The work of this project was already reported in one publication in Angew. Chem. Int. Ed. and a review and two more excellent communications are currently under preparation. In summary, during this postdoc period (Germany/Argentina/Japan) I published the record of 20 papers and 4 reviews.

In 2017, I was awarded two prestigious international research grants as PI: the Focus Area Nanoscale grant and the Royal Society International Exchange grant. Therefore, I could start my independent research at the FU-Berlin by hiring one postdoctoral associate (Dr. S. Arora) and one Ph.D. external visitor student (S. Arias) to work on my designed projects of functional polymer nanomaterials. My successful leadership in these two projects is unambiguously validated by the two excellent papers already published in ACS Appl. Mat. Inter. and in Angew. Chem. Int. Ed. and both as corresponding author. It should be noted that 2 more manuscripts from this period (2017-2018) are currently being finalized.

I have been very active in the supervision of Ph.D. and postdoctoral students and actually co-directing 2 PhD theses.

The international projection of my career is clearly reflected in the 62 months that I have completed at international postdoctoral level in renowned institutions of Europe, America, and Asia. My independence and competitiveness are also certified by my success in highly competitive international grant programs and the related successful outcomes exemplified in two high factor publications as corresponding author out of 34 papers published in excellent journals up to date. I have been also highly active in reporting my research in more than 30 international symposiums and 3 invited lectures 3.





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Área Temática:	Ciencias y tecnologías químicas
Nombre:	ALBERO SANCHO, JOSEP
Referencia:	RYC2021-031006-I
Correo Electrónico:	joalsan6@upvnet.upv.es
Título:	Foto y electrocatalizadores para la conversión y almacenamiento de energía
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Resumen de la Memoria:

Josep Albero research carrier started in the Prof. E. Palomares group at the ICIQ, obtaining his Ph.D. degree in 2012. Then, he moved to Prof. H. García group at ITQ in 2014. There, he has focused his research in the preparation and characterization of hybrid materials comprising heteroatom-doped graphenes and metal or metal oxide nanoparticles and their application as photocatalysts for solar fuels production. Moreover, the candidate has realized two short international stays in Prof. J. Nelson group at ICL (4 months) and Prof. Parvulescu group at Bucharest University (6 months), and a long postdoctoral stay in Prof. M. Antonietti group at MPIKG (24 Months). During this postdoctoral stay, the candidate focused on the preparation of new CxNy materials containing metal single atoms or sub-nanometric clusters for electrocatalytic applications. Furthermore, the candidate has developed over the years a broad network of national and international collaborations, and contributed with oral presentations in many different national and international conferences, being invited speaker in some of them.

Over the years, the candidate has been growing in independence in research and becoming increasingly responsible for directing his own research lines. Proof of this increasing responsibility was the granted project PAID-10-16 by UPV, and in two successful projects funded by European Union s Horizon 2020, namely, a MSCA ETN grant SOLAR2CHEM and FlowPhotoChem, where the candidate role is co-PI and work package leader. The candidate has also participated as main researcher in R&D projects with private companies (SRG Global and DAM).

During his carrier, he has also acquired teaching experience as consequence of the co-supervision of Dr. D. Mateo and Dr. Y. Peng thesis, and the current co-supervision of three Ph.D. students. He has also supervised four Master Thesis. Moreover, the candidate has participated actively in dissemination and outreach activities, and he received the accreditation of Profesor Contratado Doctor by ANECA, as well as the I3 certificate.

The candidate scientific production has been notable, achieving a record track number of publications (77 scientific documents including 6 book chapters, 10 reviews and 61 scientific papers), and he has registered an intellectual property as a patent. As evidence of his high leading capacity and independence in research, he is corresponding author in 13 manuscripts in the last four years, and as indicator of the quality of his research he has a total 2405 citations (1527 in the last 5 years) and a h-index of 30. Moreover, the average number of authors in the candidate publications is 5, highlighting the relevant contribution of the candidate in each publication.

Resumen del Currículum Vitae:

Josep Albero joined Prof. Palomares' group at the Chemical Research Institute of Catalonia (ICIQ) in 2006 as Torres Quevedo Fellow. He continued at ICIQ his Ph. D., and, in 2012, he defended the thesis entitled: Photo-induced charge transfer reactions in quantum dot based solar cells, and for that, he received the Rovira I Virgili Thesis Award 2012.

After thesis defense, Josep Albero joined Prof. García group at the Institute of Chemical Technology (ITQ). However, in 2015, he moved for a stay of 4 months to the Physics Department of Imperial College of London (United Kingdom) under the supervision of Prof. Jenny Nelson. Lately, he has been at the Department of Chemical Technology and Catalysis, Bucharest University (Romania) for 6 months in 2016. More recently, Josep joined the Max Planck Institute of Colloids and Interfases, Potsdam (Germany), as postdoctoral researcher. There he has investigated the eletrochemical properties of noble, doped carbons for CO2 conversion into fuels under the supervision of Prof. Markus Antonietti (2019-2020). Finally, Josep Albero joined again Prof. Garcia group at the ITQ where he is developing his own research lines devoted to the synthesis and characterization of electrocatalysts for energy conversion and storage besides the development of novel nanostructured materials for solar fuels production.

He has published a total of 77 scientific documents including 6 book chapters, 10 reviews and 61 scientific papers, being corresponding author in 13 of them, and has registered an intellectual property as a patent. He has a total 2405 citations and a h-index of 30. He has also participated in 24 National and International Conferences contributing both poster and oral presentations (being invited speaker in the nanoGe September meeting, hold in Barcelona (Spain) (2017), the International Training Workshop Identification of best candidates and synthetic methods to prepare graphene derivatives , hold in Potsdam (Germany) (2021), and in the International conference on Frontiers in Electrocatalytic Transformations (INTERECT), hold in Valencia (Spain) in 2021).

Over the years, he has been growing in independence in research and becoming increasingly responsibility for directing his own research lines. Proofs of this increasing responsability are the co-supervision of 5 PhD (Dr. Diego Mateo (2018), Dr. Yong Peng (2021), Mr. Horatiu Szalad, Mr. Jiajun Hu and Mr. Andrés Uscategui (under development)) and 4 Master students, the granted project PAID-10-16 by UPV in 2017, national and international collaborations with Prof. Martí-Gastaldo, Prof. Shalom, Prof. Chaudret, and with Prof. Farràs. The last one has resulted in two successful European projects funded, namely, a Marie Curie ETN grant "SOLAR2CHEM" (861151) and the EU project "FlowPhotoChem" (H2020-862453)) which Josep Albero role is co-Principal Investigator and work package leader. He has also participated as main researcher in R&D projects with private companies (SRG Global and DAM).

Josep Albero has also given lectures in the Universidad Politécnica de Valencia (UPV), and together with the outstanding research track track demonstrated during his career, he obtained the Contratado Doctor accreditation from ANECA as well as the I3 Accreditation from the AEI in 2019. He has also participated in outreach and dissemination activities with undergraduate students.





Área Temática:	Ciencias y tecnologías químicas
Nombre:	PASTOR HERNANDEZ, ERNEST
Referencia:	RYC2021-032301-I
Correo Electrónico:	ernestpast.ac@gmail.com
Título:	Capturing Catalysis: Atomic and electron dynamics in photocatalysts
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Resumen de la Memoria:

Dr Ernest Pastor is an expert in the optical spectroscopy of semiconductors for energy conversion, known for his work identifying losses in catalytic systems and for the development of techniques to study reaction mechanisms. He has worked in four different laboratories in three different countries (UK, USA, and Spain). His areas of expertise are: optical and electrochemical spectroscopies of oxides, X-ray spectroscopy and crystallography of macromolecules and ultrafast spectroscopy of photoconversion devices. Dr Pastor uses electrochemistry and time-resolved spectroscopies to identify efficiency losses in photocatalysts and elucidate their reaction mechanisms. He has exposed key factors limiting charge transfer in molecular systems for proton and CO2 reduction (Chem. Sci. 2015; Chem. Eur. J 2015) and developed optoelectronic methods to probe catalytic mechanisms in solidstate photoelectrochemical cells (JACS 2015, Nat. Commun. 2017; Nat. Chem. 2020). These methodologies are currently used by other researchers to study similar problems. He has also performed mechanistic studies of the oxygen evolution reaction in Photosystem II (Nature 2016 and Nature 2018) and gained experience in the use of X-ray Free electron lasers (Nature Methods 2017). More recently, Dr Pastor has developed his own research line that focuses on probing lattice dynamics and defects in metal oxide photoelectrodes. This research relies on the development of advance electrochemical, optical and x-ray laser capabilities that stand out for using light not only to monitor photoinduced phenomena, but as a dynamic tool to control the chemical state of matter on demand. These studies (published as a corresponding author) have revealed new ways to characterise defects in solids (Phys. Rev. B. 2022- accepted, in press) and exposed the importance of oxygen vacancies in catalytic materials (Chem. Sci 2019; JACS 2019, Nature Review Materials 2022-accepted in press). Of particular relevance is Dr Pastors' work monitoring the role of structural dynamics in photoelectrochemical devices. In 2019 he provided the first direct evidence of ultrafast polaron formation under catalytic conditions (Nat. Commun. 2019). Due to the wide-ranging implications of this phenomena, the work has received attention beyond the field of photocatalysis and was even referred to in the scientific case for the UK XFEL, demonstrating Dr Pastor s ability to deliver ground-breaking, multidisciplinary research.

Resumen del Currículum Vitae:

Dr Ernes Pastor received a Chemistry degree at the university of Valencia in 2012 (extraordinary graduation award) and a PhD at Imperial College London (UK) in 2016. Currently, he is a Juan de la Cierva Incorporación fellow (2020-2023) working at the institute of photonic sciences (ICFO) in Barcelona. His postdoctoral research work has been performed in leading institutes: Imperial College London (UK), The Lawrence Berkeley National Laboratory (California, USA) and ICFO (Spain), where he has gained unique expertise in electrochemistry, crystallography and ultrafast optical and Xray spectroscopies. Since 2014, his research work has led to 25 publications in top journals such as Nature, JACS or Nature Chemistry. This work has been cited 1838 times with an h-index of 22 (WOS). Following a postdoc at Berkeley and capitalising on his diverse experimental background, Dr Pastor has acquired research independence by initiating a new line of research. The work focuses on studying structural dynamics in oxides and developing new optical control methods applicable to chemical systems. Resulting from this research, since 2019, Dr Pastor has led work as a corresponding author in JACS, Chem. Sci, Nat Commun. and Nat. Rev. Mater-accepted, which has attracted significant attention (138 total citations) and had an impact beyond the field of photocatalysis. Dr Pastor s research visibility and his ability to deliver and communicate research is attested by his participation in international conferences and meetings, including as an invited speaker, as well as by invitations to act as a reviewer for top journals, X-ray user facilities and funding bodies, including a 3-year appointment to the college of reviewers of the Research foundation Flanders (Belgium). Dr Pastor has also established a large network of collaborators and participated in the development of the SUNRISE action-a 1M coordination action to establish a roadmap for the development of renewable fuels in the EU. Moreover, since his PhD, Dr Pastor has been the recipient of several funding awards (> 200k) including the Marie Sklodowska-Curie Co-Fund PROBIST fellowship and, recently, the prestigious Juan de la Cierva Incorporación Fellowship which have enabled him to lead independent collaborations and pursue his own research ambition. Dr Pastor s passion as a researcher and educator has been recognised with awards, prizes for talks and a formal appointment as Assistant Supervisor at Imperial College in 2018. Building in his research and student supervision experience, Dr Pastor has applied to an ERC starting grant in the (current) 2022 call.



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	RODRIGUEZ ROJO, SORAYA
Referencia:	RYC2021-032847-I
Correo Electrónico:	soraya.rodriguez@uva.es
Título:	Process Intensification for valorisation of biomass: fractionation and product design
Resumen de la Memoria:	

During my PhD, I investigated in formulation through non-conventional techniques, namely supercritical carbon dioxide (SC-CO2) fluidization. As postdoc researcher of the High Pressure Processes group from University of Valladolid (HPP-UVa), I get involved in the research line of Process Intensification for valorisation of biomass: fractionation and product design. During by postdoctoral education, I enjoyed a research stay (13 months, between 2009-2012) at the Instituto de Biologia Experimental e Tecnologica (Portugal), to acquire skills regarding antioxidants compounds quantification and characterization, that I implemented at HPP-UVa, together with SC-CO2 based formulation with polymer/ lipid hybrid carriers. Also, I performed a 13-months stay (MEC Postdoc fellowship) in 2011 at ETH Zurich (Switzerland) to get fundamental knowledge regarding product design for long term stability.

My research in formulation, firstly, focused on coating of inorganic nanoparticles agglomerates by SC-CO2 fluidization in pioneering works that established fluid density limits to carry out the process. Later, driven by the interest of improving the use of natural compounds (polyphenols and essential oils, EOs) in different applications, research in formulation in biocompatible polymers by different technologies was started. Besides, multidisciplinary collaborations were established to test the properties of developed products. It can be highlighted the formulation of resveratrol in barley and yeast β-glucans to improve its action as antifungal compound in agriculture; formulation in elastin like recombinamers of highly hydrophobic compounds to improve its apparent solubility and hence, its bioactivity by supercritical antisolvent process (i.e. docetaxel), and spraydrying of EOs emulsions in modified starch to improve its fumigant activity.

My investigation on valorization of lignocellulosic biomass is focused on the extraction of bioactives as first step in the fractionation of this raw material, due to investigated biomasses are rosemary, barley, grape pomace, wine lees and grape stems, and olive pomace. I contributed with the implementation of intensified extraction (microwave assisted and ultrasound assisted) techniques at HPP-UVa, as well as in the study of the fundamentals of each process. I aim to enlarge this research line also covering biopolymers production by sub and supercritical water technology in a biorefinery framework: grape stems after recovery of polyphenols, were fractionated into hemicelluloses and sugars by pressurized hot water. Further, as PI of a National I+D+i Projet from the 2020 Call, I am going to tackle the role of sub and supercritical water valorization of marine biomasses using ultrafast reactors to develop an alternative production process for chitin and chitin-CaCO3 composites, chitosan and their oligomers.

Further, thanks to the product-oriented research, I have established several research contracts as PI with national (4) and international companies (2).

Resumen del Currículum Vitae:

I completed my PhD work (FPU scholar) in 2008 in the High Pressure Processes group from University of Valladolid (HPP-UVa). It was focused on the fluid-dynamic study of supercritical fluidized bed for microparticle coating applications. As postdoctoral researcher in HPP, I get involved in the research line of Process Intensification for valorisation of agroindustrial biomass: bioactives extraction and product design. I contributed to implement intensified extraction techniques (microwave & ultrasound), and analytical methods for antioxidant characterization. Also, I worked on product design (solid and liquid formulation: micronization, emulsification) of natural compounds (polyphenols and essential oils) for different applications (agriculture or nutraceutics). In 2011, I performed a 13-months stay with Dr.M. Mazzotti (ETH Zurich, Switzerland) to get the fundamentals on product design and stability. I did a research stay (13 months between 2009 & 2012) at iBET (Portugal) with Dr. C. Duarte to get skills on formulation and characterization of bioactives. Currently, I am focused on the complete valorization of biomass through cascade processing from extractives to biopolymers by supercritical fluids and intensified technologies.

I have held different positions: assistant lecturer, MEC Postdoctoral fellow at ETH Zurich, assistant teacher, Juan de la Cierva and Postdoctoral fellow from Junta de Castilla y León. Currently, I am postdoctoral researcher at University of Valladolid. Recently, I got the I3 Certification (29/07/2019) and Profesor Titular de Universidad (21/07/2020).

I am IP of a National Project (Retos 2020) for the valorization of shrimp waste using sub and supercritical water. Also, I have participated in 23 competitive research projects, 6 of them European Projects (3 7thFP, being HPP-responsible in Formulation WP, and 1 H2020). I have established 6 research contracts as PI with companies to foster transfer of knowledge: 2 from agro-food sector, 1 from agrochemical sector, 1 Swiss orthopaedic company and 1 French Nanotechnology start-up. Also, I have actively worked in 5 more industrial projects. I have published 49 research articles, 1 review and 1 editorial in JCR indexed international journals and 4 book chapters (1 by personal invitation of the editor) receiving more than 1200 citations (h-factor= 20). A 92% of the articles are published in T1 journals, being 41 in Q1 and 16 of them in D1. I am the first or corresponding author/ lead author in more than 55%, and 75% have been carried out in collaboration (61% international). I have presented 76 contributions in international conferences. I was guest editor in Antioxidants (open access, IF: 5.014) regarding process intensification in food waste valorization. I am one of the inventors of a Spanish patent application (28/12/2020; P202031306) regarding the use of natural compounds as antiinflammation and antioxidant in topical eye treatments.

I have taught more than 800 h at degree and master level, and specialized seminars in workshops. I carry out an intense mentoring activity that demonstrates my capability of conducting research independently: I have co-directed 5 PhD thesis, supported by competitive grants, 2 are ready for defense, 1 in collaboration BIOFORGE-UVa and 1 with IOBA-UVa in ITDED3 as real engage with multidisciplinary research, and 1 is under development.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías químicas
Nombre:	PUERTOLAS LACAMBRA, BEGOÑA
Referencia:	RYC2021-031910-I
Correo Electrónico:	begona.puertolas@uvigo.es
Título:	Engineering of heterogeneous catalysts for sustainable technologies

Resumen de la Memoria:

Begoña Puértolas focusses on the development of chemocatalytic technologies for the valorization of renewables to chemicals and fuels. She has searched for efficient and sustainable routes to upgrade sugar derived platform compounds into added-value chemicals using zeolite catalysts, and bio-oil, a complex mixture of hydrocarbons and oxygenated compounds, into second-generation biofuels via catalytic cracking with hierarchically-structured zeolites and aldol condensation reactions using mild base catalysts. This research line has primarily comprised the design of performing catalysts which is routed on their fundamental understanding in terms of structure performance relationships and of mechanistic aspects. State-of-the-art ex situ and operando characterization techniques were combined with catalytic testing under industrially-relevant conditions pursuing the scale-up into technical catalysts as far as possible. In the context of natural gas upgrading, her second line of research aimed at gathering an improved knowledge of the different reactivity of hydrogen halide compounds, namely hydrogen chloride and hydrogen bromide, in the functionalization of light alkanes, i.e., ethane and propane, to alkyl halides and olefins through catalytic oxyhalogenation. To this goal, concerted kinetic analyses with advanced operando characterization techniques were investigated. Parallel projects comprised the sustainable manufacture of chemicals on capped nanoparticles, the thermocatalytic CO2 conversion into high value products, and, in the context of a collaborative project with industry, the phosgene-free production of isocyanates as precursors in the manufacture of polyurethanes.

Current areas of research are the development of efficient catalysts for (i) the photocatalytic synthesis of ammonia from air and water under ambient conditions as a sustainable alternative to the industrial Haber Bosch process and (ii) the oxidative dehydrogenation of natural gas-containing light alkanes to produce olefins using CO2 as a soft oxidant.

Resumen del Currículum Vitae:

Begoña Puértolas is a Distinguished Researcher at the CINBIO-Universidade de Vigo. She studied chemical engineering at the Universidad de Zaragoza and graduated with a master degree from the same university. She continued her doctoral studies at the Instituto de Carboquímica (ICB-CSIC) funded by a FPU competitive grant and got the PhD degree cum laude in June 2014, which was awarded with the Extraordinary Doctorate Award of the Universidad de Zaragoza. After her doctoral studies, she moved to ETH Zurich (Switzerland) where she worked as post-doctoral researcher until August 2020. She authored or co-authored 44 publications in peer-reviewed scientific journals (1 more submitted and 2 more in preparation), 12 of them published in open access, with a mean impact factor of 8.5. To name a few: Advanced Energy Materials (impact factor, IF = 29.368, 1 publication), Applied Catalysis B Environmental (IF = 19.503, 4 publications), Advanced Science (IF = 16.806, 1 publication), Angewandte Chemie (IF = 15.336, 2 publications), ACS Catalysis (IF = 13.084, 3 publications), ChemSusChem (IF = 8.928, 4 publications). 39 of her publications are in the first quartile (Q1, SJR) and 21 of them in the first decile (D1, SJR). Begoña Puértolas is the first author in 50% of her publications and has more than 100 co-authors from 23 different universities. She has published 6 journal covers and 1 book chapter. Her publications accumulate more than 1650 citations (Google Scholar) with an increasing trajectory of citations, and her Hirsch index is 22 (Google scholar) and 21 (Scopus). The average number of citations/year during her post-doctoral period was 180 (Scopus). Her scientific record includes 8 scientific-technical reports. She serves as a regular reviewer of various scientific journals and as Grant reviewer for the Czech Science Foundation, and is currently the Guest Editor of a Special Issue in the Energies journal. Regarding technology transfer, she is the co inventor of 2 patents (non-licensed), one of them extended worldwide. She has 32 contributions to international (19) and national (13) conferences and workshops and has presented 10 oral communications from which 5 were invited talks. Begoña Puértolas is the PI of 2 competitive scientific projects: 1 funded by Spanish national funds and 1 funded by regional public resources, and has been the scientific coordinator of 2 competitive projects: 1 funded by the Seventh Framework Programme and 1 funded by the Swiss National Science Foundation, and has also been the scientific coordinator of 1 non competitive industrial project. She has successfully co-directed 2 doctoral theses and 3 bachelor theses and is currently supervising 2 PhD students, 1 master student, and 2 bachelor students. Begoña Puértolas is university lecturer at both master and bachelor levels at the Universidade de Vigo. She is currently organizing the International Day of Women and Girls in Science and is the coordinator of 2 STEMbach projects, and has previously participated in several dissemination activities such as the Day of Open Labs at ETH Zurich and Semana de la Ciencia organized by CSIC. 3 of her publications have been highlighted in public media.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	VILLA GOMEZ, KATHERINE
Referencia:	RYC2021-031075-I
Correo Electrónico:	kathe178@gmail.com
Título:	Advanced photocatalytic materials for energy and environmental applications

Resumen de la Memoria:

I have more than 10 years of experience in photocatalytic processes with wide expertise in the synthesis and characterization of nanomaterials. My research career has been mainly focused on the rational design of photocatalytic materials for improving their performance in selective oxidations and uphill reactions for the generation of solar fuels (hydrogen and methanol) and fabrication of light-driven photocatalytic micro/nanomotors with antimicrobial activity for water decontamination.

Throughout my scientific career, I have worked in 6 research centers in three different countries: Colombia, Spain, and the Czech Republic. After obtaining my PhD in Chemistry at the Autonomous University of Barcelona, I worked as a postdoctoral researcher in IREC and IBEC in the fields of energy and self-propelled micromotors, respectively. After almost three years working as a senior scientist at the Advanced Functional Nanorobots Center (University of Chemistry and Technology, Prague), I moved back to Spain to join the Institute of Chemical Research of Catalonia, where I am the principal investigator of a project on photocatalytic CO2 reduction. Here, I am also establishing a new research line on light-driven hybrid micro/nanomotors. Over these research experiences, I have had the opportunity to mentor and (co-)supervise undergraduate, master, PhD students and junior postdocs in the fields of energy, (photo-)catalysis and water disinfection.

I have published 34 scientific articles, prioritizing quality over quantity, in recognized international journals in the fields of nanoscience, catalysis, and chemistry (ACS Nano (3), JACS (1), Adv. Funct. Mater (4). ACS Catal. (2), Appl. Catal B (2) and Chem.Soc. Rev (1)), including 20 as first author, 6 as corresponding author and 1 as senior author, reflecting my leading role in those contributions. Twelve of these publications are in the top 10% most cited publications worldwide (Scopus).

I have participated in 9 research projects (one as PI), including 5 European projects. I have been successful in attracting funding, including la Caixa Junior leader (incoming modality), Beatriu de Pinos-MSCA and MSCA-Seal-of-Excellence-UNIPD fellowships. Moreover, I have experience in prototyping, upscaling of processes, technology transfer and I am one of the inventors of a patent for water treatment. My international recognition is evidenced by my broad network of collaborators in Europe, Asia and America, invited talks, current roles as an expert reviewer for European calls, and peer-reviewed journals, such as Nature and Nature Energy.

Resumen del Currículum Vitae:

My expertise builds on the combination of materials science, chemistry, catalysis, energy, and environmental remediation. I have published a total of 34 scientific articles dealing with the photocatalytic generation of hydrogen, selective oxidation of methane to methanol, CO2 methanation, and lightdriven photocatalytic micro/nanomotors for the removal of water pollutants, including organic waste and microbial contamination.

My research output has been disseminated in premier journals, such as JACS, ACS Nano, Adv. Funct. Mater, Chem. Commun., ACS Catal., and Appl. Catal. B. It also includes 2 cover pictures, highlights in recognized magazines (e.g., Advanced Science news and C&En News), coverage in national Czech TV channel (ceská televise), and an invitation as guest editor of a Special Issue in Applied Sciences (MDPI).

I have developed advanced photocatalytic systems not only for lab-scale testing but also for prototyping.

I performed the commission tests of hydrogen generation from wastewater in a solar pilot plant reactor at the Platform Solar of Almeria. I have been trained on catalyst formulation (upscaling) at the Instituto Superior Técnico (Portugal), built a reactor in collaboration with Enviolet (German company), and performed commissioning tests of the photocatalytic generation of liquid solar fuels at the French Alternative Energies and Atomic Energy Commission (CEA) institute (France). Likewise, I am one of the inventors of a patent of micromotors for environmental remediation.

My international experience includes a three-year research stay in the Czech Republic, working as a senior scientist (2018-2020) at the University of Chemistry and Technology, Prague. Overall, my network of collaborators includes not only national institutions (IREC, UB, PSA), but also international partners in China, Belgium, Germany, Czech Republic, Portugal, and Mexico. I have participated in a total of 9 research projects including funding from Europe, the Czech Republic, Spain, and Colombia. Likewise, I have participated in 23 international conferences (10 oral talks) across Europe, Asia, and South America (e.g., E-MRS, Europacat), including invited talks at International Symposium on Energy and Nanomaterials in Scotland and as ICRA2021 workshop on micro-nano swarm robotics. In my role as a new Junior Leader at ICIQ, I am currently the chair and organizer of the 2022 ICIQ seminars.

As international recognition of my expertise, I have been appointed as remote expert evaluator for European calls: MSCA-PF-2021 and 2020-FET-OPEN. I have participated in the evaluation process of a Doctoral Programme from the Universitat Rovira i Virgili and FRG22-Comprehensive program from the United Arab Emirates. Moreover, I regularly act as an expert referee for peer-reviewed journals, such as Nature, Nat. Energy, Appl. Catal. B-Environmental, ACS Catal., Nanoscale, Chem. Commun., among others.

I have been successful in highly competitive calls, including a Beatriu de Pinós fellowship and MSCA-Seal-of-Excellence-University of Padova. Last year, I was awarded a la Caixa Junior Leader (305K) fellowship to develop my own research project as a Junior Leader at ICIQ. Thanks to this funding, I started my independent research line on the photocatalytic conversion of CO2 in the gas phase by using nanostructured nanomaterials. This has also allowed me to recruit a postdoctoral researcher and co-supervise a PhD student.



Área Temática:	Ciencias y tecnologías químicas
Nombre:	JULIA HERNANDEZ, FABIO
Referencia:	RYC2021-032379-I
Correo Electrónico:	fabiojulia7@gmail.com
Título:	Harnessing photons to address challenges in Inorganic Chemistry, Catalysis and Organic Synthesis

Resumen de la Memoria:

Dr Fabio Juliá is a determined researcher presenting an exceptionally wide scientific expertise in different topics spanning (in)organic chemistry, homogeneous catalysis, radical chemistry, photophysics and photochemical studies. A chronic ambition towards the use of light-matter interactions for different goals 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 the ample majority of the cases. His academic excellence can be illustrated by his strong track record of publications on the highest quality international journals of multidisciplinary science (Science, Nature, Nature Catalysis, JACS, etc). His first project managed independently was published on Science, where he is corresponding author, showcasing his ability to conduct and manage ground-breaking research independently. His creativity and problem-solving skills have allowed him to address diverse challenges in chemical sciences and open new research lines in different groups, being these achievements acknowledged with several awards and recognitions.

During his doctoral studies at the University of Murcia he acquired ample experience on the synthesis of transition metal complexes and the modulation of their excited states and photochemical behavior. Notably, he succeeded in the development of the most efficient Pt(IV) emitters ever reported and discovered an unprecedented mechanism for C H activation in the triplet excited state. Dr. Juliá has worked abroad in several countries (USA, UK, Germany) in the groups of some of the world leaders in the field of catalysis (Prof. Corey Stephenson, Prof. Daniele Leonori and Prof. Tobias Ritter) where he has gathered significant expertise and knowledge on homogeneous (photo)catalysis, organic radical chemistry and late-stage functionalization. He has leaded cutting-edge research programs, exhibiting the ability to succeed in high-risk/very-high-gain projects, including: (i) development of new ways to assemble aromatic C N bonds, (ii) repurpose of amines to solve challenges in radical chemistry, (iii) mechanistic unravelling of site-selective C H functionalizations, (iv) invention of a new reagent out of ethylene gas.

In 2021 he started his independent career as Group Leader Junior at ICIQ, funded by a competitive LaCaixa Junior Leader Program, where he is developing sustainable methods based on Earth-abundant metal catalysts activated with light. Dr. Juliá aims to hold a Ramon y Cajal Fellowship to contribute solving global challenges of social, academic and industrial interest, aiding to promote the visibility and prestige of the Spanish Scientific system.

Resumen del Currículum Vitae:

I began my career at the Univ. of Murcia (Spain), where I conducted my MSc and PhD studies in the Group of Organometallic Chemistry (2011 2016) under the supervision of Dr. González-Herrero, funded by a FPU fellowship. In 2014 I was a visiting student at the Univ. of Michigan (USA) in the lab of Prof. Corey Stephenson. After obtaining the PhD title and awarded with the Best Thesis in Photochemistry by the RSEQ, I was skilled in organometallic chemistry and photophysical studies, so I decided to expand my expertise in organic synthesis and accepted a position at the pharmaceutical company Eurofins (2016 2017). My ambition to pursue a career in Academia prompt me to move to the Univ. of Manchester (UK), where I was as a postdoctoral researcher in the group of Prof. Daniele Leonori (2017 2020), working in catalytic methodologies based on radical chemistry. In 2019 I designed and managed independently a project on an unexplored topic for the group, giving rise to a new and prolific research line. The first outcome of this program resulted in my first publication as corresponding author, published in Science. The School of Chemistry recognized my work with the Outstanding Achievement Award to the best postdoctoral researcher of the year. In June 2020 I moved to Germany to work in the group of Prof. Tobias Ritter at Max Planck Institute. My work there focused on the selective late-stage functionalization of complex molecules, leading 3 projects simultaneously that already resulted in 1 patent, 2 manuscripts as first author and one in progress. After 53 months of mobility in internationally-renowned institutions at USA, UK and Germany, in 2021 I secured two grants from highly competitive funding programs: LaCaixa Junior Leader Incoming and Proyectos I+D: Retos (JIN), and started my independent career as Group Leader Junior at ICIQ (Spain).

The excellence of the results produced during my career can be readily noticed in my publication track (19 publications, all in Q1, average IF = 19.9), including the most prestigious journals in multidisciplinary science and chemistry (e.g. Science, Nature, Nature Chem., Nature Catal., JACS, ACIE), a review in Chem. Rev. and a book chapter. I have worked independently since early stages, as can be seen from the number of publications as first or corresponding author (74%). I have received the accreditation Profesor Contratado Doctor by ANECA and recently the Thieme Award 2022 as one of the world most notable young researchers in Chemistry. I have disseminated my research in international congresses (e.g. Gordon Research Conference, OMCOS), being invited speaker at national and international meetings, and participated in several R&D projects (including ERC StG). Overall I have secured a total of 592k as PI in highly competitive programs, filled a patent on a new reagent to be commercialized soon and gathered experience collaborating with industrial partners, in particular the multinational AstraZeneca. I have supervised >15 students, being the main director of a MSc Thesis and enrolled in teaching courses both in Spain and the UK. I have also participated in outreach activities to promote scientific vocations in high schools and had several institutional roles, such as organizer of the Seminar Program at ICIQ (bringing worldwide leaders in Chemistry to the institute, sponsored by BASF), chairman in symposiums, external referee in PhD thesis and reviewer for several high-impact international journals.



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	SUAREZ PANTIGA, SAMUEL
Referencia:	RYC2021-031533-I
Correo Electrónico:	sspantiga@yahoo.es
Título:	Trayectoria de S. Suarez-Pantiga

Resumen de la Memoria:

The applicant has initiated his research career during the academic course 2005-2006 when, after achieving a fellowship to Introduction in Research from the Spanish Ministery of Education (Introducción a la Investigación, Ministerio de Educación y Ciencia, MEC), he joined as an undergraduate student to Prof. J. Barluenga s research group (University of Oviedo) under the supervision of Prof. J. M. González. After initiating doctoral studies, in 2007, he was granted a FPU Fellowship by MEC to perform PhD studies under the supervision Profs. J.M. González and E. Rubio at the University of Oviedo. During this period, in 2010, he joined Prof. A. Hoveyda group (Boston College, USA) during a short stay and was also invited to attend the Eli Lilly 8th Annual European Drug Discovery Workshop on Medicinal Chemistry held in London (2010). In January 2012, he obtained his Ph.D. degree, and later in 2012, he joined Prof. G. Asensio (University of Valencia) as postdoctoral researcher. There, he focused on homogeneous and heterogeneous gold catalysts to be applied to flow chemistry. Then, he continued his academic studies, joining Stockholm University (SU) at Mendoza research group (2014), where he worked on light or thermal cycloaddition reactions of organoaluminum reagents, ligand design and C-H bond functionalization. During this period, Dr. Suárez took part in the EXSELENT Berzelii Center on Porous Materials an initiative of VINNOVA and the Swedish Research Council, a consortium formed by SU, the Technical Research Institute of Sweden and 12 industrial partners. Dr. Suárez oversaw coordinating the research project Heterogenous catalysts for late-stage functionalization reactions between the research group at SU and its industrial partner AstraZeneca at Mölndal. The results obtained generated two international PCT patents, commercialized by KeyOrganics Ltd (UK). In 2016 Dr. Suárez-Pantiga moved to the University of Burgos (UBU) as postdoctoral researcher at Prof. R. Sanz group, where he combined research, co-supervision of Ms. C. and Ph. D. students and teaching. In October 2018, he joined Georg-August-University Göttingen (Germany), participating in the EU-funded research project Sulfosol (Prof. M. Alcarazo) synthesizing and measuring optoelectronic properties of expanded helicenes. In fall 2019, he joined UBU back at Prof. Sanz group, where he got involved in studying the catalytic activity of dioxomolybdenum complexes and the synthesis of organosulfur compounds, among other topics. Since May 2020, he was funded as PI by La Caixa Foundation (CAIXA-UBU001, FluNitroPhos) with a research grant to develop highly efficient and selective fluorination methodologies. Dr. Suarez authored 35 publications in scientific journals (32 since 2012, 26 since 2017). He is currently supervising 1 PhD student (funded by Junta C.-L.), 1 post-doc (funded by LaCaixa).

Dr Suárez-Pantiga has developed a research portfolio focused on Synthetic Methodology at the forefront of modern organic and organometallic chemistry acquired from the different topics he has worked on, such as photochemistry, C-H bond functionalization, oxygen transfer reactions, organosulfur compounds, asymmetric catalysis and heterogeneous catalysis.

Resumen del Currículum Vitae:

Dr Suárez-Pantiga has developed a research portfolio focused on Synthetic Methodology at the forefront of modern organic and organometallic chemistry acquired from the different topics he has worked on, such as photochemistry, C-H bond functionalization, oxygen transfer reactions, organosulfur compounds, asymmetric catalysis and heterogeneous catalysis. His research experience is outlined below. After initiating doctoral studies, in 2007, he was granted a FPU Fellowship by MEC to perform PhD studies under the supervision Profs. J.M. González and E. Rubio at the University of Oviedo. During this period, in 2010, he joined Prof. A. Hoveyda group (Boston College, USA) during a short stay and was also invited to attend the Eli Lilly 8th Annual European Drug Discovery Workshop on Medicinal Chemistry held in London (2010). In January 2012, he obtained his Ph.D. degree, and later in 2012, he joined Prof. G. Asensio (University of Valencia) as postdoctoral researcher. There, he focused on homogeneous and heterogeneous gold catalysts to be applied to flow chemistry. Then, he continued his academic studies, joining Stockholm University (SU) at Mendoza research group (2014), where he worked on light or thermal cycloaddition reactions of organoaluminum reagents, ligand design and C-H bond functionalization (EU research project ASADO-CH). During this period, Dr. Suárez took part in the EXSELENT Berzelii Center on Porous Materials an initiative of VINNOVA and the Swedish Research Council, a consortium formed by SU, the Technical Research Institute of Sweden and 12 industrial partners. Dr. Suárez oversaw coordinating the research project Heterogenous catalysts for late-stage functionalization reactions between the research group at SU and its industrial partner AstraZeneca at Mölndal. The results obtained generated two international PCT patents, commercialized by KeyOrganics Ltd (UK). In 2016 Dr. Suárez-Pantiga moved to the University of Burgos (UBU) as postdoctoral researcher at Prof. R. Sanz group, where he combined research, co-supervision of Ms. C. and Ph. D. students and teaching. In October 2018, he joined Georg-August-University Göttingen (Germany), participating in the EU-funded research project Sulfosol (Prof. M. Alcarazo, ERC-consolidator grant) synthesizing and measuring optoelectronic properties of expanded helicenes. In fall 2019, he joined UBU back at Prof. Sanz group, where he got involved in studying the catalytic activity of dioxomolybdenum complexes and the synthesis of organosulfur compounds, among other topics. Since May 2020, he was funded as PI by La Caixa Foundation (CAIXA-UBU001, FluNitroPhos) with a research grant to develop highly efficient and selective fluorination methodologies. Dr. Suarez authored 35 publications in scientific journals (32 since 2012, 26 since 2017), achieving 664 citations (h-index 13, WOS). He is currently supervising 1 PhD student (funded by Junta C.-L.), 1 post-doc (LaCaixa).

10 most relevant publications since 2012:

Chem. Eur. J. 2021, 27, 13613-13623

Chem. Eur. J. 2021, 27, 13358-13366

Angew. Chem. Int. Ed. 2019, 58, 2129-2133

Green Chem. 2019, 21, 213-218





Org. Lett. 2018, 20, 2848-2852

Angew. Chem. Int. Ed. 2017, 56, 12962-12966

ACS Catal. 2017, 7, 7146-7155

Angew. Chem. Int. Ed. 2015, 54, 14094-14098

Angew. Chem. Int. Ed. 2012, 51, 11552-11555

Adv. Synth. Catal. 2012, 354, 1651-1657





Área Temática:	Ciencias y tecnologías químicas
Nombre:	UDDIN , MOHAMMAD AFSAR
Referencia:	RYC2021-034211-I
Correo Electrónico:	soaibchebd@yahoo.co.uk
Título:	Conjugated Polymers and/or Oligomers for Organic Electronics and Biological Applications

Resumen de la Memoria:

Organic semiconductor Polymer solar cells (OPVCs) have great potential as promising candidates for clean and renewable energy sources. OPVCs are attracting increasing attention from both academia and industry, due to the demand for flexible, portable and solution-processable low-cost photovoltaic devices to comply with increasing global energy demand. As results of many efforts for developing OPVCs, the power conversion efficiency (PCE) of OPVCs has been tremendously improved over the past decades. However, the low PCE and device stability is still a hurdle to overcome for commercial applications of OPVCs. To further optimize OPVCs, several challenges have to be considered including the development of highly soluble and crystalline photovoltaic polymers to enable thick film production. Last ten years my research mainly focused on the design, synthesis and characterization of conjugated polymer, small molecule and polyelectrolyte for optoelectronic device applications, in particular for organic Polymer: Fullerene solar cells and Fullerene free solar cells (PSCs) and make structure properties relationship by new material design approaches to improve the device efficiency, stability, and printing process. I have designed and synthesized series of dialkoxyphenylene-BT containing semicrystalline low band gap polymers through noncovalent conformational locking to enhance chain planarity, intermolecular ordering and thermal stability without losing solution processability and that materials have been shown high PCE at thick conventional single-cell device and thoroughly investigated role of intramolecular noncovalent coulomb interactions in semi-crystalline photovoltaic polymers. I have demonstrates that morphological disruption by ternary components can be minimized by designing ternary components which share the same conjugated backbone as the host polymer. This study constitutes an important advance in the understanding and design of ternary blend system and demonstrates effective strategies to achieve highperformance ternary blend PSCs. I have demonstrated that molecular weight of the polymers is interpreted as a principal factor that finely controls the BHJ morphology in All-PSCs, i.e., self-organization and intermixing of polymer donor and acceptor, which influenced the photovoltaic characteristics significantly in the all-PSC devices. I have studied crystalline morphology through GIWAX study for a highly efficient nonfullerene photovoltaic cell and concluded well-aligned frontier energy levels, and well-intermixed crystalline morphology can provide great potential to further increase the power conversion efficiency of nonfullerene solar cells to exceed fullerene-based devices with long time stability. I have also shown design principal for ptype and n-tye semiconductor for better carrier mobility in organic field effect transistor. Beside that I have design and synthesized fluorescence conjugated-polyelectrolyte for fingerprint and bio-imaging. I have also synthesized luminescent conjugated molecule that shown crystal phases which can be reversibly switched by the action of pressure/temperature. Such behaviour confers this material much interest towards its potential applications in the construction of stimuli responsible light emitting materials.

Resumen del Currículum Vitae:

I am currently a Postdoctoral Research Associate (from November 2021) at the University of Illinois at Urbana-Champaign (UIUC), USA. Here I am working in Professor Jeffrey S. Moore s group, and developing organic redox-active molecule design and synthesis for energy storage devices. Before starting work at UIUC I was a Juan de la Cierva-Incorporation Postdoctoral fellow at the ICMM-CSIC (July 2020 ~ October 2021). In ICMM-CSIC I was working under the guidance of Dr. Berta Gómez-Lor, where I have explored the design principle to obtain mechanochromic materials with larger contrast switchable emission colors. Before that, I was a visiting Professor (April 2019 ~ June 2020) at Jiujiang University, China, where I was taught undergraduate final year chemical engineering courses and mentored the undergraduate students research projects. I also worked as a Research Professor (April 2017 ~ May 2018) in the Department of Chemistry, Korea University, South Korea. Where my main duties were research on organic polymeric materials for polymer solar cells improve efficiency and stability and mentoring graduate student, writing funding proposals. I have completed my doctoral degree from department of Cogno-Mechatronics Engineering under Nano Science and Nano Technology College, Pusan National University in Republic of Korea with a thesis titled Design, synthesis and characterization of semi-crystalline conjugated polymer semiconductors for polymer solar cells in August 2016 under guidence Professor Han Young Woo. I have completed my Bachelor and Masters in Chemistry from Shahjalal University of Science and Technology, Bangladesh on 2010 and 2012 respectively. Last ten years my research mainly focused on design, synthesis and characterization of conjugated polymer, small molecule and polyelectrolyte for optoelectronic device applications, in particular for organic Polymer: Fullerene solar cells and Fullerene free solar cells (PSCs) and make structure properties relationship. I also worked device engineering to improve PSCs performance. I have also worked Organic Field Effect Transistor, Organic Light Emitting diode, conjugated oligo/poly-electrolyte for bio-imaging. As a result, I am co-author of 59 peer-reviewed journal articles in high-impact journals including Energy & Environmental Science (4), Advanced Materials (3), Advanced Energy Materials (2), Journal of American Chemical Society (2), Angewandte Chemie International Edition (1), Advanced Functional Materials (1), Chemistry of Materials (6), Journal of Materials Chemistry A (2), ACS Applied Materials & Interfaces (5), Solar RRL (2), Journal of Materials Chemistry C (2), ACS Macro Letters (1), Chemical Communications (2), Macromolecules (5), Polymer Chemistry (4) etc. and 5 registered patent. My articles were cited over 3000 times, this citation record, it is clear that I had a major influence on other scholars understanding of topics such as synthesizing new polymers to improve the power conversion efficiency (PCE) of fullerene-based solar cells, designing materials for use in all-polymer solar cells for performance improvements, developing new organic polymers to provide greater stability and durability in solar cells, and designing ternary blend and tandem solar cells to improve sunlight harvesting over a broader spectrum.



AGENCIA ESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías químicas
Nombre:	VALERO GRIÑAN, MARIA TERESA
Referencia:	RYC2021-034165-I
Correo Electrónico:	teretavale@gmail.com
Título:	Development of technologies to streamline drug discovery

Resumen de la Memoria:

As a truly multidisciplinary scientist I have dedicated my career to the development of innovative technologies to streamline research in the field of drug discovery, paying special attention to the transfer of knowledge. My research has adapted to the rapidly evolving field of drug discovery contributing with innovative ideas to solve current challenges in the field of cancer research in most prestigious groups of 4 European countries (UK, Germany, Greece, Spain). These include the development of more accurate models to better resemble the pathophysiological reality (in 3D, patient-derived in 3D and blood brain barrier), of cell based biosensors to monitor cell behavior in real time without the interference of the researcher and detect drugs in real samples, the creation of new drugs with proved translational potential, the delivery and uncaging of pro-drugs at a local site. These international efforts received the support of the most prestigious international funding (4 MSCA PEOPLE projects, 1 European SME project), were published in top journals (Biosens Bioelectron, J Med Chem, Angew Chem, Cancer Res) with >300 cites and recognized with invitations to international conferences (MSCA Cancer Cluster) and with the edition of a special issue. Collaboration with industry through several contracts was rewarded with a commercialization industrial secret and a patent, while training of young investigators (8 BSc, 2 MSc, 3 PhD, 8 PhD examinations) and public engagement talks have inspired their future career (industry, PhD, postdoc). In addition, a thorough leadership skillset was developed through performing as WP leader for a European SME project, as editor for Curr Phar Des, as reviewer of international grants, as PI in several projects, as Module and Stage Leader, as lecturer in the UK and Spain and international conference organizer.

Resumen del Currículum Vitae:

- C1. Publications [P] (most relevant 10, *corresponding author) [P1] Ortega-Liébana MC, [], Valero T, et al. Angew Chem, 2022, 61, e202111461.
- [P2] Temps C, Lietha D, Webb ER, [], Valero T (21/8), et al. Cancer Res, 2021, 81: 5438 50.
- [P3] Valero T, et al. Journal of Medicinal Chemistry, 2021, DOI: 10.1021/acs.jmedchem.1c00963.
- [P4] Pérez-López AM, Rubio-Ruíz B, Valero T, et al. J Med Chem, 2020, 63(17), 9650 9659.
- [P5] Valero T, et al. Bioorg Med Chem, 2020, 28(1): 115215.
- [P6] Valero T, et al. Bioconj Chem, 2018, 29(9): 3154-3160.
- [P7] Valero T*. Curr Pharm Des, 2014, 20 (35): 5507-5509.
- [P8] Valero T*, et al. Neurochem Int, 2012, 61(8): 1333-1343.
- [P9] Valero T*, Kintzios S. Curr Med Chem, 2011, 18(6): 900-8.
- [P10] Valero T*, et al. Biosen Bioelectron, 2010, 26(4): 1407-1413.
- C2. Congresses [C]
- [C1] Speaker at Marie Curie MSCA Cluster Event on Cancer Research & Innovation, 2021.
- [C2] Co-organizer of Bioorthogonal & Bioresponsive 2019, UK, 2019.
- [C3] Co-organizer of SRUK Cancer Networking Event UK, 2019.
- [C4] Speaker at Bioorthogonal and Bioresponsive, a RSC symposium, UK, 2017.
- [C5] Speaker at Nano-S&T, Singapore 2016.
- [C6] Speaker at XI Spanish-Portuguese Conference on Controlled Drug Delivery, ES, 2016.
- [C7] Speaker at NANO & BIO MED, ES, 2015.
- C3. Research Projects [R]
- [R1] TARGETOF (H2020-MSCA-IF-2019-895664). MSCA Individual Fellow. ES, 2021-23
- [R2] THERACAT (H2020-MSCA-ITN-2017-765497). Co-supervision of PhD student. UK, 2018-20
- [R3] Locally-Controlled Activation of Chemotherapeutics by Palladium Catalysis as a Novel Anticancer Technology. EPSRC, Contracted Postdoctoral Fellow, UK, 2016-21.
- [R4] BRAINHIB (H2020-MSCA-IF-2016-749299), MSCA Individual Fellow, UK, 2018-20.
- [R5] Identification of Dasatinib targets by chemical proteomics. PI, UK, 2017-18
- [R6] Nanopartículas metalofluorescentes para análisis celulares por citometría fluorescente y de masas. External Researcher, ES, 2017.
- [R7] NANOKINOME (FP7-TALENTIA-POSTDOC-267226. MSCA TALENTIA Postdoc Fellow, ES, 2014-16.
- [R8] NANODIANA (CeiBioTic-BS48-2015), CeiBioTic. PI, ES, 2015.
- [R9] FOODSCAN (FP7-SME-2011-286442). European project PI and WP leader, ES, 2011-13.
- [R10] CELLCHECK (FP6-MRTN-CT-2006-035854). MSCA Early Stage Researcher ESR, GR, 2007-10.
- C4. Technology/Knowledge transfer [T]
- [T1] Compound eCF506 [P2] licensed to Nuvectis Pharma Inc., 2021.
- [T2] Patent Title: Dual Probes for Flow Cytometry and Mass Cytometry , 2018.
- [T3] Nanotechnology platform for the detection of pharmacological targets , 2015.
- [T4] Confidential agreement of industrial secret among SMEs to exploit FOODSCAN technology, 2013.
- [T5] Biosensor for pesticide and chemical residue detection. 2011-13



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

[I1] Co-supervision of PhD, 2018-present.

- [I2] PhD examiner: 3 times viva committee member, 4 times external examiner, 2019.
- [I3] Module leader at Univeristy of Bradford (UoB), 2017-18.

[I4] Stage leader at UoB, 2017-18.

[I5] Supervision of 8 BSc dissertations at UoB, 2017-18.

[I6] Supervision of 4 MSc at UGR & UoB, 2015-18.

[I7] Teaching responsibilities >450h, 2015-18.

C6. Accreditations [A]

[A1] Associate professor PGCHEP by the Higher Education Academy (HEA), UK, 2018.

[A2] Profesor Contratado Doctor accreditation by ANECA, Spain, 2018.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías químicas
Nombre:	BALAGUER RAMIREZ, MARIA
Referencia:	RYC2021-033889-I
Correo Electrónico:	marieta.br@gmail.com
Título:	Materiales y dispositivos electroquímicos avanzados para la producción verde y el almacenamiento de
energía	

Resumen de la Memoria:

I started my research career with a specialization grant in the Nanophotonics Technology Center, on the study of porous silicon (pSi) based nanomaterials for biomedical and environmental applications. This kind of nanoparticles were fabricated by electrochemical methods. The results of this research stage were reported in 5 publications and presented in 4 conferences. Unfortunately, the research group was dissolved at the end of 2008.

To keep focused on the research in electrochemistry, I obtained a specialisation grant at the Institute of Chemical Technology (ITQ), in Valencia, in 2009, moving to the field of solid-state electrochemistry. I received a 4 year FPI grant (BES-2009-015835) for doing the PhD at the ITQ, ascribed to the project Searching for new solid state oxygen and hydrogen conducting materials by combinatorial chemistry . The first part of my research included the screening of hundreds of materials by combinatorial methods to identify new promising materials regarding proton, oxide-ion or p/n-type conduction properties, or a suitable combination of them for use in electrochemical devices. The screening entailed parallel preparation of materials, primary characterisation (XRD, Raman, ICP, UV-Vis spectroscopy, XPS, etc.) and subsequent electrochemical studies such as AC/DC conductivity measurements and transient relaxation techniques. To complete the characterisation, I stayed 3 month in the University of Twente to perform surface characterisation experiments bi pulse isotopic exchange technique, with Prof. Henny Bouwmeester.

A great share of my work was performed on fluorite structured doped ceria materials. Dopants were thoroughly selected, i.e. aliovalent dopants with a different size than the host material to confer ionic conductivity, and more than one oxidation state to infer electronic conductivity. The effect of co-doping was also considered.

After the characterization of these materials, they could be of use as membrane materials or for electrochemical cells, especially when combined in a dusl-phase composite, which I have thoroughly studied.

Some other materials were used as an electrolyte. Although electrolytes can be improved, the main limitation of these cells are in the electrodes, especially in the protonic electrolyte ones, working at lower temperature.

For protonic electrolyte cells, perovskite structured materials based on lanthanum chromite were studied as a fuel cell anode (H2 dissociating site) due to their electronic properties.

In 2013, I joined Forschungszentrum Jülich (FZJ), a reference research institute with top scientist and facilities in the field of solid oxide electrochemical cells and membranes, as well as high expertise in fabrication and scalability of devices. The selection of this center allowed me to study the influence of the architecture of the device in the final performance, while designing and testing new materials.

Back in ITQ, I received a Juan de la Cierva Incorporación Grant. I am using my learning in the design of new electrochemical reactors for chemicals production working at low temperatures in the frame of the CO2SMOS project and upcoming AMBHER project, as well as keep on working in the fundamental optimisation of electrocatalytic electrodes in the frame of FunKey Cat Project.

Resumen del Currículum Vitae:

I completed my doctoral thesis on ceramic materials for gas separation at the Institute of Chemical Technology (ITQ), in Valencia on the frame of a FPI grant (MCINN). This thesis was graded Cum Laude and received the UPV Doctoral Thesis Extraordinary Award in 2014, and the International Mention. PhD included a 3 months stay with Prof. Henny Bouwmeester at the University of Twente (The Netherlands). The work involved the enrolment and autonomous participation in two industrial contracts related to electrochemical devices for low emissions power plants, which gave rise to several publications and a patent (ES2392872).

Since November 2013 to 2016, I was associated postdoctoral researcher in Forschungszentrum Jülich GmbH, in Germany, coordinating the development of protonic materials, and starting and leading a new research line in manufacturing technologies by freeze casting. By the new idea of combining freeze casting with magnetic fields, I developed a patent for the production of hierarchical and functional porous supports for electrochemical modules (European patent EP3260259).

I work in ITQ (CSIC) since 2016. In 2019, I was awarded as a PI with a Juan de la Cierva Incorporación grant at the ITQ. I have participated in 15 research projects (2 National, 11 International and 2 Industrial), being active and main part in the proposal writing of 5 of them. Currently, I am leading the research and coordination of tasks of the European Projects EU M-ERA-FunKey Cat, CO2SMOS and AMBHER, related to the fabrication of fuel cell materials, electrocatalysts and electrochemical performance and with the production of ammonia for energy storage, respectively. Previously, also for GoPHy MiCO Project.

I have published 43 scientific articles in peer-reviewed journals (8 without my thesis supervisor), being first author of 11 and active writing partner in all of them. I participated in 40 international conference presentations, 15 of them as oral (including an invitation as oral speaker on gas separation membranes). I was also actively involved in the organization of 4 conferences.

I have been expert evaluator for European Comission H2020 proposals, for the Netherlands Organisation for Scientific Research, and peer reviewer of several international journals. I am guest editor in Membrane mdpi journal for two Special Issues (2020 and 2021). As for science dissemination activities, I participated in science education in CienciaLab (2019), Pint of Science festival (2019), CSIC press notes, TV clips (La Universidad Responde RTVE) and UPV radio.

I am tutoring a doctoral thesis on the influence of microwaves energy in the redox properties of materials (due date November 2022). I tutored 4 master thesis (one in FZJ) and 2 international internships.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	MANGAS SANCHEZ, JUAN
Referencia:	RYC2021-032021-I
Correo Electrónico:	mangasjuan84@gmail.com
Título:	Development of new biocatalytic strategies in sustainable chemistry

Resumen de la Memoria:

I obtained my PhD in March 2013 at the University of Oviedo (Spain) under the supervision of Professor Gotor and V. Gotor-Fernandez working on new chemoenzymatic routes to optically active alcohols via biocatalytic steps mediated by lipases and alcohol dehydrogenases and chemocatalytic steps (metal and organocatalysis). I received funding from the FPU program from the Spanish Ministry of Education and Science to conduct my doctoral studies. During this period, I also received funding for a 3-month placement at the York Structure Biology Laboratory under the supervision of Prof. Gideon Grogan where I was involved in a project to identify new transaminases for organic synthesis. After completing my PhD, I spent time at Lund University in Sweden working in Professor Patrick Adlercreutz s group on the optimisation of chemoenzymatic processes to obtain biodiesel, tailored triglycerides and prebiotics using hydrolases. In 2015, I joined the group of Professor Nicholas Turner as a research associate at the Manchester Institute of Biotechnology. For the first 3 years, I was involved in a series of projects focused on the discovery, characterisation, engineering, and synthetic applications of imine reductases as part of a 3-year joint project with the University of York from the Biotechnology and Biological Sciences Research Council (BBSRC UK). The findings of this fruitful collaboration were published in high impact factor journals which ultimately led to receiving the 2021 Rita and John Cornforth Award by the Royal Society of Chemistry. During that time, I actively collaborated with industrial partners such as Johnson Matthey, Roche or Pfizer. During the 2018-2020 period, I started a new research line in the directed evolution of oxidases. Specifically, we used computational tools and different models developed in a collaboration with a computational chemistry group within the same institution to predict beneficial mutations in 6-hydroxy-D-nicotine oxidase (6-HDNO) to increase the catalytic efficiency. In June 2020, I started my own research group at the Institute of Chemical Synthesis and Homogeneous Catalysis (ISQCH-CSIC) in Zaragoza under the ARAID program. During this time, I have started three distinct research lines with the motivation of overcoming the existing limitations of enzyme catalysis in chemical synthesis. The first research line is focused on the design of artificial metalloenzymes which allows the combination of both transition metal and biocatalysis advantages, and it also constitutes a platform to access novel metal complexes bearing biological ligands with potential therapeutic applications. I am also interested in the construction of cooperative processes by combining different catalytic steps in the same reaction vessel. I have recently received funding from the AEI (PID2020-113351RA-100/AEI/ 10.13039/501100011033) to explore this area. Finally, I am also interested in identifying new enzymes with potential use in industrial biocatalysis. I have submitted a proposal on this topic to the recent call from the AEI proyectos de transición ecológica as a co-PI.

Resumen del Currículum Vitae:

I am currently developing my independent career as ARAID senior researcher at the Institute of Chemical Synthesis and Homogeneous Catalysis (ISQCH-CSIC) in Zaragoza. I am an expert in the discovery, engineering, and study of the synthetic applications of enzymes in organic chemistry. I also have an excellent track record in the construction of synergistic cascade processes by combining either several enzymatic steps or chemical and biocatalytic steps. Furthermore, I have ample expertise in the use of a variety of enzymes in asymmetric synthesis as well as knowledge in the different complementary and compatible catalytic strategies. I am co-author of 36 publications in top-ranked journals in the fields of chemistry multidisciplinary such as Nature Chemistry, Journal of the American Chemical Society, or Angewandte Chemie as well as in multidisciplinary sciences journals such as in Science Advances. I have actively contributed to international scientific conferences in the field through oral presentations, enjoying a wide network of collaborators in both academia and industry. I am currently supervising a PhD thesis and a graduate project, and have supervised several master s and graduate projects at the University of Zaragoza on the research lines I started as an independent researcher. I have also supervised students and visiting researchers at Lund and Manchester universities. I have received funding as a PI from different funding bodies (AEI, BBSRC) and I am also part of the BIZENTE project, a consortium consisting of 10 partners from 5 different European countries, which focuses on the directed evolution of enzymes to degrade and recycle thermoset composites. Moreover, I have teaching experience at master s (Lund University) and undergraduate (Associate Professor University of Zaragoza) levels. I am a board member of the biocatalysis division at the European Federation of Biotechnology and an expert reviewer at the AEI. I am also involved in outreach activities through talks and events organisations. I have been awarded the 2021 Rita and John Cornforth Award by the Royal Society as a team member at the University of Manchester together with the University of York, Prozomix, and GSK for the development of new biocatalysts for asymmetric reductive amination, from fundamental understanding of mechanism and structure to applications on an industrial scale



Área Temática:	Ciencias y tecnologías químicas
Nombre:	SEGARRA MARTI, JAVIER
Referencia:	RYC2021-034191-I
Correo Electrónico:	javier.segarra@uv.es
Título:	COHERENT CONTROL OF DNA PHOTODYNAMICS: UNCOVERING NEW PHOTO-PROTECTION ROUTES
D	

Resumen de la Memoria:

My research is framed within Computational Chemistry, where I develop theoretical models to simulate light/radiation-induced phenomena and use time-resolved spectroscopies to monitor them. I use computer models that connect molecular structure to experimental observables like those recorded in non-linear spectroscopies, which produce time-dependent signals that I map to specific molecular motions producing molecular movies of photoreactions that help us understand these complex processes.

My specialty is theoretical photochemistry, a multidisciplinary field connecting chemistry to physics, optics, biology and medicine. My research focuses mostly on studying radiation-triggered processes in DNA to understand the molecular mechanisms that make our genetic material resilient (or photostable) as well as those that generate lesions, and how these lesions might be repaired. DNA lesions can lead to mutations upon replication, and these are believed to be the first molecular steps in skin cancer melanomas, a growing societal healthcare concern.

I have worked in multiple scientific environments and brought on innovation on different fronts, enabling me to develop high-quality original research. During my PhD I used strongly correlated electronic structure methods to study the molecular mechanisms that grant photostability to DNA nucleobases upon absorption. During my first postdoc in Bologna I devised solvent models to study DNA nucleosides embedded in realistic biological environments and further developed theory to create more cost-effective computational tools. In Lyon I contributed towards creating computational models able to simulate time-resolved spectroscopic fingerprints, enabling the production of molecular movies to understand photoreactions and connecting theory to experiment on an even footing. In London I studied photoionisation in DNA, which refers to the absorption of high-energy radiation: this triggers electronic motions which can nowadays be measured, and that can moreover be controlled to steer reactivity in desired directions in the new field of attochemistry.

I have therefore worked on multiple topics that touch upon my central goal of studying and understanding light-induced DNA reactivity: from solvent to spectroscopy to coupled electron/nuclear motions with UV light as well as strong-field radiation, I have looked at these completely separate research aspects and combined them leading to highly innovative and impactful research.

My selected biggest achievements to date are: i) developing a theory to model accurately non-linear spectroscopies enabling direct comparison with experiment; ii) uncovering additional photostability channels in pyrimidines that foster resilience against radiation, key to preserving our genetic integrity; iii) revealing the photophysics of 5-methyl-cytosine, the most frequent epigenetic modification of DNA, and why it is more prone to lesions than cytosine; iv) devising electronic structure methods included in widely-used open-source packages like OpenMolcas and used by hundreds of scientists worldwide; and v) leveraging classical electronic structure knowledge for its application in quantum computing hardware in collaboration with start-up Cambridge Quantum (UK).

Resumen del Currículum Vitae:

I received my MSc (with best Thesis award) and PhD degrees in Theoretical and Computational Chemistry from Universitat de València in 2014. I then moved to Italy to work with Prof. Marco Garavelli at the Università di Bologna (2014-2016), and then to work with Dr. Ivan Rivalta at the Ecole Normale Supèrieure de Lyon in France (2016-2018). After this I was awarded a prestigious Marie Curie Individual Fellowship hosted at Imperial College London (2018-2020). I returned to Valencia in 2020 as a distinguished researcher within the Generació de Talent (CIDEGENT) regional scheme, and later on secured a Marie Curie La Caixa Junior Leader Fellowship to establish my own independent group at Instituto de Ciencia Molecular (ICMol), Universitat de València.

I have co-authored 46 articles and 4 book chapters in international peer-review scientific journals, mostly within the Physical Chemistry remit. I have led and instigated many of those, being first author in 21 (42%) and corresponding author in 18 (36%) of those. My work accumulates over 2000 citations so far and is published in to journals in my field. I have contributed 9 invited talks and 14 oral communications in international scientific conferences, including the best talk prize in the 3rd DNADNR conference. I have co-directed 5 MSc theses, 1 in Bologna (2016) and 4 at Imperial College (2018-2020), 2 of the latter going on to obtain best Thesis awards.

I have worked in leading institutions across Europe (Spain, Italy, France, Germany & UK) and have been involved in distinguished national (ANR, MINECO, EPSRC) and EU (ERC AdG & MSCA) projects. I have secured competitive extramural funding in prestigious programmes: DAAD (2013), MSCA-IF (2016), Juan de la Cierva Incorporación (2016), Talento CAM Mod. 2 (2016) & 1 (2019), CDEIGENT (2019) and La Caixa/MSCA Junior Leader (2019), accruing >800k to date. I now pursue my independent career at ICMol where I currently co-supervise 1 PhD at Imperial College (due in early 2022) and 2 MSc, 1 BSc and 1 PhD in Valencia.

I am a frequent reviewer for the top international peer-review journals in Physical Chemistry. I am expert evaluator in the prestigious Marie Curie Postdoctoral Fellowship (MSCA-PF-2021), and review for REPRISE (Register of Expert Peer-Reviewers for Italian Scientific Evaluation) and the DAAD (German exchange service) Spain/Germany exchange panel. I have participated in 2 PhD VIVAs and an MSc VIVA committees, and interviewed for UCAS (students admissions program; 2018 2020) at Imperial College.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

I have also organised international scientific events, such as the Modelling Photoinduced Processes in Molecular systems in-person conference at Imperial College on Feb 2020, for which I accrued ~£10k in sponsorships including the MGMS Early-Career Workshop prize. This motivated the editing of a special issue on Photophysics and photochemistry in complex molecular systems for the journal Molecules, where I am now part of their Topical editorial board.

I have also participated in several science popularisation events, like the ICMol open-doors day (2012, 2013) to approach science to children, the EU researchers night in Bologna (2014, 2015) to engage with citizens interested in science or the Imperial CREST award (2019) to tutor high-school students in a science project.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

 Área Temática:
 Ciencias y tecnologías químicas

 Nombre:
 RIVAS SIOTA, SANDRA

 Referencia:
 RYC2021-031964-I

 Correo Electrónico:
 xandrarivas@gmail.com

 Título:
 Sustainable biorefineries: development of processing strategies to valorize biomass into bio-based products

 and biofuels
 Nome

Resumen de la Memoria:

I graduated in "Ingeniería Técnica Agrícola" and "Licenciatura en Ciencia y Tecnología de los Alimentos" at Universidade de Vigo. At the same time, I specialized in 2 technical specific trainings ("Máster PRL" and "Máster en Gestión Ambiental, Calidad y Auditoría para Empresas"). In 2009, I joined the EQ2 group (Department of Chemical Engineering, UVigo) to perform my PhD studies aided with a FPI grant supervised by Prof. Parajó. In 2010, I completed the "Máster en Ciencia y Tecnología de los Alimentos". In 2014, I obtained my PhD and the Extraordinary Doctorate Award. During my PhD, I spent 3 months in the Dipartimento di Chimica e Chimica Industriale (Università di Pisa, Italy) under Prof. Raspolli-Galletti supervision, GreenCat group.

Related to my postdoctoral experience, I completed international stages: 5 months in U. Pisa and 14 months of postdoctoral grant (Xunta de Galicia) in the Carbolea Research Group (University of Limerick, Ireland) supervised by Prof. Leahy. I returned to Spain with a Juan de la Cierva Formación in the group "Desarrollo de Procesos y Productos de Bajo Impacto Ambiental", in the Department of Chemical Engineering and Materials (Universidad Complutense de Madrid) supervised by Prof. Rodriguez. Currently, I returned to EQ2 group with a Juan de la Cierva Incorporación, where I combine research activities with teaching.

The main objectives of my research are focused on the integral and selective separation of biomass constituents and their individualized processing to obtain value-added products, following the biorefinery philosophy. The principles followed are: a) use of biomass with low or residual cost that not compete with the food industry; b) utilization of sustainable and clean technologies, with minimal generation of wastes; c) process integration for the development of versatile reaction technologies.

I worked on the solubilisation of hemicelluloses from biomass and subsequent purification using environmentally friendly technologies, to obtain oligosaccharides and phenolics and phenolics and phenolics and antioxidants) associated with health benefits, being of interest in food and pharmaceutical industries.

I also started a research line on the catalytic conversion of the saccharide constituents of biomass (cellulose and hemicelluloses) to obtain platform chemicals, including 5-hydroxymethylfurfural and levulinic acid (LA) from hexoses and furfural from pentoses. Furans and LA were included by the US Department of Energy in the list of "30 Value-Added Chemicals from Biomass" and by UK in the "Top 10 Green Chemicals". They are usually obtained from petroleum, so this research represents a proposal to obtaining them from biomass, since their interest as bio-based chemicals and green fuels is considered a renewable alternative to the traditional fossil resources that can not be regenerated in a sustainable way.

Related to platform chemicals, I contributed to catalytic conversion of biomass and upgrading of LA in compounds of surplus value such as gammavalerolactone, a versatile solvent and additive for the preparation of alternative fuel transportation mixtures. Currently, I am working on the manufacture of long chain alkyl-levulinates that confer interesting properties as additives for transportation fuels.

Resumen del Currículum Vitae:

EDUCATION:

-"Ingeniería Técnica Agrícola"; "Licenciatura en Ciencia y Tecnología de los Alimentos"; "Máster en Ciencia y Tecnología Agroalimentaria". UVigo. -PhD "Ciencia y Tecnología Agroalimentaria". International Mention. Extraordinary Doctorate Award. UVigo. 2014.

-"Máster técnico PRL"; "Máster en Gestión Ambiental, Calidad y Auditoría para Empresas".

GENERAL QUALITY INDICATORS/SCIENTIFIC PRODUCTION:

-h index:18; total citations: 870. 34 publications in international peer-reviewed journals indexed in JCR (85% published in JCR Q1, 58% of them in top 10%). Among these publications, I am 1st and 2nd author in the 53% and 24%, respectively. I am corresponding author in 6 articles. 50 co-authors, 11 of them are international researchers.

-4 Book Chapters.

-36 works submitted to International Conferences.

-1 National Patent (1st author).

PARTICIPATION IN R&D PROJECTS/CONTRACTS:

-15 R&D competitive projects: 1 International; 6 National; 6 funded by Xunta de Galicia; 1 funded by Comunidad de Madrid; 1 funded by Diputación de Ourense and UVigo (Principal Investigator (PI)/Coordination).

-15 R&D contracts with national/international centres/companies. 11 of them as PI, 4 as participant researcher.

INTERNATIONAL STAGES:

-University of Limerick (Ireland). Carbolea Research Group. 14 months. 1 article, 1 proceeding and 1 work submitted to an International Conference. -Università di Pisa (Italy). GreenCat Group. 3 months as PhD student and 5 months as postdoctoral researcher. 5 articles. Expected Visiting Fellow in 2022.

COMPETITIVE GRANTS:

-Juan de la Cierva Incorporación (IJC2018-037665-I). UVigo.

-Juan de la Cierva Formación (FJCI-2015-23765). UCM.

-Movilidad de Doctores 2018, supported by Fundación Triptolemos and "la Caixa".

-Axudas posdoutorais Xunta de Galicia 2016 (ED481B 2016/040-0). U. Limerick.

-Estadías en Centros de Investigación UVigo, 2013. U. Pisa.

-FPI (BES-2009-028502). UVigo.

TEACHING EXPERIENCE. PhD/BSc/MSc SUPERVISION:



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

-370 hours of BSc Degree teaching (UCM and UVigo) and 24 hours of MSc Degree teaching activities. Docentia UCM17/18, "muy positivo"; 18/19, "positivo". Evaluación Docente UVigo20/21: 4.55/5. 3 teaching seminars.

-Participation in 1 Innovative Teaching Project, INNOVA DOCENCIA18/19 (UCM).

-Co-supervision of 6 BSc Theses (4 in UVigo, 2 in UCM) and 2 MSc Theses. Currently, supervising 1 PhD Thesis and 3 BSc students.

EVALUATION/REVISION OF R&D PROJECTS AND ARTICLES:

-Projects: FONCyT and CONICyT (Chile); PICT2018, MINCyT (Argentina); "Redes Iberoamericanas" (4) as member of the Scientific Comittee, OEI. -38 review articles indexed in the JCR, mainly Q1. Reviewer Member Board of Processes (MDPI). Certificate of Outstanding Contribution in Reviewing (Industrial Crops & Products).

-Evaluation Comittee: 1 PhD Thesis, 1 BSc Thesis and 18 MSc Theses.

-Member of "Banco de Expertos" of AEI (MICIN).

ORGANISATION OF ACTIVITIES:

-Co-organisation of R&D and dissemination activities: BioDSost19, BioDSost20, BioDSost21, "eXXperimenta en feminino", "III Xornada de Divulgación en Ciencia, Tecnoloxía, Enxeñaría e Matemáticas"...

CREDENTIALS:

-"Ayudante Doctor", "Contratado Doctor", "Profesor de Universidad Privada" (ANECA).

-I3 Certificate (MIU).

COLLABORATIONS:

U. Pisa, U. Limerick, U. Bologna, U. Autónoma de Nuevo León, U. Complutense de Madrid, U. Autónoma de Madrid, U. Santiago de Compostela.





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Área Temática:	Ciencias y tecnologías químicas
Nombre:	FERNANDEZ CESTAU, JULIO
Referencia:	RYC2021-034075-I
Correo Electrónico:	juliofernandez50@gmail.com
Título:	Applied Organometallic Chemistry for Photoactive Materials and Biohybrid devices
Resumen de la Memoria:	

My research career is divided into 5 periods:

1) Pre-doctoral period at the Universidad de la Rioja (2005-2011)

My research career started in 2005 during the last year of my degree in Chemistry. In that period I start a project in the group of Prof. Elena Lalinde at Universidad de la Rioja . After finishing my degree, I did a three months research stage at Queen s University (Belfast) under the Erasmus program. In January 2006 I started my PhD in the group of Prof. Elena Lalinde at Universidad de la Rioja . I was awarded a competitive FPI grant from the Comunidad de La Rioja and I incorporated as a researcher in a National Project. I did a research stage in Koln (Germany). I finished my PhD Summa Cum Laude with European mention.

2) Post-doctoral period at the Universidad de la Rioja (2011-2013)

After finishing my PhD, I stay in the same institution as a researcher in a new National Project. In this period, I had the opportunity to close the projects that I had opened and to acquire a wider experience in supervising and in the design and leadership of my own research projects. In particular, I open a research line in the synthesis of mixed acetylide /cyanide Pt(II) complexes and I supervised one TFG.

3) Post-doctoral period at the University of East Anglia (2014-2018)

In 2014 I was appointed as Senior Post-Doctoral Researcher in the ERC Project Gold(III) Chemistry: Structures, Bonding, Reactivity and Catalysis (338944-GOCAT) (PI Professor Manfred Bochmann).

There, I open a new line in the study of Luminescent Au(III) complexes and discover the first TADF (Thermally activated delayed fluorescence) emissive pathway in Au(III). I participated in the advisor team of 2 internal PhD and 3 overseas visiting PhD students who each spent periods of 3 6 months in the lab and 2 final year MChem project students.

I also participated in other 4 sub-projects: Gold in the Water-gas shift reaction, Au(III) and Au(I) hydrides, TADF complexes for OLEDs and Au(III) derivatives for the treatment of cancer.

4) Researcher at IMDEA materials (2018-2020)

At the beginning of 2018, I was awarded an H2020-MSCA-IF-2017 grant to move to the group of Dr. Rubén Costa at IMDEA materials institute where I moved in August 2018.

At IMDEA my project was focused on the design of new generation LECs (light electrochemical cells) with new properties such as white polarized emission and flexible character.

I was responsible for the set-up of this new line, as well as co-supervising 1 PhD. I co-supervised one TFG student.

5) Subgroup leader at the Technical University of Munich(August 2020-)

In August 2020 I moved to Germany to take the position of Subgroup leader Synthesis and Photoactive materials in the Chair of Biogenic Functional Materials (Prof. Dr. Ruben Costa) at the TUM Campus Straubing.

The main goal of my group is the synthesis of materials to be used in optical devices in the context of the different projects on the Chair. I am directly involved in 5 projects, including national and European funding and I have applied for one national project as a PI. I am responsible for the designing of projects and set-up the lab, recruitment and I am mentoring 1 PhD student. I am a lecturer at the TUM.

Resumen del Currículum Vitae:

I got my PhD in Chemistry with the highest honours (Suma Cum laude) and special European mention in UR (Spain) under the supervision of Prof. Elena Lalinde and Prof Jesús Rubén Berenguer. During my PhD, I acquired fully competence for the synthesis, characterization, and determination of photophysical properties of organometallic complexes. From 2011-2014, I continued working as Associated Researcher at this University. During this period, I open my own side projects in the field of organometallic luminescent compounds (1 Chemistry Eur. J. and 1 Organometallics as corresponding author) and I took on co-supervising and managing responsibilities.

I participate in a total of 8 funded research projects, including two Spanish national projects.

In January 2014 I moved to England where I worked as a Senior Post Doctoral Researcher in the group of Prof. Manfred Bochmann at the University of East Anglia (UK). I was enrolled as Co-PI i338944 GOCAT, focused on the synthesis of Au(III) complexes for the understanding of bond, structure and catalysis. However, I designed and manage to open new research lines in the field of emissive Au(III) and Cu(I) complexes, setting up new spectroscopic facilities. The pioneer results that I obtained are clear as, for example, we identified the first ever example of TADF (Thermally activated delayed emission) and AEE (aggregation-enhanced emission in gold). I co-supervised master (2) and PhD (5) students for different periods and become a recognized researcher in the field of pincer complexes of gold, being author of a chapter of a book.

In 2018 I moved to IMDEA Materials in Madrid (Spain) with a competitive Marie Curie fellowship. I drove my career into Materials Sciences in the group of Prof. Rubén D. Costa and the objective of the project was to design circular polarized light-emitting electrochemical cells (CP-LECs). However, I also participate in projects related with TADF Cu(I) LECs, Supercapacitors, and Protein-nanoparticles biohybrid LEDs.

In 2020 the group and I moved to the TUM (Germany) where I was enrolled as sub-group leader in the chair of Prof. Costa. The chair is structured in two main lines: one line focused in fluorescent proteins and a second, that I lead, in the design and the synthesis of materials for photonics application. I participate in 5 different projects like the ER project Advanced biohybrid lighting and photovoltaic devices (2 million euros). Besides, I have



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

submitted my own research grant proposal SILVER(I) complexes for white Light-emitting Electrochemical Cells Silver-LEC to the DFG Deutsche Forschungsgemeinschaft. This proposal is in evaluation. As a leading scientist, we have just published our first paper in Advanced Materials (as corresponding author). Last but not less, I take teaching responsibilities in two Master and three degrees program, I have co-supervised one TFG and I am co-supervising two Master students and mentoring two PhD.

In summary, my strongest quality is my unusual multidisciplinary profile, with a broad mix in chemistry, materials sciences and biomaterials and I have success in all these fields and in three different countries. My production is 39 papers in peer-review international journals. 853 citations received. h index of 21.

1 book chapter.

1 book about the history of Chemistry.

30 contributions to scientific conferences.





Área Temática:	Ciencias y tecnologías químicas
Nombre:	SORRIBES TERRES, IVAN
Referencia:	RYC2021-034137-I
Correo Electrónico:	ivan.sorribes@gmail.com
Título:	From molecular clusters to nanostructured materials: design and catalytic applications

Resumen de la Memoria:

The research career of Dr. Iván Sorribes has been developed at the frontier of knowledge of various areas of chemical sciences ranging from inorganic, physical and organic chemistry to homogeneous and heterogeneous catalysis. As an undergraduate and master student at the University Jaume I (UJI) and the Institute of Molecular Science (ICMOL), respectively, he became familiar with gas-phase and coordination chemistry. His PhD dissertation at UJI, which included research stays abroad for 5 months, was funded through a FPI-UJI (2008-2009), the prestigious FPU (2009-2012), and FPU mobility fellowships. His PhD work dealt with the synthesis, characterization and properties, including reactivity and catalytic investigations, of homo- and heterobimetallic molybdenum chalcogenide clusters. The pre-doctoral stage resulted in 13 publications and 1 more recently reported.

His postdoctoral scientific career can be classified in 3 Postdoctoral Orientation Periods (POP), and a Consolidator Phase constituted by 2 different stages. After his PhD, his first POP consisted in a 6-month postdoctoral stage in the same group, where he consolidated the research line on Cluster Catalysis, and co-supervised 1 Master and 1 PhD theses on this topic, which collected 4 papers. In the second POP, he enhanced his knowledge on homogenous catalysis during his two-year stay at the Leibnitz Institute for Catalysis (Rostock, Germany) working on the design of transition metal-mediated homogeneous catalytic processes mainly involving reductive functionalization reactions, as for instance, N-alkylations using CO2 and carboxylic acid derivatives. His work was reflected in 7 papers.

Then, his research interest shifted towards the area of heterogeneous catalysis and solid materials design in the third POP performed at the Institute of Chemical Technology (ITQ) for 3 years, first as a Juan de la Cierva fellow (Call 2013) and later with a postdoctoral grant of the Polytechnic University of Valencia. He focused on the preparation of cobalt-molybdenum sulfides and their application as catalysts for selective transformations in fine chemistry, including hydrogenation and hydrogen autotransfer reactions. His accomplishments were collected in 3 articles.

After being awarded a Juan de la Cierva-Incorporación contract, he returned to UJI in May 2018 and started to develop his independent research working on metal-doped In2O3, bimetallic nanostructured N-doped carbonaceous materials, and MoS2. He obtained more funds as Principal Investigator from 2 projects, one funded by UJI, and the other one from the Mobility Program José Castillejo of the Spanish Ministry of Science. Thus, he performed a 3-month research stay at the Centro de Desenvolvimento de Materiais Funcionais (Saõ Carlos, Brazil), and co-supervised a PhD work through an international cooperation with a group of the Federal University of Uberlândia (Brazil). The entire period resulted in 4 publications. Nowadays, he has already consolidated his independency supported by the GenT Plan of the Valencian Community through a self-driven project SEJI. There, he works on the development of heterogeneous catalysts based on metal oxides/sulfides for efficient and environmentally benign catalytic reactions. To date, on this topic he has published 2 papers, supervised a Master Thesis, and currently he is supervising 1 PhD student.

Resumen del Currículum Vitae:

Iván Sorribes was born in Castellón de la Plana (Spain) in 1983. He obtained the Bachelor's degree in Chemistry (2007) and Master's degree in Molecular Nanoscience and Nanotechnology (2009) from the University Jaume I (UJI). As a FPI-UJI (2008-2009) and FPU (2009-2012) fellow, he developed his PhD thesis (awarded with the Cum Laude mark, the international mention, and the UJI doctorate prize) on the chemistry of molybdenum chalcogenide clusters. He received funding from competitive calls (such as FPU Mobility Grant) to carry out 2 research stays abroad (5 months), and 2 national ones (1 month). At the same group, he performed a 6-month postdoctoral stage where he consolidated the research line on Cluster Catalysis . In 2013, he carried out a 2-year postdoctoral stay at the Leibniz Institute for Catalysis (Rostock, Germany) working on the design of transition metal-mediated homogeneous catalytic processes mainly involving reductive functionalization reactions. Remarkably, he also participated in 3 contracts with chemical industries. In 2015, he moved for 3 years to the Institute of Chemical Technology (ITQ) funded, first with a Juan de la Cierva (Call 2013), and later with a postdoctoral grant of the Polytechnic University of Valencia. He prepared nanolayered cobalt-molybdenum sulfides and applied them as heterogeneous catalysts for selective transformations in fine chemistry. In May 2018, he returned to UJI with a Juan de la Cierva-Incorporación contract, and he started to develop his own research lines in the area of heterogeneous catalysis and nanoscience, which were further funded through a competitive project from UJI, and from the Mobility Program José Castillejo . This period included a 3-month research stay at the Centro de Desenvolvimento de Materiais Funcionais (Saõ Carlos, Brazil). Since July 2020, supported by a self-driven project SEJI from the GENT Plan of the Valencian Community, he has led at the ITQ the research line on the development of metal sulfides/oxides as heterogeneous catalysts for effi

He has participated in 23 research projects: 5 European (3 funded by industry), 10 National (2 including I+D+i international programs), 4 Regional and 4 Local ones. He has been PI in 7 of these projects (373.646,11). He accumulates 32 months of mobility abroad, 5 as a PhD student and 27 as a postdoctoral researcher. His scientific output includes 34 publications (5 as corresponding author (CA)): Impact Factor-IF > 8 [12]; 8 < IF > 4 [14]; almost 90 % in Q1; 56% in D1; 1357 citations (WOS); h-index of 19 (WOS) and i10-index of 27 (Google Scholar). He is 1st or CA in circa 70% of the articles published during his postdoctoral stages.

He has presented his scientific achievements in international conferences through 10 poster communications and 10 lectures (1 invited talk). He coorganized the III IWTMC Conference (Benicassim, 2012). He is a regular scientific reviewer of Nat. Commun.; J. Am. Chem. Soc.; Green Chem.; J. Catal; Appl. Catal., A; ChemCatChem; J. CO2 Util.; J. Phys. Chem. Solids. In addition, he is a collaborating expert of the Coordination and Evaluation Subdivision of the State Research Agency (AEI).

He has supervised 2 Master and 2 PhD Theses (1 through an international cooperation ((Brazil)), and 1 PhD supervision is ongoing. He has been accredited as Associate Professor-tenured (Profesor Titular) by ANECA and he has received the Spanish I3 Certification.



AGENCIA ESTATAL DE INVESTICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías químicas
Nombre:	FUMANAL QUINTANA, MARIA
Referencia:	RYC2021-030924-I
Correo Electrónico:	mfumanal@gmail.com
Título:	Modelling and design of photoactive molecular materials
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Resumen de la Memoria:

My research career started at the University of Barcelona where I did my PhD with Prof. J. J. Novoa and Dr. J. Ribas-Ariño (2011-2015), and continued as a PostDoc at the University of Strasbourg with Prof. C. Daniel (2015-2018). In 2018 I joined the Ecole Polytechnique Federale de Lausanne (EPFL) to work as a senior postdoctoral researcher with Dr. I. Tavernelli at IBM Zurich and Prof. B. Smit. Since 2020, I work at EPFL in the group of Prof. C. Corminboeuf where I obtained a Marie Sklodowska-Curie Individual fellowship to conduct my research. During my PhD I did two research stays abroad in 2014 at the Trinity College Dublin (2 months) with Prof. S. Sanvito, and in 2015 at the University of Strasbourg (4 months) with Prof. G. Wipff.

My PhD thesis was focused on the study of the supramolecular radical-pair association between organic molecules, in particular in investigating the stability of the dimerization process and its consequences in the magnetic, optical and conductive properties of different materials. My research at Trinity College was devoted to the theoretical study of Fe-based spin crossover molecules by means of different ab initio methodologies. Additionally, I worked in different projects with Prof. G. Aromi, Prof. J. Veciana, Prof. V. Robert, among others. The outcome of these studies lead to several publications in high impact journals.

My postdoc at the University of Strasbourg, was dedicated to study the structural, optical and photophysical properties of Re(I) and Mn(I) chromophores. In particular, to design new computational protocols to study the mechanism of the excited state dynamics after absorption. During this period, I had strong collaborations with Prof. L. Gonzalez (Vienna), Prof. A. Monari (Lorraine), and Prof. S. Maeda (Hokkaido) and Prof. L. X. Chen (Illinois) The success of the work is illustrated by the number and quality of the resulting publications. Moreover, I designed and supervised the final project of a Master student that resulted in a publication.

The research I developed at EPFL with Dr. I. Tavernelli in IBM Zurich was devoted to design new Metal-Organic Framework (MOF) materials for energy applications such as solar-driven photocatalysis. During this time I supervised a PhD student in his studies of optically active MOFs that has led to several publications. During my MC fellowship I studied conjugated polymers for intramolecular singlet fission (SF) to improve the power conversion efficiency of solar cells. In this project I supervised one PhD student in his studies of donor-acceptor copolymers for SF, which resulted in several articles. In addition, the last year I have been PI of an ambitious HPC project devoted to the high-throughput screening of MOFs for photocatalysis performed in the CSCS swiss national supercomputing centre, and I co-supervised two international visiting PhD students.

My current research interests are oriented towards the investigation of molecular systems and materials with improved physico-chemical properties and to the development of innovative models and computational tools for molecular materials design. I am particularly interested in making progress into the next generation of solar cells and solar-driven processes, aiming at providing (within the collective effort) new clean and renewable energy alternatives that can cover the global energy demand.

Resumen del Currículum Vitae:

During my doctorate and postdoctoral experience, I have acquired extensive knowledge in computational chemistry for molecular modeling using electronic structure calculations ranging from accurate wavelength-based methods for small molecules, to solid state calculations using density functional theory (DFT) methods. I used classical and ab initio molecular dynamics, as well as non-adiabatic quantum dynamics in the study of excited states processes of organic and inorganic molecular systems. Finally, I developed automatized computational protocols for high-throughput screening in the context of an accelerated discovery of new materials for solar energy applications. In short, I have contributed to the fields of molecular magnetism and photochemistry, as well as to theoretical and computational chemistry.

My research is published in general chemistry journals like J. Am. Chem. Soc. and Chem. Sci., as well as in physical chemistry journals such as J. Chem. Theory Comput. and J. Phys. Chem. Lett. and in high impact materials chemistry journals such as Chem. Mater., J. Mater. Chem. A and Adv. Funct. Mater. I have coauthored 48 publications (40 of first quartile JCR) from which I am first author of 25, and corresponding author of 6, and I have been coauthor of a review article on the quantitative theoretical analysis of molecular properties of excited states (Coor. Chem. Rev. 2018, 361, 74). I have an h-index of 17 and a total number of citations above 750.

Throughout my doctoral and postdoctoral experience, I have worked in close collaboration with several renowned researchers; Prof. J. Miller - Utah, Prof. L. Gonzalez - Vienna, Prof. J. Veciana - Barcelona, Prof. S. Maeda - Hokkaido, Prof. S. Sanvito - Dublin, Prof. G. Aromi - Barcelona, Prof. B. Smit -Switzerland, Prof. L. X. Chen (Illinois) among other talented researchers who have provided me a valuable scientific network of contacts. All these collaborations lead to several publications in high impact journals.

I have been always proactive in teaching and supervisory tasks; I have 240 hours of teaching experience, and I have supervised an internal student, two Master students, two PhD students and two international visiting PhD students. I have also participated in several conferences giving a total of 10 talks, 3 of which as invited speaker, and also presenting 10 posters. Recently, I have also been invited to present my research in an online webinar, and I am regularly asked to review articles for ACS, RSC, Wiley and others editorials, as well as projects of my expertise (such as the national program Fondecyt of Chile). In addition, I have led as PI an HPC project developed in the swiss national supercomputer center. In my current position, I am able to work independently and design my own research projects by identifying research targets, establishing methods to address them and defining a strategy for publishing and disseminating the results.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	MUÑOZ MARTIN, JOSE MARIA
Referencia:	RYC2021-033820-I
Correo Electrónico:	josemaria.munoz88@gmail.com
Título:	MOL3DTRONICS: Molecularly Engineering 3D-Printed Programmable (Opto)Electronics: Biorecognition
Systems, Logic Gates &	Switching Memories

Resumen de la Memoria:

The research career of Dr. Jose Muñoz has followed an interdisciplinary nature, since his research lines have demanded contributions from i) Materials Science, ii) Surface Engineering, iii) Electrochemistry, iv) Supramolecular Chemistry, v) Electronic Devices and v) Nanotechnology. This fact has led him to publish 34 high IF papers (28 as first-author, 6 as corresponding author) in several fields, including Multidisciplinary Chemistry, Multidisciplinary Materials Science and Analytical Chemistry.

The Research line MOL3DTRONICS leverages on breakthrough emerging 2D materials (i.e., Germanane, MXene, etc.), 3D printing technology and surface engineering to revolutionize the field of Molecular (Opto)Electronics. The use of such cutting-edge 2D materials as unconventional 3D-printed transducers to harbor active (supra)molecular components to apply binary logic at the molecular level is nowadays an unexplored field. This gap will be filled through the innovative action to implant molecular properties to 2D-materials-based 3D-printed transducers to design a new generation of Programmable 3D-printed Molecular (Opto)Electronics. The transition from conventional semiconductor silicon systems to unconventional molecular carbon ones for information processing implies a bottom-up migration in the Periodic Table. Thus, MOL3DTRONICS has been devised as a novel, facile, versatile and generic environmentally friendly bottom-up approach, where tailored responsive transducers carrying active molecules are pursued. Importantly, the high expertise of the candidate in Electrochemistry will be very valuable for monitoring electrical output signals derived from the resulting stimuli-responsive intelligent devices.

Such enterprising and multidisciplinary research line is supported by his leading research in Molecular 3D-Printed Electronic Materials/Devices, resulting in several high IF publications, including: 1 Advanced Functional Materials (IF: 18.8), 1 ACS Nano (IF: 15.8), 1 Angewandte Chemie (IF: 15.3, highlighted as a HOT PAPER), 1 Chemical Engineering Journal (IF: 13.3), 1 Small (IF: 13.3), 1 TrAC Trends in Analytical Chemistry (IF: 12.3), 1 Carbon (IF: 9.5) and 1 ACS Applied Materials & Interfaces (IF: 9.2), among others. These publications demonstrate that there is enough room to exploit 3D-printed substrates (e.g., made of 2D materials) carrying stimuli-responsive (supra)molecular moieties for the development of programmable 3D-printed Molecular Electronics (e.g., bio-sensors, logic gates and switching memories) capable of processing binary logic at the molecular level. In this regard, 3D structures can be simply electronically updated/upgraded and distributed electronically around the world at the speed of light, making software updates to precipitate in real-world via 3D printers. Such capability is especially important when dealing with urgent diseases as COVID-19 global pandemic event.

Therefore, the proposed Research Line will generate new knowledge in Materials Science and Molecular Electronics through tuning a new generation of Intelligent Materials/Devices towards the development of at-point-of-use Biosensors, Switching Memories and Logic Gates, a challenge that will have a transformative impact on modern science and technology and respond to the current needs of our society.

Resumen del Currículum Vitae:

Dr. Jose Muñoz is currently working as a PI at CEITEC-BUT (Czech Republic) with a prestigious MSCA-IP grant (funding: 145 k). His research career has followed an international course and he made significant contributions to different fields, including Electroanalysis, Surface Engineering, Materials Science, Supramolecular Chemistry, Electronic Devices and Biosensors. This clearly demonstrates the multidisciplinary background of the candidate.

He joined the Sensors and Biosensors Group (UAB) of Dr. Mireia Baeza with a PIF grant in 2011, where his activity was devoted to the characterization, customization and (bio)sensing applications of carbon-based electrochemical transducers. His PhD Thesis was qualified with Cum Laude on 28/09/2015 and laureate with the Extraordinary PhD Thesis Prize. During that time, he established a fruitful international collaboration, resulting in a pre-doctoral and post-doctoral research stays at Trinity College Dublin (TCD, Ireland) under the supervision of Prof. Y. Gun ko.

Extremely motivated by the possibility to design electronic devices on demand, he joined the NANOMOL Group (ICMAB-CSIC) of Dr. M. Mas-Torrent as a post-doctoral researcher in 2016, gaining the JdC-F Fellow in 2017. There, he started 3 novel and ambitious research lines under an ERC project, gaining expertise in Supramolecular Chemistry, Self-assembling Monolayers and Organic Field-Effect Transistors technology. He settled up different scientific collaborations, growing also as independent researcher. In addition, he was funded as PI by the José Castillejo program from the Spanish Ministry (funding: 11 k) to carry out an international research stay at the University of Münster (WWU, Germany) in the Prof. B.J. Ravoo s group.

In February 2020, he joined the worldwide recognized research group headed by Prof. M. Pumera (h-index: 107), who has been named Highly Cited Researcher by Clarivate Analytics from 2017 to 2021. There, he is currently devising and leading his own research projects on the edge between Analytical Chemistry, Materials Science and Molecular Electronics by combining 3D printing, 2D materials and molecular engineering for the development of a new family of 2D-based 3D-printed Molecular Electronics.

To date, he has published 34 JCR scientific articles (30 Q1, 28 as first-author and 6 as corresponding author) cited: >350 times, h-index: 15, average IF: 7.4, 1 book chapter and 2 secondary school teaching publications. He has participated in 12 research projects (3 as PI), supervised 9 students (3 PhD, 3 MSc and 3 BSc) and combines his research career with teaching activities as a part-time Associate Lecturer in the Department of Chemistry of UAB (around 500 accredited hours). He also serves as a referee in different multidisciplinary journals.



Thus, the RyC fellowship would present a solid support to strengthen the gained expertise during his two post-doctoral stages and expand the horizons of the candidate towards building up a new enterprising and multidisciplinary research line (MOL3DTRONICS) focused on the innovative combination of i) emerging 2D materials, ii) 3D printing technology and iii) molecular engineering to reach programmable 3D-printed Molecular Electronics to apply binary logic processing on-demand.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	AZOFRA MESA, LUIS MIGUEL
Referencia:	RYC2021-030994-I
Correo Electrónico:	luisazofra@gmail.com
Título:	In-silico design of novel electromaterials for N2 conversion into ammonia

Resumen de la Memoria:

Dr Luis Miguel Azofra completes his PhD thesis (Cum Laude) in the laboratory of Prof Alkorta at Instituto de Química Médica, CSIC, Spain (2010-2014) under the topic of the chemical reactivity with special emphasis on the intrinsic reactivity analysis from the Conceptual DFT approach and on fundamental processes of the chemistry of carbohydrates. At the same time, he also carried out a broad theoretical research on non-covalent interactions, focusing on hydrogen bonds as well as on the novel perspectives offered by the unusual, non-classical weak interactions. During his two international postdoctoral experiences at Monash University, Australia, in 2015-2016, and the King Abdullah University of Science and Technology, Saudi Arabia, in 2016-2019, Dr Azofra works on theoretical frontier sciences, performing fundamental research directed to the solution of global challenges. Some of the outstanding research lines he has carried out are: (i) computer-aided design of novel catalysts for CO2 conversion; (ii) theoretical understanding of [NiFe] hydrogenases: how Nature converts protons into H2; and (iii) the searching of novel catalysts constituted by earthabundant, non-toxic metals for hydrogenation transfer reactions. However, the most promising research line on what more efforts he has dedicated is the in-silico design of novel catalytic materials for N2 conversion into ammonia with special interests to those operating at mild conditions. Amongst the successes achieved so far, Dr Azofra has developed a theoretical methodology for the analysis of N2 into NH3 conversion and he has detected specific behaviours of molecular systems with high N2-philicity. Together with his collaborators, he has hypothesised several materials, which once synthesised have demonstrated promising prospects for their use in N2 conversion. Current interests of Dr Azofra focus on the design of a next generation of catalysts for ammonia production, being previously identified by computer-aided molecular design tools. Amongst his objectives are the identification, via DFT modelling, of novel materials capable of electrochemically convert N2 into ammonia at mild conditions applying low overpotentials and showing higher rates of Faradaic efficiency, yield, and selectivity. As result of this, Dr Azofra has published a total of 59 articles that have been published in international peer-reviewed journals of recognised prestige. More than half of Dr Azofra s scientific production has been published in journals ranked in the first quartile (Q1), highlighting some journals of the first decile (D1) such as Energy Environ. Sci., Adv. Mater., ACS Energy Lett., Angew. Chem. Int. Ed., or ACS Catal, amongst others. Due to the impact of his works, the research outcomes reached by Dr Azofra have been also recognised in scientific media and magazines such as Chemistry World and C&EN or in national media for a general audience. Currently, Dr Azofra combines his research activity with his endeavours as University lecturer at Universidad de Las Palmas de Gran Canaria (ULPGC, Spain).

Resumen del Currículum Vitae:

Dr Luis Miguel Azofra s (PI) area of expertise is theoretical chemistry. During his PhD stage (FPI granted) at Prof Alkorta s research group (2010-2014, CSIC, Spain), Dr Azofra completes his PhD thesis (Cum Laude) under the topic of the chemical reactivity on fundamental processes of the chemistry of carbohydrates. In parallel to these investigations, Dr Azofra also carried out a broad theoretical research on non-covalent interactions, amongst including hydrogen bonds. As result of this, he completes his PhD stage having published a total of 24 research articles, emerging as one of the earlycareer researchers with the highest scientific production. His extensive international experience includes several research stays in some of the most prestigious research centres worldwide. In 2012 and 2013, Dr Azofra is granted with two research stays at the CNRS (France) and the Utah State University (USA) under the supervision of Prof Ruiz-Lopez and Prof Scheiner (eight months overall), respectively. In 2015, Dr Azofra moves to Australia to carry out his first postdoc in the laboratory of Prof MacFarlane and Assoc Prof Sun at Monash University, a stage in which he refocuses his investigations towards the field of catalysis. In 2016, he joins the research group of Prof Cavallo in the King Abdullah University of Science and Technology (Saudi Arabia) where he specialises in the field of the in-silico design for the development of novel catalysts in the framework of the theoretical frontier sciences. Within the broad field of the theoretical research in catalysis, two priority lines stand out from his activity in the last five years: the development of novel homogenenous catalysts constituted by earth-abundant, non-toxic metals for organic transformations assisted by hydrogen transfer mechanisms, and the in-silico design of promising materials for energy conversion and environmental remediation. From this last, Dr Azofra focuses his efforts on the conversion of CO2 into green fuels, the production of H2 by [NiFe] hydrogenases and via water splitting, but most importantly, the computer-aided design of novel electrocatalysts for N2 conversion into ammonia at mild conditions. Recently, Dr Azofra has been recognised by Chemical Communications as one the 2020 Emerging Investigators, a recognition which is supported by his outstanding scientific production. To date, Dr Azofra has published a total of 59 papers and 3 covers in international peer-reviewed journals of recognised prestige, such as Energy Environ. Sci., Adv. Mater., ACS Energy Lett., Angew. Chem. Int. Ed., or ACS Catal., amongst others, all of them ranked in the first decile (D1). 58% of this scientific production has been published in journals ranked in the first quartile, >75% of this (Q1) in the last five years. Due to the impact of his works, the research outcomes reached by Dr Azofra have been also recognised in scientific media and magazines such as Chemistry World and C&EN, or in national media for a general audience. He has been PI in several computational projects, having been granted with more than 45 million hours of computational time. Currently, Dr Azofra combines his research activity with his endeavours as University lecturer at Universidad de Las Palmas de Gran Canaria (ULPGC), where he has been recently awarded as 2020 Outstanding Young Researcher in Experimental Sciences.



AGENCIA ESTATAL DE ENERTICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Ciencias y tecnologías químicas
Nombre:	APARICIO HERNANDEZ, FATIMA
Referencia:	RYC2021-031538-I
Correo Electrónico:	fatima.aparicio@uam.es
Título:	Functional self-assembled nanotubes with custom-tailored pores

Resumen de la Memoria:

Dr. Aparicio has demonstrated great initiative, creativity, independent thinking, scientific maturity, and leadership competences along her career. Her broad scientific expertise was acquired mainly during three main periods:

1) During her Doctoral studies (2009-2014) in Prof. Luis Sánchez s group (UCM, Madrid), funded by a FPU fellowship, Dr. Aparicio developed her interest in chiral self-assembled systems from amphiphilic molecules. She spent six months in Prof. Carsten Schmuck s research group (University of Duisburg-Essen, Germany) working on supramolecular architectures based on zwitterionic molecules. The main achievements obtained during this predoctoral period comprise: the publication of 15 articles in high impact journals (9 as first author) and the Prize for the Best Doctoral Thesis at the Chemistry Faculty.

2) Along the 2-year post-doctoral stay (2014-2016) in the group of Prof. Marc Sallé (Angers, France), Dr. Aparicio participated in a project focused on supramolecular gels with non-linear optical properties. Her outstanding results led to the publication of an article in J. Am. Chem. Soc. as first author. In a second stage, she directed and developed a new independent research line within the group, based on Foldamers. During this stay, Dr. Aparicio published 3 articles as first author in highly recognized journals (2 additional publications are expected).

3) Finally, the 5-year period (2016-to date) as a Senior Scientist in the group of Prof. David Gonzalez-Rodriguez (UAM, Madrid) contributed to consolidate her background in the supramolecular chemistry field and in related disciplines. Within the framework of two Marie Sklodowska Curie Fellowships: a MSCA-Cofund Intertalentum (2017-2019, 145.800) and a MSCA-Individual Fellowship (2019-2021, 170.121,60), she had the opportunity to specialize in the self-assembly of amphiphilic DNA-based monomers into functional tubular nanostructures. In addition to this, she was awarded the 2016 Juan de la Cierva-Incorporación Fellowships and the 2017 Ayudas a la Atracción de Talento from the Comunidad de Madrid. The development of this independent research line in the group has led to a publication in Angew. Chem. Int. Ed. as VIP Paper, with the candidate as first author, her first publication as Corresponding Author recently published in Org. Chem. Frontiers, and her recently contribution as Exclusive Corresponding Author to the Emerging Investigators Issue 2021 in Chem. Commun. Additionally, during this period she has published 4 additional articles (4 publications are also currently under development). Besides, she has been awarded as main researcher with a PhD contract funded by the Community of Madrid, and she is currently co-supervising 2 Doctoral Thesis contributing to reinforce her leadership abilities.

Dr. Aparicio¿s excellent track record obtained during her early career allowed her to obtain her first project as exclusive main researcher (PI) funded by the Spanish Government (MICINN-JIN- Project for Young Researchers, 169.400 , 2021-2024). With a subgroup of 1 Predoctoral and 1 Master students, Dr. Aparicio is independently leading this second research line focused on the formation of supramolecular nanotubes in water through ionic carboxylate-amidinium interactions. Moreover, Dr. Aparicio has also recently applied to the 2022 ERC-Starting Grant Call.

Resumen del Currículum Vitae:

Fátima Aparicio obtained her Degree in Chemistry by UCM in 2008. She carried out an internship in Pharmamar S.A. working in drugs for cancer treatment. She obtained a Beca de Colaboración at the Organic Chemistry Department. Specifically, she participated in the development of new serotoninergic substances in Prof. María Luz López¿s research group.

Then, she joined Prof. Luis Sánchez¿s research group funded by a predoctoral MECD-FPU fellowship. She then carried out a predoctoral stay of 6 months in Prof. Carsten Schmuck¿s research group at Universitat Duisburg-Essen (Germany) where she studied the self-assembly of zwitterionic units. She obtained her PhD degree in 2014 with a doctoral thesis entitled: Chirality in Supramolecular Polymers: structural aspects in the helical self-assembly of simple organic molecules with the highest qualification of Sobresaliente Cum Laude, and awarded with the Prize to the Best Doctoral Thesis in the Chemistry Faculty at the UCM.

After that, she spent 2 years as a Postdoctoral Researcher in Prof. Marc Sallé's research group at the Université d'Angers (France) working on the control of the organization of nanostructured gels based on non-linear optically active compounds and on the high-order organization of Foldamers. In November 2016, she joined Prof. David González's research group (MSMn) at the UAM. Her exceptional track record made her succeed in very competitive European calls and she was able to obtain funding resources from her own scientific ideas. In particular, she was consecutively awarded with 2 prestigious Marie Sklodowska Curie Fellowships: a MSCA-Cofund Intertalentum (2017-2019) and a MSCA-Individual Fellowship (2019-2021). In addition to this, she was awarded the 2016 Juan de la Cierva-Incorporación Fellowships and the 2017 Ayudas a la Atracción de Talento from the Comunidad de Madrid. Within the framework of these projects, Dr. Aparicio had the opportunity to specialize in the study of the self-assembly of amphiphilic DNA-based monomers into functional tubular nanostructures with defined diameters and tuneable inner pores. Recently, she has been awarded as exclusive main researcher a project funded from the Spanish MICINN (A Molecular Synthetic Nanorobot that Mimics Primary Virus Actions -MolBot, PID2020-116112RJ-I00, 2021-2024). Dr. Aparicio has also recently applied to the 2022 ERC-St Grant Call.

She is the author of 25 PUBLICATIONS in journals of high impact factor, J. Am. Chem. Soc. (2), Angew. Chem. Int. Ed. (2), Chem. Eur. J. (5), Chem. Commun. (5), Org. Lett. (2), Lamgmuir (1), Soft Matter (1) Org. Chem. Front. (1), with 15 articles as first author and 2 articles as corresponding author. Dr. Aparicio has contributed to the Emerging Investigators Issue 2021 in Chem. Commun. During her career she participated in 17 national and international conferences (with some awards for her participation). She has also participated in 10 research projects and she has been awarded as exclusive main researcher with a PhD contract funded by the Community of Madrid and a project funded from the Spanish MICINN (2021-2024). Dr. Aparicio co-supervised two Master Students and she is co-supervisor of two Doctoral Thesis and 1 Master student nowadays. Moreover, she has participated in teaching activities in UCM and UAM, and she has supervised the work in the laboratory of Undergraduate students.


AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Ciencias y tecnologías químicas
Nombre:	BRUIX FUSTE, ALBERT
Referencia:	RYC2021-032281-I
Correo Electrónico:	abruix@gmail.com
Título:	COMPUTATIONAL MODELLING OF COMPLEX NANOSTRUCTURED MATERIALS

Resumen de la Memoria:

Nanostructuring greatly expands the possibilities for designing novel materials with improved functionality, but the increased complexity hinders their characterization and understanding. I am a computational chemist specialized in the modeling of materials and their surfaces, focusing on complex nanostructures such as those used in catalysis (surfaces and supported nanoparticles) and nanoelectronics (2D materials). The goal of my research is to tackle this complexity by combining first-principles calculations, concepts from statistical mechanics and thermodynamics, multiscale modeling approaches, global optimization algorithms, and machine learning methods. Close collaboration with experimental partners also plays a central role in the development of my research lines. 41 Publications (2 Book Chapters, 3 Reviews, 36 Articles):

- 14 publications as first author

- 4 publications as corresponding author

- 11 Publications in first decile journals: Nature Materials, Nature Catalysis, Nature Communications, Angewandte Chemie, Journal of the American Chemical Society, ACS Nano (2), Physical Review Letters (2), Applied Catalysis B: Environmental (2)

- 1 single-author News and Views article in Nature Catalysis

- H-index of 24 (Google Scholar, scholar.google.com/citations?hl=en&user=SP4cuyMAAAAJ)
- More than 3000 citations, averaging ~75 citations/article.

48 contributions at scientific meetings:

- 35 Oral Communications (14 of those as invited speaker)
- 13 Poster Communications

Supervision and Teaching:

- Currently co-directing 3 PhD students
- Directed 1 and Co-Supervised 6 Master Students
- Co-Supervised 2 visiting PhD Students
- Co-Supervised 1 Research assistant
- 13 different courses taught during PhD and postdoc

Grants:

- Predoctoral FPI grant, Spanish Ministry of Science and Research, 2011, 50,000 for 4 years.
- Postdoctoral Marie-Curie fellowship, European Research Council, 2014, 250,000 for 2 years
- Alexander von Humboldt research fellowship, Humboldt Foundation, 2017, 106,000 for 2 years and 5 months
- Beatriu de Pinós research fellowship, Generalitat de Catalunya, 2020, 144,000 for 3 years
- Mobility grants (Estancias Breves in 2011 and 2012 and HPC-Europa3 in 2020, ~17,000)

Mobility and networking:

- Conducted research in 5 different countries

- Established collaborations with research groups from 11 different countries (Spain, Denmark, Germany, USA, Czech Republic, Italy, Russia, Mexico, the Netherlands, Portugal, Poland, Brasil)

- Collaboration with industrial collaborator from Haldor Topsoe AS (Stig Helveg)
- Organized 8 scientific workshops and conferences

Peer-review:

- Completed 68 reviews for 14 different journals (see publons.com/researcher/1178478/)
- Frequent reviewer for Nature Catalysis, Physical Review Letters, the Journal of Physical Chemistry C, and Catalysis Science and Technology

- Wrote a News & Views highlight for Nature Catalysis about an article I reviewed for the journal (https://doi.org/10.1038/s41929-022-00742-1)

Outreach:

- Responsible of the group s research outreach at the Technical University of Munich, participating in 1 or 2 events per year from 2017 to 2020, introducing games and exhibitions related to computational chemistry.

- Actively using Twitter (@abruix), where I share and explain results from my research.

Resumen del Currículum Vitae:



VESTIGACIÓN

I have carried out research projects in 5 different countries (Spain, USA, France, Denmark, and Germany), and my work has resulted in 41 publications (14 as first author and 4 as corresponding author) and 41 presentations at conferences, workshops, and institute seminars (14 invited talks). My projects have been funded mostly through my own competitive fellowships, including an FPI predoctoral grant (Spanish government), a Beatriu de Pinós research fellowship (Catalan government), and the prestigious Marie Curie (European Research Council) and Alexander von Humboldt Foundation fellowships, amounting to more than 500k in received funding.

I began my scientific career in 2010 as a PhD student at the University of Barcelona. During my thesis, I used first principles calculations based on the density functional theory to develop pioneering models of oxide-supported metals to determine the effects of nanostructuring and metal-support interactions on the properties of metal and oxide nanoparticles.

As a postdoctoral researcher at Aarhus University (Denmark), I investigated materials based on MoS2 and other transition metal chalcogenides used in catalysis, with a focus on methods able to describe the response of these materials to exposure to reaction conditions. By combining calculations based on the density functional theory with various simulated spectroscopy methods and ab initio thermodynamics approaches, we demonstrated how the properties of nanostructured catalysts based on MoS2 depend on nanoparticle structure, the presence of a support, dopants, and the reaction conditions these systems are exposed to.

I also assessed how the properties of 2D materials based on graphene and transition metal chalcogenides can be fine-tuned for applications in nanoelectronics by carrying out electronic structure calculations of large supercell models and using band unfolding techniques.

My projects at Aarhus University also involved a close collaboration with industrial partners (Stig Helveg) from Haldor Topsoe AS.

During my time at the Technical University of Munich, I also developed advanced microkinetic models using the kinetic Monte Carlo approach, able to account for the coexistence of more than one active phase when modeling oxidation catalysis on complex substrates.

I have also been actively involved in the development and application of novel global optimization algorithms used to predict stable structures of nanostructured materials, which we have made open access and available via GitHub for the community and stakeholders. These algorithms produce unbiased and high quality structural models in an automated way, and therefore represent a significant improvement with respect to prevailing heuristic approaches used for model construction.

Since returning to the University of Barcelona as a Beatriú de Pinós research fellow in 2020, I am establishing my independent research line, relying on the know-how accumulated while abroad. I focus on developing algorithms and models to address the structural, environmental, and mechanistic complexity of working catalysts, i.e. the disordered nanostructure, their response to reaction conditions, and the complex network of reactants, intermediates, and products formed on them, respectively.





Área Temática:Ciencias y tecnologías químicasNombre:MENDEZ ARDOY, ALEJANDROReferencia:RYC2021-034263-ICorreo Electrónico:amendezardoy@gmail.comTítulo:Sistemoas supramoleculares autoensamblados para transporte de fármacos o carga y reconocimientomolecularMendezardoy@gmail.com

Resumen de la Memoria:

He estado interesado en procesos de autoensamblado supramolecular, y cómo éste puede emplearse para la generación de estructuras funcionales.Mi línea de investigación principal puede desglosarse en cuatro áreas que tienen como concepto unitario los procesos de autoensamblaje:

- Autoensamblaje de partículas supramoleculares para el desarrollos de nanosistemas terapéuticos: He desarrollado sistemas de transporte de fármacos y genes basados en ciclodextrinas policatiónicas anfifílicas y ciclodextrinas anfifílicas. Para ello, desarrollamos rutas sintéticas altamente eficientes que nos permitieran obtener rápidamente derivados con los que realizar estudios de estructura-actividad. Mediante ésta metodología, descubrimos vectores sintéticos que poseían actividad de transfección equiparable a vectores comerciales, pero con una toxicidad mucho más reducida. Estos vectores se usaron además para demostrar el transporte específico a células mediante reconocimiento molecular, así como su potencial terapéutico en sistemas in vivo (Biomaterials, J. Org. Chem. Nanomedicine, Bioconjugate Chem., etc.)

- Reconocimiento molecular y multivalencia: He estudiado fenómenos de reconocimiento molecular entre sistemas sintéticos de ligandos multivalentes (por ejemplo, polisacáridos sintéticos y dendrímeros) y receptores como lectinas o receptores animales. Durante mi estancia postdoctoral en la Universidad de Twente, desarrollé modelos de multivalencia cuantitativos basados en monocapas de ciclodextrinas y ligandos multivalentes de adamantano-ferroceno. Para ello, desarrollamos nuevas estrategias de formación de monocapas con alto recubrimiento de superficie mediante el uso de interacciones multivalentes entre el adsorbato y la superficie (Adv. Funct. Mater, Chem. Eur. J., Chem. Commun., Langmuir).

Transporte de carga en monocapas autoensambladas: Durante mis estancias en Twente y Burdeos, estudié el transporte de carga a través de monocapas. Por ejemplo, monocapas de foldámeros basados en oligoquinolinas se autoensamblaron en distintas superficies (oro y óxido de silicio). El transporte de carga vertical y lateral se estudió mediante AFM de contacto. Estos estudios revelaron que éstos foldámeros tenían una alta eficiencia de transporte de carga, lo cual fue atribuido a múltiple mecanismos de transporte (Angew. Chem. Int. Ed., Chem. Sci., Langmuir, ChemElectroChem).
Sistemas sintéticos que imitan a sistemas naturales: He estado involucrado en la síntesis de moléculas que se autoensamblan en estructuras que intentan emular las características del citoesqueleto celular. Por ejemplo, hemos preparado derivados de interruptores moleculares que presentan isomerización cis-trans tras irradiación con luz UV en medio acuoso. En este caso, la estructura supramolecular pudo controlarse mediante el uso de fuentes de energía externas. Por otra parte, he desarrollado sistemas de polimerización supramolecular en espacios confinados mediante el uso de péptidos cíclicos encapsulados en suspensiones de agua en aceite, imitando la polimerización del citoesqueleto en el interior de una membrana celular. He desarrollado modelos de ensamblaje en compartimentos mediante microfluídica (PNAS, Angew. Chem. Int. Ed., Nanoscale Horiz.)

Resumen del Currículum Vitae:

Obtuve mi doctorado (con beca FPU) en la Universidad de Sevilla bajo la supervisión de Prof. Carmen Ortiz Mellet y Prof. José Manuel García Fernández. En 2011 defendí mi tesis con calificación Sobresaliente Cum Laude y mención de Doctorado Europeo. En mis estudios predoctorales he publicado 14 artículos en revistas de alto impacto: Adv. Funct. Mater., Chem. Eur. J., Chem. Commun, Nanomedicine, Biomaterials, Bioconjugate Chem., J. Org. Chem. (featured article), RSC Adv., Org. Biomol. Chem. (with cover), Eur. J. Pharm. Biopharm., ChemMedChem, Eur. J. Org. Chem., Med. Chem. etc. Además soy coautor de una patente y un capítulo en libro. Realicé dos estancias predoctorales en centros de investigación nacionales e internacionales: Universidad de Pamplona (España, supervisión de Prof. Concepción Tros de Ilarduya, 2 meses, con publicación) y en la Universidad de Niza (Francia, supervisión de Prof. Pierre Vierling, 3 meses, con publicación). Tengo una alta experiencia internacional, con dos estancias postdoctorales en Holanda y Francia (un total de 4.5 años): Universidad de Twente-MESA+ Instituto de Nanotecnología (supervisión Prof. Jurriaan Huskens) y Universidad de Burdeos (supervisión Dario M. Bassani). Como resultado, he publicado artículos científicos en revistas de alto impacto (PNAS, Angew. Chem. Int. Ed., 3 x Chem. Sci., etc.) y supervisé a un estudiante de máster (Stan Maassen). Recibí la prestigiosa beca Marie Curie Individual Fellowship en la Universidad de Santiago de Compostela (presupuesto total 158120). Durante este período he publicado artículos en revistas de calidad (Angew. Chem. Int. Ed., Chem. Sci., Nanoscale Horizons, Nanoscale, ChemBioChem, con portadas) y al menos 2 artículos más en preparación. Además realicé una visita a los laboratorios del Prof. Chris Abell (Universidad de Cambridge, Julio 2018, 3 semanas) donde desarrollé los conocimientos necesarios para montar un equipo de microfluídica en los laboratorios de la Universidad de Santiago de Compostela. He presentado mi trabajo en diversas comunicaciones orales en conferencias nacionales e internacionales (CHAINS, II European Conference of Cyclodextrins, EuCHEMS) además de en otras 34 contribuciones mediante autoría o co-autoría de póster (premio a póster en CORMV). Colaboro regularmente en la supervisión de estudiantes de grado, máster o doctorado. He participado en actividades docentes tanto en España como en Holanda. Participo como miembro de equipo senior en proyectos de investigación regionales (ED431C 2017/25, 280000). Estoy además implicado en actividades de divulgación científica, como las Jornadas de Puertas Abiertas y las visitas de estudiantes de instituto en CIQUS. He participado como revisor por pares (Journal of Nanobiotechnology)



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Área Temática:	Ciencias y tecnologías químicas
Nombre:	REY RAAP, NATALIA
Referencia:	RYC2021-031456-I
Correo Electrónico:	nataliarey@uniovi.es
Título:	Design and development of porous nanostructures for energy storage and conversion.

Resumen de la Memoria:

My research has been mainly focused on the synthesis and characterization of polymeric and carbonaceous porous materials for different applications. My scientific approach during the PhD (2012-2016, INCAR-CSIC) was to improve the synthesis and applicability of carbon gels synthesized by microwave heating by the development of a mathematical model that allows designing the final textural properties. This model involved a major contribution for industries related to sol-gel processes. The research also included the use of more friendly precursors to obtain bio-based carbon materials and different applications such as thermal insulators and lithium-ion batteries. During my first months as postdoctorate, I exploited to pursue my work in lithium-ion batteries, as well as expanding to the development of materials for supercapacitors applications. Besides, I focused my research on the modulation of the electrical conductivity following different strategies, which resulted in materials with higher specific capacitances in both electrochemical applications.

In 2016, I joined the Catalysis and Materials research group (LCM, University of Porto) as a postdoctoral researcher, where I focused on the development of novel methodologies to tailor the surface chemistry of bio-based carbon electrodes for supercapacitors. I also initiated new collaborations with groups working in the area of catalysis, designing nanostructured carbon catalysts for biomass conversion. Exploiting my knowledge in the development of materials for both catalysis and electrochemistry, I started my own research line primarily focused on the development of bifunctional electrocatalysts for unitized regenerative fuel cells. Within this research line, the main highly innovative challenge lied in i) elucidating the relationship between microporosity and electroactivity to reveal rational design approaches which could guide future electrocatalysts development, ii) investigating the surface chemistry of metal-heteroatom-carbon materials to better understand the factors defining their electrocatalysts.

In 2021, I joined the SYSTAM research group at the University of Oviedo (granted by a Juan de la Cierva Incorporación fellowship), where I am developing my own research line based on the synthesis of transition metal aerogels via microwave heating able to combine the unique properties of aerogels and metals to become extraordinary efficient electrocatalysts for the sustainable production of energy. I am also collaborating with several international research groups in the development of different materials for improving the capacitance of sodium batteries and flexible supercapacitors.

Resumen del Currículum Vitae:

I achieved my degree in Chemical engineering and a master s degree in Energy efficiency and sustainability in industrial facilities at the Jaume I University (Spain), in 2009 and 2011, respectively. In 2012, I obtained the Spanish FPI scholarship and I started my scientific career as a PhD at the Institute of Carbon Science and Technology from the Spanish Research Council (CSIC), where I was able to participate in 5 different research projects. My research was focused on the synthesis of carbon aerogels with tailored properties to fit the requirements of different applications: thermal insulators, lithium-ion batteries and supercapacitors. During my PhD, I held several stays abroad: University of Sheffield (UK), Institute Jean Lamour (France) and University of Liege (Belgium). The research performed during this period resulted in 3 chapters book, 16 research articles published in peer journals (12 as first author and 2 as corresponding author), 10 contributions to congresses and 2 licensed patents. All these contributions were supported by 4 awards from companies, universities and several associations.

In 2016, after achieving my PhD degree in Materials Science and Technology (International Doctor with Cum Laude), I moved to Portugal to join the Catalysis and Carbon Materials Laboratory (LCM, University of Porto) as a postdoctoral researcher. My research was focused on the development of novel methods to produce innovative nanostructured materials for supercapacitor and fuel cells. During my postdoctoral period in the LCM, I also had the opportunity to collaborate with several Portuguese research groups and continue the international collaborations initiated during my PhD. In 2018, I started to lead the area of electrochemistry at LCM research group, and I focused my research on the development of bifunctional electrocatalysts for Unitized Regenerative Fuel Cells. My new position allowed me to improve my leadership skills considerably as I supervised a Master student, two research initiation scholarships for graduates, and a PhD student, and to perform scientific management activities. I had the opportunity to participate in 5 competitive research projects, and the research performed led to 13 publications in peer journals (10 as corresponding author, and 40% in D1), and 22 contributions to congresses.

In 2020, I was granted a funded project requested as principal investigator, and I was awarded 2 research contracts from two competitive international calls, one from Portugal (2nd position) and the Juan de la Cierva Incorporación from Spain (4th position). So, I decided to move back to Spain to start my research at the University of Oviedo in 2021. I am currently involved in 3 European, 3 national (one as PI) and 2 regional research projects, supervising another PhD student, a research initiation scholarship for graduates, and 2 final degree projects in the Degree of Chemistry. I am accredited as Assistant Professor and Associate Professor for public and private universities by ANECA, and I teach in the Degree of Chemistry. I participate in several dissemination activities, I am a member of several associations, co-editor of Molecules (IF 4.411, open access) and an active reviewer in peer journals in the field of materials science and electrochemical applications (most of them open-access).





Área Temática:	Cultura: filología, literatura y arte
Nombre:	PEREIRA PARDO, LUCIA
Referencia:	RYC2021-034643-I
Correo Electrónico:	luciapereirapardo@gmail.com
Título:	Technical Art History. The materiality of colour through non-invasive analysis and digital technologies

Resumen de la Memoria:

During my research career I have made numerous and relevant contributions to the research field of Heritage Science, developing and applying stateof-the-art analytical techniques and digital technologies to answer research questions from the Arts and Humanities, with a particular focus on the new discipline of Technical Art History and the study of pigments and dyes.

I started my research career at the University of Santiago de Compostela, launching a new research line about the materiality of 16th century Galician wall paintings and the risks for their conservation. During my PhD research, completed in February 2015, I led on a major methodological development that aimed to move away from the traditional sampling approach towards the non-invasive analysis of the wall paintings in situ.

In May 2015, I obtained a postdoctoral fellowship at the University of Cambridge to participate in the MINIARE Project, analysing the pigments and dyes of more than 200 illuminated manuscripts non-invasively and identifying the trends in medieval and Renaissance illumination practices across Europe. I participated in the organisation of an international conference, a museum exhibition and an online platform featuring the findings of the project.

In June 2016, I started a postdoctoral fellowship at the British Museum, where I led on an innovative research project exploring the potential of erbium:YAG lasers as a new tool for conservation of fragile polychrome surfaces. I optimised the irradiation conditions on model samples and then addressed a series of challenging case studies from the Museum s collection: from the removal of insoluble coatings from a Coptic wall painting, to eliminating biological growth from Ancient Cypriot polychrome terracotta figurines. The last case study received the Nigel William Prize 2019 to the best conservation project of ceramic materials in the UK. In addition, I developed other projects, like the analysis of remnants of pigments in medieval alabaster sculptures and digital reconstruction of their original appearance; or the investigation of the sequence of impression of Hokusai s Red and Pink Fuji, resolving the scholarly debate about the colour scheme originally intended by Hokusai. I published and disseminated my research profusely both in academic fora and through public engagement activities, and I organised an end-of-project international symposium.

In January 2018, I secured a permanent part time position as heritage scientist at Historic Royal Palaces (UK), where I participated in a large-scale international research project to analyse Rubens pictorial palette and technique in the ceiling paintings of the Banqueting House, in preparation for a major conservation intervention.

In March 2019, I moved on to a senior position as heritage scientist at The National Archives (UK), where I developed as a mature and independent researcher, secured considerable research funds and became principal investigator. My current projects investigate the materiality of manuscript maps and historic textiles, developing innovative non-invasive techniques for dye analysis. I recently incorporated tools from computer sciences to my research, as well as a critical approach to the selection of objects for analysis, along the lines of decolonisation and prioritising collections made by underrepresented communities.

Resumen del Currículum Vitae:

Over my 7 postdoctoral years, I achieved relevant scientific-technical developments in Heritage Science. The conservation research I led at the British Museum to explore the potential of erbium YAG lasers as new tools for the conservation of fragile polychrome objects was pioneering and had an important impact in conservation practice. My work has also been key for the consolidation of Technical Art History as a discipline, by advocating for an evolution in methodology from sampling of works of art towards a non-invasive approach to material analysis. This permitted the study of larger numbers of artworks and therefore yielded more significant findings, by revealing trends and exceptions. For example, my analysis of more than 200 medieval illuminated manuscripts from across Europe at the University of Cambridge shed light on the production context of manuscripts at an unparalleled scale to date. At my current post at The National Archives, I introduced further innovations with the automation of data acquisition and analysis using AI tools for the processing of multispectral images of manuscript maps and the classification of watermarks in historic paper. This facilitated research at mass scale, moving away from the traditional approach of analysing just one/few iconic objects towards investigating full series and collections.

I have communicated my findings and methodological developments in 24 publications targeting those journals that are most read, valued and accessible by both heritage science researchers and conservation professionals, as well as in 29 specialised international conferences. I have been proactive and successful at securing funding for research projects and infrastructure in competitive calls, with participation in 21 funded projects. I am PI of 1 project and Co-I of another 2, responsible of the design, international networking, fundraising and delivery of the scientific programme. My current projects are all international, with 25 project partners in top level Universities and Cultural Institutions the UK, Italy, Spain, the US and China.

I have participated in key technological developments, by working closely with industrial manufacturers of scientific instrumentation to build prototypes that fulfil the requirements for cultural heritage. My research has an important societal impact, as I provide technical support for practising conservators and I embed comprehensive public engagement programmes in my projects. I have showcased my research in 2 museum exhibitions and a catalogue, an online platform and an video at the British Museum s YouTube Channel.



I have contributed to the supervision of 2 PhDs and 1 Masters project at University College London and Historic Royal Palaces. I have inspired the new generation of conservation scientists by lecturing at postgraduate level since 2010 in universities in Germany, the UK and Spain. I am an active member of Icon s Heritage Science Group and the National Heritage Science Forum, an editor of Icon News and a reviewer in heritage science and conservation research journals. I have organised 2 international conferences at the University of Cambridge and the British museum. My laser project at the British Museum was awarded the Nigel Williams Prize of the Institute of Conservation (Icon) to the best conservation research project on ceramic materials of the UK in 2019.



VESTIGACIÓN

Área Temática:	Cultura: filología, literatura y arte	
Nombre:	JASPERSE , TJISJE GEERTJE	
Referencia:	RYC2021-033251-I	
Correo Electrónico:	jitskeja@hotmail.com	
Título:	Medieval Visual and Material Culture of Authority and Gender	

Resumen de la Memoria:

I am an art historian, based at the Humboldt-Universität zu Berlin, who specialises in the social roles of medieval artworks within the construction and communication of gender, status, and authority. In the eight years since I completed my PhD, I have authored two monographs (2020, 2021) and 15 peer-reviewed publications in international journals with impact and in internationally recognized edited volumes. Additionally, I edited a bilingual special issue of Das Mittelalter. My interdisciplinary research focuses on how the use and contexts of visual and material culture are key to understanding medieval art. I show that women were essential players in the formation and consolidation of transregional ties and liturgical practices. Along these research lines, my publications draw on methods and theories from art history, medieval women s studies, material culture, and the senses. Collaborations with international scholars from a variety of disciplines in 5 projects, as well as publications in Studies in Iconography, Journal of Medieval Iberian Studies, Arenal, and Das Mittelalter testify to the international and interdisciplinary character of my research. This is also evinced by 16 invited papers and 11 workshops and panels I organised. To date, I have received over 171.836 in competitive grants and scholarships in three countries to support my research.

My international track record starts with a PhD in Amsterdam, followed by a postdoc in Madrid (2016-2018) and my current position at the Humboldt-Universität in Berlin (2018-present), demonstrating my ability to work across multiple regions in multiple languages. These positions have further defined my status as an art historian who engages with both written and material culture from Iberia, Germany, France and England to show why artefacts are pivotal for recognising the construction of class, gender, and transnational cultural interactions. In my investigations I pursue a research line both deep and wide, which is coherent in topics and chronology and expanding in geographical reach. My research questions involve the longdistance itineraries of artefacts and their multi-sensorial landscapes, a novel approach to artworks that are more often understood only as visual. My current project centres on the material culture of authority through the lens of wax seals and their textile wrappings. I show that studying these objects from an art historical perspective can shed light onto material concepts of in/visibility that permeated medieval life. This innovative interdisciplinary investigation has the potential to be developed for international funding, centring on the display and concealment of both precious and mundane artefacts in a global Middle Ages.

Resumen del Currículum Vitae:

I received my PhD in medieval art history from the University of Amsterdam in December 2013, where I also was a lecturer in Art History (2007-2015). In 2016, I was awarded a Juan de la Cierva-Formación postdoctoral fellowship at the Instituto de Historia, CSIC, Madrid (MINECO, FJCI-2014-22406, 2016-2018). Since 2018 I have been an untenured Assistant Professor at the Institute for Art and Visual History, Humboldt-Universität zu Berlin. This international mobility showcases the intellectual curiosity that has informed my research on the construction and communication of gender, status, and power in twelfth-century Europe through the lens of art in its material and visual forms. My studies have demonstrated that medieval artworks including illuminated manuscripts, textiles, liturgical items, coins, and seals are crucial to our understanding of the ways in which elite women manifested themselves as daughters, wives, and mothers, but also as rulers and makers of art. To date, I have published 2 monographs, 1 edited volume, 15 peer-reviewed articles and book chapters on medieval women, visual culture, and sensory experiences of medieval artefacts, in international and interdisciplinary venues such as Studies in Iconography, Journal of Medieval History, Arenal, and Journal of Medieval Iberian Studies. I have successfully sought competitive funding for Open Access publications to promote free knowledge sharing and encourage an impact beyond the academy. I promoted my book Medieval Women, Material Culture, and Power via Reddit s AskHistorians (5.000 views) and gave radio and television interviews in Dutch and Spanish. The editing of a bilingual special issue for Das Mittelalter including securing competitive funding for an authors workshop serves as additional testimony to my leading research profile. So too do conference invitations to Princeton, Madrid, London, and Bonn. Because of my expertise on women in medieval art history, I was invited to join New Interpretations of the Angevin World (International Network, funded by The Leverhulme Trust, PI Stephen Church, University of East Anglia), and The Medieval Treasury across Frontiers and Generations (PI Therese Martin, HAR2015-68614-P). To these projects I contributed 7 articles, publishing across disciplines in high-ranking peer-reviewed international journals. I also organized 2 international conference panels, an interdisciplinary workshop, and participated in a TV interview. For Therese Martin s current project The Medieval Iberian Treasury in Context (RTI2018-098615-B-I00), I have so far published 2 peer-reviewed articles with 2 more underway. Participation in these major international projects has been crucial to the development of my current research, which connects Iberia to Germany, France and England through the artistic and written record.

I have ample experience as lecturer of record in Berlin and Amsterdam; in the latter, I supervised 2 MA theses; in Berlin I served on 3 PhD tribunals. For the Medieval Academy of America I was a mentor in the Graduate Student Committee s mentorship program (2020-2022). In 2019 I was elected International Associate to the Board of Directors, International Center of Medieval Art (The Cloisters, Metropolitan Museum of Art, New York). Since 2020 I have been the series editor for CARMEN Visual and Material Cultures (Arc Humanities Press).



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Cultura: filología, literatura y arte
Nombre:	ALONSO TOMAS, DIEGO
Referencia:	RYC2021-033651-I
Correo Electrónico:	diego.alonso.tomas@hu-berlin.de
Título:	Música y política en el siglo XX

Resumen de la Memoria:

I have a markedly international profile and a well-established career in Spain and Germany. My fields of specialisation are: 1) 20th-century atonal and serial modernism / post-tonal theory & analysis; 2) the semiotics of (film) music; 3) the propagandistic uses of popular / art music by communist and fascist regimes in the 20th century. My profile is singular in that I combine methodologies of historical musicology, popular music and post-tonal music analysis. Throughout my career, I have been directly funded with 486.824 in total. I have an extensive record of funded research stays in top-leading institutions, including the University of Cambridge, Goldsmiths University (London), Humboldt University and Institut für Musikforschung, Berlin. From July 2018 to August 2022, I work as chief investigator of the project Hanns Eisler in Republican Spain at the reputed Department of Musicology of Humboldt University. This project is founded with 328.777 by the highly competitive international funding program of the German National Research Agency (success quote: 8 9 %).

I have published in top-leading journals including Acta musicologica (twice), Twentieth-Century Music, Music Analysis, Musicologica Austriaca (Best Paper Award 2019), Die Musikforschung and Journal of War & Culture Studies. I am the co-editor of a special issue for Die Musikforschung and the volumes Music, Propaganda and the Spanish Civil War (Oxford University Press, forthcoming 2022) and Music and Sound Propaganda in the Era of Fascisms (1919-1945), forthcoming. As a peer reviewer I have collaborated with leading journals including Acta musicologica, Revista Española de Musicología, and Anuario musical.

I teach regularly at Spanish and German universities. I am qualified as "Profesor ayudante doctor (ANECA). I am the founded and leader of two research groups including the 47-scholar study group (Fachgruppe) Deutsch-Ibero-Amerikanische Musikbeziehungen of the German Musicological Society. I have organised six international conferences, five of them at top German universities. I currently co-supervise 3 PhD thesis at UCM, UAB and the U. of Melbourne respectively.

Resumen del Currículum Vitae:

I have a markedly international profile and a well-established career in Spain and Germany. My fields of specialisation are: 1) 20th-century atonal and serial modernism / post-tonal theory & analysis; 2) the semiotics of (film) music; 3) the propagandistic uses of popular / art music by communist and fascist regimes in the 20th century. My profile is singular in that I combine methodologies of historical musicology, popular music and post-tonal music analysis. Throughout my career, I have been directly funded with 486.824 in total. I have an extensive record of funded research stays in top-leading institutions, including the University of Cambridge, Goldsmiths University (London), Humboldt University and Institut für Musikforschung, Berlin. From July 2018 to August 2022, I work as chief investigator of the project Hanns Eisler in Republican Spain at the reputed Department of Musicology of Humboldt University. This project is founded with 328.777 by the highly competitive international funding program of the German National Research Agency (success quote: 8 9 %).

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I teach regularly at Spanish and German universities. I am qualified as "Profesor ayudante doctor (ANECA). I am the founded and leader of two research groups including the 47-scholar study group (Fachgruppe) Deutsch-Ibero-Amerikanische Musikbeziehungen of the German Musicological Society. I have organised six international conferences, five of them at top German universities. I currently co-supervise 3 PhD thesis at UCM, UAB and the U. of Melbourne respectively.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Cultura: filología, literatura y arte
Nombre:	GONZALEZ GERMAIN, GERARD
Referencia:	RYC2021-031982-I
Correo Electrónico:	gerardggermain@gmail.com
Título:	The Rediscovery of Roman Antiquities During the Renaissance and Its Impact on Early Modern Intellectual
History	

Resumen de la Memoria:

En 2007 me licencié en Filología Clásica (Premio Extraordinario) en la Universidad Autónoma de Barcelona (UAB). Durante el doctorado hice dos estancias de investigación en la Universidad de Florencia (2009) y el Warburg Institute de Londres (2010). En diciembre de 2011 me doctoré en Filología Latina por la UAB (Premio Extraordinario de Doctorado). Mi Tesis Doctoral consistió en el estudio y edición crítica de las inscripciones falsas hispanas creadas entre 1440 y 1550, junto con un análisis filológico de un centenar de manuscritos epigráficos.

Entre 2013 y 2018 he conseguido cinco becas postdoctorales de centros de investigación internacionales punteros. En concreto, he sido fellow del Center for Epigraphical and Palaeographical Studies de la Ohio State University (junio-julio 2013), del Warburg Institute de Londres (septiembrenoviembre 2013), de Villa I Tatti de la Harvard University, en Florencia (enero-junio 2014), del Ludwig Boltzmann Institute for Neo-Latin Studies en Innsbruck (octubre 2014-enero 2015) y de la Herzog August Bibliothek en Wolfenbüttel (julio-agosto 2018). He realizado otras tres estancias postdoctorales, en la Kommission für Alte Geschichte und Epigraphik en Múnich (2012) y en Villa I Tatti (2015 y 2016). Entre febrero de 2015 y febrero de 2017 disfruté de una Beca de Formación Posdoctoral del Ministerio en la UAH. Desde 2017 y hasta ahora trabajo como profesor asociado en la UAB.

Desde 2008, he participado en 5 proyectos de investigación del Ministerio dirigidos por el prof. Joan Carbonell (UAB). En 2015 me incorporé al grupo de Investigación Centro CIL II de la UAH, participando en un proyecto financiado por la Comunidad de Madrid (2016-2018). En 2016 lideré mi primer proyecto de investigación como IP, financiado por la UAH. Tengo un informe de lector favorable (2015) y una acreditación de investigación (2020), ambos emitidos por AQU Catalunya.

Soy autor de un total de 58 publicaciones: tres libros como autor (más una traducción del Pro Archia de Cicerón), tres libros como editor, 26 artículos en revistas científicas, 23 capítulos de libros y dos reseñas. He participado en 28 congresos y seminarios, y he coorganizado cinco seminarios y un congreso.

Mi línea de investigación principal gira en torno al redescubrimiento de la Antigüedad clásica en el Renacimiento, y su impacto en la historia intelectual de la Edad Moderna, con especial atención a la recepción de las antigüedades romanas y a la circulación de textos e ideas mediante manuscritos e impresos. Algunos de los temas de los que me he ocupado son: los contactos humanistas entre Italia y España en los ss. XV-XVI; los estudios anticuarios en España entre 1475 y 1600; la difusión y recepción de material anticuario en la tradición manuscrita e impresa, incluyendo el estudio de marginalia humanísticos; la escena anticuaria romana entre 1490 y 1520; los círculos humanistas florentinos alrededor de Poliziano y Maquiavelo; las academias romanas de 1545-1555, y la falsificación epigráfica en el Renacimiento.

Esta línea de investigación tiene un doble objetivo: dar respuestas a cuestiones irresueltas relativas a objetos antiguos conocidos mediante copias renacentistas, y conseguir evidencias significativas de cómo el estudio e interés por la Antigüedad modeló la Edad Moderna académica, cultural, política y artísticamente.

Resumen del Currículum Vitae:

Situación actual: Profesor Asociado UAB (2017-actualidad) Cargos anteriores: Fellow Herzog August Bibliothek, Wolfenbüttel (2018) Investigador post-doc (Formación Posdoctoral) UAH (2015-2017) Fellow Ludwig Boltzmann Institute for Neo-Latin Studies, Innsbruck (2014-2015) Fellow Villa I Tatti, Harvard University (2014) Fellow The Warburg Institute, Londres (2013) Fellow Center for Epigraphical and Palaeographical Studies, Ohio State University (2013) Becario predoctoral UAB (2008-2012) Formación: Doctor en Filología Latina, UAB (2008-2011). Exc. cum laude, Doctor Europeo y premio extraordinario. Máster (Matrícula de Honor) en Ciencias de la Antigüedad y de la Edad Media, UAB (2007-2008). Licenciado en Filología Clásica, UAB (2003-2007); premio extraordinario. Acreditaciones: Acreditación de investigación e Informe de lector (AQU).

Selección de publicaciones: Libros (autor):



ESTATAL DE NVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Agostino Vespucci, A Description of All Spain. De situ... totius Hispaniae libellus. Critical Edition, Translation, Introduction and Notes. Roma: Viella, 2017. 247pp.

El despertar epigráfico en el Renacimiento hispánico. Corpora et manuscripta epigraphica saeculis XV et XVI. Faenza: Fratelli Lega, 2013. 265pp. [con J. Carbonell] Epigrafía hispánica falsa del primer Renacimiento español. Una contribución a la historia ficticia peninsular. Bellaterra: UAB, 2012. 149pp.

Libros (editor):

[con J. Carbonell] The Epigrammata Antiquae Vrbis (1521) and Its Influence on European Antiquarianism. Roma: L Erma di Bretschneider, 2020. 194pp. Peregrinationes ad inscriptiones colligendas. Estudios sobre epigrafía de tradición manuscrita. Bellaterra: UAB, 2016. 390pp.

Artículos:

Conrad Peutinger, Reader of Inscriptions: A Note on the Rediscovery of His Copy of the Epigrammata Antiquae Urbis (Rome, 1521), History of Classical Scholarship 1 (2019), 1-21.

Manilio (4, 16) y el putto como alegoría de la muerte en un memento mori epigráfico de finales del s. XV (CIL II 4426 = II2/14, 1809), Athenaeum 106:1 (2018), 168-188.

"An Antiguarian Forger at Ferdinand s Court: On the Authorship of the Fake Inscriptions of Early 16th-Century Spain", Bibliothèque d Humanisme et Renaissance 79:1 (2017), 97-121.

Agostino Vespucci s De situ totius Hispaniae (1520): The Earliest Antiquarian Description of Spain, Viator 48:1 (2017), 279-300.

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AGENCIA ESTATAL DE INVERSICATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Cultura: filología, literatura y arte
Nombre:	CHARALAMPOUS , CHARIS
Referencia:	RYC2021-030949-I
Correo Electrónico:	charis.charalampous@cantab.net
Título:	Science and Literature / Value of literary study

Resumen de la Memoria:

I study the ways in which literature and science can be integrated at a fundamental level, where methods and ideas unite in the service of addressing complex epistemological problems they share in common as well as societal challenges. I refer to this method as "problem-oriented epistemological integration." This is a new and rewarding approach for integrating science and literature: asking how each operates to bring about new knowledge in a context that invariably includes them both without the one being subservient or beholden to the other. I have promoted this methodological approach via 1 monograph in Routledge and 6 articles in flagship journals on the mind-body relation problem, and via 1 monograph (under review with Boston Studies in Philosophy and History of Science) and 4 articles in leading international journals on the history and philosophy of quantum physics.

My work on the mind-body problem has shown that the father of the mind-body dualism is not Descartes, as it is so often assumed, but fourteenth century philosopher William of Ockham, whose theory upheld that the body is capable of performing complicated forms of cognition independently of the mind. I have studied the ways in which early modern literary writers, natural philosophers, medical practitioners and theologians incorporated into their work what I have termed the "intelligent body," producing significant new work on medicine, philosophy, cognitive psychology, theology and aesthetics. I have also investigated the importance of this theory for more recent work on embodied cognition and distributed agency.

To explore further the benefits of problem-oriented epistemological integration as a catalyst for the production of new knowledge, I extended my inquiry into the history and philosophy of quantum physics, tracing and mapping the story of how our concept of the atom evolved so as to identify the ways in which revisiting this story can provide us with fresh insights into the ontology of the fundamental building blocks of physical reality. My central aim is to show that work in physicists tend to overlook the sophisticated logical systems developed in the humanities, hindering an understanding of novel explanatory scenarios in physics. This central argument has been developed in a manner that highlights the need for a problem-oriented epistemological integration of physics and the humanities. I have thus carried out this research in view of my current project, the aim of which is to synthesize literary and quantum theory to tackle complex epistemological issues they share in common as well as pressing societal challenges that pertain to identity politics and the function of language with regards to the nature of the objects that it is often assumed merely to describe.

My work on the intersections of science and literature has also led me to investigate the problem of the value of literary study from a new angle, embarking on the first project to collect and synthesise the arguments and practices of the defenders and critics of literary study's value across history in order to reconstruct the links that connect different eras to our own and provide a transhistorical answer to the question of the value of literary study. It is on the basis of this work that I have received a competitive research grant from the Hellenic Foundation for Research and Innovation.

Resumen del Currículum Vitae:

Having been awarded a PhD in English from Cambridge University in 2014, for which I received the Emsley Prize for achieving the highest recommendation in subjects with a historical approach, I have held positions at the universities of Cambridge, Athens, Central Lancashire, Cyprus and Crete. I study the epistemological connections of science and literature as a catalyst for the production of new knowledge.

To complete my first monograph, 'Rethinking the Mind-Body Relationship in Early Modern Literature, Philosophy and Medicine' (Routledge 2016), I received the Toby Jackman Newton Trust Research Fellowship (2015-18) at Cambridge University, a highly competitive research fellowship that attracted over a thousand applicants across the humanities and social sciences. To ensure that my results are robust and impactful, I collaborated with a number of scholars, including David Hillman, Katrin Ettenhuber, Andrew Zurcher, Katharine Craik and Jonas Liliequist. The fellowship also allowed me to lay the groundwork for my second monograph, 'The Substance Everything is Made of: The Ontology of the Fundamental Particle in Western Thought.' I am currently at work on my most recent research project, 'Literature and Quantum Mechanics, Words and Atoms, and Identity Trouble' (UNITE). I have established international collaborations with physicists, literary critics and philosophers of physics, mathematics and language. These are Ignatius Mcgovern (Trinity College Dublin), Karen Crowther (Oslo U), Martin Willis (Cardiff U) and Øystein Linnebo (Oslo U). UNITE s collaborative, interdisciplinary and innovative aspects make it a strong candidate for the attraction of funding from external bodies.

Since January 2022, I am the recipient of a research grant from the Hellenic Foundation for Research and Innovation to lead a 20-month project entitled 'The Historical and Transhistorical Values of Literary Study in Europe' (HTV). Hosted by the University of Crete's Research Centre for the Humanities, the Social & Educational Sciences, the project has enlisted the support of a number of distinguished scholars in the field, who have agreed to serve on its Advisory Board: Simon Goldhill (Cambridge U), Richard Hunter (Cambridge U), Stephen Halliwell (St Andrews U), Andy Mousley (De Montfort U), Raphael Lyne (Cambridge U), Philip Davis (Liverpool U), Werner Wolf (Graz U), Josie Billington (Liverpool U), Rick Rylance (School of Advanced Study, London U), Richard Gaskin (Liverpool U), Angelos Mouzakitis (Crete U), Robert Eaglestone (Royal Holloway), William Marx (Collège de France) and Rita Felski (Virginia U). I have ensured that the young researchers benefit from the action in terms of research training, the acquisition of new transferrable skills, and communication and outreach activities. Upon the completion of this project, the consortium members will work together to secure an ERC consolidator grant to launch and complete the second, major phase of the project.

I serve as a reviewer for the Routledge monograph series 'Among the Victorians and Modernists,' as well as for 'Modern Philology,' 'The Journal of the Northern Renaissance,' and 'Parergon.' As a committee member of the Von Hügel Institute for Critical Catholic Inquiry at Cambridge University, and as a member of St Edmund s College s Governing Body, I have been involved in the evaluation of research projects.



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Cultura: filología, literatura y arte
Nombre:	RAMIREZ BLANCO, JULIA
Referencia:	RYC2021-033703-I
Correo Electrónico:	julia.ramirez.blanco@gmail.com
Título:	Utopías artísticas y transformación social

Resumen de la Memoria:

The interdisciplinary work of Julia Ramírez-Blanco (Juan de la Cierva-Incorporación scholar, Barcelona University) connects art history, utopian studies, and activist movements. She has conducted research on the political iconography of social movements, with a focus on the British direct-action environmentalism of the 1990s and the Spanish 15M movement that occupied city squares with activist camps in 2011. She has also written on the relationships between contemporary art and utopia, and on the gendered history of artistic collectives. Her research frames utopia as the backbone of politics, which condenses its vision in an idealized whole. Her work understands performative, symbolic, and visual elements as a privileged space in which the utopian discourse is developed. She has published internationally and is the sole author of three monographs Artistic Utopias of Revolt (Palgrave, 2018), 15M. El tiempo de las plazas (Alianza, 2021), and Amigos, disfraces y comunas (Cátedra, forthcoming, 2022) and editor of two books and a journal issue. She has authored articles and chapters in English, French, Italian, and Spanish. As well as conducting research stays in New York, Nantes, Amiens, and Princeton, she is a Committee member of the Utopian Studies Society and belongs to the Intentional Communities Research Group. She now co-leads the work and research group Aesthetics & Technics (Civic Media Lab, American University Paris), and she is part of the international network of researchers from the Center for Artistic Activism. She also has co-led the research and exhibition project Grande Révolution Domèstique-Guise on feminist utopias. She collaborates with the Museum of Contemporary Art of Barcelona (MACBA) where she has directed a Working Group. Her influence is particularly evident in her curatorship of the 15M materials for the recent reorganization of the permanent collection of the Reina Sofia Museum in Madrid. At present, she is working on a book on back-to-the-land communities as part of a broade

Resumen del Currículum Vitae:

Dr. Julia Ramírez-Blanco is a Juan de la Cierva-Incorporación researcher (Department of Art History, University of Barcelona), and previously held a Juan de la Cierva-Formación contract at the same university. Before that, she was a fellow at the Spanish Academy in Rome and at the Residencia de Estudiantes CSIC in Madrid. She has been a visiting researcher at New York University, École Superieure d'Architecture Nantes, Université Picardie Jules Verne, and Princeton University.

As an author, she has been published by top-ranked publishing houses. Her first book, Artistic Utopias of Revolt (Palgrave, 2018), traces an aesthetic genealogy of Western European activism after the Fall of Berlin Wall, examining its utopian dimensions. In her second book, 15M. El tiempo de las plazas (Alianza, 2021), she conducted the first in-depth visual analysis of the Spanish 15M movement through its performative dimensions. Her forthcoming book Amigos, disfraces y comunas (Cátedra, 2022) examines the importance of rituality and symbolism within the early artist collectives of the 19th Century. She has published in journals such as Third Text (Q2), with publishers such as Palgrave and Routledge, and has participated extensively in international conferences including those of College Art Association (CAA), Association for Art History (AAH), and the Utopian Studies Society (USS).

Ramírez-Blanco is the only Spanish member of the Committee of the Utopian Studies Society, where she has led the creation of a global database, and is also a member of the CAA and AAH scientific societies. She has participated in the scientific committees of congresses and has carried out peer-review activities for international journals and publishers.

She has co-led international projects with a gender perspective, such as Grande Révolution Domèstique-Guise and currently co-leads the Aesthetics & Technics working and research group (Civic Media Lab, American University in Paris). As an editor, she has led groups of authors including renown figures in contemporary art (Prof. TJ Demos, U Santa Cruz; Rachel Weiss, U Chicago; Oliver Ressler), important authors in utopian studies (Tim Miller, U Kansas), and visual-studies experts (Prof. Nicholas Mirzoeff, NYU).

Ramírez-Blanco works consistently with national museums: at the Museum of Contemporary Art of Barcelona (MACBA), she founded and directed the Working Group on the Collection and organized the international seminar Utopian Nineties. At the Reina Sofía Museum in Madrid, she recently curated the section of the permanent collection dedicated to the 15M movement.

She has taught programmes on contemporary art and utopia and on art and activism, as well as the compulsory course Critique of Representation at the University of Barcelona. She has tutored research stays and undergraduate and master's theses at public universities in Spain and Mexico, and is currently co-directing two doctoral theses. She has 352 citations in Google Scholar and a Hirsch index of 9. She is accredited as a Contracted Doctor (ANECA).



VESTIGACIÓN

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Área Temática:	Cultura: filología, literatura y arte
Nombre:	SAN MARTIN ARBIDE, LOLA
Referencia:	RYC2021-034430-I
Correo Electrónico:	lolasanmartinarbide@gmail.com
Título:	CULTURAL STUDY OF MUSIC: IDENTITIES, CITIES, SOUND

Resumen de la Memoria:

Dr Lola San Martín Arbide is a Spanish musicologist currently having worked at the New Europe College Institute for Advanced Study in Bucharest. A Specialist in French cultural studies, music and art of the late 19th and early 20th centuries, her work can be framed under the title of CULTURAL STUDY OF MUSIC: IDENTITIES, CITIES, SOUND. Through her employment in research centers in Spain, UK, France and Romania, she has developed several interconnected research lines: music and space; music and cultural geography; music and sound studies; regionalism, nationalism and orientalism; music, visual arts and literature; and film music. Her work has been published in Spanish, English and French by some of the world s highest-ranked presses, and reflects the richness and depth of the research lines that she has developed. The European Commission highly commended the interdisciplinary nature of her work, which is at the intersection of music studies and urban cultural studies, sound studies and intermedia art. She is also devoted to the study of identity politics, be it through the prism of regionalism and nationalism (in opera, sound maps, French exoticism) or in gender politics.

Her record of international mobility has been fundamental in the development of her research. Thanks to an early interest in inter-art exchanges during the historical avant-gardes period, she was invited to the Observatoire musical français (Sorbonne IV, Paris) to study Erik Satie s influential Musique d ameublement. Following the results of this work, she then carried out an extended stay at UCLA s Department of Musicology (USA) to work on ambient music, atmospheres and visual arts in the 20th century. This fed her interest in emotion an affect theory, which she has recently further explored through the specific study of nostalgia by directing the international conference Urban Nostalgia. The Musical City in the 19th and 20th centuries . She has been critically appraised for her innovative approach to the study of the social and urban contexts of French music, being invited to contribute to collective books on Debussy, and on exoticism and regionalism in the reception of Bizet s Carmen. Her work on space has led to the investigation of musical mobilities and mapping, both in the early and mid-20th century (Satie, Les Six, Mac Orlan) as well as in Digital Humanities and Digital Art (sound maps and sound walks). Sound maps, as advocated by Dr San Martín, are shaped by regionalist or nationalist tendencies. She has been an active member of the Spanish Musicological Society s working group on audiovisual media, having produced a number of book chapters on interactive sound platforms and film music. The links of film and literature with music are at the core of her monograph City of Sound, Village of Song: Listening to Paris in Literature, Film and Music, 1870-1939. Dr San Martín has an established track-record of original interdisciplinary research, international mobility and higher education employment, having being endorsed by some of the world s most competitive awards. She has recently obtained funding from the Junta de Andalucía to lead a research project at the University of Sevilla (2022-26).

Resumen del Currículum Vitae:

Dr. Lola San Martín Arbide (1987) has been awarded the most prestigious research fellowships. During 2020-21 she was an international fellow at the New Europe College Institute for Advanced Study (NetIAS Network, Bucharest, Romania) after having been a Marie Skłodowska-Curie Fellow at the École des hautes études en sciences sociales (EHESS, Paris), leading the project Aural Paris: The Changing Identities of The City of Sound in Music, Film and Literature, 1870-1940, which is the subject of her monograph currently under review (The Boydell Press, UK). She was a Junior Research Fellow at the University of Oxford (2015-18) and she was also a postdoctoral research fellow at the University of the Basque Country (2015-17). She earned her doctorate in Musicology at the University of Salamanca (2010-13) with an International Mention through long research stays at the Observatoire Musical Français (Paris) and at the Department of Musicology of the University of California Los Angeles (USA). She also holds a Master s degree in Hispanic Music and a Degree in Translation and Interpreting.

She has published on a wide variety of topics that reflect the complexity and richness of the research lines of her career. With an interest in the cultural study of music and identity politics she has published her work on Debussy and exoticism (Cambridge University Press), Erik Satie and street culture (Etno-Folk), Bizet s Carmen and its Spanish reception in the wake of peripheral regionalism (Cambridge U. Press), contemporary opera productions and feminism (Peter Lang), sound maps and sound ecology (SedeM), film music, literary soundscapes in French interwar literature, and multimedia avant-garde art and hip-hop, among others. She directed the international conference Urban Nostalgia: The Musical City in the 19th and 20th Centuries (EHESS, 2020). A good example of her contribution to the state of the art in cultural geography and urban musicology is the guest editing of the special issue Urban Desires: Music and Nostalgia for Nineteenth-Century Music Review (Cambridge U. P.) currently under evaluation.

She has been invited to give 12 lectures and papers at international conferences since 2013 (UK, France, Spain, USA, Switzerland), and has given 29 conference papers since 2008. She has raised a total sum of 580.573 euros, from the European Commission, the Music & Letters Trust, the University of Oxford, etc. She has taken part in numerous international research groups, and is very active in directing conferences on topics such as sound studies (EHESS, Columbia University), music and nostalgia (EHESS) and cities and music (University of Oxford) and has been in the scientific committee of research events on mapping (Cardiff), the political voice of cities (EHESS) and sonic urban studies (Oxford). She has an outstanding record of undergraduate and postgraduate teaching, in English, French and Spanish, having designed, directed and taught her own Master s seminar at the University of Oxford s Faculty of Music and as a guest lecturer at the Master de I EHESS. Mention Théories et pratiques du langage et des arts. Spécialité Musique (2018 2019). She often collaborated in dissemination activities and works as peer reviewer for several journals. Since 2018, she integrated the editorial board of Transposition. (EHESS, Philharmonie de Paris).



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática: Nombre: Referencia: Correo Electrónico: Título: Modern Mexico. Cultura: filología, literatura y arte PEREZ VIDAL, MERCEDES RYC2021-033027-I mercedespvidal@gmail.com Making and performing liturgy in gendered monastic spaces in Medieval Iberia, Northern Italy and Early

Resumen de la Memoria:

I am an art and cultural historian with expertise in monastic architecture; gender studies and manuscripts. My research has focused on the cultural history and art history of female monasteries, breaking the traditional regional and chronological boundaries, i.e., exploring the continuities between Middle Ages and Early Modern, and the networks of cultural transfer between the Iberian Peninsula and other European and non-European territories. Within this general framework, my main research lines or interests have been: A. Dominican female monasteries in Medieval Castile, particularly the analysis of art and architecture in relation to liturgy, also from a gender approach. B. Transfer of cultural practices between the Iberian Peninsula and Early Modern Mexico and Peru. C. Libraries and manuscript production in female religious foundations in the Iberian Peninsula and Italy in the Middle Ages, with a comparative approach. The first (A) started with my PhD dissertation under the supervision of Prof. E. Carrero (UAB), which was defended (with the highest honors) on January 18, 2013. This study innovated the field of female monasticism in Spain from both theoretical and methodological perspectives. It combined the liturgical turn , with an study of Castilian Dominican nuns cultural context, and a typological and functional analysis of their monastic spaces.

I have held 4 postdoctoral fellowships, which allowed me to carry on 4 individual projects and to enhance my methodological horizons, mainly comparative transregional analysis by working in international teams. During my post doc at UNAM (2014-2015), I started a second research line (B), with a transatlantic approach, exceeding the chronological limits of the Middle Ages. The analysis went beyond its initial focus on Dominican nunneries in Spain, New Spain and Peru, covering other religious orders, and male convents. The project also studied the continuity of some liturgical and devotional practices and the transatlantic circulation of liturgical books. One of its outputs was the edition of a volume on Transatlantic women religious, c. 1200-1700 (Arc Humanities Press, 2022). This conducted a long-term inquiry on the fluidity of enclosure in the relationship between women religious in Europe and America and the social milieu of their era. A third research line (C) consolidated my previous interest in libraries and in liturgical books, as key sources in the analysis of the function of spaces and objects. I explored this line in new monastic landscapes , i.e. Italy, Germany and Portugal, broadening my comparative approach. This has been possible thanks to 2 MSCA grants; 1. Piscopia at the University of Padua (2015-2017), with a project on architecture, libraries and manuscript production in female monasteries in Northern Italy; 2. Clarín at Prof. Schlotheuber s team at the HHU Düsseldorf (2017-2019), conducting a comparative analysis between monastic libraries and liturgical performances in the liberian Kingdoms and Germany. Moreover, since March 2021 I am a researcher part of the team of the FCT project on the 36 medieval manuscripts from the Cistercian monastery of Lorvão, led by C. Barreira. This will be developed in synergy with my current project FEMLIT exploring the intersections of micro and macro levels in monastic studies, overcoming limitations of geographically confined studies.

Resumen del Currículum Vitae:

I completed my Ph.D. in 2013, with a dissertation on the Dominican female monasteries in medieval Castile. A synthesis of this work, the first monograph on this topic, has been published by Trea (2021). My research trajectory has had a clear international character, particularly during my postdoc period, and I have a strong record in securing research funding. I have held 4 post doc positions (I was also awarded the JdC-I, at the UB, which I resigned). They have offered great opportunities for autonomous research, developing 4 biannual individual projects, funded by competitive international programmes. First, I took up a post-doctoral research position at UNAM (01/03/2014-31/10/2015). From 04/11/2015 to 03/11/2017 I was Piscopia-MSCA fellow (G.A. n. 600376) at the University of Padua. From 29/12/2017 to 28/12/2019 I was MSCA-Clarín at the team of Prof. Schlotheuber s at the HHU, Düsseldorf (G.A. n. 600196). I am now a researcher part of the team of the project on the medieval manuscripts from the Cistercian monastery of Lorvão, led by C. Barreira (IEM-FCSH-NOVA). In December 2021, I joined the University of Oviedo as scientific fellow, with a contract funded by the Principality of Asturias (SV-PA-21-AYUD/2021/57166). I have expanded my international research networks through punctual partnerships with other institutions: e.g., École Française de Rome; University of Basel; Université de Bordeaux; Medici Archive Project; Humboldt Foundation, etc.

My publications to date have been 1 monograph (Trea, 2021); 1 edited volume (Arc Humanities, 2022); 12 articles in peer-reviewed journals (3 in the Q1); 16 book chapters in top-ranked publishers: Oxford University Press, Berghahn books, Brepols, Boydell & Brewer. Most publications as sole author except 2 co-authored, 1 with Mette Kristiansen, and 1 with Haude Morvan. Besides, I have delivered over 40 papers and invited lectures, in international congresses, workshops and seminars. Many of these contributions were in a foreign language (books: 1 in English; articles or book chapters: 11 in English, 1 in French, 1 in Italian, 1 in Polish; papers and lectures: 19 in English and 5 in Italian).

My managerial skills have been improved through the co-organisation of 4 international conferences (Paris, 2015; Basel 2016 & 2017; Padua, 2018) and I have secured a generous grant of 27, 850 Swiss francs from the Swiss National Science Foundation to fund two of them (Basel, 2016 & 2017). I have been also member of several scientific and steering committees (3 international conferences, a prize on gender & women s studies), as well as member of a PhD jury (Paula Cardoso, UNL, 2019). From 2014 to 2021 I was vice-president of the Société d'Études Interdisciplinaires sur les Femmes au Moyen Âge et à la Renaissance. I have been reviewer of several international scientific journals and I am currently a member of the scientific editorial board of the IEM-NOVA-FCSH. I am qualified as "Profesor Contratado Doctor" by the ANECA (2016). For six years I have taught a variety of undergraduate modules for programmes in Art History and History at the University of Oviedo and then at UNED, gaining also a solid experience in supervising students. I also delivered seminars for postgraduate students at the UNAM, Mexico; at the University of Le Mans; at the University of Padua; at the EHESS, Paris, and at the HHU, Düsseldorf.





Área Temática:	Derecho
Nombre:	ATIENZA MACIAS, ELENA
Referencia:	RYC2021-033628-I
Correo Electrónico:	elena.atienza@ehu.eus
Título:	LAW AND PUBLIC HEALTH, SCIENCE AND TECHNOLOGICAL INNOVATION

Resumen de la Memoria:

MAIN RESEARCH LINE: LAW AND PUBLIC HEALTH, SCIENCE AND BIOTECHNOLOGICAL INNOVATION

It should be noted that the activity has been developed, fundamentally from the point of view of Spanish law, as well as European and international law, with the idea of offering a global vision (multilevel). The aforementioned line of research has also been achieved through the development of a set of distinct lines of work which, over the past 13 years, have been progressively updated and expanded taking into account, not only the legal implications but also ethical and social implications that scientific and technological innovation has for the Law and the Public Health (multidisciplinary perspective). The central axes of the researcher's work have been:

1. BioLaw, Bioethics. Health Law: International and comparative law of the human genome and biotechnologies; Fundamental rights and genetics; Genome and health; Sexual health and human reproduction and genome; Biotechnology and Environment; Law and Medicine. Sports Medicine. Doping and Biotechnologies.

2. The improvement of Healthcare System -Public Health- through Artificial Intelligence. Legal issues: Major Crisis in Healthcare. Public Health Preparedness (i.e. COVID-19 pandemic); Artificial Intelligence for Emergency Management; Innovation in medicines; Drugs shortages; Data protection regulation and Artificial Intelligence (AI).

Resumen del Currículum Vitae:

Elena ATIENZA career is characterised by a strong legal background: Law Degree from Deusto University with an outstanding final mark (9); Master's Degree in Fundamental Rights and the Public Powers from the UPV and Interuniversity Doctorate in Law by Deusto, ICADE and ESADE (2016) with the thesis: Las respuestas del Derecho a las nuevas manifestaciones de dopaje en el deporte directed by Prof. ROMEO CASABONA and by Prof. EMALDI and distinguished with an International Mention, Excellent Cum Laude and XVI Legal Prize from the Andalusian Association of Sports Law. Her research career, since December 2009 (13 years) has been developed in the Research Group Chair in Law and the Human Genome of the UPV qualified as Level A and Excellent by the Basque Government and which is directed, since its beginning in 1993 (29 years), by Prof. ROMEO CASABONA. This research centre is a worldwide reference within the Biolaw field. As a result, the main candidate¿s research line is BioLaw and Health Law. It has been a period of intense production. She has participated in a large number of competitive research projects (16): at national level (11) and funded by the EU (5). Her scientific contributions have been disseminated in 127 publications 6 books (4 of them as Director/Coordinator), 32 book chapters, 52 papers, 35 short papers and 2 translations . It is noteworthy that she has 15 papers indexed by the Web of Science. She has been a speaker at national and international conferences (more than 45 lecturers). All this led to the Basque Government awarding her a Postdoctoral Grant, which was developed, for 2 years, at the Centre for Biomedical Law of the Faculty of Law, Coimbra University (Portugal). Therefore, she has an extensive international research experience with this long postdoctoral stay, which was complemented by another stay at the Centre de Documentation et de Recherches Européennes Centre d'excellence Jean Monnet Aquitaine, University of Pau and the Adour Countries (France). Her leadership capacity is reflected in the fact that she has been a Coordinator since 2010 (12 years) of the Law and Human Genome Review edited by Dykinson (Q1 SPI ranking) and a Coordinator of the Chair in Law and the Human Genome R.G. Monographs edited by Comares (Q1 SPI ranking). She has an accredited capacity for obtaining resources being a member of the Management Committee of the ISCH COST Action CA15105 funded by Horizon 2020 Programme as well as has been a beneficiary of a large number of mobility grants (20). She has also directed 4 monographs (Q1 SPI). This led the Ministry of Science, Innovation and Universities to award her a Juan de la Cierva postdoctoral grant (1st position on Spain's list, with the highest score) and the report issued by the Ministry in June 2020, following up on this grant (Ref. FJCI-2017-34227), qualified her research career as Excellent . It is complemented by a notable teaching career, at postgraduate level, both nationally and internationally, as Lecturer of the Master's Degree in Sports Law at the Athens University (Greece) and teaching activity at the Coimbra University (Portugal). At a national level she is a Lecturer of the Inter-University Master's Degree in Bioethics and BioLaw (La Laguna and Las Palmas de Gran Canaria Universities), of the CEU Master's Degree in Sports Law and of the UNED Master's Degree in Health Law. All this has culminated in ANECA Accreditation as: Profesora Contratada Doctora



Área Temática:	Derecho
Nombre:	VILA VIÑAS, DAVID
Referencia:	RYC2021-032948-I
Correo Electrónico:	dvila@unizar.es
Título:	La efectividad de lo

 Título:
 La efectividad de los derechos sociales desde el enfoque de los governmentality studies. Especial atención a su garantía en la sociedad del conocimiento

Resumen de la Memoria:

He trabajado en los siguientes campos, con un impacto, según GoogleScholar, de 412 citas y h-index 12 / i10-index 12:

Al inicio, mi investigación se especializó en la traslación al ámbito jurídico de las aportaciones de los governmentality studies, de inspiración postfoucaultiana. Esta investigación se plasmó en el libro La gobernabilidad más allá de Foucault y el artículo El pensamento jurídico de los governmentalty studies ". Anuario de Filosofía del Derecho. A partir de este trabajo me integré en las redes de de investigación del International Institute of Sociology of Law de Oñati y la Socio-Legal Network y el Research Group of Sociology of Law of ISA y realicé una estancia financiada por el Banco Santander en el linstituto Ambrosio Gioja de investigaciones socio-jurídicas, de la Universidad de Buenos Aires.

Desde una perspectiva socio-jurídica, mi trabajo se especializó en el análisis socio-jurídico y político-regulativo de las políticas de desarrollo económico y social en la sociedad del conocimiento, por una parte, y de la efectividad de los derechos económicos, sociales y culturales por otra, sobre todo en materia familiar, de infancia y trabajo de cuidados. En la primera, realicé una estancia posdoctoral entre 2013 y 2015 en el Instituto de Altos Estudios Nacionales de Ecuador, institución orientada hacia el asesoramiento en procesos normativos y de diseño de políticas públicas y a la formación de posgrado de los cuerpos de funcionarios. Allí co-dirigí la investigación FLOK Society (Free/Libre Open Knowledge Society), financiada con más de 700.000 USD. Su objeto fue el diseño de normas y políticas públicas para la transición hacia la sociedad del conocimiento en campos como la educación, la ciencia, la producción cultural, industrial, agroalimentaria y de las comunicaciones. Esta investigación tiene un impacto público muy alto en el contexto latinoamericano, tanto en instituciones públicas como en la sociedad civil. Solo los trabajos de este proyecto en los que participa el investigador tienen 339 citas (GoogleScholar).

Respecto a la efectividad de los derechos económicos, sociales y culturales, he realizado mi labor como investigador posdoctoral en el contexto del Laboratorio de Sociología Jurídica de la Univ. De Zaragoza, entre 2012-2013 y 2015 hasta la actualidad. Allí he investigado sobre cómo la crisis financiera de 2008 (y de forma reciente la de 2020) ha producido nuevas formas de vulnerabilidad, lo que ha obligado a reconsiderar los derechos sociales, en cuanto a su reconocimiento y a sus medios de garantía. En una primera época, esto se produjo en el contexto del proyecto europeo (The Age of Human Rights , CSD2008-0007, 2008-2014), en la línea de implementación y efectividad de los derechos humanos con una especial referencia a los sociales .

Desde 2015, el trabajo se ha combinado con el de profesor asociado en la Universidad de Zaragoza (2016-2020) y profesor sustituto interino en las Universidades de Málaga (2020-2022) y Sevilla (en la actualidad). Desde estas posiciones he combinado la investigación sobre la efectividad de los derechos sociales en materia de infancia, familia y trabajo de cuidados, con el asesoramiento en el diseño de normas jurídicas en estas materias

Resumen del Currículum Vitae:

1. Incorporación al ámbito jurídico de los governmentality studies, especialmente en políticas de infancia y familia, en el orden social y de criminal. Mi PhD tesis y mi primer libro (La gobernabilidad más allá de Foucault, de 2014) son referencia de este enfoque en el ámbito hispano-hablante, con 31 citas (GoogleScholar). Participo en la red de governmentality studies, donde el International Institute of Sociology of Law (IISL) (Basque Country) es un referente. Sobre esta línea de investigación, realicé estancias predoctorales y workshops en el IISL, así como en la Universidad de Buenos Aires, donde realizó una estancia posdoctoral financiada.

2. Enfoque jurídico y de políticas públicas de la sociedad del conocimiento. En el contexto de mi estancia posdoctoral en el Instituto de Altos Estudios Nacionales de Ecuador, co-dirigí la investigación FLOK Society (Free/Libre Open Knowledge Society), financiada con más de 700.000 USD. Su objeto fue el diseño de normas y políticas públicas para la transición hacia la sociedad del conocimiento. Esta investigación tiene un impacto público muy alto en el contexto latinoamericano, tanto en instituciones públicas como en la sociedad civil. Solo los trabajos de este proyecto en los que participa el investigador tienen 339 citas (GoogleScholar).

3. Enfoque jurídico y de políticas públicas para la efectividad de los derechos económicos, sociales y culturales. Se ha ido más allá así el enfoque de los derechos en la sociedad del conocimiento. Esta investigación se realiza dentro del grupo de investigación Laboratorio de Sociología Jurídica, de la Universidad de Zaragoza (LSJUZ), reconocido como grupo de investigación consolidado desde 2005 hasta la actualidad. El grupo forma parte de las redes internacionales de Law & Society y ha participado en investigaciones sobre la igualdad efectivda de mujeres y hombres en el ámbito laboral, familiar y penal, sobre la efectividad de los derechos sociales en grupos vulnerables.

Principales aportaciones a la sociedad:

1. En el ámbito internacional, desde la codirección del proyecto FLOK Society, impulsó la implementación de un sistema MOOC para la formación online del funcionariado en el Instituto de Altos Estudios Nacionales. Asesoré también en la elaboración de la Ley de Educación Superior, Ciencia y Tecnología y del Código Orgánico de Economía Social del Conocimiento, entre 2013 y 2015.

2. El trabajo de investigación en materia de efectividad de derechos económicos, sociales y culturales me ha permitido participar en la elaboración de normas jurídicas. En Aragón, entre 2015 y 2017, de la Ley de reducción de la pobreza energética y de la Ley sobre garantías de la efectividad de los derechos sociales en situaciones de emergencia social, entre otras. En el ámbito estatal, a la participación en el grupo coordinador de la Proposición de Ley de modificación de la Ley General de la Seguridad Social, con objeto de mejorar la garantía de suficiencia de ingresos de la población, presentada en 2019.

En cuando a mis contribuciones al sistema científico, destacan el liderazgo del grupo FLOK Society en 2014 y 2015 y la contribución durante 14 años al LSJUZ, desde el periodo de formación doctoral hasta poder liderar líneas de investigación hoy y la revisión de artículos para diversas revistas académicas o de becas para la Organización de Estados Iberoamericanos.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Derecho
MANZANO COSANO, DAVID
RYC2021-033971-I
oceaniahispana@gmail.com
Oceanía hispana

Resumen de la Memoria:

Su alta formación académica (2 licenciaturas -4 ciclos superados-, 4 Másters y un doctorado) y las diversas estancias de investigación (Australia, Filipinas, Japón, Guam y Puerto Rico en Estados Unidos) han conducido al profesor David Manzano a granjearse un perfil singular, caracterizado por la interdisciplinaridad y el conocimiento de las redes internacionales de los PICs (Pacific Islands Countries), especialmente de la región de la Micronesia.

Su investigación ha estado marcada por su integración en el Proyecto El Pacífico hispano: imágenes, conocimiento y poder (Proyecto de Excelencia de la Junta de Andalucía) donde analizó la conexión del imperio ultramarino español con la Oceanía, profundizando en el pensamiento político y las relaciones internacionales de la época. Posteriormente, ha analizado el proceso de descolonización de la Micronesia para comprender los sistemas políticos que actualmente existen en la región, así como la importancia de esta área para la geopolítica internacional.

Resumen del Currículum Vitae:

David Manzano Cosano trabaja como PSI en la Universidad Pablo de Olavide (área de Historia Contemporánea). Se ha especializado en las Relaciones Internacionales de las entidades políticas de las islas del Pacífico (principalmente en el área de Micronesia) debido a su alta formación académica (2 licenciaturas -Historia y Ciencias Políticas-, 4 Másters y un doctorado) y sus estancias en el extranjero (Australia, Filipinas , Japón, Guam y Puerto Rico). Posee una dilatada experiencia en la docencia a nivel bachillerato como Funcionario público y a nivel universitario. Su libro El Imperio español en Oceanía, publicado en 2020, es una de las mejores referencias de las colonias españolas en el Pacífico. Su perspectiva de estudio es única en el mundo académico español porque analiza la Oceanía como un ente propio y no como la extensión de América o Asia.



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Derecho
Nombre:	FERNANDEZ BESSA, CRISTINA
Referencia:	RYC2021-031778-I
Correo Electrónico:	c.fernandezb@udc.es
Título: multiescalar.	Trasnformaciones del control migratorio y el control policial. Análisis socio-jurídico, interseccional y

Resumen de la Memoria:

MDesde febrero de 2020 disfruto de un contrato de investigación postdoctoral Juan de la Cierva-Incorporación vinculado al Área de Penal de la Universidade da Coruña (UDC) y al grupo de investigación ECRIM. Mi trayectoria investigadora se caracteriza por la variedad temática, las aproximaciones empíricas a la investigación jurídica y la constante participación en proyectos de investigación europeos. De hecho, el eje de mi trayectoria académica ha sido la participación en proyectos de investigación y como docente en distintas instituciones académicas -Fundació Bosch i Gimpera, Universitat de Barcelona (UB), Universitat Autònoma de Barcelona (UAB), Universitat Oberta de Catalunya (UOC), Universitat Pompeu Fabra (UPF) y UDC.

Mis aportaciones académicas tienen una dimensión jurídica, teórica y empírica, y son frecuentemente difundidas en los principales congresos internacionales criminológicos y socio-jurídicos (American Society of Criminology, European Society of Criminology y Law and Society Association). Una parte significativa de mis aportaciones han sido publicadas en coautoría. Esta característica, propia de los equipos de investigación multidisciplinares me ha permitido acceder a revistas de alto impacto internacional y enriquecer los análisis jurídicos con datos empíricos.

Entre los múltiples temas de investigación en los que he trabajado, las principales líneas de investigación que he desarrollado son el control migratorio y los estudios sobre seguridad, convivencia y control policial. Ambos, integrando una perspectiva de género.

Mis publicaciones académicas en el ámbito del control migratorio y su difusión, en especial la monografía sobre los Centros de Internamiento de Extranjeros (lustel, 2021) y mi artículo sobre las posibilidades de transformar las regulaciones y los efectos del control migratorio desde la escala local (Theoretical Criminology, 2019) me ha convertido en una autora de referencia nacional e internacional en el campo académico emergente de los estudios sobre crimigración y border criminology.

Mi investigación sobre seguridad, convivencia y control policial, caracterizadas por el análisis político-criminal de la inseguridad urbana, basada en investigaciones a nivel local, me han convertido en una experta con una importante proyección política y social.

Partiendo de estas dos líneas de investigación, en caso de que me otorgaran la Ayuda Ramón y Cajal mi investigación se centraría en el estudio de los nuevos desarrollos de la penalidad fronteriza y el control policial ante los retos de la inteligencia artificial (IA), desde una perspectiva interseccional y multiescalar. Los resultados serían difundidos mediante un libro con una editorial de referencia internacional y en artículos en revistas de alto impacto.

Resumen del Currículum Vitae:

Soy investigadora posdoctoral (Juan de la Cierva-Incorporación 2018) en el Área de Derecho Penal de la Universidade da Coruña (UDC) y el grupo de investigación ECRIM. Mis aportaciones a las ciencias penales y la criminología destacan por su variedad, multidisciplinariedad y relevancia internacional, derivada de mi intensa colaboración con redes internacionales, experiencia en proyectos europeos y difusión habitual en congresos de alto nivel. Mi trabajo ha recibido 50 citas en Web of Science (WoS) y Scopus (4 H-Index), 47 en Dialnet métricas y 521 en Google Scholar (15 Índice H).

He formado parte del equipo de investigación de 12 proyectos financiados (8 europeos), 2 redes de excelencia, y 11 convenios y contratos (IP en 6) sobre control migratorio, prisiones, seguridad, convivencia y controles policiales, violencia hacia mujeres migrantes y refugiadas, prostitución, instrumentos de cooperación para el traslado de presos e inteligencia artificial. He comunicado los resultados de investigación mediante 127 ponencias en congresos, conferencias y seminarios (50 internacionales), en 17 países. Asimismo, los he publicado mediante 1 monografía individual, 4 monografías en coautoría, 2 libros editados, 22 capítulos de libro y 18 artículos en revistas académicas, 9 con el máximo nivel de indexación (JCR y Scopus).

Mi trabajo sobre el giro gerencial, la individualización de los perfiles de deportabilidad y, sobre todo, mi monografía sobre el internamiento de extranjeros (lustel, 2021) y artículo en Theoretical Criminology (2019), me han situado como investigadora de referencia en el campo de la border criminology y la crimigración a nivel nacional y europeo. Por otro lado, mi análisis político-criminal sobre las ordenanzas municipales de civismo y su aplicación en el espacio público han aportado propuestas para redefinir el gobierno de la seguridad en algunos ámbitos de convivencia.

He realizado estancias dentro y fuera de España (EEUU, A Coruña, Argentina, Oñati, Holanda e Italia). Soy miembro de la European Society of Criminology, donde codirijo el Working Group Immigration, Crime and Citizenship (desde 7/11/2020). También pertenezco a la Sociedad Española de Investigación Criminológica y a la de Profesorado de Derecho Penal. He participado en múltiples cursos, mesas redondas y charlas organizadas por instituciones, entidades sociales y ONG. He publicado artículos de opinión y textos divulgativos.

He obtenido fondos para realizar estancias de investigación, ayudas para la organización de jornadas, y 5 contratos de transferencia como IP (64.422). Para llevar a cabo dos de ellos conformé y coordiné mis propios equipos de investigación.

He dirigido 8 TFM, 13 TFG y soy codirectora de una tesis doctoral en curso. Tengo amplia experiencia docente en distintas universidades (2600h, de las cuales 306 en másteres y postgrados). He tutorizado prácticas en organizaciones sociales y coordinado un taller de investigación para la elaboración del TFM. He sido profesora invitada en México, Italia, Argentina y Brasil. Soy miembro del Comité de redacción de la Revista Crítica Penal y Poder (CPyP) y evaluadora habitual para revistas indexadas. He coordinado 3 números especiales en revistas. He sido miembro de 3 tribunales de tesis. Desde 2020 soy evaluadora de proyectos para la ANEP. Estoy acreditada como profesora contratada doctora por la ANECA.





Área Temática:	Economía
Nombre:	ALMUNIA CANDELA, MIGUEL
Referencia:	RYC2021-031858-I
Correo Electrónico:	miguel.almunia@gmail.com
Título:	Empirical public finance

Resumen de la Memoria:

I am an applied microeconomist and my main field of research is empirical public finance. The broad question guiding my research agenda is how economic agents households and firms respond to government policies, namely taxes and regulations. I have also studied the impact of aggregate demand shocks on fiscal policy and firms export behavior. Understanding the effects of economic policies on efficiency and welfare is crucial to improve future policy design. In my work, I use large administrative micro-level datasets covering the population of taxpayers in a variety of countries. In terms of methods, I apply quasi-experimental methods such as bunching, diff-in-diff and instrumental variables in order to identify causal effects.

My research agenda can be categorized into three broad themes: tax compliance, behavioral responses to taxation, and the effects of aggregate demand shocks.

In the first branch of my research agenda, I study issues related to tax compliance. Tax evasion and avoidance are pervasive in all countries and have a negative effect on revenue collection. However, for decades they received too little attention in the public finance literature. My research in this area aims to provide new empirical evidence on how taxpayers mainly business adjust their behavior in the presence of different tax enforcement policies and what are the consequences for economic efficiency and welfare. My main contributions to this area are "Under the Radar: The Effects of Monitoring Firms on Tax Compliance" (Almunia & Lopez-Rodriguez, AEJ: Economic Policy 2018) and "Strategic or Confused Firms? Evidence from Missing Transactions in Uganda" (Almunia, Hjort, Knebelmann & Tian, Review of Economics and Statistics, forthcoming).

In the second branch of my research agenda, I focus on how economic agents respond to changes in tax rates and/or other elements of tax design. This branch of my research agenda aims to estimate empirically some key parameters that govern behavioral responses, such as elasticities, which are essential to evaluate the efficiency costs of taxation. My main contributions in this area are "More giving or more givers? The Effects of Tax Incentives on Charitable Donations in the UK" (Almunia, Guceri, Lockwood & Scharf, Journal of Public Economics 2020) and "VAT Notches, Voluntary Registration, and Bunching: Theory and UK Evidence" (Liu, Lockwood, Almunia & Tam, Review of Economics and Statistics 2021).

In the third branch of my research agenda, I have studied the impact of aggregate demand shocks on fiscal policy and firms' export behavior. My main contributions in these areas are "From Great Depression to Great Credit Crisis: similarities, differences and lessons" (Almunia, Benetrix. Eichengreen, O'Rourke & Rua, Economic Policy 2010) and "Venting Out: Exports during a Domestic Slump" (Almunia, Antras, Lopez-Rodriguez & Morales, American Economic Review 2021).

Resumen del Currículum Vitae:

I hold a PhD in economics from UC Berkeley (2013), an MPA in international development from Harvard Kennedy School (2008) and a BA in Economics from Universidad Carlos III (2005). After the PhD, I worked as an assistant professor at the University of Warwick (2013-2018) and since 2018 I've been an assistant professor of economics at CUNEF in Madrid.

I have published nine articles in high-quality economics journals, including top general-interest outlets such as the American Economic Review and Review of Economics and Statistics (x2), and also specialized journals in the field of public economics such as AEJ: Economic Policy, Journal of Public Economics, Economic Policy and International Tax and Public Finance. In these papers, I have collaborated with an international network of coauthors from leading institutions like Harvard, Princeton, Columbia, Oxford, Warwick, Birmingham, PSE, INSEAD, Carlos III and Tampere.

My publications have received 1088 citations according to Google Scholar and 157 citations according to Web of Science, in addition to being discussed in media outlets such as The Economist, The New York Times, Financial Times and El País. My research has also been featured regularly in the economics blog Nada es Gratis, where I am a regular contributor on issues related to taxation since 2021.

I am a research affiliate at the Center for Economic Policy Research (CEPR), the Institute for Fiscal Studies (IFS), the International Growth Centre (IGC), and the Center for Comparative Advantage in the Global Economy (CAGE). I have presented my research at multiple international conferences, and I have also given invited seminars at leading economics departments such as Columbia, U. of Illinois at Urbana-Champaign, Mannheim, Oxford, EUI, Warwick, CEMFI, Edinburgh, Uppsala, Manchester and UAB.

My research projects have received funding from several institutions. I am currently the principal investigator (PI) on a research grant from the Spanish Ministry of Science and Innovation (2020-23) and I am also the PI on a research grant from the Ramón Areces Foundation (2020-23). For past projects, I obtained funding from the International Growth Centre (IGC) and the British Academy/Leverhulme Foundation, among others.

In terms of dissemination, I have published non-technical summaries of my research papers on websites like VoxEU, VoxDev and Nada es Gratis. I have also worked as an external consultant/researcher on projects related to taxation for AIReF. Instituto de Estudios Fiscales and the World Bank.

Regarding research evaluation activities, I have completed more than 50 referee reports for top economics journals including AER, JPE, QJE, REStud, REStats, EJ, AEJ Policy, AEJ Applied, AEJ Macro and JPubE, among others. I have been a member of the scientific committee of several international conferences such as the European Economic Association (2019, 2020), the Royal Economic Society (2017, 2018, 2019) and the International Institute



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

of Public Finance (2015, 2017). I have also been a member of the Commission that evaluates research projects for the Agencia Estatal de Investigación (AEI) in 2020.

Finally, I have received two research awards: Vanguardia de la Ciencia Award in 2019 (finalist) and the Young Economist Award from the International Institute of Public Finance in 2015.



AGENCIA ESTATAL DE ENVITATION

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Economía
Nombre:	¿NAME CORREA, ALVARO JOSE
Referencia:	RYC2021-032299-I
Correo Electrónico:	anamecor@eco.uc3m.es
Título:	Optimal design of institutions under an external influence
Resumen de la Memor	ia:

I am an applied microeconomic theorist working in three - rather diverse - subfields:

- (1) decision making in institutions
- (2) fund-raising in charitable markets and public good provision
- (3) contests

A common focus of my research in the previous areas is on understanding how an external influence, whether in the form of a socially established norm, or an audience exerting pressure, a market evaluating talent to perform a task, affects agents behavior in different contexts and, given that, we examine aspects related to optimal design of the relevant institutions. In (1) members of a committeee decides to vote in favor or against a project; in (2) donors decide whether to contribute to a public good and also on the size of the donation; in (3) agents participating in a tournament choose the amount of efffort to exert.

Next, I briefly describe my research on the previously mentioned subfields

My main line of research concerns the optimal design of collective decision making institutions when they are subject to an external influence, which I pursue mainly with my co-author Huseyin Yildirim. In three published papers (JET, GEB and Public Choice), we have extended the standard model on decision-making in committees to the case where experts are under external influences such as bribes, threats, and social pressure, and also consider internal experts biases. We examine the effects of anonymity, the presence of uninformed experts, the degree of vote transparency on welfare and show that these theories can account for patterns we observe in committee design within legislatures, government offices, and organizations such as a department of economics of a university.

In a second line of research, we study the effect of strategic fund-raising on the provision of a public good. In two published papers (AER, GEB) we extend the standard model of giving by assuming that each donor becomes aware of the charitable fund-drive and thus participates in the "contribution game" only if solicited by the fund-raiser. The solicitation is, however, costly and the donor may feel social pressure from her direct interaction with the solicitor. We find that these theories may account for patterns of crowding out and neutrality to income redistributions observed across different types of fund-raising campaigns. We also explained why donations become concentrated around a social norm, and examine the role of social pressure as a device to alleviate free-riding among donors. In one single-authored paper (ROED) I have analyzed the effect of learning by fund-raising on public good provision and technology choice by non-profit organizations.

In a third more recent and promising line of research pursue with Huseyin Yildirim, we study in a working paper the optimal design of tournaments when participants are career concerned. For instance, in organizations, employees work for internal promotions and they may also receive outside offers. In colleges, students compete for grades to complete the degree and then get into top graduate programs as a result of a high academic performance. We provide a rationale for a multiple-prize-tournament as with a hierarchy of corporate titles in organizations, and the grades of A, B, C in schools.

Resumen del Currículum Vitae:

ALVARO NAME-CORREA Universidad Carlos III de Madrid. C/ Madrid, 126 28903 Getafe (Madrid), Spain Email: anamecor@eco.uc3m.es Phone: (91) 6249651 ACADEMIC POSITION Associate Professor (with tenure) at the Department of Economics, Universidad Carlos III de Madrid EDUCATION Duke University, North Carolina, United States

Ph.D., Economics, May 2013 M.S., Economics, May 2008

Universidad de los Andes, Bogotá, Colombia





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

M.S., Economics, May 2002 M.S., Industrial Engineering, May 2002 B.S., Industrial Engineering, May 2001

RESEARCH FIELDS

Microeconomic Theory, Political Economy, Public Economics, Charitable Giving, Contests

PUBLICATIONS

- 1. Biased Experts, Majority Rule, and the Optimal Composition of Committee (with Huseyin Yildirim) Games and Economic Behavior 127 (2021): 1-27.
- 2. Social Pressure, Tramsparency and Voting in Committees (with Huseyin Yildirim) Journal of Economic Theory 184 (2019): 104943.
- 3. "A capture theory of committees" (with Huseyin Yildirim) Public Choice 177.1-2 (2018): 135-154.

4. Learning by Fund-raising Review of Economic Design 21(4) (2017): 291 316

5. Giving in to Social Pressure (with Huseyin Yildirim) Games and Economic Behavior 99 (2016) 99-116

6. A Theory of Charitable Fund-raising with Costly Solicitations (with Huseyin Yildirim) American Economic Review 103(2) (2013): 1091‐1107 reprinted in The Economics of Philanthropy and Fundraising Volume II, edited by James Andreoni, ed., Cheltenham, United Kingdom: Edward Elgar Publishing, ISBN-10: 1782546057, 2015

WORKING PAPERS

1. Multiple Prizes in Tournaments with Career Concerns

WORK IN PROGRESS

1. Design of Tournaments with Rank-based Career Concerns

CONFERENCE AND SEMINAR PRESENTATIONS

2021: Universidad Complutense

2019: EWET (Berlín), PET Conference (Strasbourg), Ermas (Cluj-Napoca), UECE Lisbon Meeting.

2018: ASSET 2018 (Florence), UECE Lisbon Meeting, European Meeting of the Econometric Society (Cologne), Universitat Rovira i Virgili, Universidad de Salamanca, CEMFI

2017: UECE Lisbon Meeting, PET Conference (Paris)

2016: Economics of Philanthropy CES IFO Summer Meeting (Venice), University of Salamanca, UECE Lisbon Meeting

2015: PET Conference (Luxemburg), Univeristy Carlos III

2014: CEMFI, UECE Lisbon Meeting, University of Vigo

2013: Public Choice Meeting (Miami)

REFEREEING

Games and Economic Behavior, Journal of Public Economics, Review of Economic Design, Journal of Economic Behavior and Organization, European Journal of Political Economy



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

AWARDS AND DISTINCTIONS

Juan de la Cierva Fellowship, The Spanish Ministry for Science and Innovation. October 2015-2017 Summer Research Fellowship, Duke University, Summer 2009, 2010 Distinguished Economics Department Graduate Fellowship, Duke University, 2007-2008.

UNIVERSITY SERVICES

Co-organizer of the Micro Seminar, 2013-2015

Committee Member Thesis Defense Master (PhD Track) September 2016, 2017

Committee Member Thesis Defense Master of Economics, September 2016-2018

Supervisor of Master Thesis: 2016 (11 students), 2017 (10 students), 2018 (8 students), 2019 (8 students), 2020 (8 students), 2021 (9 students)





Área Temática:	Economía
Nombre:	GINZBURG , BORIS
Referencia:	RYC2021-032163-I
Correo Electrónico:	bginzbur@eco.uc3m.es
Título:	Information, social preferences, and collective decisions
Decumen de la Memo	

Resumen de la Memoria:

My work focuses on analysing collective decision-making. I use theoretical modelling and experimental analysis to study mechanisms such as voting (by committees, parliaments, or electorates), and collective action (such as social movements, public protests, or online petitions). I am particularly interested in the role of information, and of social preferences such as altruism, trust, and identity-based group favouritism.

During my PhD at University College London, I started studying the role of information in political decisions. This eventually grew into three chapters of my PhD thesis, which were later published. In one of them, I developed a new framework for analysing the ability of biased information providers to manipulate audiences such as electorates (Optimal Information Censorship). I have also identified conditions under which voting bodies themselves collectively choose to remain uninformed (When Collective Ignorance Is Bliss: Theory and Experiment on Voting for Learning). Finally, I have shown that imperfectly informed voters vote sincerely when the electorate is divided (Sincere Voting in an Electorate with Heterogeneous Preferences).

After joining UC3M as an assistant professor, I continued this line of research. My work has shown how increased social media connectivity can make it easier for biased media to manipulate political outcomes (Social Connectivity, Media Bias, and Correlation Neglect). I have also shown how elections in societies with well-developed media are particularly vulnerable to manipulation by fake social media accounts (Troll Farms and Voter Disinformation). In addition to voting, I also explored the role information plays in social movements and other forms of collective action for instance, in online petitions (Slacktivism). My ongoing and future work continues the analysis of information in political processes. In particular, I continue my focus on information exchange via social media, and on the role of cognitive biases such as correlation neglect.

In addition, while at UC3M, I started studying the role of social preferences in collective decisions. My work has shown that voters are more likely to vote for ethically acceptable proposals when the voting body is large and the voting rule is restrictive (Counting on My Vote Not Counting: Expressive Voting in Committees). I also look at social movements, showing how participation induces shared identity, and explaining its implications for subsequent social interactions between participants (Guns, Pets, and Strikes: An Experiment on Identity and Political Action). My ongoing and future work aims to disentangle the role of different social preferences in determining individual participation in political collective action. In other ongoing work, I aim to explore the origins of identity-based social preferences in particular, the ways in which the experience of social interactions with members of different identity groups shapes beliefs about them, and subsequent social interactions with them.

Resumen del Currículum Vitae:

I received a bachelor s degree from Stockholm School of Economics in Riga (Latvia); a master s degree from Central European University (Hungary); and a PhD in economics from University College London. My main research interests are political economy, experimental economics, and microeconomic theory. I use theoretical modelling and experimental analysis to study the role of information and of identity in voting and collective action.

My work has contributed to the knowledge of the role of information in voting. My research helps understand why and when committees and electorates collectively choose to be uninformed for example, to make decisions in haste, or to not support institutions such as free speech or a tradition of public debate. It also helps understand how information providers such as governments, biased media outlets, or political operators using social media accounts can strategically use information to manipulate voting outcomes. In this way, my work helps understand the drivers of key political developments, such as imperfectly informed electorates, or misinformation on social media. It also helps design policy interventions to achieve more efficient political outcomes in these conditions.

At the same time, my research has improved the understanding of the role of social preferences in political processes. My work has established conditions under which members of voting bodies are more likely to vote for measures that are costly to them but can be considered ethical for example, income redistribution, or assistance to refugees. My other work explores the role of social preferences in individual decisions to participate in social movements and public protests specifically, it shows how such decisions are affected by trust in others, and by herding motives. Furthermore, my research shows how participation in such collective action gives rise to shared group identity, leading to more altruism and trust, and hence better outcomes in subsequent social interactions with fellow participants. Through this, my research improves society s understanding of voting for ethically acceptable proposals; as well as to our knowledge of drivers and implications of political movements.

My work has recently been published at Economic Journal, Journal of Public Economics, Journal of Economic Behavior and Organization, Economic Inquiry, and Economics Letters. Five out of six 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 has been funded by seven national and international research projects, including four in which I served as a principal investigator.

I have been invited to present my work at a number of seminars and invited workshops. I have also presented in a large number of international conferences, including the largest conferences (European, North American, and Asian meetings of the Econometric Society; European Economic Association annual conference; Economic Science Association world meeting; European Political Science Association annual conference, etc), as well as smaller field conferences and workshops.



Área Temática:	Economía
Nombre:	RICHTER , BJORN
Referencia:	RYC2021-033982-I
Correo Electrónico:	bjorn.richter@upf.edu
Título:	Finance and the Macroeconomy
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Resumen de la Memoria:

My research interests are primarily focused on understanding the role of credit market developments in shaping macroeconomic outcomes and business cycles. I have developed these interests in a series of papers that employ new data to better understand the links between the banking sector and the real economy. In most cases, these papers rely on new long-run data for the development of the banking sector in advanced economies. This data is collected from a wide range of historical sources and used to study important questions for current macroeconomic discussions and financial policy.

Three of these papers have been published already. The first paper Bank Capital Redux: Solvency, Liquidity, and Crisis has been published in the Review of Economic Studies in 2021 and was presented at top policy institutions (e.g., ECB) and academic conferences (e.g., NBER Summer Institute). The second paper, When to Lean Against the Wind has been published in the Journal of Money, Credit, and Banking in 2021. Both these papers employ newly collected long-run data on banking sector balance sheets. Importantly, this data has also been made publicly available, so that the broader research community can benefit from this work. The third paper, The Costs of Macroprudential Policy has been published in the Journal of International Economics and evaluates the macroeconomic costs of loan-to-value limits, using new narrative data on these policies. This paper is listed as one of the most cited articles since 2018 on the journal website

My current pipeline of working papers consists of three additional contributions to the literature on credit, financial instability, and macroeconomic implications. Two papers rely on new long-run data on banking sector profit- and loss accounts that I have collected jointly with Kaspar Zimmermann (SAFE Frankfurt). In a first contribution, The Profit-Credit Cycle , we study the link between bank profitability, credit booms, and crisis. In line with the narrative put forward by Kindleberger (1978) and Minsky (1986), we find that improvements in bank fundamentals displacements are associated with subsequent boom- and bust cycles. This paper has been widely presented in university seminars and at top policy institutions (e.g., Federal Reserve Board). A second working paper, The Shifts and the Shocks: Bank Risk, Leverage, and the Macroeconomy , combines the data on bank profitability with additional information on market returns on bank equity to compute measures of riskiness of bank liabilities. The paper shows an important role for banking sector liability structure in the transmission of shocks in line with theoretical models. The third working paper, When Two Become One: Foreign Capital and Household Credit Expansion applies a recently developed technique to unveil the financial intermediary sector to OECD panel data. The necessary data from OECD financial accounts has partly been digitized from historical publications and will be used in several ongoing projects. The paper shows that the relationship between credit expansions and macroeconomic outcomes is mainly driven by credit ultimately funded through the international financial system.

Ongoing work extends this line of research to study the role of safe assets in the economy, will look beyond national borders, and study financial crisis at the sectoral level.

Resumen del Currículum Vitae:

Since September 2019, I am an Assistant Professor of Finance at University Pompeu Fabra (UPF) and an Affiliated Professor at the Barcelona School of Economics (BSE). Prior to joining UPF, I have been working as a postdoctoral research fellow at University of Bonn, where I was working in the Macrohistory Lab in close collaboration with Prof. Moritz Schularick. I also held a position as interim Professor for Economic History at University of Bayreuth in 2017/2018. I received my PhD from Goethe University Frankfurt in 2015 where I was enrolled in the PhD program for Law and Economics of Money and Finance. During my PhD, I visited the Finance Department at NYU-Stern in 2014, being invited by Prof. Viral Acharya.

My research is mostly empirical, and revolves around the relationship between credit, financial instability, and the macroeconomy. The decade following the financial crisis in 2007/2008 has highlighted the important role of financial intermediaries for real economic outcomes. In my research, I mostly rely on cross-country data, often newly digitized and harmonized long-run data, to address important questions on the linkages between finance and the real economy. The data is collected from a wide range of historical sources and made available to the profession. This work has established important results on the role of banking sector leverage, credit booms, and macroprudential regulations for macroeconomic outcomes. Ongoing work focuses on the sources of credit expansions, the role of safe assets in the global financial system, and the cross-border dimension of financial boom and bust.

My papers have been published at The Review of Economic Studies, The Journal of International Economics, and The Journal of Money, Credit, and Banking. The results of these studies are cited widely in the literature (269 citations on Google Scholar). Some of my current projects are supported by Barcelona School of Economics Seed Grant and a grant from the Spanish Ministry of Economics and Competitiveness.

These studies have also attracted attention of academics and policymakers alike. My work has been presented at leading international conferences such as the NBER Summer Institute, the CEPR ESSIM workshop, and the EEA and ASSA annual conferences, and at important central banks such as the Federal Reserve Board, the ECB, the Bundesbank, and the Banque de France.

I am an active member of the economics community, and I regularly act as a referee for finance and economics journals, and I am often invited to discuss contributions on credit booms and financial instability at academic conferences and seminars. Within the Barcelona Economics community, I advise PhD students at UPF, organize the UPF Finance Seminar as well as a workshop in the BSE Summer Forum, and I teach in the undergraduate and PhD programs.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Economía
Nombre:	LLOVERAS GUTIERREZ, JAVIER
Referencia:	RYC2021-034823-I
Correo Electrónico:	javierlloveras@gmail.com
Título:	Towards a postgrowth society: Markets, innovation and consumer activism

Resumen de la Memoria:

Environmental concerns, particularly the climate emergency, are casting doubts on the feasibility and desirability of continuing the pursuit of endless economic growth. Equally, the previously assumed nexus between economic growth and social prosperity is being increasingly problematised by scholars and activists. While envisioning alternative economic models is key to assure the sustainability and wellbeing of present and future generations, limited attention has been paid to the role that innovation might play in a post-growth era. In this context, my research aims at elucidating how civil society and activist organisations shape markets and consumer practices, while focusing specifically on how market-society interactions support the transition to a postgrowth economy.

My academic trajectory is characterised by a marked vocation of interdisciplinarity and internationalisation. Having worked in the UK s university system for 11 years, I returned to Spain in September 2021 as a Co-PI for an ERC Starting Grant, based at the University of Vigo. Regarding interdisciplinarity, I received my undergraduate in psychology in Spain in 2005, and later, throughout my PhD in marketing, my work became extremely influenced by economic anthropology and the sociology of science and technology. Therefore, while I ve been trained in the social sciences/humanities, most of my academic trajectory has taken place in a Business School. Working in a business school as a social scientist has been an intellectually enriching journey which has both motivated and shaped my line research. It made me question the atomistic and under-socialised views of markets that dominate marketing which is largely dominated by neoclassical economics. It also made me question marketing s ideological commitment to the endless pursuit of economic growth and the expansion of consumerism, despite the ecological and sociological problems associated with these trends.

My research employs methodological and conceptual tools drawn from economic anthropology and the sociology of science and technology. It approaches marketing from a critical perspective, which is long overdue. My work has been presented in international conferences and it has been published in highly reputed journals such as the Journal of Consumer Research (Q1/JRN), Ecological Economics (Q1/JRN), Organization (Q1/JRN), Marketing Theory (Q1/JRN), the Journal of Marketing Management (Q1/JRN), or the Journal of Macromarketing (Q2/JRN). I am also a Co-PI for an ERC Starting Grant, funded by the EU with 1.424.375 to examine the connection between innovation and postgrowth, and I am a collaborator in a H2020 project analysing the politics and cultural dimension of the Circular Economy.

Resumen del Currículum Vitae:

My academic trajectory has been defined by an effort to transform marketers understanding of how civil society and activist organisations can shape markets, businesses, and consumer practices, to move towards a degrowth society. To advance this emerging body of knowledge, I ve produced 17 scholarly outputs, including 7 papers in scholarly journals ranked as Q1 in JRN and 1 ranked as Q2 by the same index two of these papers are forthcoming at the time of writing. My work has featured in the Journal of Consumer Research. This achievement deserves a special mention because the Journal of Consumer Research belongs to the highly select category of CABS/AJG 4* Journals of Distinction . This is the most reputed academic distinction for journals in the fields of Business & Management/Economics, which the Times Higher Education (THE) refers to as representing the world elite of business journals that are recognised world-wide as exemplars of excellence . From 2015 to 2021, I worked as a Senior Lecturer at the Manchester Metropolitan University Business School (MMUBS) in the UK. As a Senior Lecturer, I taught across undergraduate and postgraduate marketing programs. In this regard, I was also the unit leader for two modules, namely the Responsible Marketer and Consumer Behaviour & Culture. These were core modules involving annual cohorts of approximately 200-250 students each, depending on the year. As a unit leader, I was responsible for delivering the lectures, coordinating the teaching team (usually 4-5 tutors), and designing both the curriculum and the assessments. In 2020 and 2021, I taught for the MBA and the MMUBS Retail Leadership programme, which provides tailored executive education for big companies such as McDonalds, Dunelm, or Tesco. My courses were geared to providing students with the conceptual tools to implement alternative business models that were aligned with degrowth goals. This extensive teaching experience enabled me to exert a direct influence on business students, many of whom worked for important companies and were involved in executive decisions that have huge impacts on both society and the natural environment. In 2019 I became a permanent member for the Research Ethics and Governance Committee for the faculties of Business and Law at Manchester Metropolitan University. Furthermore, by 2019 I became the coordinator for the Doctoral Programme of the department. I ve supervised a PhD thesis, completed in 2019. Moreover, I ve supervised a complete PhD thesis, which was successfully defended in 2019, and I am currently supervising 7 PhD students (both in the UK and Spain) at different stages of their doctorate. Indeed, mentoring younger colleagues and supporting them in their academic development is an essential aspect of my academic experience. Since September 2021, I am a Co-PI in the ERC Starting Grant Prospering without growth: Science, Technology and Innovation in a post-growth era [947713], funded by H2020 with 1.424.375. In addition, I am a collaborator in the H2020 project JUST2CE [101003491], with a budget of 3,620,040.96. My international trajectory has been officially recognised in the Spanish system through the ANECA s Profesor Titular accreditation



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Economía
Nombre:	FRUG , ALEXANDER
Referencia:	RYC2021-033938-I
Correo Electrónico:	alexander.frug@upf.edu
Título:	Dynamic Contracting and Strategic Communication
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Resumen de la Memoria:

The main focus of my research lies in contracting and strategic communication, with special emphasis on the dynamic aspects of both.

My Ph.D. dissertation studied the effect of gradual learning on the structure and quality of communication. I have been awarded several prizes for the research carried out during my Ph.D., among which is the Michael B. Maschler Prize which is awarded annually to one outstanding research student in Israel in all topics related to game theory.

Since joining UPF as an Assistant Professor in September 2015, I have published 7 research papers, some of which are solo-authored and others coauthored. I published in leading theory journals such as Theoretical Economics, American Economic Journal: Microeconomics, Journal of Economic Theory, Games and Economic Behavior, as well as one of the main general interest journals -- The Economic Journal.

I have been invited to participate and present in the prestigious European Summer Symposium in Economic Theory in Gerzensee, and the Junior Theory Workshop in Bonn. I also used to present regularly in national and international conferences and have been invited to give research seminars in institutions such as London School of Economics, University of Michigan, University of Arizona, Royal Holloway University of London, European University Institute, University of Paris-Dauphine, and the Humboldt University of Berlin, among others.

In recent years, I have been involved in several group grants, and from 2017 I have been granted two of the most prestigious Spanish grants for young researchers: Juan de la Cierva Formación (2017-2019) and Juan de la Cierva Incorporación (2019-2022).

Resumen del Currículum Vitae:

I hold two undergraduate degrees: (i) Economics and Management from the Academic College of Tel Aviv Yaffo (which I began in parallel to high school), (ii) Mathematics from the Hebrew University of Jerusalem, and a master degree in Economics from Tel Aviv University. All the degrees were granted with honors. My Ph.D. dissertation (from Tel Aviv University) studied the effect of gradual learning on the structure and quality of communication. For my Ph.D. dissertation, I have been awarded the Michael B. Maschler Prize, which is awarded annually to one outstanding research student in Israel in all game theory-related topics (including economics, mathematics, psychology, computer sciences, etc.).

I joined UPF as an Assistant Professor in September 2015. I am also an affiliated professor at the Barcelona School of Economics. I published 7 research papers, some of which are solo-authored and others co-authored. I published in leading theory journals such as Theoretical Economics, American Economic Journal:

Microeconomics, Journal of Economic Theory, Games and Economic Behavior, as well as one of the main general interest journals -- The Economic Journal.

I have been invited to participate and present in the prestigious European Summer Symposium in Economic Theory in Gerzensee, and the Junior Theory Workshop in Bonn. I also used to present regularly in national and international conferences and have been invited to give research seminars in institutions such London School of Economics, University of Michigan, University of Arizona, Royal Holloway University of London, European University Institute, University of Paris-Dauphine, and the Humboldt University of Berlin, among others.

In recent years, I have been involved in several group grants, and from 2017 I have been granted two of the most prestigious Spanish grants for young researchers: Juan de la Cierva Formación (2017-2019) and Juan de la Cierva Incorporación (2019-2022).



AGENCIA ESTATAL DE INVESTIGATIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Economía
Nombre:	GALOFRE VILA, GREGORI
Referencia:	RYC2021-034337-I
Correo Electrónico:	galofrevila@gmail.com
Título:	Historia de la economía.

Resumen de la Memoria:

Desde que terminé mi doctorado en marzo de 2016, he publicado un total de 12 artículos, 1 libro y 3 capítulos de libro. Según Google Académico estas publicaciones suman un total de 154 citaciones. La mayoría de estas investigaciones se centran en estudiar cómo los cambios en los niveles de salud tienen un efecto político y social y cómo pueden verse reflejados en el voto de los ciudadanos hacia opciones extremistas. Muestro evidencia de ello para el caso de la Alemania e Italia en la Europa de entreguerras. En ambos casos empeoramientos en la salud correlacionan con el auge de dictaduras. Estos estudios históricos nos ayudan a comprender el surgimiento de movimientos radicales hoy en día, y como políticas de austeridad o la falta de una red de seguridad social pueden ayudar al auge de partidos populistas y radicales. El enfoque interdisciplinar de mi investigación (ligando la historia a temas demográficos y de salud y a aspectos sociales, económicos y electorales), el desarrollo de estas hipótesis y su validación estadística a partir de la recopilación de fuentes de datos novedosas ha hecho que mis trabajos se hayan publicado en las mejores revistas del campo de la historia económica y de la salud. Además de publicaciones en revistas de alto impacto, estos trabajos también han sido reseñados por medios de comunicación internacionales tales como The Times o The Rolling Stone, de interés no sólo para historiadores y público académico, sino también para una amplia audiencia de la sociedad actual.

Estas investigaciones se han llevado a cabo durante mi etapa postdoctoral en las mejores universidades de Europa (Universidad de Oxford, Bocconi y Pompeu Fabra), ya fuera con financiación pública europea (a partir de financiamiento del European Research Council) o del gobierno inglés (Wellcome Trust). Estos contratos postdoctorales en centros de excelencia han sido fruto de procesos de selección altamente competitivos, así como la beca que obtuve para realizar mi doctorado en la Universidad de Southampton con fondos del gobierno inglés. Cabe destacar, el hecho de que en todos mis artículos aparezco como primer autor, fruto del diseño personal de las ideas y del desarrollo y liderazgo del artículo. A su vez, la mitad de mis artículos son en colaboración con académicos experimentados y reconocidos en sus respectivos campos, lo que me ha permitido aprender y seguir creciendo.

Durante mi vida académica, he compaginado investigación con docencia. En todas las universidades en las que he estado he impartido cursos destinados a alumnos de grado (por ejemplo, como instructor de la asignatura métodos cuantitativos en la Universidad de Oxford) y también de máster o doctorado. Al ser reconocido como experto en el campo de salud histórica, también he realizado más de una veintena de revisiones de artículos así como revisión para proyectos de investigación para el gobierno suizo e inglés.

Aparte de trabajar en las mejores universidades de Europa, también he formado parte de prestigiosos institutos de investigación como el Institute of Political Economy and Governance (Barcelona) y el Dondena Reseach Centre (Milán).

Resumen del Currículum Vitae:

Tras finalizar la licenciatura y maestría en la Universidad de Barcelona, en 2015 obtuve mi doctorado en la Universidad de Southampton (Reino Unido). En mi doctorado estudié como, a través del tiempo, las sociedades premodernas se han adaptado a cambios ambientales. Esta investigación, becada por el Economic and Social Research Council, culminó en cuatro artículos aceptados en revistas internacionales.

Los resultados de mi doctorado me permitieron trabajar durante los 5 años siguientes como investigador postdoctoral en algunas de las mejores universidades de Europa en el campo de la historia económica. Trabajé en la Universidad de Oxford desde 2015 hasta 2017, en la Universidad de Bocconi de 2017 a 2019 y en la Universitat Pompeu Fabra de 2019 a 2020. También formé parte de prestigiosos institutos de investigación como el Dondena Centre for Research on Social Dynamics and Public Policy (Milán). Durante estas estancias postdoctorales participé en proyectos internacionales (becados por el Gobierno de España, el European Research Council y el Wellcome Trust) en los que investigué sobre como los programas de seguridad social han ayudado a la mejora de las poblaciones más vulnerables en términos de salud y bienestar, prestando especial atención al período de entreguerras. Estas investigaciones han resultado en la publicación de 12 artículos, 1 libro y 3 capítulos de libro y han captado rápidamente la atención de importantes medios de comunicación como Newsweek, The Wall Street Journal o Rolling Stone.

En septiembre de 2020, me incorporé al Departamento de Economía de la Universidad Pública de Navarra como Profesor Ayudante Doctor, con la intención de establecer mi carrera académica en esta universidad. Con respecto a mi experiencia y preparación docente, desde el doctorado he colaborado con tareas docentes para grupos de grado y postgrado en las universidades de Southampton, Oxford y Bocconi y actualmente soy instructor principal de la asignatura de Historia Económica de la Empresa de la Universidad Pública de Navarra. Finalmente, destacar la presentación de trabajos académicos y participación en más de una veintena de seminarios de departamento y congresos internacionales.



AGENCIA ESTATAL DE INVESTAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Energía y transporte
Nombre:	ESPINOSA MARTINEZ, MARIA DE LAS NIEVES
Referencia:	RYC2021-031710-I
Correo Electrónico:	nievesespinosa@gmail.com
Título:	Sustainability metrics for energy technologies: energy products and system analysis, sustainable
manufacturing and circ	cular economy aspects

Resumen de la Memoria:

My research focuses on the evaluation of the environmental impact of energy and storage products and technologies. To do this I have applied life cycle assessment methods, as well as designed and planed experiments in the laboratory, and conducted techno-economic analysis to support policy development. The research line has a multidisciplinary perspective that includes aspects at the intersection of science, policy and industrial processes.

During PhD and postdoctoral positions, I worked on the area of materials science with a strong focus on photovoltaic devices design, manufacture and characterization, combined with Life Cycle Assessment (LCA); a methodology which provides feedback by pointing out the steps to be avoided, because they create more harm to the environment, to human health or release more green-house-gases to the atmosphere. This approach was extended to include the socio-economic aspects of sustainability during my work experience as scientist for the European Joint Research Centre, with the direct involvement of stakeholders and end-users, to be implemented into EU policies.

My research line has taken a balanced view, analysing the benefits and the risks of sustainable development measures. I have worked in different countries, including a variety of work and cultural contexts. Some topics covered were the analysis of hotspots and the improvement measures that could be taken in the PV supply chains, development of concrete solutions to reduce the carbon footprint, including risk and dependency assessment. In addition, I have also translated LCA evidence into performance-based policy criteria for several product groups.

The outcomes of my research in a few words, can be summarised as follows:

1) Calculation of the emission saving potential of energy technologies, and in particular of photovoltaics; the analysis of risks of using critical raw materials; the circular economy aspects, together with recycling and end of life solutions, needed for an adequate energy transition that reduces dependence of carbon and fossil fuels.

2) European regulations in EU Ecodesign, Energy label, EU Ecolabel and Green Public Procurement, and corresponding support evidences to decision makers (science for policy reports).

3) Promote collaboration between administrations, citizenship industry and relevant stakeholders, for developing regulations that lead to sustainable productive models, while promoting the energy efficiency of products.

In the future, I would like to continue this research line. In particular, I would like to follow a multidisciplinary approach to assess, on one hand, what are the real environmental impacts and implications of existing and future energy & storage technologies and how to move towards a low carbon energy transition; and on the other hand, disentangle successful ways and metrics that can effectively gauge the use of resources and consumption at systemic level.

Resumen del Currículum Vitae:

I am an internationally educated energy and environmental scientist. I hold a Master and a PhD in Renewable Energy at the Technical University of Cartagena (UPCT), with an emphasis in sustainable manufacturing of photovoltaics. I have spent 8 years in the sustainability research and innovation field, and almost 6 at the intersection of science, policy and industrial processes. In particular, on the application of criteria for the design and manufacturing of energy-efficient systems and products. Mainly for solar photovoltaics, fuel cells and energy storage technologies.

My PhD thesis dealt with the ecodesign of organic solar cells, using life cycle assessment approach; exploring also end of life and waste management practices. In 2012, I obtained a postdoctoral research contract to work with Prof. Frederik Krebs at the Technical University of Denmark (DTU); achieving several accomplishments in only 3 years: the lowest environmental footprint solar cell, a strong track of scientific papers, a great scientific network, funding application writing, teaching and supervising PhD and postgraduate students.

For the public sector, as environmental consultant at the regional government of Murcia, I got hands-on experience to master administrative processes and legal texts, such as industry authorizations. I supervised the EU emission trading of regional companies; and took part in the Regional Strategy for climate change.

In the academic field, I have participated actively in 15 research projects publicly funded in competitive calls; 5 European, 5 Spanish and 5 at regional level. I was IP at DTU of a networking project funded by the COST Agency, and the leader of working group 1: Technology Monitoring. My role there was to coordinate scientific progress made by the COST project members, leading a publication where more than 20 researchers participated. I am moreover a guest member of the Photovoltaic Power system programme at the International Energy Agency, Task 12.

Onto technology/knowledge transfer, I co-founded a start-up infinityPV, have supervised two PhD students - one of them was funded by a competitive call by Climate KIC proposal I made and currently supervise a third PhD student (expect date Q3 2022). Moreover, I have participated in a number of publicly funded projects, inter alia ECLIPS (integration of organic photovoltaics in urban microgrids, Climate KIC), HiFleX (Organic Photonics and disruptive photonics technologies, EU-funded FP7) and HOPE (Hybrid Optoelectronic and PV Devices for Renewable Energy, Spanish Ministry of Science and Education).



Since September 2016 I am Scientific Officer at the Joint Research Centre of the European Commission. For the last five years, I have been leading the work of the Product Bureau, working on the development of the scientific background for several policy tools: Ecodesign, Energy Label, Ecolabel and Green Public Procurement.

Almost 15 years of experience working within international energy and environmental science hubs have enabled me to co-author a long track of scientific publications in high impact factor JCR journals (IF more than 30); 44 peer reviewed articles, 8 Science for policy reports, 5 book chapters and ca. 60 communications to international conferences. All these publications add up to ca. 3500 citations, with an up to date h index of 22.



AGENCIA ESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Energía y transporte
Nombre:	GROSU , YAROSLAV
Referencia:	RYC2021-032445-I
Correo Electrónico:	ygrosu@cicenergigune.com
Título:	Investigation of solid-liquid interfacial phenomena for energy storage and conversion technologies
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Resumen de la Memoria:

My expertise is in solid-liquid interfacial phenomena within the field of energy technologies. My cotutelle PhD at Blaise Pascal Univ. and National Tech Univ. of Ukraine. (2011-2015) was dedicated to the interfacial phenomena during the process of non-wetting liquids intrusion-extrusion (int-ext) intofrom nanopores for the benefit of mechanical and thermal energies storage, dissipation and conversion . During my PostDoc (2015) and my Associate research (2017) experiences, I focused on thermal energy storage (TES), studying solid-liquid interfacial phenomena for molten salts, molten salts nanofluids and other storage materials. I explored the mechanism and heat generation during the int-ext process. In this period, I was invited to stay in the group of Prof. Navrotsky at the Univ. of California, where I was applying unique calorimetric techniques to high-temperature thermal energy storage materials and gained experience in advanced thermal analysis. I was actively participating in EU and industrial projects dedicated to TES. Active exploration of thermal energy involved in the int-ext process allowed me to propose the concept of int-ext triboelectric nanogenerators (ieTENGs), which simultaneously transform thermal and mechanical energies into electricity. In 2017, I was promoted to a permanent position of Associate researcher within the Material development and characterization group at CIC energiGUNE. The next two years I continued active research on molten salts, and proposed a new graphitization method, recognized as a new anticorrosion method by CSP community. During this appointment I had a research stay at the Intern. Iberian Nanotechnology Lab. as an eCOST fellow. The stay allowed me to gain experience in advanced calorimetry and XPS techniques, which I later on applied for corrosion issues of molten salts. During 2017-2019 period I started co-supervision of PhD students and was actively building the interaction collaborative network of researchers. In 2019, I was appointed as a leader of the TES technologies for power generation research line at CIC energiGUNE. Within this position I started supervision of my first PostDoc and served as a co-PI of an industrial Alcasal project dedicated to molten salts nanofluids. During this period, I got the Ikermugikortasuna fellowship and had a research stay at the laboratory of Prof. Ding at the Univ. of Birmingham. The stay allowed me expand the TRL of my research, by gaining experience in chemical engineering side of the topics I was previously working on. Inspired by the new research vision, in 2020 I formed an international consortium and wrote the Electro-intrusion project proposal dedicated to exploration of thermal and mechanical energy of the int-ext process to generate electricity (the concept of ieTENGs, I proposed earlier). This project was granted within a highly competitive FET-Proactive call and started in 2021 with the budget of more than 3.6M . In 2021, I was appointed as the Group leader of the Interfacial phenomena, colloids and porous media group at CIC energiGUNE, which consists of 1 Assoc. researcher, 2 PostDocs, 1 PhD student and 1 lab technician. In 2021, I won a visiting professor scholarship from Sapienza Univ. This stay at the group of Prof. Giacomello resulted in our ERC proof of concept grant dedicated to int-ext process for column chromatography (just granted).

Resumen del Currículum Vitae:

As a Group Leader at CIC energiGUNE research centre, Dr. Yaroslav Grosu develops new materials and methods for energy-related technologies, such as intrusion-extrusion triboelectric generators, nanofluids, molecular springs; compatibility of these materials with heat transfer fluids and construction materials, and development of hierarchical porous materials. Currently the group consists of 1 Associate researcher, 2 PostDocs, 1 PhD-student and 1 Lab technician (https://cicenergigune.com/en/interfacial-phenomena-colloids-and-porous-media). Y Grosu also leads the Thermal Energy Storage Technologies for Power Generation Applications research line (https://cicenergigune.com/en/thermal-energy-storage-technologies-for-power-generation-applications).

Y Grosu explores solid-liquid interfacial phenomena to store, dissipate and convert mechanical, thermal and electrical energies using intrusionextrusion cycle. This resulted in a noticeable contribution to the field:

i) A new thermal-to-mechanical energy conversion cycle [Chorążewski et al ACS Nano 2021].

ii) The first demonstration of anomalous expansion of flexible nanoporous materials upon intrusion [Tortora et al Nano Letters 2021; Zajdel et al J Phys Chem Lett 2021].

iii) A new CO2-driven adsorption-extrusion cycle for sensing [Anagnostopoulos et al. ACS Appl. Mater. Interfaces 2020].

iv) The concept of intrusion-extrusion triboelectric nanogenerators [Grosu Y. et al. 2017, ACS Appl. Mater. Interfaces].

The latter point iv) resulted in FET proactive Electro-intrusion project, focused on development of a new type of regenerative shock absorbers for electric vehicles (www.electro-intrusion.eu). As a coordinator of this project, Yaroslav Grosu together with the consortium (University of Birmingham, University of Ferrara, National Technical University of Ukraine, University of Silesia and Tenneco Drive company) intends to demonstrate the applicability of intrusion-extrusion triboelectric nanogenerators in automotive industry.

Some of the other recent important results include

i) A new anti-corrosion method against molten salts for thermal energy storage in concentrated solar power plants [https://www.nature.com/articles/s41529-018-0055-0].

ii) The corrosion and thermophysical properties of nanofluids [Grosu et al. Sol. Energy Mater Sol. Cells 2018; Grosu et al. Sol. Energy Mater Sol. Cells 2021].

iii) Synthesis of trimodal hierarchical metals [Grosu et al. Appl. Surf. Sci 2019; Grosu Appl. Surf. Sci 2020; Aziz et al. Phys. Chem. Chem. Phys. 2021] and their use for batteries thermal management [Grosu et al. Applied Energy 2020].

Y Grosu has established a collaboration network proven by joint publications and/or joint projects: International Iberian Nanotechnology Laboratory, Jinan University, University of Maryland, Shantou University, Australian National University, Western Norway University of Applied Sciences, Institute for Ecology of Industrial Areas and University of Cambridge. Some of the works leaded by Y Grosu include 5-10 different institutions [Chorążewski et al. ACS Nano 2021; Tortora et al. Nano Letters 2021; Zajdel et al. J Phys Chem Lett 2021], while some works are a singleauthor publication [Grosu Appl. Surf. Sci 2020].

Yaroslav Grosu is the author of more than 60 scientific publications and 2 patents, with around 800 citations, H-index of 17 and several invited talks.



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Energía y transporte
Nombre:	JEHL , ZACHARIE
Referencia:	RYC2021-033239-I
Correo Electrónico:	zjehl@irec.cat
Título:	Innovative Semiconducting Materials for Energy Application

Resumen de la Memoria:

Dr. Jehl has been active in the field of Photovoltaic Energy both from an experimental and a theoretical viewpoint. Starting from his PhD thesis (2009-2012), he was able use physical, chemical and electrochemical fabrication and characterization methods for solar cells and optoelectronic devices, while also developing theoretical modelling tools still being used by his current research group.

Dr. Jehl has built a solid background in vacuum-based methods (Coevaporation, Sputtering/reactive annealing and Molecular Beam Epitaxy) for the fabrication of semiconducting materials. Particularly, Dr. Jehl demonstrated during his PhD thesis the feasibility of coevaporated ultrathin CIGS solar cells using a combination of lift-off and Bromine chemical etching. During his stay in Japan, he further investigated chalcogenide absorbers and fabricated by MBE methods the first CuInSeTe solar cell with a narrow bandgap of 0.88eV and an efficiency above 8%, while simultaneously focusing on low cost tandem solar cells and pn interface optimization using numerical modelling. After obtaining a research grant from the Japanese Society for the Promotion of Science (JSPS) and moving to the University of Tokyo, Dr. Jehl switched focus toward upstream third generation photovoltaic research, specifically on the topics of Hot Carrier Solar Cells and Intermediate Band Solar Cells. He developed an expertise in the fabrication of AlGaS/InGaAs nanostructures by Molecular Beam Epitaxy, including the design of superlattices, multiquantum wells, quantum dots structures. Dr. Jehl demonstrated for the first time the feasibility of energy selective carrier extraction at room temperature using asymmetric double resonant barrier, and made an extensive use of both numerical modelling of electronic transport through quantum structures and Photoluminescence for the characterization of hot carriers. He additionally brought forward innovative ideas such as the use of evaporative cooling approaches to characterize hot carrier selective extraction, and electronic ratchets for intermediate band solar cells.

After being awarded with a TecnioSpring Plus/Marie Curie Action scholarship in 2018, Dr. Jehl moved to the Catalonia Institute of Energy Research on a technology-transfer oriented research topic, and investigated the design of semitransparent solar cells for building integrated photovoltaics. Using vacuum based methods (sputtering, reactive annealing), Dr. Jehl supervised several studies among which the world record efficiency for wide bandgap CIGS solar cells fabricated on transparent substrate, and was the first inventor in an industrial patent on bifacial solar modules. Being recruited in 2020 by the Polytechnic University of Catalonia, Dr. Jehl returned to fundamental topics with an interest in quasi-1D antimony chalcogenide absorbers. Using his expertise in both solar cells fabricatein and numerical modelling of optoelectronic devices, Dr. Jehl has published in fields ranging from photovoltaics, solid state physics, materials characterization, numerical modelling of solar cells and tandem solar cells, and even energy policy (2020). His tenure as a UPC professor has allowed him to bring forward innovative concepts such as selective carrier extraction using low-dimension MXene materials (1 paper in preparation) and photodiodes for neuromorphic computing (1 paper in preparation).

Resumen del Currículum Vitae:

Dr. Zacharie Jehl (France, 1983) received his PhD from the University Paris-Saclay in 2012 after working at the Institute of Research and Development for Photovoltaic Energy (IRDEP, France) in the frame of a project involving 5 academic and public partners and 2 industrial partners from France and Germany. After obtaining his PhD degree, Dr. Zacharie Jehl was recruited in 2012 as an Assistant Professor in Aoyama University, Japan. He was the coordinating researcher in a New Energy Development Organization (NEDO) collaboration with Japanese groups on CIGS solar cells and tandem devices, namely Tokyo Institute of Technology and the company Solar Frontier, and he was involved in a NEDO collaboration on tandem solar cells based on Spectral Splitting, developing both numerical modelling tools and experimental processes. He was awarded in 2014 with a grant from the Japanese Society for the Promotion of Science (JSPS) and he transferred to The University of Tokyo. He was appointed team leader for Hot Carrier Solar Cells research and lead a project on 3rd generation photovoltaic devices using epitaxial growth of III-V materials. He was recruited in 2016 as a full member of the laboratory as Research Associate, in the frame of the Low Cost Third Generation Photovoltaics project from the NEDO. Dr. Jehl was simultaneously the corresponding researcher in the Japanese-French associated laboratory NextPV, coordinating tasks such as joint workshops organization and facilitating the interactions between Japanese research institutions and the French consulate. During those 4 years at the University of Tokyo, his work focused on energy selective extraction using epitaxially-grown GaAs/AlGaAs double barriers, hot carrier analysis using "evaporative cooling", and intermediate band solar cells including an electronic ratchet. Dr. Jehl was awarded with a 2 years TecnioSpring grant from the Catalonia region in the frame of the European MSCA H2020 program to work at the Catalonia Institute for Energy Research (IREC), with a research project investigating semi-transparent solar cells based on new wide bandgap absorbers, leading to patent application in September 2019 on bifacial thin film modules. He simultaneously occupied a key position in various projects of the laboratory, and supervised several activities of the group on wide bandgap CIGSe solar cells and chemical etching of semiconducting absorbers. Dr. Jehl was recruited in 2020 by the Polytechnic University of Catalonia (UPC) as professor, where his work focuses on quasi-1D materials for photovoltaics, for which he developed several numerical tools for solar cell modelling. Dr. Jehl has published more than 55 peer-reviewed articles (>90% in Q1 journals, 14 as first author, 20 as corresponding authors, 8 as last author, h-index 17) and has 1233 citations. He is a regular guest in international conferences (25 oral presentations, 5 invited talks), and officiates as Chairperson in PV international conferences. Dr. Jehl has participated to various scientific outreach events in Europe and in Japan. He also taught semiconductor physics and nuclear physics at the University of Tokyo for 4 years, and power electronics at the UPC for two years. Dr. Jehl is currently the supervisor of 2 PhD thesis in Spain (UPC), one of which defended in March 2022, and is co-supervisor of another PhD thesis in Japan (U-Tokyo).



AGENCIA ESTATAL DE INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Energía y transporte
Nombre:	ROUZBEHI , KUMARS
Referencia:	RYC2021-032604-I
Correo Electrónico:	krouzbehi@us.es
Título:	HVAC/HVDC Grids Control, Operation and Protection
Resumen de la Memoria:	

Citations: 1714, Articles in JCR: 60, Conference papers: 41, h-index: 22, i10-index: 45

Was with the Electrical Engineering department at the IAU from 2004 until 2011. In parallel was the R&D director of Khorasan Electric and Electronics Industries Research (KhEEIR) from 2004 to 2010 being 3-time PI, and 4-time Co-PI of research, innovation, and dissemination governmental projects (in total 505,7 K-Euro).

As the first postdoctoral fellowship worked in the Research Center of Renewable Electrical Energy Systems (SEER)-Barcelona from 04/2016 to 09/2017, for the project ¿New Technologies for Transport of Renewable Energies over Long Distances¿(193,6 K-Euro), Ministerio de Ciencia e Innovación, developing Power Fellow Controller for HVDC application (received the Second Best Paper Award-IEEE Power Electronics Society).

From 9/2017 to 3/2018 as the second postdoctoral fellowship, worked in the H2020 Flexitranstore research project (21 M-Euro) at the Loyola University Andalucía, as a certified expert on OPAL-RT and director of real-time studies (30 national/international organizations were involved in this project).

In 2019 joined the Dept. of Systems Engineering and Automation, University of Seville, Spain; contributing to several national/international projects. Since 7/2018, as an international collaboration, a visiting researcher/professor at the University of Technology Sydney (UTS), Australia, and a founder/associate member of the RF & Communication Technologies (RFCT) lab at the UTS. Currently, 3 ongoing international research collaborations with UTS-Australia, and AUT-Iran.

His main line of research is about High Voltage DC/AC grids control, operation, and protection, under the scenario of offshore wind farms, and islands integration into the main AC grids. He has explored this line from the perspective of grids modeling, analysis, and control, grids optimized operation and protection and fault management.

An IEEE Senior Member, and Associate Editor for IEEE Systems Journal, IET High Voltage, IET Generation, Transmission, Distribution, IET Energy Systems Integration, and IET Renewable Power Generation. Has been a member of Amvaj Bartar journal, policy-making committee since 2006. Was the lead guest editor of IET High Voltage in the special issue of "Advances in control, operation, and protection of HVDC networks".

Has been a TPC Member of the IEEE-ECCP since 2014, and a Scientific Board Member of the IEEE-ICTEM since 2015, TPC member of COMPEL 2020 and 2021, and the Session Chair of IET-RPG 2021.

Resumen del Currículum Vitae:

BSEE and MSEE (honors) from IAU, Iran, and Ph.D. with thesis title of ¿Multi-Terminal HVDC Grids Control and Operation from the UPC, Spain (Cum Laude). One of his thesis papers has received 220-citation so far.

Before that, was with the IAU-EE from 2004 until 2011. In parallel with being an IAU lecturer, researcher, and group leader, was the R&D director of Khorasan Electric and Electronics Industries Research (KhEEIR) from 2004 to 2010 being 3-time PI, and 4-time Co-PI of research, innovation, and dissemination governmental projects (in total 505,7 K-Euro).

As the first postdoctoral fellowship worked in the Research Center of Renewable Electrical Energy Systems (SEER)-Barcelona from 04/2016 to 09/2017, for the project New Technologies for Transport of Renewable Energies over Long Distances (193,6 K-Euro), Ministerio de Ciencia e Innovación, developing PFC for MT-HVDC grids (received the Second Best Paper Award-IEEE Power Electronics Society).

From 9/2017 to 3/2018 as the second postdoctoral fellowship, worked in the H2020 Flexitranstore research project (21 M-Euro) at the Loyola University Andalucía, as a certified expert on OPAL-RT and director of real-time studies (30 national/international organizations were involved in this project).

In 2019 joined the Dept. of Systems Engineering and Automation, University of Seville, Spain; contributing to several national/international projects. Since 7/2018, as an international collaboration, a visiting researcher/professor at the University of Technology Sydney (UTS), Australia, and a founder/associate member of the RF & Communication Technologies (RFCT) lab at the UTS. Currently, 3 ongoing international research collaborations with UTS-Australia, and AUT-Iran.

Lectured many EE subjects and supervised more than 50 BSEE final projects at the IAU. Currently, he is co-supervising 3 Ph.D. theses at the AUT-Iran, and UTS-Australia.

Holder of US patent which is commercialized by INGETEAM S.L., author of a technical book, reprinted 11-time, and more than 100 IEEE publications that were mainly in research collaboration with the AUT- Iran, and UTS- Australia.

An IEEE Senior Member, and Associate Editor for IEEE Systems Journal, IET High Voltage, IET Generation, Transmission, Distribution, IET Energy Systems Integration, and IET Renewable Power Generation. Has been a member of Amvaj Bartar journal, policy-making committee since 2006. Was the lead guest editor of IET High Voltage in the special issue of "Advances in control, operation, and protection of HVDC networks".

Has been a TPC Member of the IEEE-ECCP since 2014, and a Scientific Board Member of the IEEE-ICTEM since 2015, TPC member of COMPEL 2020 and 2021, and the Session Chair of IET-RPG 2021.





Área Temática:	Energía y transporte
Nombre:	MIRA MARTINEZ, DANIEL
Referencia:	RYC2021-034654-I
Correo Electrónico:	daniel.mira@bsc.es
Título:	Modelling and simulation of power and propulsion systems

Resumen de la Memoria:

My work is aligned with the goals of decarbonization of the European transportation sector and Europe s vision to achieve net-zero greenhouse gas (GHG) emissions by 2050. It is focused on the development of advanced simulation software that can be used to understand the complex physical phenomena in power generation systems and assist on the transition to low-emissions and silent propulsion technologies. We have developed a HPC-based computational platform Alya to study combustion systems at engine-relevant conditions. It includes the complete engineering workflow, from mesh generation, pre-processing, high-fidelity simulations to interactive supercomputing and in-situ data analytics and visualization. My research line is focused on three main areas:

1. Methodologies It includes the modelling, numerical methods and algorithm developed to describe the flames using high-fidelity methods. The activities of this research line are split in two categories: flamelet models and finite-rate based models and include the following research lines: Development of dynamic adaptive chemistry methods for finite-rate chemistry including stiff-solvers and splitting methods, spray flames using an Eulerian-Lagrangian method with adaptive mesh refinement (AMR), high-order methods (HOM), Conditional Moment Closure (CMC) for spray flames, soot modelling, multiregime combustion phenomena, development of the Eulerian/Lagrangian Spray Atomization model (ELSA).

2. HPC-enabling technologies It includes the HPC and algorithm developments required to increase computational performance and portability. These activities are related to increase the performance of the code for target applications. I am currently coordinating the following research topics, which are key enablers for efficient use of future exascale machines in the projects EXCELLERAT and CoEC, and include Dynamic load balancing library for chemical integration, Load balancing strategies for Eulerian-Lagrangian frameworks, code vectorization and GPU porting for CPU/GPU co-execution and parallel mesh adaptation.

3. Applications My research activities are focused on the study of sustainable technologies for propulsion and power generation. From all the different areas, I would like to highlight these application fields: hydrogen combustion, spray flames in aeronautical burners, soot formation, multiregime flamelet models and Supersonic combustion phenomena.

4. Software generation It includes the software generated by our group: Alya, DSM library, FlameGen, DAC library, Combustion Dynamics Toolbox and DisTab Library.

Resumen del Currículum Vitae:

I am the Head of the Propulsion Technologies Group (PTG) from the Computing Applications for Science and Engineering (CASE) Department of the Barcelona Supercomputing Center (BSC). My research is focused on the generation of advanced simulation software to conduct high-level research in energy conversion systems. The PTG Team is composed by 12 researchers working in all disciplines involved in high-fidelity simulations of aerothermal systems, from physical modelling and numerical methods to High-Performance Computing (HPC) and data-driven methods. These activities are conducted as part of two EU projects that I am leading as Principal Investigator. The European Center of Excellence in Combustion (CoEC), which is a joint effort to develop the next generation codes that can run in the exascale machines and accelerate the digital transformation of the aeronautical industry to produce low emissions and silent aircrafts. The second project is the Clean Sky JU ESTiMatE, in collaboration with Rolls-Royce, to develop advanced simulation software for the prediction of soot formation in aeroengines. I am also leading two National projects (AHEAD, 2021-24 PID2020-118387RB-C31; ORION, 2021-23 PDC2021-121066-C22) about the development on hydrogen-based technologies for aircraft propulsion including disruptive concepts based on dual-fuel and sustainable aviation fuels.

My research activities are well-integrated in the international ecosystem of aircraft propulsion and power generation with collaborations from representative research centers and universities across Europe (Institute of Combustion Technology at DLR Stuttgart, CERFACS, CORIA, TU Darmstadt, University of Cambridge, or ETH Zurich) and US (Stanford University, University of California San Diego, Georgia Tech., Argonne National Lab and Sandia Laboratories) and aeroengine manufacturers like Rolls-Royce, Safran Aircraft Engines and GE Aviation. I am currently leading industrial projects with 2 aeronautical companies (Rolls-Royce Deutschland, GE Aviation), one SAF producer (Shell Aviation), one Spanish SME boiler manufacturer (EM Combustion) and a pharmaceutical company (Grifols S.A).

I have supervised 3 PhD thesis (2018, 2020, 2022), 5 Master thesis, serve as host of one Individual Marie-Curie Fellowship (2020) and 2 HPC Europa visitors (2020, 2022) and I am currently supervising 7 PhD thesis. I have more than 30 journal papers on highly ranked journals and more than 50 peer-review international conferences. I am part of the Scientific Committee of the International Conference on Computational Fluid Dynamics (ICCFD), the main organizer of the series of events HPC Spanish Combustion workshop that take in Barcelona every two years in 2017, 2019 and 2021. Last year 2021, I was invited to the 39th Combustion Symposium by the Combustion Institute to give a Topical Review presentation in the field of HPC and computational methods for combustion and to the Combustion Webinar from Georgia Tech. organized by Wenting Sun and Isaac Boxx. My presentation is scheduled for May 2022.



AGENCIA ESTATAL DE INVERSICACIÓN

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Energía y transporte
Nombre:	MARZO ROSA, AITOR
Referencia:	RYC2021-031958-I
Correo Electrónico:	aitormr@gmail.com
Título:	Territorial characterization and its impact on solar energy technologies

Resumen de la Memoria:

The research career of the candidate was developed during his master, doctoral and postdoctoral stages at Spain and Chile, and since 2017 as Assistant Professor at the University of Antofagasta (Chile) with his research group working in their own research lines.

The candidate's career has provided highly innovative contributions to the scientific fields of radiometry, metrology, solar resource assessment and environmental assessment. All his studies focused on applications to solar energy technologies. Among the different research topics that the candidate has undertaken during his career, his main line of research since 2013 is framed in territorial characterization in Atacama Desert. In this framework, research was carried out for the analysis of local parameters in order to evaluate the narrowband and broadband solar radiation, the development of statistical and parametric models based on large databases and machine learning, and the impact of local environmental conditions on the performance of solar technologies. These research lines have been fundamental to give synergistic and transversal support to the needs of several research groups and for the general development of solar energy research and industry in Chile.

Consequently, during the last 8 years of work in Chile, he has been the principal investigator of the Area of Territorial Characterization and Radiometry of the Centro de Desarrollo Energético Antofagasta (CDEA) at the University of Antofagasta. The responsibilities acquired in this position have been the application and allocation of funds for the execution of projects, the purchase of instruments and the configuration of the laboratories, the internationalization of research in national and international collaboration networks, as well as coordinating the activities of the area and forming the teamwork. At the end of 2021, the teamwork of the Area of Territorial Characterization and Radiometry of the CDEA is composed of a PhD, a PhD student, two electronic engineers, and the candidate of this proposal as leader.

In these years, the candidate has been the principal investigator in two projects (167 000 and 479 000) and the leader of work package 5 on Atamos Tec project (total funding 17 000 000).

Resumen del Currículum Vitae:

The candidate did his doctoral thesis at the Department of Applied Physics of the University of Almeria (UAL). He carried out most of his doctoral thesis work at the Plataforma Solar de Almería (PSA-CIEMAT), which is the largest European centre for research, development and testing of concentrating solar power technologies.

Currently, the candidate works at the Solar Energy Research Center (SERC-Chile) of the University of Chile, where he participates as a freelance researcher associated with line 3: Materials science and evaluation of solar resources. Until 31 December 2021, the candidate combined his tasks at SERC-Chile with his position as assistant professor at the Centro de Desarrollo Energético Antofagasta (CDEA) of the University of Antofagasta (UA).

The candidate has experience in the management and direction of projects, with large groups of researchers. He has been the principal investigator of two projects, completed in June 2020 and December 2021, respectively. Both projects received a total funding of approximately 646 000 and involved researchers from 7 prestigious national and international institutions. In addition, given his extensive leadership and teamwork skills with members of multiple international institutions, the candidate also served as leader of Work Package 5 of the ATAMOS-TEC project with a total funding of approximately 17 million and research and technical staff from 28 international institutions and private companies.

According to SCOPUS, the applicant has a total of 54 documents with 557 citations and an H index equal to 13. If considering the 2017-2021 period, the published articles are 41 with 476 citations and an H-index of 10. For the same period, the candidate occupies the second place of the ranking based on the number of scientific papers with keyword solar spectral irradiance.

In academic terms, he is a "Profesor Contratado Doctor" (Contracted Lecturer, holder of a PhD) according to the accreditation of the National Quality Assessment and Accreditation Agency of Spain (ANECA). He has co-directed a PhD thesis defended in 2021 and he is currently the supervisor of a PhD thesis to be defended in the coming months. He has also supervised 4 master theses and several end-of-degree projects.



Área Temática: Energía y transporte Nombre: **Referencia: Correo Electrónico:** Título:

EICHMAN, JOSHUA RYC2021-033477-I jeichman@irec.cat

Optimization of current and emerging energy technologies to reduce costs, improve reliability and enhance integration with the energy system

Resumen de la Memoria:

The overarching goal of Josh's research efforts is to better optimize the use of current and emerging energy technologies in an effort to reduce emissions, reduce costs, improve performance, and increase reliability. Through Josh's career he has developed novel methods and tools that focus on assessing the technical, economic, and environmental challenges and benefits with emerging technologies to better understand their role in the energy system. The work to achieve this goal is concentrated into several research lines. The first is related to understanding how energy assets including energy storage, flexible loads (e.g., electrolyzers, electric vehicles, appliances, and cooling units), and distributed generation (e.g., fuel cells, combined heat and power, backup generators) could stack value across multiple markets to create a successful business case. From its inception during Josh's postdoctoral fellowship, this research line has grown to include a variety of potential markets (e.g., wholesale, capacity, and local flexibility markets), retail utility rates, credits, and incentives. A related research line involves optimization energy communities. This research shares similarities in methods, tools and data, but uniquely adds interactions between and amongst communities and between a community and the distribution system operator.

Energy storage and flexible loads including electrolyzers and electric vehicles, have played a large role in many of the research activities in which Josh has participated. These technologies create interesting challenges from a modeling and analysis perspective and provide unique benefits that help to achieve very high renewable shares on the power system. Specific research lines involve the value proposition and market segmentation of energy storage including short-duration (<10 hours of operation at rated discharge power), long-duration (between 10 and 100 hours), and seasonal energy storage (>100 hours). In addition to sizing, siting and operation of storage facilities Josh also added research lines related to electric vehicle charge/discharge management in large grid systems and design and operation aspects for electric fleet management. These include consideration for the reuse of vehicle batteries in second life applications. The broader idea behind these research items is that while the economics for storage and flexible loads are often not favorable for the moment, as the grid transitions from dynamic generation and fixed consumption to a system with more fixed load, the economic conditions can shift resulting in a need to integrate more dynamic consumption or active storage.

Resumen del Currículum Vitae:

Josh Eichman obtained his master's degree and doctorate degree from the University of California, Irvine. For his master's degree he developed a roadmap and action plan to address commercialization barriers for fuel cell technology. For his dissertation, Josh focused on electricity system planning and operations. To better understand the challenges facing the grid as the renewable generation share increase, Josh developed a capacity expansion model called the Holistic Grid Resource Integration and Deployment model (HiGRID) to simulate grid dispatch and with different renewable and preferred resources. This was done to characterize the cost and impacts of high renewable scenarios. HiGRID integrated a range of technologies on a high renewable grid including demand response, energy storage and electric transportation.

After receiving his doctorate, Josh applied for and won a competitive research fellowship from the U.S. Department of Energy s Office of Energy Efficiency and Renewable Energy. This fellowship was carried out at the National Renewable Energy Laboratory (NREL) where he focused on optimizing the use of current and emerging energy technologies to reduce planning and operation costs, improve reliability and enhance integration with the energy system the operation of energy assets. In 2015, Josh was hired into a full-time position at NREL and moved to California where he continued his research activities and also engaged in business development for NREL. In 2020 Josh won both the TecnioSpring Industry fellowship and the Beatriu de Pinós fellowship. He accepted the TecnioSpring Industry fellowship and joined the Catalonia Institute for Energy Research (IREC) in 2021. He is the principal investigator for the RECOMMIT (MSCA-COFUND-2017), and Albatross (H2020-LC-BAT-2020-963580) projects and provides support for the MARBEL (H2020-LC-BAT-2020-963540) and HELIOS (H2020-LC-BAT-2020-963646) projects. Josh continues his research lines in energy asset optimization with a focus on energy communities, forecasting, and flexibility markets. He also continues his research lines in energy storage and has expanded the scope to including optimization of sizing, and charge/discharge and also considers the reuse of vehicle batteries in 2nd life applications. Josh has demonstrated an excellent track record of dissemination with 23 journal articles, 1 book chapter, 16 technical reports and 3 software records including Energy and Environmental Science, Joule, Renewable and Sustainable Energy Reviews, and Applied Energy which amounts to an h-index of 20 according to Google scholar with 1466 citations.


AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Estudios del pasado: historia y arqueologíaNombre:TOFFOLO , MICHAELReferencia:RYC2021-030917-ICorreo Electrónico:michael.brado.toffolo@gmail.comTítulo:The evolution of Homo sapiens in southern Africa during the Middle and Late Pleistocene

Resumen de la Memoria:

I am an archaeologist interested in the evolution of Homo sapiens in southern Africa during the Middle and Late Pleistocene. My research focuses on the reconstruction of site formation processes and palaeoenvironments based on the study of the microscopic archaeological record to better understand human dispersal and adaptation strategies. I make extensive use of analytical methods such as infrared and Raman spectroscopy, X-ray diffraction, sediment micromorphology, phytolith analysis and radiocarbon dating to determine human-environment interactions and characterise prehistoric pyrotechnology.

I obtained my BA (2006) and MA (2009) in Archaeology from the University of Padua (Italy). An exchange programme at Boston University (USA) in 2008 bolstered my analytical proficiency. I obtained a PhD (2014) in Archaeology (field: Archaeological Science) from Tel Aviv University (Israel) in collaboration with the Weizmann Institute of Science (Israel), where I was Visiting PhD student. My university years have been dedicated to the acquisition of knowledge and analytical skills grounded in the natural sciences and their application to the study of the archaeological record.

In 2014 I was appointed postdoctoral fellow at the National Museum Bloemfontein (South Africa), where I studied the hominin site of Florisbad. I obtained an Alexander von Humboldt postdoctoral fellowship at the University of Tübingen (Germany) for 2015-2016 to research prehistoric pyrotechnology. In 2017-2021 I was Junior Research Chair at Bordeaux Montaigne University (France), where I studied prehistoric use of fire in relation to early lime plaster technology and subsistence strategies of early humans in South Africa. Since 2018 I direct excavations at two Pleistocene sites in South Africa.

In 2022 I received a Starting Grant from the European Research Council to develop my main research line at the Centro Nacional de Investigación sobre la Evolución Humana: determining the role of changing environments in the adaptation strategies and technological innovations of Homo sapiens in the interior of South Africa during the Middle and Late Pleistocene.

Resumen del Currículum Vitae:

I am an archaeologist interested in the evolution of Homo sapiens in Africa during the Middle and Late Pleistocene. After a BA and MA in Archaeology at the University of Padua (Italy), in 2014 I obtained a PhD in Archaeology from Tel Aviv University (Israel) in collaboration with the Weizmann Institute of Science (Israel), in the field of Archaeological Science. My research is centred on the integration of natural sciences and archaeology to reach a better understanding of the archaeological record as a whole. I make extensive use of analytical methods such as infrared and Raman spectroscopy, X-ray diffraction, sediment micromorphology, phytolith analysis and radiocarbon dating to determine site formation processes and characterise ancient human activities, especially the early use of fire. During my postdoctoral appointment at the National Museum Bloemfontein (South Africa), I reconstructed the palaeoenvironments of early H. sapiens at the Florisbad hominin fossil site. In 2015-2016 I obtained an Alexander von Humboldt postdoctoral fellowship at the University of Tübingen (Germany), where I worked on prehistoric pyrotechnology with a focus on calcium carbonate in wood ash and lime plaster, and directed an international team including scientists in Germany, Israel, and Canada. In 2017-2021 I was Junior Research Chair at Archéosciences Bordeaux, Bordeaux Montaigne University (France), where I obtained a grant to expand my research on prehistory and humanmade fire, and where I directed an international team including scientists in France, Italy, and Israel. In 2018 I obtained an excavation permit from the South African Heritage Resources Agency and since then I direct fieldwork at two prehistoric sites in South Africa, in collaboration with colleagues at the National Museum Bloemfontein and the University of Tübingen. In 2022 I obtained a Starting Grant from the European Research Council to start a project about the evolution of H. sapiens in the interior of South Africa, based at the Centro Nacional de Investi

To date, I have published 27 articles in international, peer-reviewed scientific journals (18 as first author, 2 as second author), 18 of which in the first decile (D1) and 22 in the first quartile (Q1); 3 chapters in peer-reviewed books (2 as first author); 7 book chapters (6 as first author). In 2018 I organised an international conference at Bordeaux Montaigne University and edited the proceedings as a special issue in an international, peer-reviewed journal. In the past 7 years I obtained over EUR 1.9 million in research grants as PI through competitive applications. Since 2017 I am Associate Editor of the international, peer-reviewed scientific journal Archaeological and Anthropological Sciences. Since 2018 I am member of the Union of the Prehistoric and Protohistoric Sciences Commission on Pyroarchaeology. Since 2016, I have supervised two master student internships, one master thesis, and one postdoctoral researcher.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

 Turno de acceso general

 Área Temática:
 Estudios del pasado: historia y arqueología

 Nombre:
 SERRANO JEREZ, GLADYS ELENA

 Referencia:
 RYC2021-031850-I

 Correo Electrónico:
 elen.serrano@uv.es

 Título:
 Gendered Ways of Producing Knowledge in the Enlightenment: Networks, Material Culture, and Sensibility

Resumen de la Memoria:

My research explores the intersection between history of science and gender in the long eighteenth-century. In my book, Ladies of Honor and Merit: Useful Knowledge, Gender and Politics in Enlightened Spain, I offer an innovative interpretation of the role of women in the advancement of Spanish society and their engagement in in creating, applying, and disseminating knowledge. My book complicates once again the narrative of women's genderbased scientific exclusion, showing how women negotiated a new civic role through a re-articulation of femininity. It also enriches our knowledge about what it meant to do science in the past and how practices not considered today within the spectrum of "scientific" (for instance, bureaucratic practices) can nevertheless produce scientific knowledge.

I have now extended my analysis of women s scientific endeavours through a transnational perspective to address the nature and role of female scholarly networks in enabling and legitimising women in their intellectual pursuits, social aspirations, and ideals.Recently, I have become interested in the vexed problem of the relationship between body and mind/soul; more specifically, on the physiological models about the origin of passions in gendered bodies.

Resumen del Currículum Vitae:

I have pursued an international career: from my pre-doctoral stays in the University of Cambridge and Oxford, to my postdoctoral stays in the Chemical Heritage Foundation (today Science History Institute) in Philadelphia to the Max Planck Institute for the History of Science in Berlin, one of the most important institutions in the field, and the University of Sydney. This has allowed me to familiarize myself with a broad range of innovative methodologies and maintain a wide and interdisciplinary network with which I collaborate regularly: forming research groups to address complex problems in a transnational, comparative way; preparing joint volumes; and organising seminars and conference panels. I have a strong track record in research (publications with high international visibility), in long-term publication projects (editions), and on out-reach activities.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Estudios del pasado: historia y arqueología
GONZALEZ ALVAREZ, DAVID
RYC2021-034313-I
david.gonzalez-alvarez@incipit.csic.es
An archaeological reading of marginal landscapes in rural NW Iberia

Resumen de la Memoria:

I am a landscape archaeologist exploring the long-term biographies of cultural landscapes in rural environs. After obtaining my PhD (2016) at the UCM, I have developed an ascending scientific trajectory through three consecutive postdoctoral positions at Durham University and the Incipit-CSIC (2016 Xunta Galicia I2B; 2017 JdC-Formación; 2019 JdC-Incorporación). I have a solid leadership background in field archaeology (director of 18 projects), leading my own archaeological investigations in NW Spain, in addition to collaborating as a team member on other projects in Spain, the UK and Chile. My investigations aim to understand cultural and social processes underpinning the long-term formation of rural landscapes. I envision Landscape Archaeology as a scientific programme capable of integrating archaeological, palaeoenvironmental, and ethnographic datasets to produce socially relevant knowledge about the relations between societies and the environment. This perspective has driven my research agenda, which is comprised of three intertwined themes: (1) the role of pastoralism in the anthropization of mountainous areas since Late Prehistory, exploring diachronic approaches to enrich pre-existent narratives built by scholars in Palaeoenvironmental studies; (2) the social dynamics of Iron Age communities, analysing their scales of production and consumption to better understand the shaping of territorialized rural landscapes; (3) the Roman political and military expansion in NW Iberia to assess the impact of this process on indigenous communities. Investigations of these topics became a fruitful horizon to (4) strengthened the potential of our discipline to inform policy-making on tourism, heritage and land-use management, challenging the nature/culture divide in public perceptions about landscapes and the pursuit of Sustainable Development Goals.

My postdoctoral trajectory allowed me to reinforce my training, develop independent research on the themes to which I have been devoted, produce relevant scientific achievements in my field, cultivate international academic networks, secure funding as PI throughout open calls (+276k) and transfer contracts (+64k), acquire know-how in project management, and gain international experience in outstanding research centres. 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 rural landscapes.

Resumen del Currículum Vitae:

My research explores the long-term biographies of cultural landscapes in rural environs, combining archaeological, palaeoenvironmental and ethnographic datasets. I am an archaeologist with a strong leadership background in field projects. I have supervised excavations and surveys (director of 18 field projects), coordinated interdisciplinary research teams, and managed public outreach programs connected to my investigations. Besides being a team member in archaeological projects in Spain, the UK and Chile, I have led my own field projects in NW Spain since 2016, demonstrating my academic independence and leadership abilities. These investigations have broadened the goals of my PhD dissertation (2016: highest honours & 2015-2016 Doctoral Extraordinary Award), aiming to understand the cultural and social processes underpinning the long-term formation of rural landscapes.

I have secured funding from diverse institutions, comprising open calls to cover my PhD/postdoc positions and research expenses (+276k), and transfer contracts with the private sector to provide them with specialised services (+64k). This allowed me to set up an emerging research team with professional archaeologists, MA and PhD students. I have become a valuable asset to the Incipit, particularly on the research line Landscape Archaeology and Cultural Landscapes where I work as an independent PI. At the Incipit, I assume responsibilities related to its internal government (elected member at the Junta de Instituto; invited member to the Claustro Científico) and other structural tasks (mentoring MA/PhD students; social media management). I actively contribute to recruiting new researchers through BSc/MA internships (JAE-Intro), as well as competitive pre/postdoctoral junior fellowships.

I have published 39 papers in Archaeology, Anthropology and Heritage Studies journals (18 within WoS/Scopus; 9 as the main author), 42 book chapters (15 in international publishers) and co-authored 1 book. I have edited 3 conference proceedings and produced 27 scientific reports for Heritage management bodies. My growing research impact is well illustrated by citations figures in platforms such as Google Scholar (total: 864; h-index: 18). I have taken part in academic congresses or seminars on 112 occasions (30 invited lectures, 10 invited talks at seminars, 64 oral presentations, and 8 posters; 69 of them after obtaining my PhD), with a noticeable weight of international events (77 out of 112). My recurring participation at international periodical meetings, giving papers and organising sessions, underpins my broad scientific network. My solid contribution and international profile in the field are shown by my active role as an invited peer reviewer for international journals. I have organised or participated in up to 35 public outreach events, including lectures, roundtables, activities in high schools, guided tours and open days at archaeological sites.

International research stays in the UK (4 months in Durham; 3 months in Cardiff) and USA (3 months in Stanford) during my PhD, in addition to 2 years in Durham during my earlier postdoctoral stage, strengthened my awareness of global debates in Archaeology.

I have a strong teaching background in Higher Education, holding a Profesor Contratado Doctor habilitation by the ANECA and 982h of teaching experience.



Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	VALENTINES ALVAREZ, JAUME
Referencia:	RYC2021-032399-I
Correo Electrónico:	jaume.valentines.a@gmail.com
Título:	Technology, politics and global crises in Spain and Portugal, 20th century

Resumen de la Memoria:

Internationalization, originality, leadership, collective work and public engagement define my research. I have seven and a half years of international experience in prestigious research centers, mainly in Lisbon, Berlin and Geneva. My main research field is history of technology, to which I have made novel contributions in the understanding of the intersection between technology and politics in times of crisis, focusing on the cases of Spain and Portugal in the 20th century.

My research career could be divided into three main periods (see section Research Career of the document presented Summary of the Research Career of the Candidate): A first predoctoral period (2003-2008) focused on material culture; a second period, between 2009-2014, linked to the historiographical programs of the Autonomous University of Barcelona and the Imperial College London; and an international postdoctoral period (2014-2021) based at the research center CIUHCT in Lisbon (classified as Exceptional by the European Science Foundation), in which I have broadened my research perspectives to contribute to my discipline with fresh approaches.

The broadening of my research perspectives has been built on four (entangled) aspects (see section Contributions): I. Frameworks: from focusing on the nation as a framework to promoting transnational history of technology; II. Artifacts: from looking at the politics of objects to considering large technological landscapes; III. Actors: from focusing on experts to including citizens, grassroots movements and community groups in the narrative; and IV. Epistemics: from dealing with knowledge to considering the history of emotions and their cognitive dimension.

My internationally acknowledged research has also been characterized by five merits (see section Other merits of the document presented), which have contributed to make my career exceptional: 1. Leadership in funded team-projects projects and international networking; 2. Broad experience in teaching and supervising as complement to research; 3. Bridging academic communities through scientific associations and editing tasks; 4. Internationalization and stays abroad in outstanding research centers such as the Max Planck Institute for the History of Science and University of Geneva; 5. Large effort in developing a very diverse range of outreach activities for a wide range of publics. The understanding of the political significance of technology in the contemporary world is a timely topic and my research is of interest to historians, scientists, policymakers, journalists or the public in general. I have also developed a strong interdisciplinary dialogue, especially with environmental history, political history, cultural studies and STS studies (Science, Technology and Society).

The originality and academic relevance of my research career have been demonstrated in 71 papers in scientific meetings organized by European, North American and Latin American institutions, and in a long track record of high quality outputs in high impact international publishers (since 2019: 1 special issue, 7 articles, 4 chapters, 3 reviews, and 1 edited book in process of being submitted; see references and indexes in last section Achievements).

Resumen del Currículum Vitae:

Jaume Valentines-Álvarez is a leading expert in history of technology. He is a Contract Researcher and an Assistant (Adjunct) Professor at the NOVA University of Lisbon.

He holds two graduate degrees, in industrial engineering (2002) and history (2005), and a master's degree in history of science (2008). Between 2005 and 2008, he was a Project Research Technician (HUM2004-04259), coordinating a project area devoted to university heritage and memory (84,684) at the Polytechnic University of Catalonia and the UNESCO Chair for Technology and Culture. His dissertation (Predoctoral Individual Fellowship AGAUR FI, 48,800), defended in July 2012, became a ground-breaking study on the key entanglement between engineering and politics during the Second Spanish Republic (1931-1939), including the Spanish Civil War context.

In 2014 he won the competitive post-doctoral fellowship financed by the Science and Technology Foundation in Portugal. He joined the Interuniversity Centre for the History of Science and Technology in Lisbon (CIUHCT, classified as Exceptional by the European Science Foundation this year). He led as Principal Investigator the research project "Technology, Governance and Citizenship in Southern Europe, 1929-1975" (2014-2018/2020, 118.808,10). His new project intertwined with two large projects of the CIUHCT in which he was actively involved.

Since 2016, he has complemented his post-doc research with contracts as adjunct lecturer at the Open University of Catalonia, and Assistant (Adjunct) Professor at his institution. He has regularly been invited to teach in master courses in other universities in Spain and Portugal. Besides his large teaching career in five universities and in a Erasmus Mundus Master Course coordinated from Panthéon-Sorbonne University, he has supervised undergraduate, graduate and doctoral dissertations in Barcelona and Lisbon, and has organized internal seminars for the training of doctoral students at the CIUHCT since 2016. Attached to his research program, he has actively developed a diverse and rich outreach agenda.

In December 2018, he was contracted as Research Fellow at the Department of Applied Social Sciences, FCT-NOVA University of Lisbon.

He has been a Visiting Scholar at the Department II (Lorraine Daston) of the Max Planck Institute for the History of Science (2017), at the ERC Consolidator grant group "The rise of citizen science" at the University of Geneva (2018 and 2019) and, recently, at the History of Science Institute at the Autonomous University of Barcelona (2021).



He has conducted a vast and rigorous research program, with a long track record of high quality outputs, in (top-indexed) international journals in history of technology and contemporary history, and through broadly renowned publishers like Brill and Routledge. He has participated in 19 financed research projects (10 international projects and 9 national-framed).

He has gained accreditations as Profesor Contratado Doctor by the National Agency for Quality Assessment and Accreditation of Spain (ANECA, 2021).

In 2020, he was shortlisted and second place in the final phase for a permanent position in history of science at the Spanish National Research Council (CSIC). In 2019, he was second place for a position of tenure-track lecturer in history of science at the University of Barcelona.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	SANCHEZ , CELIA
Referencia:	RYC2021-032287-I
Correo Electrónico:	celia.natalias@gmail.com
Título:	Prácticas mágico-religiosas en la Antigüedad (defixiones)

Resumen de la Memoria:

Nuestra trayectoria científica se enmarca en el campo de las prácticas mágico-religiosas antiguas, y más concretamente, en el análisis de las defixiones o tablillas de execración. Frente a la gran dicotomía establecida por la historiografía tradicional entre los conceptos (y las actividades) de magia y religión , consideramos la magia como un subsistema de la religión (R. Gordon), como una práctica no institucionalizada (o no suficientemente institucionalizada) y, en este sentido, no sancionada por la autoridad. En consecuencia, las defixiones atestiguan de forma excepcional la llamada lived religion (J. Rüpke), es decir, los procesos individuales de experimentación religiosa y comunicación con las divinidades que se desarrollaban dentro del marco de la religión politana (C. Sourvinou-Inwood) o religión cívica (J. Scheid).

En la actualidad, la magia antigua es un área de estudio innovadora y dinámica en la que trabajan numerosos expertos internacionales. Dentro de este campo, las defixiones ocupan una posición central, dado que ofrecen numerosos datos de carácter histórico, filológico, social y ritual.

Nuestras contribuciones al campo de las prácticas mágico-religiosas en la Antigüedad se han ocupado en gran parte del análisis y re-edición de las defixiones en el Occidente Romano. Fruto de este esfuerzo es el volumen Sylloge of defixiones from the Roman West (Oxford 2022), llamado a ser la nueva obra de referencia que suplantará al clásico Defixionum Tabellae (A. Audollent, 1904). Nuestra metodología de trabajo se basa en tres principios fundamentales: 1. el dominio de técnicas tradicionales para la lectura y desciframiento de los textos (autopsia); 2. el análisis de los mismos desde una perspectiva innovadora y creativa y 3. un espíritu crítico desde el cual examinar nuestro trabajo y el de otros colegas de la disciplina. La combinación de estos principios nos ha permitido ofrecer a la comunidad científica internacional información innovadora y esencial, presentando nuevas lecturas e interpretaciones de tabellae ya conocidas y de otras recientemente editadas que no habían sido comprendidas correctamente.

Además, hemos analizado los textos aplicando nuevas tendencias de investigación, como por ejemplo la materiality , la cognición, o el derecho romano, ofreciendo nuevas interpretaciones para fenómenos cuya explicación es de especial dificultad. Por otra parte, el haber estudiado el corpus de defixiones del Occidente Romano de una forma tan global como pormenorizada nos ha permitido identificar distintas características regionales o provinciales, explicando por primera vez cómo esta tecnología religiosa fue adoptada y adaptada por las diversas poblaciones locales. Este enfoque constituye una ruptura radical con las tendencias interpretativas precedentes, que concebían las defixiones de forma homogénea. Sin embargo, desde nuestra óptica, estas tabellae eran un producto cultural vivo cuyo empleo está lejos de ser monolítico. Esta perspectiva de estudio nos ha llevado al que será nuestro nuevo ensayo, que se ocupará de la historia cultural de las tablillas de maldición en la Antigüedad Greco-Romana.

Resumen del Currículum Vitae:

Doctora en Historia por la Universidad de Zaragoza en cotutela con la Università degli Studi di Verona (2013), nuestra tesis doctoral se desarrolló en el marco de una beca FPI y de un Programa de Doctorado con mención de calidad. Distinguida con la mención europea, la tesis recibió el Premio Pastor de Estudios Clásicos (2013) y el premio a la mejor tesis en epigrafía latina por parte de la Association Internationale da Épigraphie Grecque et Latine (2017). Traducida al inglés, el trabajo está siendo publicado (en dos volúmenes, y también como e-book) dentro de la colección BAR-International Series (Oxford, 2022), con el título Sylloge of defixiones from the Roman West.

Nuestra carrera académica está caracterizada por una marcada internacionalización. Así, un 70% de eventos científicos en los que hemos participado se han desarrollado en el extranjero, y un 70% de nuestra producción científica ha sido traducida al inglés, francés o italiano y publicada en revistas de impacto o monografías especializadas.

Todo ello, junto con las trece estancias de investigación desarrolladas (cabe resaltar principalmente que hemos sido investigadora invitada en la UCM y las universidades de Heidelberg, Yale y Chicago), ha favorecido la creación de una red estable de contactos internacionales. Miembro de 13 proyectos de investigación, en la actualidad dirigimos un prestigioso proyecto Retos-JIN en el que colaboran cuatro expertos de reconocida trayectoria internacional. Cabe destacar nuestra participación como miembro y representante de España en el comité internacional de la Association Internationale d Épigraphie Grecque et Latine, y como miembro de la Association Ductus, de la Sociedad Española de Estudios Clásicos y del Instituto Universitario de Investigación en Patrimonio y Humanidades. Desde octubre de 2019, formamos parte de la red de expertos evaluadores de la Agencia Estatal de Investigación. Además, participamos como evaluadora en distintas revistas nacionales e internacionales (Emerita, Athenaeum o Mediterraneo Antico, entre otras).

Acreditados como 'Profesor Contratado Doctor' por la ANECA (2021), durante nuestra carrera académica no se han descuidado las tareas docentes, impartiendo toda la docencia posible en las figuras contractuales desempeñadas, con evaluación positiva destacada de forma sistemática. Hemos impartido seis asignaturas diferentes en varios grados, en dos universidades y con un total de 300 horas. Además, hemos impartido clases en los programas de la Universidad de la Experiencia. De igual manera, hemos realizado actividades de divulgación didáctica impartiendo conferencias en museos e instituciones especializadas (ICS, Londres), así como colaborando en la publicación de artículos de divulgación. En definitiva, hemos tratado de que la solidez y carácter internacional de nuestra formación sea evidente tanto en el plano investigador como en el docente.



Área Temática:Estudios del pasado: historia y arqueologíaNombre:ELICES OCON, JORGEReferencia:RYC2021-031689-ICorreo Electrónico:jorge.elices.ocon@gmail.comTítulo:Setting a new line of research: the reception of Antiquity in Islam

Resumen de la Memoria:

It is more than ten years now, from 2009 to 2022, since I first started to research on a topic, the reception of Antiquity in Islamic societies, that was then an original and untraced line of studies to initiated. However, nowadays, it is certainly a growing field of study that I have contributed to build and establish. I have focused on this topic and further developed new lines of investigation, paying attention to traditional historiographical debates, to new sources and material culture evidence as well as events necessary to consider in the contemporary world, such as the destruction of heritage by ISIS.

As a result of my post-doctoral project in the Federal University of Sao Paulo (UNIFESP) I have also considered new approaches of research on the topic of Antiquity in Islam (focusing on cross-cultural contexts, race and gender studies and social perspectives) and of how and why the Past in the Past matters to the present and future. New publications will appear in the next years and new projects will be developed in the future. The next pages will guide through my research career, pointing out the turning point and the influences that determined the path followed, the main publications and conferences and how they have contributed to the academic debate, the lines of investigation opened and their relevance to the academic field and the new perspectives to be developed in the future.

The research career that started in 2009 has, therefore, given shape to a promising scholar that have managed to establish and develop his own and original line of investigation, the reception of antiquity in Islamic contexts, who is well connected to scholars in Europe and Latin America and mentioned or referred to when speaking of Antiquity and its legacy in medieval, modern and contemporary Islamic societies, and who has contributed to understand and enrich not only our perspectives on the Past, but also on our present and future.

Resumen del Currículum Vitae:

He destacado 10 aportaciones científicas entre artículos y libros publicados que muestran la diversidad de los temas investigados, la originalidad de los mismos y la calidad y el aporte conseguido. Mis dos monografías sintetizaron y definieron por primera vez dos nuevos campos de estudio: Respeto o Barbarie ahonda en los múltiples procesos de recepción de la antigüedad en el mundo islámico y andalusí, mientras que Antigüedad y legitimación política analiza el pasado en el pasado desde un prisma comparativo y transcultural (cristiano e islámico) e interdisciplinar (reuniendo fuentes de diversa índole y diversas metodología vinculada a los estudios de filología, arqueología, historia, arte, recepción o antropología). Los artículos señalados, todos ellos publicados en revistas de prestigio e impacto internacional, son fruto de proyectos de investigación doctoral y postdoctoral financiados por el gobierno español (FPU) y brasileño (FAPESP), participaciones en congresos, estancias (Oxford, Berlín, Sao Paulo) y colaboraciones a ambos lados del Atlántico. Con estas publicaciones he conseguido adquirir nuevos conocimientos y conocer diversas metodologías y enfoques, así como contribuir al debate académico, añadiendo nuevos protagonistas y agentes, y generando preguntas e hipótesis sobre las sociedades del pasado y el presente. Desde mi defensa doctoral, mis publicaciones y conferencias me han permitido situarme como un referente en campos de estudio como recepción, reutilización de materiales, historia cultural y transcultural, memoria o patrimonio centrados en la Antigüedad y su legado en época medieval, moderna y contemporánea.

La formación adquirida y la investigación llevada a cabo han sido difundidas en clases y seminarios, en conferencias y congresos, colaborando con instituciones públicas o privadas (CSIC, Cátedra E. Said UNIFESP, Orient-se) o en la revisión de textos y libros para revistas y editoriales españolas o internacionales (Revista de Historiografía, Brill), o a través de la participación en actividades y publicaciones académicas o dirigidas a un amplio público (Véase C.2 y C.4). Finalmente quisiera resaltar un proyecto y creación personal dirigido tanto al público académico como a la sociedad en general. Jahiliyya (Grupo de Estudios e Investigación registrado en el Conselho Nacional de Desenvolvimento Científico e Tecnológico del gobierno de Brasil y página de Facebook) es una iniciativa que pretende aunar a diversos investigadores dedicados o interesados en descubrir el legado de la antigüedad en el mundo islámico y difundir su trabajo, combatiendo ideas preconcebidas en torno a la historia antigua y el Islam, dando a conocer proyectos, investigadores y publicaciones y publicaciones y respondiendo a dudas y preguntas sobre la historia antigua y medieval.

Como profesor en la universidad he tenido la oportunidad de asesorar a varios alumnos y he participado en varios tribunales de trabajos de fin de grado, máster y doctorado. Actualmente estoy supervisando varias monografías centradas en la Tardoantigüedad y en la Alta Edad Media. A través de Jahiliyya he podido conformar también un grupo de alumnos interesados en continuar la investigación centrada en el encuentro entre la Antigüedad y el Islam y fomentar el intercambio y las estancias de investigación entre España y Brasil.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	l'urno de acceso general
Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	NIETO ESPINET, ARIADNA
Referencia:	RYC2021-033420-I
Correo Electrónico:	arinietoespinet@gmail.com
Título:	Zootechnics, Resilience and Livestock Adaptations to Social Complexity in Western Mediterranean. A
Diachronic and Integrat	ive Approach from Zooarchaeology

Resumen de la Memoria:

My research focusing on animal remains, understood as being fully part of the material culture and as a relevant mean to understand past societies. I am a zooarchaeologist of reference for the study of the Protohistory, Roman and Late Antiquity periods on the Western Mediterranean. Currently, I use a broad range of research techniques and methodologies to study the role of animal husbandry in relation to the cultural changes, subsistence, trade strategies and zootechnical innovations. My research contributes to the understanding of how political systems shape animal production, and how these can be detected thought zooarchaeological record. In order to achieve this goal, I use a multi- and interdisciplinary approach that combines archaeology, zooarchaeology, ethnography and isotopic chemistry (strontium and oxygen isotopes) together with statistics and a geographic information system (GIS). This combination of skills has allowed me to lead research teams, obtain competitive funding as a PI and to participate in a large number of research teams, which has resulted in a significant number of scientific contributions. My leadership capacity is also showed in the increasing number of supervised students, both bachelor's (TFG) and master's degree (TFM).

I have developed a solid and coherent career, starting with a pre-doctoral fellowship (FPU, 2006-2010) followed by three competitive postdoctoral contracts (Labex Archimede - CNRS-U.Montpellier; ERC-StG ZooMWest - CSIC- IMF, Barcelona; PI in CENTAURO project, PID2020-113369RJ-I00-University of Lleida). This has provided me with a wide range of analytical and technical skills, including species identification, biometry, isotopic analyses (strontium, carbon and oxygen), ancient DNA and dental microwear (e.g. Nieto-Espinet 2013, Fages et al. 2019, Ibáñez et al. 2020, Nieto-Espinet et al. 2020). My research covers specific questions (e.g. equids in ritual practices during Late Prehistory; (Nieto-Espinet et al. 2020, Nieto-Espinet et al. 2016) as well as more general historical questions, like changes in animal husbandry over time (Nieto-Espinet et al. 2020, Trentacoste et al. 2020, Nieto-Espinet et al. 2020, Nieto-Espinet et al. 2020, Nieto-Espinet et al. 2020, Trentacoste et al. 2020, Nieto-Espinet et al. 2020, Nieto-Espinet et al. 2021, Trentacoste et al. 2021).

Resumen del Currículum Vitae:

I am a zooarchaeologist and my area of research is the Western Mediterranean between the Late Bronze Age and the Late Antiquity. I have developed a solid and coherent career, starting with a pre-doctoral fellowship (FPU, 2006-2010) followed by two competitive postdoctoral contracts (Labex Archimede - CNRS-U.Montpellier; ERC-StG ZooMWest - CSIC- IMF, Barcelona). This has provided me with a wide range of analytical and technical skills, including species identification, biometry, isotopic analyses (strontium, carbon and oxygen), ancient DNA and dental microwear (e.g. Nieto-Espinet 2013, Fages et al. 2019, Ibáñez et al. 2020, Nieto-Espinet et al. 2020). My research covers specific questions (e.g. animal ritual practices during Late Prehistory; (Nieto- Espinet et al. 2020, Nieto-Espinet 2013, Nieto-Espinet et al. 2016) as well as more general historical questions, like changes in animal husbandry over time (Nieto-Espinet 2020, Trentacoste et al. 2020, Nieto-Espinet et al. 2021). My previous research on animal remains combined zooarchaeological and ethnological analyses, and have been published in internationally recognized peer-reviewed journals (Nieto-Espinet et al. 2010, Nieto-Espinet 2012, Nieto-Espinet et al. 2016). Currently I am focusing on the study of changes in livestock farming and their political and social implications on a large temporal and territorial scale within the framework of CENTAURO project (PID2020-113369RJ-I00) of which I am the principal investigator. During my independent career (2012-present) I have realized major contributions to the Protohistory of Southwest Europe, thanks to my expertise and experience in the analysis of animal remains through different and complementary techniques (zooarchaeolgy, mobility, strontium and oxygen isotopes, data analysis, basic spatial analyses using GIS). This is demonstrated by the numerous peer-reviewed articles that I have published in leading journals (e.g. Nature, Cell, Plos One, Quaternary International, Journal of Archaeological Science: Reports, Historical Biology, Archaeological and Anthropological Sciences) which cover several archaeological and anthropological topics such as food and cultural identities, ritual practices, and economic changes between Late Prehistory and Late Antiquity. In addition, I am familiar with fieldwork and administrative permits in different countries including France, Spain and Italy, as I excavated in 10 sites in Europe (Iron Age Roman), and studied 25 faunal assemblages, spanning from Late Bronze Age to Late Antiquity, including several missions in field laboratories (Greece, Italy, France, Portugal, Spain), European museums, and international universities. I co- organised a major international conference, three international Workshops, and four scientific sessions. Through my PhD and post-doctoral experiences, I have gathered a significant volume of zooarchaeological data (c. 380 sites, 429.379 remains) that will be used in my current and future comparative framework. This achievement record shows my ability to contribute to high-quality research projects and to develop interdisciplinary research with international research teams.





Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	GARCIA MOLSOSA, ARNAU
Referencia:	RYC2021-034341-I
Correo Electrónico:	agarcia@icac.cat
Título:	Innovative approaches to surface archaeological record for historical landscape analysis

Resumen de la Memoria:

I obtained my PhD in the Rovira i Virgili University (Tarragona) in 2013 with the thesis Archaeology of the cultural landscapes of Montseny Massif. Historical dynamics from the Prehistory to the Early Middle Ages . I am currently a Beatriu de Pinós - Marie Sklodowska-Curie Cofund Fellow at the Landscape Archaeology Research Group (GIAP) of the Catalan Institute of Classical Archaeology, and affiliated researcher at the University of Kerala (India). As a Postdoctoral researcher, I have held research positions at institutions in Spain (Catalan Institute of Classical Archaeology and University of the Balearic Islands), the United States (State University of New York at Buffalo) and the United Kingdom (University of Cambridge).

My research focuses on the study of landscapes as the result of long-term human-environment interactions and, consequently, as part of our cultural heritage. As a landscape and computational archaeologist, I work with archaeological, historical, and geospatial data in the context of multidisciplinary studies directed to understand how human societies have inhabited and conceptualized their environment through time. Much of my work focuses on the development of methods for archaeological research involving computer vision, geospatial analyses and artificial intelligence, research areas in which I am considered one of the most innovative and recognised researchers leading the field in Europe. In that area I have developed methods for detecting archaeological artifacts visible on very high-resolution UAV images; b) features represented in historical maps and c) combinations of EO products, including vegetation Indices and topographic anomalies.

My research has adopted a wide diachronic perspective and has included the analysis of prehistory, Iron Age and Ancient Greek and Roman societies, but also medieval and post-medieval dynamics. Historical morphology and regressive analysis are present in all my research together with the use of palaeobotanical and geological data. In this regard my work is usually developed within multidisciplinary teams in close collaboration with paleobotanists, geoarchaeologists and historians. My contributions to this research line can be summarised in four strongly intertwined areas: (1) analysis of the surface archaeological record and development of survey methodologies; (2) Long-term regressive analysis and historical morphology; (3) Remote Sensing exploiting Earth Observation data; and (4) formation and development of specialised pastoral landscapes.

I have directed research on multiple environments, including coastal areas, lowlands, river valleys and a variety of mountainous areas. My main regional focus has been the Mediterranean region, directing research projects composed by large international multidisciplinary teams in Catalonia (Spain), Macedonia and Thrace (Greece) while collaborating in research projects in other regions of Spain, Greece, Italy and France. I have also conducted research outside Europe in the riverine environments of the Indus Valley (India & Pakistan). Overall, my research has been funded with more than half a million euros.

During my career I have participated in multiple actions directed to transfer knowledge towards the Heritage sector. In that area I collaborate with public institutions and private foundations and companies.

Resumen del Currículum Vitae:

I have a BA in History (U. De Barcelona, 2005) a MA and PhD in Archaeology (U.Rovira i Virgili, 2008 & 2013) and Postgraduate studies in Geographic Information Systems (Open University of Catalonia, 2013). During my post-doctoral career, I have held highly competitive prestigious positions, including two Marie Sklodowska-Curie Fellowships (an Individual Fellowship at the University of Cambridge and a Co-fund Beatriu de Pinós Fellowship at the Catalan Institute of Classical Archaeology); an IEMA visiting Scholar Fellowship in the SUNY at Buffalo; and a post-doctoral contract awarded by the University of the Balearic Islands.

My publication record includes a total of 33 publications between articles in international peer-reviewed journals (13 indexed in WoS and Scopus), books and book chapters. This work has attracted 269 citations (Source Google Scholar, 141 citations in high profile academic publications are listed in Scopus & 123 in WoS). One of my last publications has been awarded the Emerging Investigator Award for 2019 by the Journal of Archaeological Science and Society for Archaeological Sciences. My academic production includes also the organisation of three international conferences and two sessions in international meetings and the contribution to 64 International Meetings, including Conferences, Workshops and seminars.

I have been the Principal Investigator in 9 projects, obtaining 429.954,80 in research funds in competitive international calls. Another 110.422,74 has been awarded in competitive regional calls and as a result of the collaboration with local institutions. I have been a member of 5 projects funded by the Spanish R&D Program and 4 projects funded by Spanish public & private institutions (BBVA Foundation, Palarq Foundation and the Government of the Canary Islands). I participate in other 5 active international projects funded by public and private institutions (Including the Arcadia Fund, INSTAP and the Greek and Italian ministries of Culture & Sciences). I have collaborated with research institutions from the US, UK, France, Italy, Greece, India and Mongolia. I have been in charge of direction archaeological excavations and surveys, supervising multi-disciplinary field teams.

The survey methods I developed as a proof of concept have been awarded public and private funding for further development and its implementation in programs focus on Heritage protection (AGAUR, Arcadia Fund, FBBVA and the energy company Enel). Beyond that, my research activity has been developed in projects, which included public Heritage Agencies, Museums and Natural Parks, as partners. In my dissemination activity, I collaborate with local institutions in the development of products specifically designed to transfer knowledge towards the general public.

I am currently co-supervisor of two PhD Thesis that have received funding from the Catalan Research Agency (AGAUR) through their research training program (FI). I have extensive experience in training postgraduate students, including preparing and teaching Master courses and distance learning practical courses for the State University of New York at Buffalo (US), the University of Kerala (India) and the Open University of Catalonia (Spain).



Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	DALMAU PALET, POL
Referencia:	RYC2021-033800-I
Correo Electrónico:	pol.dalmau@upf.edu
Título:	Modern Spain and its connections with the wider World

Resumen de la Memoria:

My current line of research examines Spain's global presence in the 19th and early 20th centuries. This country is invariably considered a first-rank actor in the global history of the early modern period, but general accounts of the modern era tend to downsize its importance to that of a minor European nation-state. My research advocates a radically new approach, one that unveils modern Spain's global dimensions through a myriad of connections with North Africa, the Caribbean, Southeast Asia and the Far East. I have developed this innovative research agenda in top-tier, open-access journals enjoying massive readership, such as the Journal of Global History (JCR's 1st ranked in History) and Contemporary European History, as well as in Spain's leading journals Ayer and Historia y Política. I am also the author of 2 monographs and 1 edited volume that have appeared in internationally renowned publishers, such as Palgrave Macmillan and Sussex Academic Press, and have a monograph under contract with Oxford University Press.

My training as a historian has benefitted from early and protracted international exposure, an experience that has widened my intellectual horizons and developed my autonomy as a researcher. Following 5 years as a MA and PhD researcher at the European University Institute in Italy, I held postdoctoral positions at the Cañada Blanch Centre at the London Schools of Economics (United Kingdom) and the Leibniz Institut für Europäische Geschichte (Germany), and completed four-month research stays both at the University of Leeds (UK) and New York University (United States). I have discussed my research at 28 seminars and conferences in 10 different countries, and organized 3 international conferences.

Since 2020 I have been the Principal Investigator (PI) for a research project funded by the Leonardo Grants of the BBVA Foundation (32.335). Drawing on archival sources located in 5 countries, this project examines the 19th century globalization process through a Barcelona-based project to establish a utopian colony in the Pacific. In parallel to my research activity, I regularly review articles for national and international journals, and have participated in 3 competitive projects (Spanish Ministry and Generalitat de Catalunya). I have also served as external referee in 3 competitive programs funded by the Spanish Research Agency (2019, 2020 and 2021).

Resumen del Currículum Vitae:

At present, I am a postdoctoral researcher (Juan de la Cierva Incorporación, 2018 call) at Pompeu Fabra University in Barcelona.

Previously, I completed an MA in Historical Studies at the University of Barcelona with First Class Honors and was awarded a 4.500 research prize for the best MA research project in History. After obtaining 4 doctoral fellowships (FPU, Salvador de Madariaga, FI and APIF) from public institutions, I started a PhD at the European University Institute (Italy). My thesis, written in English and defended in three languages (English, Spanish and Italian), revisited the birth of mass politics and the crisis of Liberalism in Europe. I did so by focusing on the Godó family, who produced prominent politicians, businessmen and the founding editors of Catalonia's top-selling newspaper 'La Vanguardia'. A revised edition of the thesis appeared in English in the book series that Professor Paul Preston directs at the LSE's Cañada Blanch Centre, where I also carried out my first postdoctoral stay. An expanded edition of this book is under contract with the Spanish publisher Marcial Pons.

Moreover, the Godó's involvement in clientelistic practices (caciquismo) has allowed me to develop a parallel line of research into the history of corruption. My 2 years as postdoctoral researcher in Germany, funded by the Alexander von Humboldt Foundation, allowed me to test ideas with international scholars working in the same field. The outcome has been a steady stream of publications on corruption that include a special issue I edited with Professor Isabel Burdiel in the journal Historia y Política; one award-winning article (the Manuel Pérez Ledesma Prize for best article in 2018, Asociación de Historia Contemporánea); and an edited volume with Palgrave's Comparative World History series.

My protracted stays in Italy, the United Kingdom and Germany, coupled with four-month research stays at the University of Leeds (UK) and New York University (United States), have provided me with the skills to pursue path-breaking research. This can be seen in my ongoing project, developed in tandem with Jorge Luengo, to rethink modern Spain in line with the new global history debates. I have delved into this pioneering research agenda in single and co-authored articles that have appeared in JCR's Q1 and Q2 journals, such as the Journal of Global History (JCR's 1st ranked in History), Contemporary European History and Ayer, and it constitutes the subject of a new monograph that is under contract with Oxford University Press. Since 2020 I have been the Principal Investigator (PI) for a research project funded by the Leonardo Grants of the BBVA Foundation (32.335). This highly competitive program (1.500 applicants for 50 grants distributed across all scientific fields) has enabled me to further strengthen my profile in

the field of global history. At Pompeu Fabra University, I have supervised 12 final projects in the Global Studies program and 2 Master's projects, and have served on the assessment board for 3 other students in the Master in World History. I have also participated in 3 competitive projects in Spain, and served as external referee in 3 competitive programs funded by the Spanish Research Agency (Convocatoria Adquisición equipamiento Científico-Técnico, 2019; Proyectos de I+D+i, 2020; and Proyectos de Generación de Conocimiento, 2021).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	TEJERO CACERES, JOSE-MIGUEL
Referencia:	RYC2021-033759-I
Correo Electrónico:	jose-miguel.tejero@mae.cnrs.fr
Título:	Assessing archaeological entities emergence and diffusion, social networks and symbolic mediated
behaviour in the Euras	ian Palaeolithic through multidisciplinary studies of osseous raw material exploitation

Resumen de la Memoria:

My principal research interest lies in the study of the Upper Palaeolithic (UP) hunter-gatherer societies in Eurasia through the analysis of osseous raw material exploitation. I especially emphasized the osseous hunting weapons' role in the first anatomically modern humans (AMH) colonizing Eurasia at the UP's onset. As such, I have developed two main research lines: 1) Techno-economic and palethnographic approach to the technical and conceptual behaviours in osseous raw material working (mainly bone/antler) during the Palaeolithic; 2) The role of the osseous hunting projectile weapons of the first AMH's adaptive environmental strategies in colonising Eurasia after their dispersion from Africa.

This research has been facilitated by fieldwork undertaken at various Palaeolithic sites in Spain, France, Italy, Israel, Armenia and Georgia, and a revision of faunal remains and osseous sets from old excavations. It has been funded through highly competitive grants and has allowed me to direct or codirect several international research projects.

My scientific career results have been contributed to increasing our knowledge on 3 key areas of human evolution: the nature and timing of modern human dispersals; behavioural complexity of hunting projectile technology; and the emergence of symbolic mediated behaviour. The main achievements can be identified as (1) Characterising the technical and conceptual behaviours of exploiting the osseous raw material during the Magdalenian in the NE and Central Iberia, furthering our understanding of this techno-complex; (2) Characterising the technical and conceptual behaviours of exploiting osseous raw material during the Early Upper Palaeolithic (EUP) in Europe, the Near East and the Caucasus, improving our knowledge of the UP entities' emergence and diffusion; (3) Demonstrating the increasing complexity in exploiting the osseous raw material in Eurasia at the onset of the EUP (c. 40Ka years ago); (4) Contributing to assess the emergence of symbolically mediated behaviour through analysing anthropically modified bones of Eurasian Lower to Upper Palaeolithic sites; (5) Contributing to assessing the role of the osseous hunting weapons of the first anatomically modern humans' adaptive environmental strategies in colonising Eurasia.

I am currently involved in various national and international projects (Austria, Spain, France, Israel and Georgia). I am developing new multidisciplinary research lines combining archaeological and biomolecular cutting edge methods. My prime current project is based on the integration of archaeological approaches (technology, use-wear, experimentation); palaeogenetics (aDNA: ancient DNA); palaeoproteomics (ZooMS: Zooarchaeology by Mass Spectrometry); and radiocarbon chronology, evaluating critical aspects of the first AMH's osseous hunting weapons. It will complement data of my past works in Western Europe allowing us to gain insight into different aspects of the first AMH in Eurasia adding data from several key sites from the Near East (e.g., Manot cave, Ksar Akil), Central Europe (e.g., Willendorf II, Mladec) and the Caucasus (e.g., Satsurblia, Dzudzuana).

My research results in the cited topics have been presented in several international conferences and extensively published in books chapters and high impact factor peer-review journals, in many of which I am the first author.

Resumen del Currículum Vitae:

My main research interest lies in the Upper Palaeolithic (UP) hunter-gatherer societies of Eurasia and their exploitation of the osseous raw material. My research emphasises hunting weapons and their significance in adaptive environmental strategies of the first modern humans in this continent. I am also working on assessing modern humans' & predating hominins' symbolic behaviour by studying modifed bones from several Palaeolithic sites. Further, my work involves the bone sets of the Western-European groups at the late UP (Magdalenian), and the last Levantine hunter-gatherers, beginning to practice sedentarism (Natufian). I lead an international project to study one of the key Near East Natufian sites: Einan Ain-Mallaha (Israel) funded by the Shelby White Found. of Harvard University.

After obtaining my degree, I got a research training fellowship (2004-2008) at Madrid UNED University. I conducted my doctoral training at several of the most worldwide recognised research institutions from France & the USA (Paris X University; Paris 1 Sorbonne University; CNRS; New York University). In 2008 I got a prestigious grant from the American Museum of Natural History Richard Gilder School (New York). I get my European PhD degree in Prehistory in 2010 (Excelente cum laude by unanimity; Awarded Best PhD Dissertation of the year).

Post PhD, I conducted postdoctoral research in Spain, France, Italy, Israel, Armenia, Georgia & Austria for more than 8 years funded through highly competitive grants and directed several international research projects. From 2011-2013, I was a post-doc researcher in a French CNRS research unit on a Research Ministry of Spain fellowship. In 2014, I received a 2-year Beatriu de Pinós-Marie Curie fellowship from AGAUR/European Community (FP7) at Barcelona University; from 2015-2017, I was a postdoc researcher at Barcelona University (FPDI fellowship). From 2021 I am a senior researcher at the University of Vienna (Austria).

My broad scientific production is comprising more than 95 publications. I am the author of 3 monographs, one of them published in the prestigious British Archaeological Series. I also coordinated a book and published 43 papers/book chapters (19 as the first author) published in journals and volumes with peer review system among which 27 papers in ISI-indexed journals of high impact factor as Science Advances, PNAS USA & Journal of Human Evolution. I participated in more than 40 International conferences, workshops and seminars (17 as invited speaker).

I also have a large experience in organising international conferences as a member of the scientific/organization committee. I have been co-director of 2 PhD theses and been a member of the board of several PhD dissertations as an external reporter. I am also a frequent reviewer for several high impact factor international journals and an external expert of European public science institutions. I have also broad teaching experience in 5 Universities in 4 different countries (UNED, Barcelona University. Spain; Paris Sorbonne University. France, HUJI, Israel; University of Vienna. Austria). I am also fully engaged to communicate science to society, making it relevant to citizens. Thus, I published several dissemination papers, given a large number of conferences, and participated in many activities to transfer scientific knowledge to the general public alike.



AGENCIA ESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

	runio de deceso general
Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	IÑIGUEZ BERROZPE, LARA
Referencia:	RYC2021-030958-I
Correo Electrónico:	laraib@unizar.es
Título:	Pintura mural romana, estuco, arqueometría y poblamiento

Resumen de la Memoria:

Desde 2003 hasta 2008 participé como estudiante en numerosas excavaciones arqueológicas y en cursos de especialización en esta disciplina, formación que he continuado hasta la actualidad. En 2009 comencé mis estudios de Tercer Ciclo dentro del programa de doctorado Nuevas tendencias de investigación en Ciencias de la Antigüedad en la Universidad de Zaragoza, tras la obtención, además, de una beca FPU del Ministerio de Economía y Competitividad. Obtuve el título de Doctora gracias a la presentación de mi tesis doctoral sobre pintura mural romana en el Conventus Caesaraugustanus -campo de investigación que supone mi especialidad- con una calificación de Sobresaliente cum laude, mención internacional y premio extraordinario de doctorado.

Tanto en la fase predoctoral como postdoctoral, he realizado varias estancias en l Università di Roma (Italia) Centre d Etude des Peintures Murales Romaines (Soissons, Francia), University of Oxford (Reino Unido) y en l École Normale Supérieure (París, Francia). Esto junto a mi integración, como socia y como miembro del comité directivo, en las principales redes internacionales de investigadores en pintura mural y estuco romanos (AIRPA, AFPMA, AIPMA) ha supuesto que toda mi investigación, centrada en el norte de la Tarraconense como foco y a la vez como núcleo receptor de influencias decorativas, tenga una vocación internacional.

Cuatro son mis principales vías de trabajo. La primera se centra en el estudio técnico, iconográfico e iconológico de los distintos conjuntos pictóricos abarcando una cronología desde el siglo II a.C. hasta el VI d.C. La segunda tiene que ver con la puesta en valor de un rico material tradicionalmente olvidado por los investigadores: el estuco -ya sean molduras, entablamentos, pilastras u otro tipo de objetos arquitectónico-decorativos- cuyo desconocimiento hace ignorar que aporta datos que van más allá de los meramente estéticos, pues puede suponer un referente cronológico. La tercera línea de investigación está unida a las dos anteriores: la metodología arqueométrica aplicada al análisis de los componentes de morteros, pigmentos y estucos, cuya utilización puede revelar la presencia de talleres itinerantes, redes comerciales, procedencia de materias primas y un largo etcétera. Por último, en nuestra carrera investigadora ha nacido una nueva línea diversificada que en este caso se centra en averiguar la presencia de poblamiento romano en un área aparentemente vacía del Prepirineo Central. Gracias a la utilización de una metodología de vanguardia (teledetección y georradar), hemos descubierto un nuevo enclave urbano (yacimiento Forau de la Tuta, Artieda, Zaragoza) en el que desarrollamos parte de nuestro de campo actualmente.

Resumen del Currículum Vitae:

En 2009 comencé mis estudios de Tercer Ciclo dentro del programa de doctorado Nuevas tendencias de investigación en Ciencias de la Antigüedad en la Universidad de Zaragoza, tras la obtención, además, de una beca FPU del Ministerio de Economía y Competitividad. Obtuve el título de Doctora gracias a la presentación de mi tesis doctoral sobre pintura mural romana en el Conventus Caesaraugustanus -campo de investigación que supone mi especialidad- con una calificación de Sobresaliente cum laude, mención internacional y premio extraordinario de doctorado.

Tanto en la fase predoctoral como postdoctoral, he realizado varias estancias en l Università di Roma (Italia) Centre d Etude des Peintures Murales Romaines (Soissons, Francia), Universitity of Oxford (Reino Unido) y en l École Normale Supérieure (París, Francia). Asimismo, desde un primer momento me integré, como socia primero y como miembro del comité directivo después, en las principales redes internacionales de investigadores en pintura mural y estuco romanos (AIRPA, AFPMA, AIPMA). Esto ha influido en que mis principales aportaciones científicas estén centradas en el norte de la Tarraconense como foco y a la vez como núcleo receptor de influencias decorativas mediterráneas, línea de investigación con una vocación, por tanto, internacional

Hasta el momento, he publicado un total de 2 libros, 38 capítulos de libro y 20 artículos en revistas indexadas (estando actualmente acreditada por ANECA a las figuras de Profesora Ayudante Doctora, Profesora de Universidad Privada y Profesora Contratada Doctora). Aunque un gran número de estos trabajos se han presentado en contextos académicos internacionales, no hemos olvidado la importancia de dar a conocer nuestra investigación en ámbitos vinculados al lugar objeto de análisis a fin de no descuidar la recepción en el territorio de los resultados de la investigación y con ello su impacto social. No hay que olvidar que gran parte de nuestra labor se desarrolla dentro del área denominada como España vaciada , la cual se considera, junto con Laponia, la única zona europea denominada Very Sparsely Populated Areas. Especialmente relevante en este sentido es el trabajo de campo llevado a cabo en el recién descubierto yacimiento de Artieda, donde nos hemos propuesto, cumpliendo con los ODS 2020-30 (especialmente el 4, 8 y 11) que el beneficio científico obtenido suponga un impacto económico y social directo en el territorio, y por ello elaboramos un Plan de Actuación (encomendado por el Gobierno de Aragón) gracias al cual se está llevando a cabo el montaje de una sala de exposición, además de la celebración de jornadas y visitas y otros eventos. Esta línea estratégica la he podido diseñar gracias a la adquisición de experiencia dentro del ámbito turístico al ser docente en la Escuela de Turismo de Zaragoza.

Esta vía profesional también me ha permitido formar a varios jóvenes investigadores. He dirigido hasta este momento 58 TFGs algunos de ellos galardonados por la Cátedra de Cooperación y Desarrollo de la Universidad de Zaragoza. Asimismo, actualmente dirijo tres tesis doctorales dentro del programa de doctorado Patrimonio y Frontera del Campus Iberus. Finalmente, también he impartido varios cursos en diferentes centros. Destacan la UNED, Universidad de Zaragoza



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	D'ANDREA , BRUNO
Referencia:	RYC2021-031174-I
Correo Electrónico:	bruno.dandrea.uni@gmail.com
Título:	PHOENICIAN-PUNIC CULTURAL AND RELIGIOUS DYNAMICS: MEN, GODS AND ANIMALS IN THE ANCIENT
MEDITERRANEAN WORL	D (9TH CENTURY BCE - 2ND CENTURY CE)

Resumen de la Memoria:

My studies focus on Phoenician and Punic history and archaeology, especially on the Western Phoenician s religious systems and practices from the expansion in the 9th century BCE to Roman times. They offer a comparative approach rooted in the Mediterranean dimension of the Phoenician-Punic world and the interactions it generates. Their development implies an inter/multidisciplinary perspective, which combines archaeological studies with the analysis of epigraphic, iconographic and literary sources. The archaeology of ritual, the history of religions, the animal-human interactions and the iconographic analyses constitute the fields of interest of innovative researches that have been developed around three related central themes: (1) the cult places and religious practices, with particular attention paid to the Phoenician tophet-sanctuaries and to the sacrifices; (2) the role of animals in Phoenician-Punic culture, religion and dietary habits, with particular attention paid to ritual practices and food avoidance; and (3) the religious continuities and transformations in Phoenician-Punic religion during the Roman period, with particular attention paid to the Phoenician studies to methodologies, issues and epistemological debates developed in recent years by other disciplines or for other historical-geographical areas. The cooperation with archaeozoology and bioarchaeology is predominant in my current projects. The exchange with other social sciences is equally essential to use their methods and heuristic tools consciously.

Along an international scientific career, I developed these topics in several contributions presented in over thirty scientific meetings, among which the most relevant meetings in the fields I specialise. I am the author of two books and one collective volume published in important collections (Collezione di studi fenici, Collection de I Ecole française de Rome, Semitica et Classica Supplementa), and more than thirty articles in almost all cases as sole author, mostly in international peer-reviewed journals (Annales, Antiquités africaines, Revista de Historiografía, MEFRA, Scienze dell Antichità). These works nowadays constitute a primary reference in my fields. I am currently editing two collective volumes and one book on animal sacrifices in the Phoenician and Punic word.

At present, I co-lead three research programmes: "Archaeology of Taste in the Western Phoenician and Punic Societies", "Animal Circulation and Zoogeography in the Ancient Mediterranean", and "Animals in Phoenician-Punic Contexts of the Central Mediterranean". I collaborate in several interdisciplinary projects with different institutions and teams, including the ERC Advanced Grant project "Mapping Ancient Polytheisms" (Toulouse) and the project I+D "Gadir Cartaginesa" (Cadiz). I have organised several scientific meetings, among which seven international conferences from 2020 to date.

In the next few years I intend to deepen, develop and broaden these research axes and the personal and collaborative projects. They will give some already expected short-term outcomes. For 2024, I propose a European ERC Consolidator Grant project on the relationship between animals, human societies and gods in the Mediterranean of the 1st millenium BCE.

Resumen del Currículum Vitae:

I am an archaeologist specialising in the Phoenician-Punic world and especially in Western Phoenicians. Three elements characterise my profile: 1. The ability to examine the religious sphere thanks to my in-depth knowledge of the tools and methods of the history of religions and the archaeology of ritual.

2. The multidisciplinary approach to the archaeological data, by knowing how to use epigraphic, iconographic and literary evidence and how to take advantage of the contributions of the "natural" and social sciences.

3. The ability to include my research in a comprehensive and comparative perspective from a geographical and chronological point of view.

After having trained in archaeology at La Sapienza University, where I was awarded for the best curriculum studiorum, in 2012 I obtained a PhD degree in Ancient Near East at L Orientale University of Naples. My thesis on Phoenicians tophets - sacred areas featuring an open-air space used for the deposit of cinerary urns containing the cremated remains of children and/or animals and the erection of stelae - was published in 2014 within the Collezione di Studi fenici. During my post-doctoral career, I won several European research contracts (Investissements d Avenir, Fernand Braudel Fellowships, Madrid Institute for Advanced Studies) that allowed me to internationalise my profile, staying in important several European institutes of excellence: the Ecole Pratique des Hautes Etudes (Paris, 2012-2013), the Centro Nazionale delle Ricerche (Rome, 2013-2014), the Laboratory of Excellence "Religions et sociétés dans le monde méditerranéen" (Paris, 2015), the Laboratory of Excellence "Archéologie et histoire de la Méditerranée et de I Egypte anciennes" (Montpellier, 2016-2017), the Ecole française de Rome (2017-2020), and the Madrid Institute for Advanced Studies (2020-2021). Thanks to these experiences, I published a second book on tophets-sanctuaries within the prestigious Collection de I Ecole française de Rome. I could also broaden my interests to include two topics about which I have published important contributions:

1. the interactions between animals and past societies (and gods) among the Phoenician communities;

2. the continuities and transformations in the North African Phoenician cults during the Roman period.

Currently, I am visiting researcher at University of Toulouse in the ERC Advanced Grant programme "Mapping Ancient Polytheisms". During my career, I participated in several archaeological excavations. I carried out various research journeys and study missions in Europe, North Africa and Lebanon. I presented communications in over 30 scientific meetings (10 times as guest speaker), published 2 monographs, 1 collective book and more than 30 articles in important international revues, and disseminated my research to a broader public through various communication forms (social networks, newspapers and magazines). I direct and collaborate in several international projects. Moreover, I have organised several scientific seminars and study meetings, and I am a qualified Associate Professor in Italy. I am part of the editorial board of the international revues. ARYS. Antigüedad: Religiones y Sociedades and Folia Phenicia. I have evaluated a book and several papers for international collections and revues.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso generalÁrea Temática:Estudios del pasado: historia y arqueologíaNombre:SANZ BORRAS, MONTSERRATReferencia:RYC2021-032999-ICorreo Electrónico:SANZBORRAS@HOTMAIL.COMTítulo:Human-carnivore relations in Quaternary landscapes

Resumen de la Memoria:

The Palaeolithic in south-western Europe has been the primary focus of my research and I specialise in the Taphonomy and Zooarchaeology of large mammals. My main research line is Human-carnivore relations in Quaternary landscapes and within this line I address various subtopics, including human subsistence behaviour, hominin-carnivore interactions, fire management, mortuary activities, palaeobiology and the relationship between societies and ecosystems, among others.

Over my archaeological trajectory, I contributed to several major issues in Palaeolithic archaeology and human evolution research, namely: 1) the early use of fire in Europe, as revealed by the fire traces excavated and studied from Aroeira (Portugal), 2) interactions between humans and the carnivore guild, especially medium and small carnivores, such as iberian lynx and wolf, 3) exploring the processes by which human remains were accumulated in Pleistocene sites, as the accidental accumulation of the Middle Pleistocene cranium of Aroeira and the possibly intentional disposal of bodies by neanderthals in cova del Gegant, 4) identifying carnivore activities on the basis of coprolites, 5) environmental reconstruction of landscape and implications for humans, and 6) mobility and subsistence behaviour of Neanderthals in the last interglacial in Iberia.

Resumen del Currículum Vitae:

I am a researcher and currently working as a temporary adjunct lecturer at the University of Barcelona teaching Archaeology and Prehistory . Prior to this, I held a postdoctoral fellow (Juan de la Cierva-Incorporation Grant) in Archaeology at the University of Barcelona (UB) (2018-2021), a postdoctoral fellow (Juan de la Cierva-Training Programme) in the Centro Mixto Complutense University of Madrid (UCM)-Instituto Salud Carlos III (ISCIII) Research Group in Human Evolution and Behaviour and at the UCM, led by Juan Luis Arsuaga, where I also taught Human Evolution and Palaeoecology (Master s Degree, UCM) (2016-2018). Earlier, I was employed at the UNIARQ-University of Lisbon (Portugal) on an FCT (Fundação para a Ciência e a Tecnologia) postdoctoral contract, where I taught Zooarchaeology on the Master s Degree. I have also been an invited scholar at the LabexMed Université Aix-Marseille (France). I graduated in History and hold a PhD (with European Mention) in Archaeology from the University of Barcelona (2013). I have been a visiting PhD fellow at the University of Arizona (USA), Université de Toulouse (France) and University of Bristol (United Kingdom). I have authored/co-authored 130 papers, 55 of them in indexed and peer-review journals and I am currently engaged in several national and international projects.

The Palaeolithic in south-western Europe has been the primary focus of my research and I specialise in the Taphonomy and Zooarchaeology of large mammals. My main research line is Human-carnivore relations in Quaternary landscapes and within this line I address various subtopics, including human subsistence behaviour, hominin-carnivore interactions, fire management, mortuary activities, palaeobiology and the relationship between societies and ecosystems, among others.

These particular interests have led to my undertaking archaeological excavations at several sites in the Iberian Peninsula: most notably, the Garraf massif (Spain), the Almonda karst system (Portugal) and the Abrigo do Lagar Velho (Portugal). Since 2002, I have led an archaeological team working in Palaeolithic studies, directing around fifty different field excavation seasons, and I have also acted as the scientific coordinator of multidisciplinary studies. Additionally, I currently collaborate in the analysis of fauna from archaeological excavations undertaken by other teams. These include the Middle Palaeolithic sites of Cueva Antón (Murcia, Spain) and Gruta da Oliveira (Portugal).

In recent years, I have become increasingly involved in promoting knowledge transfer and archaeological activities for the benefit of the greater society by assuming the role of project manager or science consultant in the preparation of exhibitions, conferences, exhibition catalogues and archaeological science books aimed at a broader audience.

I hold the I3 certification (Spanish government) and the accreditation for teaching at Spanish Universities (Contratado Doctor-ANECA and senior lecturer-AQU). I also have been member of European PhD thesis committee. I have reviewed several manuscripts submitted to indexed journals, such as Plos One, Quaternary Science Reviews or Journal of Archaeological Science, among others.



Área Temática: Estudios del pasado: historia y arqueología Nombre: DIAZ, ALBA **Referencia:** RYC2021-034738-I **Correo Electrónico:** alba.diaz@hotmail.com Título: Comunidad, Conflicto y Cambio Social en las Sociedades Rurales Contemporáneas

Resumen de la Memoria:

La trayectoria investigadora de la Candidata aborda de manera combinada el análisis de las políticas del Estado para la modernización de la agricultura, con el estudio microhistórico de su implementación sobre el terreno, recuperando a los sujetos históricos para la explicación de las transformaciones operadas en las sociedades rurales contemporáneas. Partiendo del estudio de las comunidades campesinas en Galiza durante la dictadura y la etapa de cambio de régimen, ha desarrollado cuatro líneas de trabajo, vinculadas por el eje nodal de la atención al entramado comunitario que permitió modular o confrontar lo que fue comprendido como "el final del campesinado": L1. Movilización social, democracia y comunidades campesinas; L2. Estado, políticas agrarias y modelos de modernización; L3. Transmisión cultural, comunidades campesinas, desigualdades y género y L4. Cuestión agraria, estudios campesinos, mudanzas epistemológicas. La L1 parte del análisis del sindicalismo campesino democrático en Galiza y contribuye al estudio de los procesos de democratización y nacionalización atendiendo a las identidades y la dimensión comunitaria de las relaciones políticas en las comunidades campesinas. La L2 contribuye al campo de estudio comparado en torno a los modelos de modernización en regímenes autoritarios, así como al análisis micro de las distintas políticas que los conformaron y las resistencias locales con que se encontraron. La L3 comprende una doble atención al género, atendiendo tanto a los mecanismos Estatales diseñados para la modernización del ámbito productivo y reproductivo, como al papel central de las mujeres campesinas en la transmisión cultural comunitaria. Los avances en esta dirección conectan con el desarrollo de una propuesta conceptual original sobre lo común que permite aprehender dicho entramado cultural comunitario. La L4 está dedicada a la reflexión epistemológica sobre los cambios acaecidos en los modos de construir los problemas históricos en torno a los estudios campesinos y la historia agraria, apostando por una propuesta epistemológica sustentada en los fundamentos empíricos y teóricos que conforman el conjunto de la trayectoria investigadora de la Candidata. Todas estas líneas de trabajo confluyen en la línea principal que ha desarrollado la Candidata, dedicada al estudio de la comunidad, el conflicto y el cambio social en las sociedades rurales contemporáneas. A través de investigación, la Candidata propone : 1) afrontar los estudios sobre modernización y desarrollo desde la propia historicidad de dichas nociones; 2) retomar la centralidad de las comunidades campesinas que reivindicaban los Estudios Campesinos y los Estudios Subalternos desde y para periferias distintas: aquellas que son parte de los centros civilizatorios; 3) reconocer la necesidad de problematizar el estudio de las diferencias, ahondando en la comprensión de las desigualdades de género, sin por ello abandonar el análisis de clase; 4) contribuir a la conceptualización de lo común no como un recurso, sino como una relación en la que materia y símbolo están imbricados; y 5) conectar con la comprensión sistémica de la cultura y la historia, para confrontar las limitaciones de las visiones fragmentadas.

Resumen del Currículum Vitae:

La Candidata cursó en la Universidade de Santiago de Compostela (USC) la Licenciatura en Historia (Primer Premio Nacional a la Excelencia en el Rendimiento Académico, 2008) y el Máster Interuniversitario en Historia Contemporánea (2009), cuya memoria de investigación fue publicada: O campo en movemento. O papel do sindicalismo labrego no rural galego do tardofranquismo e da transición (1964-1986) (2011). Realizó su tesis doctoral con el apoyo de una beca FPU (2009-2013). Recibió el Premio Extraordinario de Doctorado y un Áccesit en el Premio Miguel Artola para Tesis Doctorales (2013). Realizó dos estancias predoctorales de investigación en la Universidad Autónoma de Madrid (octubre diciembre 2011) y en el Centre for Rural Policy Research University of Exeter (Reino Unido) (noviembre 2012 enero 2013). Sus trabajos fueron discutidos en congresos nacionales e internacionales y han derivado en numerosas publicaciones. Miembro del Grupo de Investigación HISTAGRA desde 2009, ha sido y es parte de distintos proyectos (8) y redes de investigación (3), donde ha contribuido tanto al diseño de sus fundamentos, como a la concreción de sus objetivos. Ha sido Investigadora Postdoctoral (Xunta de Galicia, Plan I2C) en el Laboratoire d Etudes Rurales Université Lyon 2 (abril octubre 2014), en el Program in Agrarian Studies Yale University (octubre 2014 abril 2016); y en la USC (abril 2016 abril 2017). Su labor investigadora y docente pudo continuar, en la misma universidad, al haber conseguido un contrato Juan de la Cierva Incorporación (MINECO, 2016). Actualmente es Profesora Ayudante Doctora en el Departamento de Filosofía e Antropoloxía, USC Campus de Lugo. Tiene experiencia docente en diversas materias y grados (Historia, Historia del Arte, Geografía, Periodismo, Ciencias de la Cultura y Difusión Cultural, Maestro/a en Educación Infantil, Máster de Profesorado, Máster en Servicios Culturales), así como en la tutorización de Trabajos Fin de Grado (6) y de Fin de Máster (6). Actualmente es codirectora de una tesis doctoral en desarrollo. Es además Coordinadora de Prácticas del Grado en Gestión Cultural y el Máster en Servicios Culturales, impartidos en la Facultad de Humanidades de la USC - Campus de Lugo. Ha impartido clases como profesora invitada en el Máster en Dirección de Actividades Educativas en la Natureza (DEAN), USC - Campus de Lugo, y ha sido profesora invitada en la Universidad de Purdue (Indiana, USA), en el Seminário Permanente de História Agrária e Ambiental del CIDEHUS (Centro Interdisciplinar de História, Culturas e Sociedades) Universidade de Évora (Portugal) y en los Winter Seminars de la Universidade de Coimbra (Portugal). Ha realizado una estancia, en el marco del Programa lacobus (Agrupación Europea de Cooperación Territorial Galicia Norte de Portugal), en la Universidade de Tràs-os-Montes e Alto Douro (junio 2021). Participa de la organización del programa formativo del Grupo HISTAGRA. Es miembro del Consejo de Redacción de la Revista Historia Agraria (JCR), de la que fue Coordinadora Editorial entre 2017 y 2021, y ha realizado labores de evaluación en distintas publicaciones nacionales e internacionales. Es Investigadora Principal del Proyecto Comunidad, conflicto y revuelta en la Galiza rural del siglo XX COREGAL PID2020-117858RA-I00, Convocatoria 2020 de Proyectos de I+D+i (2021-2024).



Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	BERIHUETE AZORIN, MARIAN
Referencia:	RYC2021-032364-I
Correo Electrónico:	mberihueteazorin@gmail.com
Título:	Arqueobotánica: semillas, frutos y más

Resumen de la Memoria:

My curious nature led me to an early international exposure, already during my under-degree Archaeology studies. This was continued with 4 predoctoral stays and several years as a postdoc in the Insitute of Botany of the University of Hohenheim, Germany. All this shaped me as a researcher, being my main scientific question the understanding of how wild plant management took place within ancient societies and the development of models of interpretation for a better understanding of plant processing in the past. I concentrate on the study of plant macro remains (mainly seeds and parenchymatous tissue from underground storage organs). I have worked in several areas of the globe, such as Tierra del Fuego (Argentina), Skye (Scotland), Zamostje 2 (Russia) or the Iberian Peninsula, mainly on materials from hunter-gatherer groups.

I started my path in archaeobotany during my PhD and have always continued to work with this kind of studies. However, my postdoctoral stages have given me the opportunity of expanding my knowledge and expertise towards other kind of remains, such as fungi, plant fibres or underground storage organs, always with the scope of get a holistic view of how plant exploitation took place in the past and to better understand the nature of the human-environment relationships.

Parallelly, I have developed another main line of research, with relies in the manifold methodological aspects that surround our discipline. From interpretation of results, quantification of remains or reference material production, to the identification of anatomical markers to distinguish different kinds of plant exploitation or processing. In consequence I have also specialized in different microscopy techniques, which include the use of SEM/ ESEM, MicroCT and Hirox Microscopy.

Currently, I concentrate my research in the study of USOs, including the creation of a reference collection, the exploration of new analysis techniques, and the study of archaeological materials.

The different paths travelled through research and Academia, in my visits and stays in a number of institutions, my attendance to national and international meetings, as well as my proficiency in several languages, has allowed me to knit a very rich network, which provides me with really inspiring and motivating collaboration opportunities. That has also to do we the character of my research line, while it is vertebrated by a sturdy golden thread, it is also flexible enough to incorporate new topics, materials and techniques, which ensures its continuous evolving.

As a necessary complement to my academic work, I actively disseminate the results of mu research participating in congresses and engaging in the organization of sessions and meetings, as well as in citizien science actions, mentoring programmes, or editorial tasks. In this sense, I am a member of the editorial board of the journal Open Archaeology and an Associate editor of Quaternary International and Treballs d Etnoarqueologia. I have as well acted as a guest editor for several volumes, having edited around 100 manuscripts in total. This experience has enabled me with a critical capacity an a deep understanding of science dissemination features.

Finally, I am committed with FAIR principles and Open Science premises, not only applying them to my work, but also as a member of the RRI Committee at my institution.

Resumen del Currículum Vitae:

I got my degree in History in the Autonomous University of Madrid (with a year as Erasmus in the University of Crete, Greece) and completed my Doctoral Thesis with a grant of the Universitat Autonoma de Barcelona. Then I carried out the 3-year postdoctoral project Wild Ancient Plant Economy among Hunter-Gatherers funded by the Alexander von Humboldt Foundation in the Department of Botany of the University of Hohenheim (Germany). Later, I was employed for 2 years in the same institution as a Post-doc researcher under the framework of an ERC project (Identifying the plant food cultures of ancient Europe: an interdisciplinary investigation of plant ingredients, culinary transformation and evolution through time: PLANT CULT), where I had the opportunity to work on methodological questions, which is a field that I explore in different publications (e.g. Berihuete and Antolín, 2012; Berihuete 2016; Berihuete et al. 2019; Berihuete et al. 2020; Heiss et al. 2020 and Valamoti et al. 2021).

From February 2020 to September 2021, I was a Beatriu de Pinós (granted by AGAUR) fellow. Currently I hold a Post-doc position under the MSCA Program (IF2019). My project, CHUFA: CHaracterizing Underground storage organs For Archaeological research. A necessary methodological improvement for the study of gathering practices in Prehistory, focuses on the comprehensive study of USOs from different points of view and implementing a variety of old and novel techniques.

I co-supervised with Hans-Peter Stika and Mamfred Küppers the Bachelor Thesis of Aleta Wörm at the Institute of Botany, University of Hohenheim in 2016. I have also supervised the Master Thesis of Blanca Garay Palacios (UAB, September 2021) and I am currently supervising the Master Thesis of Kate Carver (IPHES-CERCA) and the PhDs of Nit Cano (IPHES-CERCA) and Blanca Garay (UAB). On another note, I was a member of the examination committee for Marta Alcolea Gracia PhD s: Paisaje vegetal y gestión de recursos leñosos durante la transición Epipaleolítico-Neolítico en el Valle del Ebro. Aportaciones desde la Antracología. Universidad de Zaragoza, October 2017; and for Christiam Aguirre Moreno: Agricultura Precolombina Kañari, Sistemas de cultivos agroecológicos y Transformación de paisajes agrícolas. Arqueobotánica en la cuenca del Chanchán (Andes Centrales del Ecuador), February 2021. Besides, I have been active during the past years participating and organizing international workshops and conferences, with over 30 oral communications. Also, as a reviewer (to Quaternary International, Archaeological and Anthropological Science, Environmental archaeology: The Journal of Human Palaeocology, Advances in Archaeobotany, Vegetation History and Archaeobotany, Trabajos de Prehistoria and Plos One); as well as an editor to several journals. In the case of Quaternary International, Treballs d Etnoarqueologia and Open Archaeology, as a member of the editorial board.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Estudios del pasado: historia y arqueologíaNombre:MARTINEZ DEL CAMPO, LUIS GONZAGAReferencia:RYC2021-034985-ICorreo Electrónico:gonzaga1453@gmail.comTítulo:Contemporary International History / Language and Diplomacy. The cultural dimension of twentieth-century international relations

Resumen de la Memoria:

I studied History at the University of Zaragoza where I completed a Ph.D. in Contemporary History (European Distinction) in 2014. In my Ph.D. dissertation, I argue that the promotion of Spanish language education in post-Victorian Britain (1902-1951) was intimately related to British interest in the Latin American market. During my doctoral years, I was a visiting graduate student at London School of Economics, Cambridge University, Liverpool University, and Ruhr-Universität Bochum. During my last year as a PhD student, I worked as a support worker for students with disabilities at University College London. Over the past few years, I have held postdoctoral positions at the University of Concepción (Chile), the University of Essex (UK) and the University of the Basque Country (Spain). In 2019 I joined the Department of Modern and Contemporary History at the Complutense University of Madrid where I have worked as a Juan de la Cierva Postdoctoral Fellow until 31st January 2022. My fifteen years as a researcher makes me an expert in Contemporary International History with research works covering a great variety of topics: Spanish cultural diplomacy; the history of British-Spanish relations; the history of Gibraltar and other Mediterranean exclaves; the history of British hispanism and the promotion of Spanish language education; etc. I have a record of publications including 2 books, 1 teaching handbook, 7 articles in refereed journal, and 17 book chapters. Some of my publications were awarded prizes, such as the Vivien Law Prize (UK) and the Mary Nash Prize (Spain). I have collaborated with other researchers in organising academic events, and I am also the corresponding author of some collective papers. Since 2016, I have been member of the Scientific Advisory Board of the Innovare. Electronic Journal in Higher Education (Chile). ISSN: 0719-7500: (http://innovare.udec.cl/?page id=9). I am a member of professional bodies such as the Society of Contemporary History (AHC), the Spanish Committee for the History of International Relations, and the International Network for the History of Language Learning and Teaching (HoLLT). I have participated in advisory tasks to stakeholders and policy bodies (e.g., Written evidence to House of Lords European Select Committee on the effects of Brexit in Gibraltar).

My main research line focuses on the cultural dimension of twentieth-century international relations, with special emphasis in the diplomatic value of Spanish language. I strongly believe that my research works have significantly contributed to a better understanding of the complex relationship between culture and diplomacy in the twentieth century. I currently look at the spread of Spanish language education in the world as a resource of soft power in early twentieth century.

Resumen del Currículum Vitae:

I studied History at the University of Zaragoza where I completed a Ph.D. in Contemporary History (European Distinction) in 2014. During my doctoral years, I was a visiting graduate student at London School of Economics, Cambridge University, Liverpool University, and Ruhr-Universität Bochum. During my last year as a PhD student, I worked as a support worker for students with disabilities at University College London. Over the past few years, I have held postdoctoral positions at the University of Concepción (Chile), the University of Essex (UK) and the University of the Basque Country (Spain). In 2019 I joined the Department of Modern and Contemporary History at the Complutense University of Madrid where I have worked as a Juan de la Cierva Postdoctoral Fellow until 31st January 2022. My fifteen years as a researcher makes me an expert in Contemporary International History with research works covering a great variety of topics: Spanish cultural diplomacy; the history of British-Spanish relations; the history of Gibraltar and other Mediterranean exclaves; the history of British hispanism and the promotion of Spanish language education; etc. I have a record of publications including 2 books, 1 teaching handbook, 7 articles in refereed journal, and 17 book chapters. Some of my publications were awarded prizes, such as the Vivien Law Prize (UK) and the Mary Nash Prize (Spain). I have disseminated my research findings publishing short articles in local newspapers (e.g., Aragón y la Colina de los Chopos, Heraldo de Aragón, 14/10/2010, p. 24) and international magazines (e.g., Celebrating 100 years, La Revista. The Brisith-Spanish Society magazine, Issue 242, 2016, London, 12-16). I have also attended a great number of conferences, workshops, and other academic events to present my research findings. I have also represented my research group at academic meetings. I have taken part in a great number of university committees to organise conferences/workshops, to apply for research grants, and to manage departmental life (including financial management). As a member of the organising committees of three international conferences (which were held in London, Gibraltar, and Bilbao), a national conference (Zaragoza) and other academic seminars (Madrid), I have collaborated with the management of significant budgets (from £5,000 up to £60,000). I have participated in research projects that provided me a good experience in research management and organisation. When I worked for an ESRC-funded project (Bordering on Britishness), my responsibilities included (but are not limited to): research administration, coordination with nine research associates, website management, conducting oral-history interviews, etc. Furthermore, I have obtained funding to conduct my own research (e.g., British-Spanish Society bursaries). I have also contributed to the training of young researchers as a supervisor of three Master thesis in History, as well as a supervisor of a Final Project for Graduation in History. I have been an external reviewer for many peer-reviewed journals, such as Ayer, Comillas Journal of International Relations, Historia Actual Online, Historia del Presente, etc.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

i urno de acceso general	
Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	PARDO GORDO, SALVADOR
Referencia:	RYC2021-033700-I
Correo Electrónico:	spardogo@ull.edu.es
Título:	Modelizaciones computacionales y la transición Mesolítico-Neolítico en el Mediterráneo occidental

Resumen de la Memoria:

I lead research on the last-hunter gatherer groups and the first agriculturalist societies in the Western Mediterranean. I have published 72 research items, some divulgation articles and I currently have 2 papers in press.

The main line of research that I followed since the begining of my career is to understand the Mesolithic - Neolithic cultural variability through the study of pottery productions, lithic remains, radiocarbon information and archaeological excavations. During my postdcotral track (I am enjoying my fourth postdoctoral fellowship), I have already myself as an extremely innovative researcher with a high level of theoretical and methodological expertise in the field of the simulation applied to archaeology. These methods and techiques used in my research aim to deepen the archaeological interpretations and suggests new proposals on social dynamics during the Mesolithic and Neolithic periods. I have developed a significant track-record in two areas of research:

1. The Mesolithic Neolithic transition in the western Mediterranean.

2. Critical analysis of chronological methods and their applications in Archaeology.

My career supports the impact of the work carried so far, my great capacity to work in multidisciplinary projects of different national institutions (UAB, UV, UCO, ULL) and international projects (University of Basilea, Universidade do Algarve and Arizona State University). Also, my participation in the opening lines of research to advance on the social knowledge of past societies through the combination of computational approaches and the archaeological record.

Finally, from the beginnings I contributed to the development and growth of the Computational Archaeology in Spain based on my motivation to combine different approaches an my enthusiasm for applying digital means in my fieldwork.

Resumen del Currículum Vitae:

From the beginning of my career I have contributed to develop the growth of the computational archaeology. All this has been reflected in my scientific production (see research line). Clearly, the relevance and contribution to the generation of knowlege are present. These issues can be grouped into two broad categories.

a) Theoretical and methodological contributions on computational archaeology, an issie taht has allow me to position myself as an emerging scientific in this fild.

b) Numeros contributions focused on the understanding of the Neolithic transition and its consequences from refuting historiographic proposals of acculturation of Mesolithic groups or the generation of new hypotheses to understand the cultural consequences of the Neolithic

My research has been funded by 1 predoctoral competitive grand and four postdocotral competitive grants and it has been communicated using various venues. In addition to publication in scientific journals and monograph, I have used open repositories to publish ans share the data generated (DORA requirement). Similarly, I have used both social and press releases to reach beyond the academic sphere. Besides, I have coordinated four international sessions and I have done 67 talks in national / international congresses, including some invitation talks. Succinctly, my research has been carried out in the context of 12 competitive projects where I have relevant functions.

My internationalization is high dure to the creation of synergies wuth research groups from international institutions (including 2 predocotral research stays and twoo postdoctoral research stays) and my participation in projects. Also, I have involve international researchers in my ERC proposal and my Plan Nacional project. All this lead my leadership that can be traced in my participation as PI in different proposal (under review) and a funded competitive project, my first authorshio or corresponding author in numerous works and coordination of several monograph among others.

I am currently co-supervisiong 3 doctoral theses (aligned in terms of research line and interest) and I have cordirected another recently defensed. All this has led me to an outstanding position in the study of the Mesolithic/Neolithic using computational techniques. This is supported not only by the above but also by the number of papers I have reviewed for national and international publishers (more than 10 papers in the last four years).





Área Temática:Mente, lenguaje y pensamientoNombre:VERDEJO APARICIO, VICTOR MARTINReferencia:RYC2021-033972-ICorreo Electrónico:vmverdejo@gmail.comTítulo:Concept Possession, Concept Sharing, and the Structure of Mental Representation

Resumen de la Memoria:

Dr. Verdejo completed his PhD in only 4 years (CCiL, Extraordinary Award). Since then, he has excelled in an academic career carved out through highly competitive positions in 1 British and 5 Spanish universities. His outstanding research output includes a track record of 32 publications in indexed journals (16 of which Q1, 11 open access) and a co-edited book forthcoming in Oxford University Press. He has delivered 19 invited talks, 35 contributed papers and various other specific contributions to first-rate research and dissemination.

Dr. Verdejo has led a robust and rich research programme in key areas of the philosophy of mind (theory of concepts and content) and cognitive science (mental representation), with visible results and publications in some of the best world's journals. He carried out a two-year research programme at the world-class University College London (UCL) under the supervision of Christopher Peacocke and Michael Martin. He is currently an assistant professor at the University of Valencia, principal investigator (with Pablo Rychter) of a 3-year research grant, and only supervisor of one postdoctoral researcher and one postgraduate student associated with it.

Moreover, Dr. Verdejo has a proven ability as a lecturer, researcher and collaborator in 5 Spanish universities : Universitat Autònoma de Barcelona (UAB), Universidad Autónoma de Madrid (UAM), Universidade de Santiago de Compostela (USC), University of Barcelona (UB) and University of Valencia (UV). Previously to the one he is co-directing, he has taken part in 9 funded research grants or groups in Spain, and been instructor in several graduate and postgraduate courses and PhD committees. He is one of the founders of the yearly PBCS Workshop, which celebrated its 10th edition in 2021, and co-organiser of several international conferences and workshops, such as the Sharing Thoughts workshop (under the auspices of OUP, Valencia 2021), the Knowledge and Error about Oneself workshop (Valencia, 2021), the workshop on Perspectival Knowledge and Experience of the Self (London, 2016). His other services to the profession include refereeing for 20 indexed journals and research bodies.

Resumen del Currículum Vitae:

Total indexed publications: 32.

Total Q1 publications (SJR): 16 (Pacific Philosophical Quarterly, Theoria (Wiley), Erkenntnis, Inquiry (2), Dialectica, Synthese (2), Review of Philosophy and Psychology (2), Ratio, Acta Analytica, Topoi, Res Philosophica, Metaphilosophy, Journal of Philosophical Research).

Total number of citations: 48 (Scopus), 72 (Google Scholar).

H Index: 4 (Scopus), 5 (Google Scholar).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	DE LA CRUZ PAVIA, IRENE
Referencia:	RYC2021-033951-I
Correo Electrónico:	idelacruzpavia@gmail.com
Título:	Parsing grammatical structure across the lifespan: An investigation of the mechanisms and strategies that
allow infants and young	g and older adults to achieve this feat

Resumen de la Memoria:

Language is a highly sophisticated skill, which yet develops spontaneously and effortlessly during the first years of a child s life. My research investigates the cognitive mechanisms that underlie the acquisition and processing of the grammar, the arguably most complex and abstract aspect of language, and has a strong focus on bilingualism. I seek to determine which mechanisms are instrumental to the acquisition of grammar, which are available across the lifespan, and if and how these change in aging. I study thus young infants as well as young and older adults. My research program combines psycholinguistic and neuroscientific approaches to address central questions in language processing, tackling them comprehensively, across populations, and with sophisticated behavioural methods and state-of-the-art neuroimaging techniques (EEG and NIRS).

I have approached my research program from the following perspectives:

(1) I have investigated how the human processing system parses ambiguous syntactic structures, as examining their resolution is essential to determining the principles and mechanisms that drive language processing. I focused on a specific structure: ambiguous relative clauses with more than one possible antecedent. My research provided strong empirical evidence supporting a prosody-based account proposed to explain the cross-linguistic variation found in their resolution. In a collaborative research series we additionally disproved previous accounts claiming a universal ease of processing of subject relative clauses.

(2) I investigate how humans parse speech into syntactically meaningful units, a crucial step in language processing. I focus on segmentation cues to phrases, as these constituents allow us to build the syntactic skeleton of the input. Their segmentation is hence critical to the learnability of linguistic structure. My work showed that adult listeners extract and integrate multimodal cues to phrases present in the signal, and revealed a bilingual advantage in their use. Further, I uncovered a previously unknown link between the visual facial gestures produced by speakers and grammatical units, specifically phrases, and showed that these gestures facilitate speech processing.

(3) In order to understand how young infants start learning morphosyntax, I investigate if and how prelexical infants learn rules in different modalities, and explore which cues allow them to extract structure from various inputs, including speech, talking faces, sign language, visual analogues, and abstract visual patterns. This research has revealed that prelexical infants possess a powerful rule-learning system, which appears to be preferentially tuned to language, regardless of the modality visual in sign or auditory in speech in which they encounter it.

(4) Motivated by a pressing societal challenge, namely the rapid aging of our society, I am currently investigating potential changes in language processing in young and older adults, exploring the link between specific bilingual dimensions and cognitive advantages in young adults, and examining which bilingual factors provide a cognitive protection that could mitigate or delay cognitive decline in older individuals.

Resumen del Currículum Vitae:

I entered the UPV/EHU s (Spain) PhD program in Linguistics in 2006, thanks to a mobility grant from the Spanish Government awarded to candidates to programs with Mention of Quality. In my thesis, funded by a 4-year grant from the Basque Government, I examined the cues present in the speech signal that allow listeners to extract grammatical structure, central line of my research. I obtained an International PhD in Linguistics (Cum Laude) in 2012. I was awarded the highly competitive Marie Curie International Outgoing Fellowship (IOF), which I conducted at Prof. Janet Werker s Infant Studies Centre at the University of British Columbia (Canada, 2014-2016), and at Prof. Judit Gervain s group at the Université Paris Descartes (France, 2016-2017). In this period, I broadened the scope of my research to the field of language acquisition, exploring the abilities of prelexical infants and adults to extract linguistic structure from the audiovisual input. I then continued my postdoctoral research (2017-2020) at the U. Paris Descartes and the Centre National de la Recherche Scientifique (France), hired in projects funded by French agencies and the ERC.

In December of 2020 I joined the UPV/EHU as Young Researcher (Joven Investigadora) and PI of a 3-year research project funded by the Spanish Ministry of Science and Innovation. At this same date I joined the Basque Foundation for Science Ikerbasque as Research Fellow and PI of its associated 5-year research project. In these, I am examining young and healthy older adults a scarcely investigated yet growing part of the Spanish population to trace potential changes in their linguistic processing throughout adulthood. I am also investigating the so-called cognitive benefits associated to bilingualism, as these are proposed to delay the apparition of symptoms of dementia in old age.

My research career is markedly international and interdisciplinary. I conducted 6 years of postdoctoral research in prestigious institutions in Canada and France. I systematically publish in leading international journals (3 articles in 2021 in Q1 JCR journals: Scientific Reports, TICS, Current Opinions in Behavioral Sciences), present my work in the most relevant conferences (AMLaP, ICIS, CUNY...+35 to date) and in invited congresses and centers (Spain, France, The Netherlands, Germany). I have a strong record of collaborations with researchers from various disciplines (10 published to date) and global multi-laboratory consortia (e.g. ManyBabies). National and international agencies have financed every step of my career, from my masters to the two projects of which I am currently PI, supporting my own research ideas. I have participated in another 11 projects funded by Spanish (6), Canadian (2), and French agencies (2), and the ERC (1). I participate annually in outreach activities directed to the general public (Science Week, Brain Awareness Week, Brain Bee...) and to specific publics (Aulas de la Experiencia), and appear in the media (Radio Ser, MalditaEduca Twitch, Archiletras magazine). I am currently leading a research team with 6 members. I am also co-supervising a PhD thesis (UPV/EHU) and a master thesis (Italy), and I have (co-



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

)supervised 5 master theses in Spain and France. I have also taught in Master and BA programs in France and Spain, and specialized workshops in France and Canada.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	CUMPA ARTESEROS, JAVIER
Referencia:	RYC2021-032478-I
Correo Electrónico:	jcarteseros@ucm.es
Título:	A Metaphysics for Understanding the World: Metaontology, Categories and Epistemic Value
Resumen de la Memori	a:

Current Position 2017-Talent Attraction Postdoctoral Fellow (Modality 1) Complutense University of Madrid Spain

Previous Positions 2015-2016 Postdoctoral Associate University of Miami

2014-2015 Postdoctoral Fellow University of Milan

Education Ph.D in Philosophy, 2012 (Complutense)

Teaching (selection) Metaphysics I, 2021-2022 (Complutense) Metaphysics I, 2020-2021 (Complutense) Metaphysics II, 2019-2020 (Complutense) Metaphysics II, 2018-2019 (Complutense) Metaphysics, 2015-2016 (University of Miami)

Current Research Projects (PI) 2021-2022, The No-Category Ontology: A Rival (Community of Madrid, Talento Program, Granted funding: 14.851,20)

Previous Research Projects (PI) 2017-2021, The Eliminativist Approach to Categories (Community of Madrid, Talento Program, Granted funding: 118.221)

Publications (selection)

Edited volumes
2021, The Scientific Turn: Studies in Materialism and Metaphysics, Special Issue of Synthese.
2019, The Nature of Ordinary Objects, Cambridge University Press (with Bill Brewer).
2015, Categories, The Monist, Oxford University Press (with Peter Simons).
Articles and book chapters (selection)
2021, Resisting Easy Inferences, Philosophy and Phenomenological Research 102/3, 2021, pp. 729-735 (con Otávio Bueno).
2021, Against Mereological Nominalism: Reply to Effingham, Synthese, 199, 2021, pp. 8991-9011. (con Alexandre Declos).
2021, The Necessity of Conceivability. Synthese (con Sophie Allen). (Accepted: letter from editional concentration of the section of the s

- 2021, The Necessity of Conceivability, Synthese (con Sophie Allen). (Accepted; letter from editor available).
- 2021, The Neutralist Analysis of Similarity, Philosophia 49/1, 2021, pp. 37-47.
- 2020, Categories, Philosophy Compass, 15/1, 2020, pp. 1-11
- 2020, Naturalism and the Question of Ontology, American Philosophical Quarterly (Accepted; letter from editor available).
- 2019, Introduction: Issues and Options (with Bill Brewer), in The Nature of Ordinary Objects (Cambridge University Press, pp. 1-5).
- 2019, The Regress Argument Against Realism about Structure, Inquiry (online first). DOI: 10.1080/0020174X.2019.1629338

2018, Are Properties Particular, Universal, or Neither?, American Philosophical Quarterly, 55(2): 165-174.

2018, Factualism and the Scientific Image, International Journal of Philosophical Studies 26(5): 669-678.





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

2016, Armstrong s Hidden Substantialism, in F. F. Calemi (ed.), Essays in Honour of D. M. Armstrong. De Gruyter: 133-138. 2014, Exemplification as Molecular Function, Philosophical Studies, 170(2): 335-342. 2014, A Materialist Criterion of Fundamentality, American Philosophical Quarterly, 51(4): 319-324. Invited Talks (selection) 2021, El planteamiento neo-aristotélico, Universidad Adolfo Ibáñez (online). 2019, Structural Realism and the Metaphysics of Elimination, Royal Institute of Philosophy Lecture: University of Keele. 2018, Totalities of Things and Facts: Aristotle versus Wittgenstein, Tongji University. 2017, Eliminativism about Categories, Mind, Language and Metaphysics Seminar, King s College London. Supervision PhD thesis: member of a tutor committee Final Year Examinations (TFG): 3 essays and 3 commentaries. Postdocs: 3 Journal Editor: Metaphysica, De Gruyter, 2015-2017 Journal Panel Member, Thought, 2016-Series Editor: EIDE, Ontos-De Gruyter, 2010-Evaluator of Philosophy Gourmet Report in 2017-2018 and 2021-2022 in Metaphysics specialty.

Resumen del Currículum Vitae:

I am currently a Talent Attraction Postdoctoral Fellow (Modality 1) in the Department of Logic and Theoretical Philosophy at Complutense University of Madrid, where I have been working for the past five years. Here I have been the Principal Investigator of a 4-year research project focused on the articulation and development of an eliminativist metaphysics of categories (Project ID: 2016-T1/HUM-1263, Community of Madrid, Talent Attraction Program. Granted funding: 118.221). Also, I am now the Principal Investigator of a 1-year research to investigate the no-category ontology of Otávio Bueno et alii (2015). (Project ID: 2020-5A/HUM-19730, Community of Madrid, Talent Attraction Program. Granted funding: 14.851,20).

I did my BA in Philosophy at Complutense University of Madrid, where I also earned my MA, and I got my PhD degree in 2012. Thanks to a mobility scholarship, I did a research stay with Erwin Tegtmeier at the University of Mannheim on the ontology of Gustav Bergman. In 2013, I investigated issues concerning categories as a postdoctoral fellow at the University at Buffalo with Jorge J. E. Gracia. During 2014 and 2015, I was a postdoctoral fellow at the University at Buffalo scholarship, I did a research stay with Paolo Valore, where I investigated issues concerning properties and instantiation. Then, from Fall 2015 to Fall 2016, I was a postdoctoral fellow at the University of Miami with Otávio Bueno, and I developed further my research on the relationships between emergence, instantiation, and properties. I have also been a visiting scholar at New York University for seven months working with Kit Fine on issues in metaontology and his view on Reality.

My research focuses on metaphysics and ontology, and on its intersection with philosophy of science, epistemology, and language. I have more than 38 publications (including articles, book chapters, and edited volumes), and my work can be found in top-ranked journals including Philosophy and Phenomenological Research, Philosophical Studies, Synthese, Philosophy Compass, Inquiry, and American Philosophical Quarterly. I have published an edited book with B. Brewer on the Nature of Ordinary Objects with Cambridge University Press in 2019, I am editing a volume on metaontology for Oxford University Press (under contract), and I have a metaphysics monograph under contract with Routledge. From 2015 to 2017, I have been an editor of the journal Metaphysica (De Gruyter), and I have been an evaluator of the Philosophy Gourmet Report in 2017-2018 and 2021-2022 in the metaphysics specialty.

I have organized more than 25 events around the world, and I have given more than 50 talks in USA, Europe, Australia and Asia.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	PINEDA CIRERA, ANNA
Referencia:	RYC2021-031720-I
Correo Electrónico:	pinedaicirera@gmail.com
Título:	Syntactic variation in European Languages (Dr. Anna Pineda)

Resumen de la Memoria:

Dr. Pineda s research career focuses on the syntactic variation displayed by European languages, especially Romance languages. Her career so far, devoted to the study of syntactic variation of European languages, has proven her value and potential as a researcher in the field of Linguistics. In 2009 she graduated (A with honours) in Catalan Philology from the University of Barcelona (UB) and obtained the Award for the Outstanding Graduate of the Year from the UB, as well as one First Prize in the National Awards for Excellence in Academic Performance from the Ministry of Education. In 2010 she earned a Master s Degree (A with honours) from the UB and the U. Autònoma of Barcelona (UAB). She next enrolled in the PhD programme in Cognitive Science and Linguistics at the UAB, under the supervision of Dr. Gemma Rigau, with the most competitive predoctoral fellowship (FPU). In 2014 she defended her PhD Dissertation on the syntactic variation in dative structures and case alternations in Romance languages and Basque, which was qualified with A cum laude and was also awarded the VI Cum Laude Award to the best dissertation in Human Sciences written in Catalan in 2014, as well as the Extraordinary PhD Award within the PhD Program in Cognitive Science and Language.

Since then, Dr. Pineda has been awarded several highly competitive postdoctoral grants (Beatriu de Pinós, Juan de la Cierva-incorporación, etc.), which have brought her to: Centre National de Recherche Scientifique in France (2 years), University of Cambridge (visiting scholar, 2 months), U. Pompeu Fabra in Barcelona (2 years), Sorbonne Université in Paris (1 year). Dr. Pineda currently enjoys a Humboldt Fellowship for Experienced Researchers at Universität zu Köln (Germany), where she leads her own research project (1,5 years).

During all her research career, Dr. Pineda has published articles, chapters and books in the most renowned and prestigious publishing houses and scientific journals in the field, and she has also been deeply committed with disseminating them, with her regular presence at international scientific events, both as invited/plenary speaker as well as presenting a selected communication. Her publications record stands out for its excellence and impact in the field of Romance linguistics and syntactic variation and theory. She has extensively published in international high-rank peer-reviewed journals and the most renowned publishing houses, both as an author and as an editor (e.g. Syntax, Probus, Cambridge U. Press, Oxford U. Press, John Benjamins, Brill, Gruyter, Language Science Press...). She has regularly presented her research results at the most prestigious international conferences in her field (e.g. Going Romance, Linguistics Symposium on Romance Languages, Cambridge Comparative Syntax, Colloquim of Generative Grammar, Annual Meeting of the Linguistic Society of America...). Likewise, proof of her recognition and leadership in the field is that she has been invited as keynote speaker at different international scientific events (see CV). In addition of her attending and being invited to international scientific conferences and workshops, Dr. Pineda herself has carried out an important labour as organiser of international scientific conferences and workshops and has always been deeply committed to scientific responsibilities and service too.

Resumen del Currículum Vitae:

Dr. Pineda s promising and outstanding research career so far has proven her value and her potential as a consolidating researcher in the field of Linguistics. Her publications record stands out for its excellence and impact in the field of Romance linguistics and syntactic variation and theory (see CV). She has also regularly participated in the main international scientific events in the field (see CV). Dr. Pineda has always been deeply committed to scientific responsibilities and service too, including regular participation as member of scientific committees of conferences and evaluator for different scientific boards such as the Agencia Estatal de Investigación, as well as her participation as a member of the Committee in PhD defenses.

Building international research networks has also been one of Dr. Pineda s main concerns, and she has undoubtedly succeeded in this respect, as she is currently working in joint projects / investigations with researchers from all over Europe. She has also enjoyed several funded predoctoral and postdoctoral international research stays at U. of Cambridge, CNRS, KU Leuven, U. of Frankfurt, and U. of Birmingham.

Dr. Pineda s research career so far has also been awarded several prizes, such as the VI Cum Laude Award (6,000) to the best dissertation in Human Sciences written in Catalan as well as the Extraordinary PhD Award. She has also won some of the most competitive postdoctoral fellowships, such as the Beatriu de Pinós 2-year mobility grant (Gov. Catalonia), where only 25 grants were offered for all scientific disciplines; or the Juan de la Ciervaincorporación grant (Gov. Spain), where she obtained an overall qualification of 98/100. In 2020 she won her a postdoctoral contract at Sorbonne Université (Paris) and she has recently obtained the prestigious Humboldt Fellowship for Experienced Researchers (Gov. Germany), which she is now enjoying at U. of Cologne (Germany), where she leads a research project funded with 9,000 by the Alexander von Humboldt Foundation (Gov. Germany), thus again proving Dr. Pineda s capacity to continuously obtain funding for the development of her research.

It is Dr. Pineda s understanding that an excellent researcher must also be committed to guaranteeing the positive impact of research on society. In this regard, she has always been devoted to the transferal of academic knowledge to society. This has led Dr. Pineda to intensively work in order to bring the advances in Linguistics to secondary school teachers and subsequently improve the praxis of teaching grammar and language(s) in high school (invited talks for audiences of teachers, dissemination articles, organisation of scientific events with the aim of building bridges between academia and secondary school teachers, editon of a monograph entitiled "Theoretical Linguistics in the Pre-University Classroom" at Oxford U. Press, collaboration with several publishing houses of instructional materials, etc.

Finally, contributing to the training of young researchers has also been one of Dr. Pineda s major interests. Her profile as a leading and international young female researcher has brought her the opportunity to being repeatedly invited by several universities to give talks oriented to undergraduate, master and doctoral students about the first steps of an academic career, thus providing the young generation of researchers with detailed information and curated orientation on their academic careers.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	GIUSTINA , ANNA
Referencia:	RYC2021-033635-I
Correo Electrónico:	anna.giustina@outlook.com
Título:	The Metaphysics and Epistemology of Consciousness

Resumen de la Memoria:

My areas of specialization are philosophy of mind and epistemology. Most of my philosophical research is aimed at understanding consciousness by addressing both metaphysical and epistemological issues about it. My overall aim is to provide a comprehensive account of the metaphysics of the conscious mind (its nature) and of its epistemology (our knowledge of it). Accordingly, my main research topics are philosophical theories of consciousness, introspection, and self-knowledge. My hypothesis is that a unified account of the metaphysics and the epistemology of consciousness revolves around the mental relation of acquaintance.

As for the metaphysics of consciousness, I make two main claims. First, I argue that consciousness requires a form of self-consciousness, which I call inner awareness. Second, I argue that inner awareness is best accounted for in terms of acquaintance. Besides inquiring on the nature of consciousness as such, I also investigate the nature of some specific mental phenomena, such as the unity of consciousness and moods. Some of the results of this strand of my research have been published or are forthcoming in Oxford Studies in Philosophy of Mind, The Monist and in Review of Philosophy and Psychology.

As for the epistemology of consciousness, I argue that the most fundamental ground of our knowledge of our own experiences is a non-classificatory and non-conceptual kind of introspection, which I call primitive introspection. I make three main claims about primitive introspection. First, it exists it is a psychologically real phenomenon. Second, its nature is best accounted for in terms of introspective acquaintance. Third, it is epistemically significant: it constitutes a sui generis (non-propositional and non-conceptual) kind of knowledge introspective knowledge by acquaintance; it allows for a complete and perfect grasp of the phenomenology of experience; it is necessary for the acquisition of self-knowledge. Some of the results of this strand of my research have been published or are forthcoming in Erkenntnis, Synthese, Pacific Philosophical Quarterly, European Journal of Philosophy, and Review of Philosophy and Psychology.

Resumen del Currículum Vitae:

I am an F.R.S.-FNRS postdoctoral researcher at the University of Liège (July 2020 - ongoing). Before that, I was an Andrew W. Mellon postdoctoral researcher at Rice University (July 2019 - June 2020). I did my PhD at the Institut Jean Nicod (École Normale Supérieure, Paris, France) under the supervision of Uriah Kriegel (defense: December 2018). During my PhD, I spent two semesters abroad as a visiting scholar, one at NYU in Fall 2016 and one at Columbia University in Spring 2018. In Spring 2019, I did a research visit at LOGOS (Barcelona).

I have 11 publications, including 5 peer-reviewed articles in Q1 journals, 2 invited special-issue articles, and 2 invited chapters. I have given 45 talks across Europe, USA, Canada, and Mexico. I have organized an international workshop on introspection in 2018 and co-organized an international conference in 2021 and a workshop for 2022. I have taught various undergraduate and graduate courses in the USA, France, Belgium, and Luxembourg. I specialize in philosophy of mind and epistemology. My research focuses mainly on consciousness, introspection, and self-knowledge. In my work on introspection and self-knowledge I defend the existence and epistemic significance of a non-conceptual kind of introspection, which I call primitive introspection. I argue for the existence of primitive introspection, Thing-Introspection, and Inner Awareness, Review of Philosophy and Psychology 8: 143-164, 2017; Two Kinds of Introspection, in Weisberg (ed.), Qualitative Consciousness. CUP, forthcoming). In my Introspective Acquaintance: An Integration Account (European Journal of Philosophy, 2021), I articulate an account of the nature of primitive introspection in terms of acquaintance. In Introspective Knowledge by Acquaintance (Synthese, forthcoming), I argue for the epistemic significance of introspection is necessary to acquire self-knowledge of emotions.

My work on consciousness has been mainly focused on the nature and unity of conscious experiences. First, I defend the idea any conscious state is accompanied by an inner awareness of it in A Defense of Inner Awareness: The Memory Argument Revisited (Review of Philosophy and Psychology, 2022) and in Nature Does not yet Say no To Inner Awareness: Reply to Stoljar (conditional acceptance in Erkenntnis). Second, I offer an account of the nature of inner awareness in terms of acquaintance in Inner Acquaintance Theories of Consciousness (Oxford Studies in Philosophy of Mind, Volume 4, forthcoming). Third, I argue for a Brentano-inspired top-down account of the unity of consciousness in Conscious Unity from the Top Down: A Brentanian Approach (The Monist. 100: 15-36, 2017).

The result is a unified account of consciousness, unity of consciousness, and introspection in terms of acquaintance. In Varieties of Self-Apprehension, (in Borner, Frank, and Williford (eds.), Senses of Self. ProtoSociolgy. 36: 186-220 (2019), I explain the epistemic differences between inner awareness, primitive introspection, and introspective judgment.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	PEÑALOZA SALAZAR, CLAUDIA JEANNETTE
Referencia:	RYC2021-034561-I
Correo Electrónico:	claudia_penaloza@hotmail.com
Título:	language impairment, recovery and learning in monolingual and multilingual adults with language disorders

Resumen de la Memoria:

My principal line of research entails the study of language processing and learning, and its impairment, decay, and recovery in monolingual and multilingual adults with language disorders resulting from neurological conditions. Over the years, I have built up a strong and consistent research trajectory that allowed me to set a solid path towards becoming an independent researcher and achieving my long-term research goals. As a predoctoral researcher at the Cognition and Brain Plasticity Unit (PI: Antoni Rodriguez Fornells, Bellvitge Biomedical Research Institute-IDIBELL), my PhD thesis (international mention, cum laude) included three studies demonstrating for the first time that speech segmentation and novel word learning can remain spared in some people with aphasia despite damage to brain regions critical for language processing, revealing cognitive and lesion-related factors that modulate this learning ability. I completed two international research stays (near 4 years in total) which enabled me to acquire and strengthen important research skills in cognitive neuropsychology (3 months at the BrainTrain Lab, PI: Matti Laine, Turku, Finland) and gain further experience in the fields of bilingualism and language rehabilitation (3 years and 8 months, Aphasia Research Lab, PI: Swathi Kiran, Boston University, USA). This international experience would enable my work to not only address theoretically important research questions but also provide clinically relevant answers with high societal impact. My work at the Aphasia Research Lab contributed to demonstrate that neural network models can help simulate language treatment response in bilinguals with aphasia by taking into account their individual profiles of prestroke bilingual language history and post-stroke language deficits in their two languages. During this postdoctoral stay I was also awarded a postdoctoral research grant as co-PI (Dudley Allen Sargent Research Fund, Boston, MA, USA) that allowed to provide initial evidence that brain markers of small vessel disease can strongly predict language therapy outcomes in people with aphasia above and beyond other well-defined predictive factors of treatment response. I am currently a Juan de la Cierva Incorporación postdoctoral researcher at the University of Barcelona (PI: Antoni Rodriguez Fornells) where I aim to bridge my experience in learning and treatment research in aphasia and to study language, executive function and cognitive reserve in bilinguals with dementia. Over the years, I have produced 21 publications, 2 book chapters and several conference oral and poster participations and scientific outreach activities among others. I have established international and national collaborations within the context of funded projects with important leading roles (executive committee, deputy lead, co-PI, research consultant, collaborator) and have demonstrated capacity to obtain different types of national and international funding. I have developed several student training, supervision and mentoring activities and currently contribute to the field as reviewer for national funding mechanisms and as ad-hoc reviewer for well-recognized peer-reviewed journals.

Resumen del Currículum Vitae:

My scientific contributions include 21 published articles in peer-reviewed journals, 2 international book chapters, 15 conference proceedings, 36 contributions to international conferences including 5 oral communications and 15 posters as presenting author, and 2 invited international talks. The studies derived from my PhD thesis at the University of Barcelona, Spain, were innovative and employed the cognitive neuropsychology approach to demonstrate for the first time preserved new word learning in aphasia and identify cognitive and lesion factors that predict learning ability after stroke. My main postdoctoral experience at Boston University, Boston, USA combined assessment and rehabilitation tools with neural networks to demonstrate that computational modeling can simulate language impairment and predict language therapy outcomes in bilingual aphasia.

During my career I obtained competitive funding through several graduate, master and predoctoral-level scholarships, one international postdoctoral grant as co-PI, national postdoctoral funding including Sara Borrell and Juan de la Cierva Incorporación grants, international travel awards, and training grants. I have well-established collaborations with international research groups in Boston and Texas, USA in the role of co-PI, research consultant and collaborator in funded projects addressing bilingual language processing, treatment outcomes, language decline and biomarkers of recovery in aphasia and dementia and with national research teams with similar research interests. My leadership capacity is best demonstrated by my election as Deputy Lead of working group 2: Aphasia Assessments and Outcomes of the international Collaboration of Aphasia Trialists, a Glasgow, UK-based global collaboration. In this role, I coordinate assessment and rehabilitation actions across different teams in Europe, North America and Australia and act as an executive committee member of this collaboration. My contribution to society is best reflected by a collaboration focused on the validation of a computerized cognitive training program for adults with intellectual disabilities, a technological development that generated profitable value for end users implemented in the cognitive estimulation programs across different residential centers in Catalonia. I have also developed scientific outreach activities including talks on technology and cognitive disability, reading and the brain and bilingual aphasia and one invited scientific outreach article on how computational modeling can effectively support treatment decisions for bilinguals with aphasia with 3570 readers across over 24 international news outlets.

My student mentoring activities include the direction and co-direction of student theses at the graduate and master degree level, the evaluation of international master degree theses as committee member, the supervision of student-led research activities, invited talks about scientific careers in the field, and international university invited lectures. I have also completed grant reviews for competitive national programs, contributed to conference organization activities in the role of abstract reviewing committee member and session co-chair, and I provide editorial service as reviewer editor and ad-hoc reviewer for 11 international peer-reviewed journals.



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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Mente, lenguaje y pensamiento
Nombre:	BROZZO , CHIARA
Referencia:	RYC2021-034423-I
Correo Electrónico:	chiara.brozzo@gmail.com
Título:	From bodily action to wholehearted action, from philosophy of mind and action to aeshtetics

Resumen de la Memoria:

My research takes place in empirically-informed philosophy of mind and action, and in aesthetics.

In empirically-informed philosophy of mind and action, I made a trend-setting contribution: my Motor Intentions: How Intentions and Motor Representations Come Together (2017) is the top cited article in Mind & Language (Q1, and the most prestigious specialist journal in this field) in the last five years, according to the journal s own statistics. This article offers a novel angle on the relation of motor representations (representations of bodily actions in the brain) to intentions. I have made other major contributions to the field through publications in top-tier, Q1 journals, including American Philosophical Quarterly, Thought and Review of Philosophy and Psychology.

My research has further developed by broaching different aspects of action production such as knowledge and consciousness, and extending to action understanding. However, my research trajectory has not stopped at bodily action: working on the causes and motivations behind actions, I became interested in action at a more general level, namely in how our beliefs and values, which provide motivations for action, are acquired and modified. This gave rise to another project, concerning how we acquire, and find it hard to discard, beliefs and values that are central to our self-conception.

My research also features collaborations with scientists, on three fronts:

- Collaborative grants. E.g., I have obtained a John Templeton Foundation grant together with philosophers, psychologists and neuroscientists.
 Data interpretation. E.g., I have provided the theoretical interpretation of data from virtual reality research on anorexia nervosa and bulimia nervosa in terms of specific kinds of disrupted body representations (Mölbert et al. 2017, Clinical Psychology Review, impact factor 12,792).
- 3. Experimental design. E.g., I have co-designed an experiment investigating the role of different kinds of causal interactions on moral responsibility ascriptions (Bonicalzi et al., forthcoming, Philosophical Psychology).

I have also branched out in aesthetics, where I challenge the boundary between fine arts and design. In Are Some Perfumes Works of Art?, published in 2020 in the Journal of Aesthetics and Art Criticism, one of the two leading journals in analytic aesthetics, I argued that some perfumes (a previously underexplored topic with great potential) are works of art, and that acknowledging this is essential to their proper appreciation. On the strength of this innovative publication, I have been invited to contribute to the volume Theoretical Perspectives on Smell (Routledge), and to the workshop on the philosophy of smell at the University of Nevada, Reno.

Resumen del Currículum Vitae:

I have more than 10 trend-setting, innovative and impactful publications, 7 of which in Q1 peer-reviewed international journals, despite the fact that most of my jobs have involved substantial teaching. My Motor Intentions: How intentions and motor representations come together , featuring a new proposal about how intentions interact with representations of bodily movements in the brain, is the top cited article in Mind & Language in the last 5 years. My Are Some Perfumes Works of Art? is one of the first papers discussing perfumes in aesthetics and defending the art status of some of them. My scientific production is extremely versatile.

I disseminate my research through publications, but also international conferences, seminars and workshops. I have given more than 30 talks in international venues, and I also have experience of public engagement.

In the current academic year, my scientific production has sharply increased, both on the front of publications (5 papers/chapters invited, accepted or published) and on that of talk invitations (8 talks, in London, Montreal, Turin, Nantes, Durham, Salzburg, Dubrovnik, Reno).

I have experience of leadership in grant capture and management, having successfully applied for grants, and managed the corresponding funds, as a Principal Investigator on 3 grants.

I have developed the ability to conduct interdisciplinary research, evidenced by publications in interdisciplinary venues such as the Q1 journal Philosophical Psychology.

I have intense internationalisation and mobility experience, having been part of four international research groups in Tübingen (Germany), Antwerp (Belgium), Barcelona (Spain) all at the forefront of empirically-informed philosophical research. At the Max Planck Institute for Biological Cybernetics, I was part of a research group involving researchers in psychology, neuroscience and virtual reality. Our article Depictive and Metric Body Size Estimation in Anorexia Nervosa and Bulimia Nervosa: A Systematic Review and Meta-Analysis (Mölbert et al. 2017, Clinical Psychology Review, impact factor 12,792) advances the understanding of the kinds of body representation distortions involved in anorexia nervosa and bulimia nervosa, and is thus of relevance outside academia.

I also exercised a leadership role in the research groups I was part of by organizing two contributed symposia for the European Society for Philosophy and Psychology, as well as two workshops. I have been a referee for the all the following Q1 journals: Topoi, Synthese, Philosophical Psychology, Review of Philosophy and Psychology, the Journal of Aeshetics and Art Criticism.



I have successfully trained young investigators. I supervised six MA students, who all got full marks in their dissertation. Out of six, five were accepted in fully-funded graduate competitive programmes, including those at the University of Pittsburgh, the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig, Durham University, and the University of Edinburgh. I also informally advised an MA student (Selina Guter) on her application materials, and she was admitted into a fully-funded graduate programme at MIT. I am currently co-supervising a PhD student at Durham University.





Área Temática:Producción industrial, ingeniería civil e ingenierías para la sociedadNombre:GARCIA GARETA, ELENAReferencia:RYC2021-033490-ICorreo Electrónico:garcia.elenita@googlemail.comTítulo:Application-specific tissue engineering strategies for regeneration of tissue after physical trauma

Resumen de la Memoria:

The aim of my research career is to develop application-specific tissue engineering strategies that include stem cells, molecular cues and smart, biodegradable biomaterials that promote healing and aid the body s natural tissue repair mechanisms after suffering a traumatic or chronic injury. There are two lines to my research, which until October 2021 took place in the UK and Australia and since then is based at University of Zaragoza. I also hold an Honorary Associate Professorship position at University College London (UK).

Following work from my PhD (University College London, UK) and post-doc (The RAFT Institute, UK, and Queensland University of Technology, Australia), which focused on development of novel scaffolds and constructs for bone regeneration and wound healing, in January 2015 I started a research group in regenerative biomaterials where I led research into application-specific, biomaterial-based therapies for regeneration of tissues. Our work aimed at developing scaffolds and constructs that mimic temporal ECMs that appear during healing or use natural materials that serve as temporal templates for healing and remodelling, so this process is aided towards regeneration of the injured tissue. The second research line seeks more efficient and biomimetic in vitro and ex vivo testing of scaffolds/constructs so we can ultimately predict in vivo outcome and significantly reduce animal testing.

I have published over 40 peer-reviewed articles, academic books and chapters, and I am co-inventor of 5 patents on novel biomaterial scaffolds, one of which is the dermal scaffold Smart Matrix[®], which successfully passed its first clinical trial. I have made over 65 communications to international conferences, including as plenary speaker.

The group was closed at the end of 2021 with my move to the University of Zaragoza where thanks to first an ARAID position and later a Maria Zambrano Fellowship the aim is to keep leading research into application-specific tissue engineering and biomaterials therapies, and biomimetic models. I have two excellent mentors (Professors María Angeles Pérez Ansón and José Manuel García Aznar), BSc and MSc students, and I have already applied for funding as PI.

Resumen del Currículum Vitae:

I am an honours PhD/MSc/BSc/BSc scientist with over 17 years research experience in regenerative medicine, tissue engineering, biomaterials, stem cells, cell culture, and biochemistry. I am currently working as Maria Zambrano Senior Scientist leading research into tissue engineering and biomaterials science at University of Zaragoza (Spain). My background includes the academic, not-for-profit, and biotechnology sectors.

The main objective of my research is to develop application-specific tissue engineering strategies that include stem cells, molecular cues and smart, biodegradable biomaterials that promote healing and aid the body s natural tissue repair mechanisms after a traumatic injury. I am working on bone, skin and fat regeneration. My main research interests are tissue-engineered constructs, composites, natural polymers, stem cells, cell/biomaterial interaction, and biomimetic in vitro/ex vivo models for biomaterial/construct characterisation and prediction of in vivo behaviour. I have led my own research since 2015, and past members of my group went on to have exciting positions at top universities like Imperial College London (UK), University College London (UK), University of Toronto (Canada), or University of Edinburgh (UK), or start-ups based at Silicon Valley (California, USA).

I have published over 40 peer-reviewed articles, academic books and chapters, and I am co-inventor of 5 patents on novel biomaterial scaffolds, one of which is the dermal scaffold Smart Matrix[®], which successfully passed its first clinical trial (32 patients) and is being commercialised by Smart Matrix Ltd, where I was a scientific consultant until September 2019. I have made over 65 communications to international conferences, including as plenary speaker.

I directed 3 doctoral theses (successfully completed) and I am currently directing another one, all of them at University College London (UK). I am currently directing MSc and BSc projects at University of Zaragoza. I am also a regular reviewer of articles in JCR indexed journals in the fields of tissue engineering and biomaterials science.

I also have extensive research management experience as Director of Research at The RAFT Institute, where I was also Interim CEO from 2018 until 2021. As part of these roles, I was responsible for ensuring and actively contributing to obtain funding for our research and operational activities (circa £400k per annum). Funding from my research has come from Trusts & Foundations, industry, and public funding from the UK and Spain. Finally, in November 2019, I was made an Honorary Associate Professor at University College London (Division of Biomaterials and Tissue Engineering, Eastman Dental Institute) due to my scientific merits.





Área Temática: Nombre: Referencia: Correo Electrónico: Título: prevalence diseases Producción industrial, ingeniería civil e ingenierías para la sociedad SANABRIA MARTIN, SERGIO JOSE RYC2021-034458-I sergio.jose.sanabria@gmail.com Empowering ultrasound with translational quantitative diagnostics to unburden the management of high

Resumen de la Memoria:

My research goal is to objectivize ultrasound examination. I pursue tissue imaging biomarkers to add quantitative information to sonographic images. My translational research aims at providing high-yield diagnostics to manage high-prevalence diseases, including aging, metabolism and cancer. As an engineer at the interface of physics and computational science, I am uniquely positioned to develop and clinically translate ultrasound technology. My academic career spans 13 years of experience, in which I have pursued both medical and industrial material testing applications.

My PhD work (8 Q1 JCRs, 1 patent) pursued non-destructive (air-coupled) ultrasound testing of wood-based materials to detect hazards in constructions, with a vision to reduce carbon footprint in architecture. I developed a robotic system for imaging, extending state-of-the-art of testable wood thickness from few mm to meters; the first FDTD simulation tool capable of explaining wave phenomena in wood composites; and holography methods for sub-wavelength resolution imaging of defects. My PostDoc (9 Q1 JCRs) pursued neutron and synchrotron computed tomography applications for multi-scale imaging of biomaterial, of relevance for cultural heritage preservation and engineering of biomimetic materials. I published in a Nature journal a 3D registration method to measure nm-scale deformation at individual wood cellular scale during in situ mechanical loading. In my senior period (18 JCRs 14 Q1, 4 patents), I transitioned into clinical applications. At the CVL lab at ETH Zurich, I was responsible for ultrasound elastography research, addressing reproducibility gaps with multi-physics tissue models and non-linear solutions for inverse problems. I contributed biomarkers for liver fibrosis staging, ultrasound-guided cardiac interventions (Philips/IPCAI best paper award). I developed an ultrasound tomography

method suitable for breast cancer diagnostics on hand-held ultrasound probes, which received the 2016 Spark Award to the most promising patent innovation at ETHZ. I also received a Pioneer Fellowship from ETH Foundation to spin-off the clinical translation. I raised 725,243 EUR of seed funding and led the development of a clinical prototype (team of 2 biz developers, 3 engineers and 5 interns), in collaboration with a Japanese ultrasound manufacturer, which was acquired by the University Hospital of Zurich (USZ). I then joined USZ as PI in Ultrasound Physics and together with radiologists published 8 pilot clinical studies (3 breast cancer, 5 sarcopenia, 1 multi-centric) involving approx. 400 patients, and closed a contract with a top-3 manufacturer - Canon Medical Europe (total funding 500,546 EUR). As scholar at Stanford University (Prof. Dr. Jeremy Dahl, PD Dr. Ahmed ElKaffas), I develop multi-parametric biomarkers for non-alcoholic liver disease staging (1000 patient study) and deep learning of ultrasound time series for pointof-care lung diagnostics (300 patients), in collaboration with spin-off Oncoustics Inc.

For RYC, I have a host invitation from Univ. Deusto, which I have recently joined as an Ikerbasque Research Fellow, and where I will scale my research to integration of non-invasive data -omics from managing the healthcare decision workflow, pursuing early-stage diagnosis and monitoring therapeutic interventions.

Resumen del Currículum Vitae:

2002-2007: Graduated as primero de promoción in Telecommunications at Faculty of Engineering of Bilbao, UPV/EHU (10/10). Award best master thesis for a digital radiofront-end based on a novel bandpass sampling approach.

2018-2012: PhD at Swiss Federal Laboratories for Materials Science and Technology (Urs Sennhauser, Juerg Neuenschwander), fully funded by Switzerland (233,806Euro). Non-destructive testing of materials at industry production lines, modeling ultrasound waves propagation in wood, developing robotic system for imaging security hazards in constructions. Two top international awards in the field by the Int. Academy of Wood Science and the German Society of Non-Destructive Testing. 2012-2014: Postdoc at Paul Scherrer Institute/ETH Zurich (Peter Niemz, David Mannes). Imaging of biomaterials at multiple scales with neutron and synchrotron tomography, published in Nature Journal.

2014-2016:Senior Assistant Ultrasound Elastography, Computer Vision Laboratory (Orcun Goeksel), ETHZ

2016-2018:Entrepreneur (founder REFLECTUS spin-off) with ETH Spark Award/Pioneer Fellowship.

2018-2021:PI Ultrasound Physics, co-founded Zurich Ultrasound Research and Translation lab (www.zurt.ch) with radiologist (Marga Rominger), University Hospital Zurich. Habilitation as PrivatDozent University of Zurich (Profesor asociado).

2019-2021:Research Scholar Stanford University (mobility grant) (Jeremy Dahl, Ahmed ElKaffas) multi-parametric radiomics and artificial intelligence. Contributions: 38 JCR articles (31 Q1, 14 D1, 16 first-author, 6 senior autor). h-index 17. 821 cites (GScholar). 2 book chapters. 4 patents. 44 international conferences (5 invited lectures, 24 talks, 17 poster), 76 peer-reviewed. International awards (Spark Award to best patent of the year at ETH Zurich, 2 PhD Thesis + 3 Paper Awards (Philips IPCAI, IEEE) + 1 poster award (SCR), Winner Top Business Idea Switzerlad and 4 start-up pitching contests). 1 industry collaboration (Fagus-Grecon GmbH & Co), Divulgative: 6 seminar lectures + invited lecture.

Mobilization: PhD/Postdoc/senior roles carried out abroad (Switzerland, USA) and fully funded outside Spain. 14 seminars in CH, China, Italy, USA, Hungary, Germany, Spain. >100 different coauthors at 19 institutions in 8 countries.

Leadership: Acquisition of 11 project grants and 3 industry contracts with a total funding of 1,322,956 EUR. Founder of spin-off project REFLECTUS for clinical translation of ultrasound technology for breast cancer diagnostics (2 biz developers, 3 engineers, 5 interns). Co-Founder of Zurich Ultrasound Research at Translation Group from scratch at University of Zurich together with radiologists. Habilitation as PrivatDozent (Profesor Asociado) of University of Zurich. Supervision of 1 engineer, 7 physic laboratories trainees, 6 master thesis, 9 semester theses, 7 radiology residents. Co-supervision of 9 PhD students. Researcher in 7 projects (3,765,459 EUR). ETH lecturing in NDT, organization of Zurich Summer School on Biomedical Imaging, SGUM training for new certified sonographers in Switzerland. Panelist at NIH Heal, reviewer for 14 JCR journals, divulgative: Biannual Meet-up in AI in Medical Imaging at Bay Area and Radio Televission Suisse. Membership IEEE Ultrason., Ferr. Freq. Cntrl., Int. Academy of Wood Science, German Society of Non-Destructive Testing, Co-referee 2 Dissertations.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	LANILLOS PRADAS, PABLO
Referencia:	RYC2021-031561-I
Correo Electrónico:	planillos@gmail.com
Título:	Brain-inspired robotics

Resumen de la Memoria:

I am a computer scientist with 10 years of experience on brain-inspired machine learning models for robot perception and action. I pioneered the successful deployment of predictive coding models in humanoid robots as well as replicating human perceptual experiments in robotics systems.

I am currently a tenured assistant professor at the Donders Institute of Cognition (Radboud University Nijmegen, Netherlands). I have recently been awarded and started coordinating, within the ELLIS Nijmegen unit, two international projects with two PhD and two postdocs. Previously, I have held positions of academic responsibility at top-ranked institutions, such as the Technical University of Munich. My research is published in top journals (Neural Networks, Information Sciences, RAL). I have proven a strong ability to obtain external funding winning competitive calls like the prestigious Marie Sklodowska-Curie. I raised over 1 Million euros through direct competition as main PI and 1.5 Million euros as co-PI. My unique interdisciplinary research line allowed me to participate in well-established international research networks and present my work worldwide.

I am a recognized scientist leading the active inference approach to robotics, a neuroscience-inspired framework that describes the brain as an inference machine that makes predictions and performs actions to understand the world employing the sole objective function of minimizing the prediction error. Underneath, we investigate model-based variational inference deep learning techniques. Our experiments have demonstrated the power of these techniques to deploy a new generation of multisensory robots that perceive, learn and adapt as humans do. My team is further investigating new neuromorphic inference chips for general-purpose monitoring and control that will revolutionize areas, such as healthcare, environmental engineering and robotics. Understanding how humans perceive and act with their body may be the key to building intelligent machines and robots that can adapt to unexpected situations. My research aims at developing novel algorithms for learning, estimation and control of complex systems, inspired by how the brain processes body information. This will allow the deployment of the next generation of robots: multisensory machines (tactile, auditory, visual and proprioceptive) that can learn and adapt by means of interacting with the world. My team develops novel computational models based on neuroscience findings and evaluate them in robotic platforms (humanoids, manipulators) focusing on improving give robots the capacity to perceive their body as humans do for assuring safety, adaptation and generalization.

Resumen del Currículum Vitae:

I am Tenured Assistant Professor at Radboud University (Netherlands), coordinator of the AI Master specialization Intelligent Technology, and Principal Investigator at the Donders Institute for Cognition, where I lead the deep active inference approach for estimation and control in robotics and machine learning, and co-lead the Artificial Intelligence (AI) robotics laboratory. I have 10 years of experience in brain-inspired machine learning models for robot perception and action. My interdisciplinary profile is unique as I am able to research in both AI-robotics and human science.

- Research keywords -

Neuroscience-inspired Artificial Intelligence, Brain-inspired robotics, Robot Learning, Active Inference, Machine Learning, Body perception, Embodied AI

- Current position -

Tenured Assistant Professor in Cognitive Artificial Intelligence. Donders Institute for Brain, Cognition and Behaviour. Radboud University, the Netherlands. (1/11/2019).

- Past positions -

1. Assistant Professor in Cognitive Artificial Intelligence (Tenure Track). Donders Institute for Brain, Cognition and Behaviour. Radboud University, the Netherlands. (1/11/2019 1/08/2021)

2. Marie Curie Fellow. Institute for Cognitive Systems, Technische Universität München. (2017-2019)

3. TUM Fellow. Institute for Cognitive Systems, Technical University of Munich. (2015 2016).

4. Postdoctoral researcher. Comimbra University. Institute for Systems and Robotics (ISR). (2013 2015).

5. PhD Student (FPI). Complutense University of Madrid. Computer Architecture and Automation dep. (2008 2013).

- Research Quality indicators

I have more than 40 publications in top journals (9 Q1, 5 Q2, 2 Q4) and conferences (5 Decile 1) and my collaboration network includes more than 10 countries. I have been the main organizer of several workshops in the top conferences in robotics (IROS, ICRA, ICDL, ECML) on the topic of braininspired solutions for robotics and machine learning. I am an active member of the Nijmegen unit of the European Laboratory for Learning and Intelligent Systems (ELLIS) and co-founder of the BODIS network and the Active Inference International Symposium. Finally, last year I started as a robotics consultant in two AI start-ups to boost the technology transfer of our algorithms to end-user human-robot applications in collaboration with world-leading entertainment companies.

Supervision: 3 Posdocs, 2 PhD, 3 Master thesis, 15 BSc thesis, 6 academic projects (master level)

Third-party funding as single PI $^{\rm \sim}1Million$ and Co-PI $^{\rm \sim}1.5Million$

- Research projects

2022-Ongoing - DEEPSELF German Research Foundation (DFG). The Active Self Priority Programme 2134. Coordinator and Pl. Donders Institute with Tübingen University.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

2021-Ongoing - SPIKEFERENCE Human Brain Project SGA3. Europe flagship. Coordinator and PI, Donders Institute.

2019 - 2023 iNAVIGATE - Brain-inspired solutions for intelligent navigation and robotic mobility. MSCA-RISE-2019 EU. Research and Innovation Staff Exchange. Co-PI.

2017 - 2019 SELFCEPTION - Self/other distinction for interaction under uncertainty Marie S-Curie EU. Pl.

2013 - 2015 Coordinated Attention for Social Interaction with Robots (CASIR). Portuguese Foundation for Science and Technology (FCT).

2010 - 2012 System for surveillance, search and rescue in the sea by means of collaboration of autonomous marine and air vehicles. CICYT.





Área Temática:Producción industrial, ingeniería civil e ingenierías para la sociedadNombre:JUEZ JIMENEZ, CARMELOReferencia:RYC2021-032752-ICorreo Electrónico:carjuez@gmail.comTítulo:SEDIMENT REGIME DISTURBANCE IN RIVER CATCHMENTS UNDER A CLIMATE CHANGE CONTEXT:IMPLICATIONS FOR RIVER CATCHMENT MODELING AND MANAGEMENT

Resumen de la Memoria:

My scientific background covers a broad knowledge in the fields of fluvial hydraulics, fluvial geomorphology and morphodynamics; computational fluvial dynamics; and geophysical flows. I thus have developed theoretical, computational, and experimental skills. Such skills have been exploited in terms of research (35 SCI papers and 7 R&D projects) and consulting projects for industrial partners (4 R&D projects).

During my PhD (2014) and post-doc phase (2014-2018) I numerically modelled geomorphological flows (sediment transport in alluvial channels and landslides over steep slopes) and experimentally assessed the impact of river restoration activities in the morphology of alluvial channels. In 2018 I was appointed Assistant Professor at Universidad Politécnica de Madrid, and I diversified my research area by incorporating the study of urbanization processes at the river catchment scale. Urbanization processes imply changes in the land use and land cover. My current position is a Marie Curie Individual Fellowship at Instituto Pirenaico de Ecología (IPE-CSIC), leading the project SEDILAND (161K Euro), where I study how changes in land use cause the alteration of the hydraulic and geomorphological properties of river catchments and ultimately affect the downstream management of river channel network (flood control, hydropower production, lotic system protection or reservoir sedimentation).

Following with my previous experience, I am also focused on assessing the Climate Change impacts on sediment regime (amount, type and timing of sediment inputs, outputs and storage at all scales relevant for river catchment management. Studies of sediment regime assessing the impact of Climate Change are scarce and traditionally relies on deterministic approaches. However, pure deterministic (and thus partial) solutions are not accounting for the natural variability of sediment regime and the inherent uncertainty due to future climate scenarios. My goal is to translate the Climate Change impacts on sediment regime into a mathematical model capable of integrating stochasticity associated with natural processes and statistical noise as well as Climate Change uncertainty. This research combine field, laboratory and mathematical research and it constitutes my challenging research line for the RyC fellowship.

Resumen del Currículum Vitae:

I graduated as Industrial Engineer at Universidad de Zaragoza (UZ-Spain) in 2010. Afterwards, I conducted a Master degree in Fluid Mechanics, focusing on computational fluid-dynamics techniques. In 2010, I joined the Computational Hydraulics Group at Universidad de Zaragoza and I worked in both research and consulting projects as software developer for the simulation of geomorphological flows using GPUs parallelization. I earned my PhD degree at Universidad de Zaragoza in 2014.

As a post-doc, first I worked at the Hydraulics Department at the Université Catholique de Louvain (5 months, Belgium) and at Università degli studi di Trieste (1 month, Italy). From 2015 to 2018, I was enrolled as Research and Teaching Associate at École Polytechnique Fédérale de Lausanne (EPFL-Switzerland), assessing experimentally in the laboratory the impact of river restoration activities in the morphology of alluvial channels and lecturing Fluvial Eco-morphology. By the end of 2018 I was appointed Assistant Professor at the Fluid Mechanics Department of Universidad Politécnica de Madrid (UPM-Spain). Since September 2019 I am a Marie Curie IF at Instituto Pirenaico de Ecología (IPE-CSIC, Spain) where I study how changes in land use cause the alteration of the hydraulic and geomorphological properties of river basins and ultimately affect the downstream river channel network. Following with this idea on how to assess and forecast trends in sediment regime at catchment scale I applied for a Starting Grant of the European Research Council (StG-ERC-2021). I got a final score of A (ranked as within the 12% of the highest ranked proposals) and I was put on the reserve list (success rate of 10%). Furthermore, by the end of October 2021 I became father and I took a parental leave of three months.

My career covers a broad hydraulics, geomorphological and river engineering knowledge (computational, experimental, field and theoretical skills; 35 SCI journal publications; 20 first author, 27 in Q1 (77%), 12 in D1 (34%)), an extensive mobility (4-years in 3 international centers) and active collaborations worldwide (>50 co-authors). I have played an active role in 7 R&D projects (2 EU + 2 Swiss Government, one as co-PI + 2 Spanish Government, total funding > 1.7 million) and 4 service contracts (> 100K), currently acting as PI of the Marie Curie IF project (2 years, 161K). I have given 35 oral communications in conferences and 5 invited lectures. I am involved in international associations (IAHR, EGU) and I have participated in the organization of workshops and special sessions.

Furthermore, I have lectured >250 hours (being accredited by ANECA as Profesor Contratado), and I have supervised 6 research stays of PhD students and 5 MSc students during my work at EPFL-Switzerland and at IPE-CSIC. I also have the Certificado I3, which I obtained in 2021. Since 2021 I served as Associate Editor of Water Resources Research (Journal Ranking: Q1, D1, 9/94 - Water Resources). In addition, I am a frequent reviewer in ADWR, JGR, WRR and ESPL journals and participate regularly in invited seminars and conferences. Finally, I have conducted tens of outreach activities for an audience beyond academia (lectures in schools, guided tours in the laboratory, interviews given in radio and dissemination seminars).





Área Temática:Producción industrial, ingeniería civil e ingenierías para la sociedadNombre:GARCIA LODEIRO, MARIA INESReferencia:RYC2021-032620-ICorreo Electrónico:iglodeiro@ietcc.csic.esTítulo:Sustainable Development of Cement and Concrete Technology with Low Environmental Impact

Resumen de la Memoria:

I have 18 years of professional research experience (5 years as predoctoral and 13 as postdoctoral), focusing on the Sustainable Development of Cement and Concrete Technology with Low Environmental Impact. My research career has been developed both in national research centres (Edaurdo Torroja Institute for Construction Science (IEtcc-CSIC), Ceramic and Glass Institute (ICV-CSIC) and in prestigious universities abroad (University of Aberdeen (18 months) and University of Sheffield (24 months), UK).

My research specialises in following 3 subjects: (i) Alkaline-activated cements, mortars and concretes prepared with sustainable raw materials industrial wastes and by-products can be used to create cementitious materials through alkaline activation technology (also known as Geopolymers); (ii) Chemically-bonded phosphate cements for nuclear waste immobilisation phosphates cements set and harden via acid-base reaction, which allows them to have a reduced water content for the minimal radiolysis and hydrogen gas generation; (iii) Conservation of the Cultural Heritage Portland cement (PC) based concrete maintaining the existing concrete structures is one of the best ways to reduce the environmental impact of cements and concretes.

Resumen del Currículum Vitae:

I have more than 14 years of research experience in Spain at the Eduardo Torroja Institute (IETcc-CSIC), owing to the awarded Post-Graduate Grant, Pre-Doctoral Grant, as well as the direct employment and winning JAE Doc 2011 Grant. I have also extensive international research experience, total of >4 years, in the UK at University of Aberdeen and at University of Sheffield, through CSIC travel grants, NANOCEM Consortium as a postdoctoral research fellow, and employment as a Research Associate. I have recently been awarded a competitive JIN project (as IP), which has a success rate of less than 10.6%. I have also managed and supervised groups of students in UK (5 final projects, 3 masters, 1 PhD) and in Spain (8 undergraduate, 1 final project, 1 master student, and 1PhD international student during her stays in Spain). Currently I am co-supervising two Ph. D thesis (one national and one international).

I have 60 publications (mostly papers in SCI journals, 35 are Q1) as the first and corresponding author in >70% of them. Currently I have a h-index of 22, with >3200 citations (SCOPUS database). I have also developed 2 patents. Through the research projects and contracts, I have made good collaborating network with both industry and academia, across Europe and beyond, including Japan Atomic Energy Agency. I have organised 3 international conferences, 3 national conferences, 1 international workshop, and gave 6 invited talks at EMPA, CIMTEC, 1st Youth Scientific Conference on Construction Materials, CMSS2021, etc. I have been a member of 2 RILEM Technical Committees related to alkali-activated cements and currently I am involved in one related to durability (RILEM TC-281- CCC). Finally, I would like to point out that I am managing Editor of the Journal Cement and Concrete Research (ELSEVIER).





Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	DIMITRIADIS DIMITRIADIS, STAVROS
Referencia:	RYC2021-032742-I
Correo Electrónico:	stidimitriadis@gmail.com
Título:	An Objective Normative Structural and Functional Connectome Across the Lifetime of the Adult Human
Brain	

Resumen de la Memoria:

In this fellowship, I will create a normative atlas of the structural and functional connectome of the human brain, including a brain development chart with age norms. Such an atlas will revolutionize neuroimaging research because it will make results from clinical studies interpretable. Furthermore, neuroimaging-based biomarkers of mental disorders are crucial for the biological foundation of diagnoses and the development of precision medicine. However, research in this area has been hampered by a lack of normative data (and, consequently, reliance on studies with small, non-representative control samples) and a lack of simultaneously studying brain disorders under a common analytic framework. I will overcome this limitation through the combination of network neuroscience artificial intelligence (AI), computational neuroscience methods (I have significant experience of more than a decade on network neuroscience and AI approaches in neuroimaging), and an open science agenda, which utilizes extensive open multimodal neuroimaging data and invites the scientific community to collaborate on the continual improvement of the normative scores.

Searching for biomarkers of disease has been a chief pursuit of the field of brain neuroimaging research. Toward this end, studies have searched for potential structural and functional connectomic biomarkers in nearly all forms of mental disorders but not under the same framework. However, it is becoming increasingly clear that these biomarkers lack reliability and specificity, limiting their clinical importance. My research proposal is focused on modeling individuals' unique structural and functional connectomes throughout the lifespan covering 18 - 80+ age. Below, I will provide a framework for tying these subfields together that integrates tools from machine learning and network neuroscience, using available large open neuroimaging databases.

Normative structural-functa ional connectivity and simple measures like cortical volume and thickness normative values are not justified yet due to a limited number of samples (reproducible findings demand sample sized of N > 2000). Moreover, when interpreting neuroimaging data from any patient sample, we generally do not know whether the patients (and the controls) deviated from normative values for their age. The methodological challenge of providing such norms for connectomic imaging measures is much higher than that of providing IQ norms, for example, but the field (with a substantial contribution from the methodological developments I have made over the last five years) is now ready for this effort.

Modeling individuals' unique functional connectomes throughout their lifespan will be the core of this project. Age and sex are significant moderators of both anatomical and functional connectivity. Estimated quantitative norms related to univariate-multivariate patterns will objectively evaluate whether a subject's multimodal imaging phenotype lies within a normal distribution. This project is logistically feasible because of the large open lifespan multimodal neuroimaging datasets from CamCAN, UK Biobank, ADNI, and others. In addition, the ADNI and Madrid's Alzheimer's disease MEG database will be analyzed to validate the importance of the proposed multimodal normative trajectories.

Resumen del Currículum Vitae:

My name is Stavros I. Dimitriadis, and I am a neuroscientist working in the convergence of biology, neuroscience, neuroimaging, and artificial intelligence. I have a medical background studying in the School of Dentistry in Belgrade (Serbia) and in L'Aquila (Italy). I have passed many courses such as biochemistry, biophysics, genetics, histology, immunology, anatomy, pathology, physiology, etc. I have also studied IT technician in a state technical after-school program, and I have been working as an IT technician in private.

My studies involved a Diploma (2008) from the Department of Informatics at the Aristotle University of Thessaloniki, Greece, and a Master's Degree from the same Department in Digital Media & Computational Intelligence (2010). My research experience continues with my Ph.D. in the Interdepartmental Programme of Physics, Biology, Medicine, and Electrical Engineers and Computer Technology (2013). During my Ph.D., I have been collaborating with Professor Magda Tsolaki (at 1st Department of Neurology, G.H."AHEPA," School of Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki (AUTH), Thessaloniki, Greece, and Greek Association of Alzheimer's Disease and Related Disorders (GAARD), Thessaloniki, Makedonia, Greece), with Professor Andrew Papanicolaou (at University of Tennessee Health Science Center), with Professor George Zouridakis (Associate Dean for Research at the University of Houston), and with plenty of clinicians and research fellows working in-state University Hospitals of Rio (Patras) and AXEPA Hospital (Thessaloniki). In addition, I have been training on clinical trials, neuropsychological estimates, EEG/MRI data acquisition in the field of Alzheimer's disease, epilepsy, ERP studies, dyslexia, and sleep. My collaboration with both Professors Papanicolaou and Zouridakis focused on analyzing MEG data tailored to mild traumatic brain injury (mTBI). I have been a member of a consortium tailored to mTBI with worldwide members in the last years.

In 2015, I moved to Cardiff (Wales, UK), in Cardiff University Brain Research Imaging Centre (CUBRIC), under an MRC grant (PI: Professor David Linden). The research grant involved scanning 200 healthy control participants with multimodal neuroimaging, cognitive tests, and a collection of neuropsychological estimates. I collaborate with the ALSPAC Bristol team and experts in epidemiology and population studies. This project attempted to shed light on how the polygenic risk score for schizophrenia can alter healthy participants' brain structure and function. During the first two years, I have got experience in data acquisition of any modality and the analysis of DTI/dMRI and fMRI (2015-2017). For the next three years, I received a prestigious MARIE-CURIE EU-UK research fellow in CUBRIC where I continued my research on multimodal neuroimaging and genetic neuroimaging (2017-2020). I lead a Neuroinformatics group for the designing of reliable pipelines in neuroimaging. Last two years, I have been working as a senior research fellow in GAARD in two intervention protocols in MCI (Mediterranean diet + olive oil & learning of English) (2020-2022).

I have published so far ~70 research articles (50 as of 1st author) with an h-index = 25 and ~ 2000 citations. I have reviewed more than 1000 articles and more than 50 national grants.



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AGENCIA Estatal de Investigación

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	NISO GALAN, JULIA GUIOMAR
Referencia:	RYC2021-033763-I
Correo Electrónico:	guiomar.niso@gmail.com
Título:	Characterization of brain dynamics in health and disease
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Resumen de la Memoria:

Our brain is a rhythm machine. Detecting possible dysrhythmia before the clinical onset of neurodegenerative diseases or mental illnesses would open entire new fields for disease prevention and early therapeutic interventions. As a telecommunications engineer passionate about translational neuroscience, I have dedicated all my career training and scientific research so far towards that goal. My main research line exploits neuroimaging and electrophysiological measures to investigate brain oscillations, functional dynamics, and their relationship with cognition in healthy and diseased states (such as epilepsy, Alzheimer's disease, blindness). My final goal is understanding brain dynamics to enhance clinical applications and ultimately improve peoples lives.

Through out her career at leading international institutions, such as the Montreal Neurological Institute and Indiana University, Dr. Niso contributed outstanding brain imaging advances: from analysis tools, to clinical applications. She led the efforts in multiple open science international initiatives with profound impact on the neuroimaging community. Dr. Niso is part of Brainlife coreteam developing a free cloud platform for secure neuroscience data analysis. She leads the international development of the Brain Imaging Data Structure (BIDS): the first common standard for organizing, describing and sharing neuroimaging data. In 2019, she was elected Chair of the BIDS Steering Group. Dr. Niso premiered the concept of open-access repositories for magnetoencephalography with the Open MEG Archives. She also develops collaborative free open-source software: she founded HERMES for the analysis of functional brain connectivity, and is coreteam at Brainstorm to study electrophysiological signals. On the clinical front, she performed major contributions to neurological conditions such as epilepsy, dementia, pain and blindness. Her leadership in neuroimaging and engineering has been recognized by multiple grants and awards, highlighting the AXA Postdoctoral Fellowship received in 2017 (130K) and the Young Researchers JIN from the Spanish Government in 2020 (181k) to find early indications of Alzheimer's Disease for better therapeutic interventions.

Dr. Niso has a multidisciplinary background (engineering, mathematics and neuroscience), which allowed her to collaborate with several research groups in Europe and North America. She greatly benefited from their in-depth expertise and practical know-how in neuroimaging, which tremendously augmented her skill sets and productivity levels. This fact would be of enormous value for a high-yielding execution of the projects she will carry out in the coming years.

Dr. Niso is enthusiastic about developing her research skills and projects in a world-leading research institution like The CSIC in her home country, bringing back her highly valuable expertise and outstanding productivity, enriching the Spanish scientific ecosystem. She would take a Ramon y Cajal Fellowship as an excellent opportunity to develop her research projects from beginning to end, foster her advanced training, expand her network of collaborations and further the application of her methods to human brain research. This all will undoubtedly reinforce Dr. Niso s position to consolidate her own research group on the study of brain dynamics.

Resumen del Currículum Vitae:

Dr. Guiomar Niso is a senior researcher working at Indiana University. In 2020 she obtained the I3 Program certification by the Spanish Government. She holds a PhD in Biomedical Engineering (2013), MSc in Bioengineering and Telemedicine (2009) and MSc in Telecommunications Engineering (2008). Postdoc at the Montreal Neurological Institute, McGill (2013-2016) and Universidad Politécnica de Madrid (2017-2019). Dr. Niso studies healthy and pathological brain dynamics through electrophysiological measures, such as M/EEG. Her leadership in neuroimaging and engineering has been recognized by multiple grants and awards, highlighting the AXA Postdoctoral Fellowship and the Young Researchers JIN from the Spanish Government to find early indications of Alzheimer's Disease for better therapeutic interventions.

Currently, Dr. Niso is part of brainlife.io coreteam developing a free cloud platform for secure neuroscience data analysis. She also leads the development of the Brain Imaging Data Structure (BIDS): the first common standard for organizing, describing and sharing neuroimaging data. Dr. Niso headed the international effort to create the MEG extension of the BIDS (Niso et al. 2018). In 2019, she was elected Chair of the BIDS Steering Group, being highly involved in the BIDS community efforts to help neuroimaging research be more open, interoperable and efficient. She premiered the concept of open-access repositories for magnetoencephalography (MEG) with OMEGA (Niso et al. 2016). Moreover, Dr. Niso founded HERMES, a free open-source software package for the analysis of functional brain connectivity (Niso et al. 2013) and contributes to Brainstorm, a collaborative open neuroscience software package for the analysis of electrophysiological signals (Niso et al. 2019). On the clinical front, she performed major contributions in neurological conditions (e.g. epilepsy: Niso et al. 2015, Niso 2019; blindness: Niso/Müller et al. 2019).

Dr. Niso produced over 30 journal articles, 1 single-author book, 4 book chapters, and nearly 50 conference proceedings and invited talks since 2013. She publishes as first author in leading neuroscience and biomedical engineering top-tier journals (e.g. Nature Communications [IF: 12.3], Scientific Data [IF: 5.9], Neuroimage [IF: 5.8], etc). Academic teaching MSc & BSc Biomedical Engineering at the UPM and contributed to teaching books on brain connectomics (Niso et al. 2014). She trained students with different backgrounds, ranging from Psychology to Engineering. Dr. Niso was awarded in various Entrepreneurship Competitions (e.g. actuaCOM, Idea2 Madrid-MIT), and she received multiple invitations to speak, and co-organized conferences and educational events worldwide. Dr. Niso also contributes to science dissemination, with popular science books and helping to promote diversity and to visibilize the role of women in STEM. Moreover, she has given multiple interviews to major news media e.g. El País, Telecinco, RNE, RTVE. Dr. Niso was featured on Wikipedia as an influential Spanish scientist at WikiGap2019. Dr. Niso participated in 10 research projects and was PI/Coordinator on 5 of them. She consistently obtains research funds from national and international calls, with a strong network of international collaborators.


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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

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Área Temática: Producción industrial, ingeniería civil e ingenierías para la sociedad	
Nombre:	ERICE ECHAVARRI, BORJA
Referencia:	RYC2021-033241-I
Correo Electrónico:	borjaerice@gmail.com
Título:	Experimental and computational mechanics of advanced materials under extreme conc

Resumen de la Memoria:

Dr. Erice holds a PhD in Materials Engineering (2012) from the UPM. During his PhD he investigated the effect that the strain rate and temperature have on the constitutive response and fracture behaviour of high-performance alloys employed in aerospace applications. He performed several short stays at SwRI in the USA and at SIMLab at NTNU in Norway where he developed experimentally-validated strain rate and temperature dependent plasticity and fracture models that included the effect of the third deviatoric invariant. He was also responsible of developing DIC software to investigate the post-necking mechanical response of ductile materials using Split Hopkison Bar systems.

After his PhD, he moved to LMS at École Polytechnique where he was part of a joint LMS/MIT research group. Here, he applied his knowledge in dynamic experimental mechanics and material modelling to sheet metals. The research line was largely supported by the MIT industrial fracture consortium with very positive technology transfer feedback. During this time, he also investigated other dynamic phenomena such as the increase in apparent ductility in electro-magnetic forming or high strain rate testing of additively manufactured micro-lattice structures.

He moved to ETH Zurich when the Chair on Computational Modeling of Materials in Manufacturing was created in 2015. He was part of the threepeople team that built an experimental laboratory devoted to the dynamic behaviour of materials from scratch, including the design, construction or purchase of mechanical testing devices and an entire fully functioning machine shop. He supervised visiting scholars from abroad on research topics such as the puncture resistance of all-metal sandwich structures with corrugated cores or the modelling of dynamic fracture of quasi-brittle metals.

After a year he moved to the University of Oxford, where he improved some of the state-of-the-art experimental techniques that were currently being used to investigate the mechanical response of FRPs subjected to extreme loading conditions. He also developed anisotropic elasto-viscoplastic models to simulate the non-linear response of unidirectional FRPs or strain-rate dependent fracture initiation models for polymers. He was also heavily involved with multi-scale strategies that allowed predicting macro-mechanical responses of such materials.

In 2018 the applicant joined CASA at NTNU where he held a permanent position as Researcher. He was been given freedom to pursue research that could provide cutting-edge solutions for rapidly loaded structures and materials used in the automotive and offshore industries. He investigated diverse topics such as: fracture mechanisms in largely strained solids due to surface instabilities, bifurcation-based embedded models describing ductile fracture or the mechanical behaviour of micro-lattice based materials

In 2020 he was awarded with a tenure-track Ikerbasque Research Fellowship directed to promising young researchers allowing him to join the Faculty of Mondragon Unibertsitatea as a Senior Lecturer. The lines of research that are currently being developed include:

-Experimental mechanics at high-strain rates and temperatures

-Ductile fracture under non-proportional loadings

-Artificial intelligence in metal forming

-Mechanical behaviour of additively manufactured metamaterials and batteries

Resumen del Currículum Vitae:

Dr. Erice has a BSc in Aeronautical Engineering (2005) and a MSc (2008) and a PhD (2012, international certification, cum laude) in Materials Engineering from the UPM (Spain). After that, he worked as a postdoc in École Polytechnique (France), ETH Zurich (Switzerland) and the University of Oxford (UK) where he was involved in teaching and research activities. In 2018 he moved to NTNU (Norway) to continue his research in the Centre for Advanced Structural Analysis (CASA). In 2020 he obtained a competitive international call (Ikerbasque) that allowed him to get a position as a Senior Lecturer & Ikerbasque Research Fellow at Mondragon Unibertsitatea (Spain) where he currently performs research on experimental, theoretical, and computational mechanics of materials and structural components subjected to extreme loading conditions and continues teaching solid mechanics related courses.

He has made significant contributions on the area of computational modelling of modern engineering materials such as the development of invariantbased isotropic and anisotropic fracture initiation models for metals under dynamic loadings or the introduction of rate-dependent plasticity to model the non-linear behaviour of fibre-reinforced composites among others. He is also responsible for recent advancements on high-rate experimental techniques that allowed measuring the brittle fracture of adhesives and high strength metallic alloys or the fibre compression strength on fibrereinforced composites.

SCIENTIFIC PRODUCTION

39 peer-reviewed scientific publications

h-index of 9 with 300 citations in WoS and h-index of 9 with 456 citations in Google scholar 23 international and 12 national (Spain) contributions to conferences with an oral presentation 2 six-year research periods recognised by the Agency for Quality of the Basque University System 2 invited seminars in public universities (University of Salamanca, Spain and École Polytechnique) Reviewer for 13 JCR-indexed journals





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

2019-2020: Theory of Plasticity (coordinator). PhD in Engineering, NTNU 2017-2018: Solid Mechanics. MEng in Engineering Science, University of Oxford 2015-2016: Dynamic Behaviour of Materials and Structures. MSc in Mechanical Engineering, ETH Zurich 2011-2013: Dynamic Behaviour of Materials. MSc in Structural Engineering and its Materials, UPM 2011-2013: Mechanics of Materials III. BSc in Materials Engineering, UPM

STUDENT SUPERVISION

PhD supervision: 3 as co-supervisor (1 ongoing) End-of -degree project supervision: 2 BSc thesis, 3 MSc thesis PhD defence committees: 3 as a panel member, 1 as external reviewer

RESEARCH PROJECTS

He has participated or has been co-PI in 10 competitive national and international research projects, and in 6 industry-oriented projects with researchintensive institutions. The Composite Materials Subteam of the Impact Engineering Group at the University of Oxford he was leading was recognised by Rolls Royce for their technical contribution in the modelling of composites under high-strain rate loadings particularly in support of the Trent XWB jet engine.

AWARDS and HONOURS 2019: Ikerbasque Research Fellow (tenure track), Basque Foundation for Science 2013: Profesor Contratado Doctor, ANECA 2012: International doctorate certification 2009: FPI Pre-doctoral Fellow, MICINN





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general ón industrial, ingeniería civil e ingenierías para la sociedad

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la socieda
Nombre:	ORIHUELA ESPINA, LUIS
Referencia:	RYC2021-032919-I
Correo Electrónico:	luis_siciliano@hotmail.com
Título:	Distributed control and estimation of cyber-physical systems

Resumen de la Memoria:

TRAYECTORY

Predoc period (2009 2013)

I secured an FPU grant to do my PhD with Prof. Francisco R. Rubio in US. My PhD thesis was awarded with the Extraordinary Prize of Doctorate by the Universidad de Sevilla. I published 7 journal papers and 6 international conferences, two of them awarded with Best Paper. I perform 2 research stays: U. Kent and U. Vigo. I participated as researcher in the FP7 project FeedNetBack.

Post-doc period (2013 2017)

I joined the School of Engineering of Universidad Loyola Andalucía in June 2013. During this period, I published 16 journal papers, 7 conference papers and 6 chapters in two Springer books. I did two research stays: TU Eindhoven and CIT. During this last stay, I collaborated in the creation a COST action. During the postdoc period I published my first 3 journal papers in collaboration with international researchers.

Project CyNEDIC secured 38k . I also gave my first steps as PhD supervisor of 2 students. I also started an independent research career, since I succeeded in publishing 4 journal papers without none of my PhD supervisor. I was also appointed Secretary of the Dpt. Ingeniería in 2016. Consolidate period (2018 present)

My research approached to two applied research lines: autonomous water vehicles and smart agriculture. I am coordinator the multidisciplinary Optimization and Control of Distributed Systems - ODS research group, which has secured 1.35M in 3 years. My first 2 PhD students defended their thesis in 2019 and 2021. Currently, I am supervising 4 more PhD students.

I have been able to secure many grants: LaSSiC project (39k), national projects METRICA (71k) and SMADIS (126k), Grupo Operativo DAMERA (300k), and international cooperation project AGRICULTURA 4.0 (386k). The total subsidy for the projects I am (or have been) PI is 950k. I have collaborated with many companies, associations, NGOs and research institutions in those projects. SMADIS project, in particular, pursues the creation of a spin-off company. I published 13 journal papers and 2 international conferences. I got an invitation to write an article in The Conversation, or mentions in different newspapers or agencies, such as EuropaPress, La Vanguardia or ABC.

My research reached a full international development. I am PI of the international project AGRICULTURA 4.0. Our research group submitted 3 H2020 projects and is preparing a HORIZON project. I keep a very active collaboration with Profs. A. Seuret, L. Zaccarian and C. Combastel. I have published several papers with them, have sent and received students, and have participated in the same research projects.

MAIN RESEARCH LINE

My research revolves around estimation and control of cyber-physical systems of systems, which are heterogenous systems that integrates computation, communication and physical systems, in such an intricated way that any of those parts can be analyzed in an isolated manner. My work can be organized under three main lines of research: Networked Control Systems, Distributed Estimation and Control of Large-Scale Systems, and Applied Research. The second one is the most productive, and the one that has given me some name in the scientific community. My contribution into this area comprises three main activities: Joint distributed Estimation and Control, Distributed estimation and design, and Distributed guaranteed estimation.

Resumen del Currículum Vitae:

His overall activity includes research, teaching and management.

Concerning research, he s participated as researcher in 1 FP7 European project, and many national projects and regional projects. He was PI of project CyNEDIC funded by AEI/FEDER (38.962, 2016-20), and of project LaSSiC for scientific infrastructures funded by Junta de Andalucía (32.204, 2019-21). He is currently PI of the international cooperation project AGRICULTURE 4.0 funded by AECID (386.100, 2021-23), of the Grupo Operativo DAMERA funded by Junta de Andalucía (299.766, 2022-23), of the project METRICA funded by AEI-MCeI (71.269, 2021-24), and of the SMADIS funded by AEI-MCeI (126.500, 2021-23). The total subsidy of the projects in which he is PI is more than 950k, of which 635k are directly managed by him.

He is author of more than 70 publications in conferences and journals. In particular, he has published 36 papers in journals, 19 Q1 and 5 D1. The core of his research belongs to the study of distributed systems, in the estimation of internal variables from limited information as well as the control of them. He s made notable contributions to the field of networked control systems, in what refers to the impact of delays, packet dropouts and asynchronous communication in the stability of the system. He s been invited to participate in two Springer books, Asynchronous Control for Networked Systems and Delays and Networked Systems . His h-index is 16, with 842 citations according to Scholar.

His research has been awarded with two Best Paper Award in national conferences and his PhD thesis was awarded the extraordinary prize of doctorate of Universidad de Sevilla.

He has supervised 2 PhD thesis (A.R del Nozal 2019, C. lerardi 2021). He is currently supervising 4 more (S. N-Yo 2023, T. Morel 2024, J.L. Román 2024, B. Sanabria 2024)

He has been visiting researcher in University of Kent (Predoctoral, 12 weeks), TU Eindhoven (Postdoctoral, 1 week), Cork Institute of Technology (Postdoctoral, 6 weeks and 2 weeks), Rosenheim TU of Applied Sciences (Postdoctoral, 1 week), Universidad de Huelva (Postdoctoral, 8 weeks), and Universidad de Vigo (Predoctoral, 12 and 2 weeks). During those stays, he s taught seminars about model-based control, distributed and asynchronous estimation and control.

He s been recognized two research periods (Sexenio) from 2008 to 2013 and from 2014 to 2019. He has been member of the organizing comitee for the XXXII Jornadas de Automática, in Sevilla 2011.

He coordinates the research group Optimization&Control of Distributed Systems in Universidad Loyola Andalucía, with 14 full-time members, 5 lab technician and 8 PhD students. The research group is currently managing grants for more than 1.1M.



Concerning teaching, the candidate started with laboratory ECTS while he enjoyed an FPU grant in Universidad de Sevilla. Later, he joined Universidad Loyola Andalucía in 2013. The assessment of his teaching activity has been positive for the last 8 years (>7 over 10). He s taught 9 courses in different engineering bachelor and master degrees. He has coordinated three teaching innovation projects (2.600) funded by Universidad Loyola Andalucía. Concerning management, he has been Secretario of the Dpt. Ingeniería at Universidad Loyola Andalucía from 2016 to 2020. He is member of the Comisión Académica del Programa de Doctorado Ciencia de los Datos.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad		
Nombre:	SAWIDES , LUCIE		
Referencia:	RYC2021-033355-I		
Correo Electrónico:	lucie.sawides@gmail.com		
Título:	Advanced Biomedical Optic Systems for Vision Testing and Retinal Imaging		

Resumen de la Memoria:

Lucie Sawides is currently a R&D engineer and product performance area coordinator at 2EyesVision, technological spin-off of the Consejo Superior de Investigaciones Cientificas, CSIC. She holds an Engineering degree in Optronics (ENSSAT, France, 2005) and a Master degree in Science and Technology - Biomedical Optics (Université Pierre et Marie Curie, France, 2006). She joined the Instituto de Óptica, CSIC, Spain, with a FPI fellowship, where she obtained a Doctoral Thesis in Vision Science (Universidad de Valladolid, 2013) and continued her career as a postdoctoral researcher in the Borish Center for Ophthalmic Research, Indiana University, USA (2013-2016) and in the Center for Research in Optics and Nanophotonics, Universidad de Murcia, Spain (2016-2017), before joining 2EyesVision team through a H2020 European Innovation program.

Her research sits at the interface between optical technology and ophthalmology and focus on the study of the human eye using sophisticated lightbased imaging systems. Her research background covers a wide range of areas and relevant technologies: optics, electronics, adaptive optics, psychophysics, retinal imaging, vision simulator, data and image processing, conception and design of prototypes and optical instrument. Dr. Lucie Sawides' lines of research can be divided into 3 main blocks. (1) The impact of ocular aberrations (imperfections of the ocular optics that provide to each individual his unique aberration pattern) on visual function and visual perception and the neural adaptation to the optical degradation imposed by individual's ocular aberrations. She has used the technology of Adaptive Optics combined with psychophysics for vision testing under controlled optics. The novel results obtained are crucial in the development of new vision correction alternatives. (2) High resolution in-vivo retinal imaging to study the impact of aging and diseases on the photoreceptor mosaic and its sampling properties. She has used high resolution adaptive optics scanning laser ophthalmoscope to obtain a deeper knowledge of the structural properties of the photoreceptors in healthy and impaired retina. (3) Technological development and experimental validations of visual simulators. She currently works on the binocular simultaneous vision simulator based on temporal multiplexing that allows cataract and presbyopic patients to experiment what would be his/her vision through different multifocal corrections in the form of intraocular lenses, contact lenses or corneal ablation patterns before surgery and how the patient will adapt to his/her new aberration pattern.

Her research holds high clinical promise and has motivated research projects awarded at competitive public calls and with industrial collaborators. Her work has led to significant contributions with a high publication rate and a constant scientific production, participation in numerous research projects - Spanish Government (3), European (4), NIH USA (2) and Industrials partners (4) for which she was principal investigator in critical work packages, and has collaborated with different research groups, mainly from Spain and USA.

Resumen del Currículum Vitae:

Scientific production: 31 publications in high-impact peer-reviewed journals (Q1:30/31, Q1+Q2:31/31), 9 as first author, 10 Proceedings, 1 book chapter, 86 presentations in meetings (78 international) three of them invited talks on Perceived blur and higher optical aberrations (OSA Vision Meeting, Houston TX, USA, October 2013), Adaptation to retinal blur (VIIIth Iberian Conference on Perception, Spain, June 2019) and SimVis simulations of multifocal IOL designs based on public-literature data (SPIE Optical Design and Engeneering VIII, Spain, Sept. 2021) and 4 more papers in preparation (3 as last author). (WoS: 564 citations (without self-citations) and h-index=15; ~70 citations per year the last 4 years; Scopus: 722 citations and h-index=16; Google Scholar: 1171 citations, h-index=18).

Participation in numerous research projects from the Spanish Government (3), from the European Research Council (2 ERC advanced grants, EURYI, H2020project), the CDTI (1), the National Institutes of Health (2) and from Industry Partners (4) for which she was PI in critical work packages.

Selected candidate in numerous competitive grants: Torres Quevedo 2017 call, European Innovation Program, SME Innovation Associate 2016, Juan de la cierva Formación 2014 call, FPI predoctoral fellowship 2007.

Twice reserve candidate in Ramon y Cajal calls (2016 and 2020).

She also successfully applied for grants at the Ministerio de Ciencia e Innovacion (2019 DI call)

Collaboration with different research groups: VioBio Lab at the Instituto de Óptica, CSIC, Madrid, Spain (PhD); Department of Psychology, University of Nevada, Reno, USA (4 months short stay); Schepens Eye Research Institute, Harvard Medical School (2 peer-reviewed publications and 4 communications in international meetings); Borish Center for Ophthalmic Research, Indiana University, USA (2 months short stay and 33 months Postdoc); Center for research in Optics and Nanophotonics, Universidad de Murcia, Spain (10 months Postdoc); R&D and product performance areas at 2EyesVision (since Sept 2017).

Direction of an Industrial Doctorate (DI CAM 2018. Jan2019-March2022); supervision of grad/Ms students; External reviewer of doctoral thesis from Universidad Complutense de Madrid; Habitual referee in journals in the field; Moderator in different sessions at international ARVO anual meetings; Participation as teacher in Master Programs Optometry and Vision, Research in Vision Sciences (Instituto de Óptica, CSIC, Madrid, Universidad Complutense de Madrid, Instituto Universitario de Oftalmobiología Aplicada (IOBA), Valladolid).

2007 - Founder member of an active Student Chapter of the Optical Society of America (IOSA) (treasurer 2008 to 2010) with continuous participation in outreach activities at the Museo Nacional de Ciencia y Tecnología and in the Semana de la Ciencia e Innovación de Madrid.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

2015 - Founder partner of the technological-based company 2Eyes Vision, spin-off of the CSIC for Experimental Research and Development in Biotechnology. Sim+Vis technology protected by three licensed patents and one with shared titularity 2EV-CSIC (2009 to 2017).





Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	IBAÑEZ PEREDA, JAIME
Referencia:	RYC2021-031905-I
Correo Electrónico:	jaimegus@gmail.com
Título:	Neural Interfacing the Central Nervous System to study and treat neurological conditions affecting
movement	

Resumen de la Memoria:

In my research on neural interfaces, I combine data science with basic neuroscience and translational research to study the neural determinants of movements in health and disease. During my career, I have chosen my positions to collaborate with experts in my field and to build a highly multidisciplinary profile.

In my PhD (carried out at CAR-UPM of CSIC; title from University of Zaragoza), I developed interventions using brain-computer interfaces (BCIs) to restore the upper-limb motor function in patients with a stroke. My original research was awarded the second prize in the international Annual BCI Research Award 2014.

In 2014, I moved to Cajal Institute (CSIC) to start a lab on neuromodulation. I supervised PhD students working on combining rehabilitation robotics with BCIs to induce function-specific targeted plasticity in patients with brain lesions. I also prepared grant proposals (national and EU) that were funded allowing the lab to advance in the field of BCIs for neurorehabilitation.

In 2016, I moved with a Marie-Sklodowska Curie fellowship to University College London (UCL, UK). There, I developed a research line combining noninvasive brain stimulation with neuroimaging to study and modulate the human motor cortex. At UCL, I had the chance to collaborate with prominent neurologists and neuroscientists, which allowed me to gain an in-depth understanding of the techniques available to study the neural basis of motor control in humans. At UCL, I also started collaborations with scientists at Imperial College London (ICL, UK), which allowed me to move there after I finished my period at UCL (2019).

At ICL, I developed a novel concept for non-invasive neural interfaces with the central nervous system. Motivating this line, I recently published several relevant publications in prestigious journals showing how muscle signals can provide meaningful and timely information about ongoing neural processes in the brain.

Thanks to my research at ICL, I was awarded a 'la Caixa' Junior Leader Incoming grant with which I have started my own lab as a senior researcher at IIS Aragon. Currently, I am developing new methods to infer brain projections to muscles from high-density muscle recordings. This is a disruptive research line that merges all the skills that I have gathered during my scientific career and which represents a unique solution to advance in the understanding of the function of the human motor nervous system.

It is worth noting that, instead of following a conventional route after my PhD, I assumed the risk of starting new research lines and acquiring new scientific skills in my postdoctoral period, which may have caused some minor productivity gaps in the past. However, thanks to the broad vision that I have acquired of my research field and to my scientific maturity, my recent research has been sound and highly recognized. As a result, I have been able to publish many important articles in highly impactful journals, and this has led me to exponentially increase my citations. According to Google Scholar, I had 95 citations in 2019, 134 citations in 2020 (41% increase), and 229 citations in 2021 (71% increase). It is expected this tendency will continue in the next years. Thus, I consider that I have been able to envision my long-term career and evolve to a unique and impactful profile.

Resumen del Currículum Vitae:

I obtained an MSc in Bioengineering from Polytechnic University of Madrid (2010) and a PhD from the University of Zaragoza (2014). My PhD thesis, carried out at CAR-UPM of CSIC, presented methods to decode motor-related brain information in neurological patients. My PhD research was recognised by the BCI Research Awards. During my PhD, I did a 1-month stay at King Juan Carlos University (ES) running a clinical study.

In 2014, I moved as postdoc to Cajal Institute (CSIC), where I initiated the 'Neuromodulation Lab'. In this period, I supervised a PhD and mentored several students to develop robotic devices driven by brain signals to induce functional plasticity. I also led research proposals granted to my group (500k from EU and Spanish calls). In 2016 I was awarded a Juan de la Cierva Formación fellowship (50k), which I resigned to move to University College London (UCL, UK) with a Marie-Sklodowska Curie (MSC) fellowship (195k).

At UCL, I worked on modern techniques to induce targeted plasticity noninvasively in the brain. I also supervised MSc/BSc students and published articles with them, which helped them to promote their careers. I also initiated collaborations with groups in Newcastle U., Imperial College London (ICL), and Sapienza University of Rome. Since 2019, I am an honorary research fellow at UCL and I lead research studies on tremors.

In 2019, I moved to ICL and started a line on peripheral neural interfaces with the brain. I also supervised/mentored 8 PhDs, and led the preparation of proposals that were accepted for funding (7.7m from UK and EU calls). At ICL, I started collaborations with Louisville University (1-week stay) and MedUni Wien (1-week stay and 1 month of remote animal experiments during 2020). At present, I hold an honorary research fellow position at ICL, where I co-supervise 4 PhDs.

In 2021, I got a 'la Caixa' Junior Leader Incoming grant (305k) and moved to IIS Aragon, where I have started my lab on neural interfaces.



I have published 31 original works and 2 review articles in SCI journals (first author in 33%, corresponding in 33%). Most of my articles are in prestigious journals (e.g., Nature Commun, eLife, Brain Stimul, J Neurosci), reflecting the quality and soundness of my research. I have 11 articles in journals ranked in the 1st decile (JCR), and 18/6 articles in Q1/Q2 journals. I have 47 contributions to conferences (26 in proceedings with ISBN/DOI), 3 book chapters, 2 books edited and one patent filed. I have >880 citations (Scholar), and an H-index of 18. I have published with >100 co-authors, >60 from international institutions. I have been involved in 16 projects from competitive calls (8 EU, 5 ES, 3 UK). I have been involved in the preparation of proposals attracting > 8m to my groups (500k as PI/co-PI). I have also carried out outreach actions targeting lay audiences and policymakers.

I have co-supervised 6 PhD (5 ongoing), 8 MSc/MRes, and 4 BSc students. I have been a teaching assistant at ICL (2 courses).

I have co-organized 5 large international conferences (3) and summer schools (2) (almost 1000 attendees in total). I have co-organized and chaired scientific sessions and workshops at conferences (4), and I have been member of evaluation panels (Horizon Europe's MSC proposals; Spanish national proposals). I am currently editor of a journal research topic and I have reviewed >30 articles sent to impactful jo



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

 Área Temática:
 Producción industrial, ingeniería civil e ingenierías para la sociedad

 Nombre:
 LARROSA FANDINO, NICOLAS OSCAR

 Referencia:
 RYC2021-034574-I

 Correo Electrónico:
 nicolarrosa@gmail.com

 Título:
 Unravelling the damage tolerance of steels in natural gas transmissions lines for hydrogen/natural gas blends to support the hydrogen economy

Resumen de la Memoria:

Europe plans to make hydrogen(H2) one of the pillars of its transition to carbon neutrality in the coming decades with the expected rapid scale up of renewable power for direct electricity demand also providing a basis for renewable green hydrogen supply, especially from the late 2020s onwards. With an expected EUR 820B per year market and more than 560Mt of CO2 abated. Existing natural gas (NG) infrastructure can act as a catalyst to scale up hydrogen transportation early on, avoiding the high initial capital costs associated to the construction of a new hydrogen transmission network. Spain, in particular, has shown important leadership on clean energy transitions where transporting gaseous hydrogen via existing pipelines (~11369 km of welded pipeline of AP grades between X42 and X80) is seen as a low-cost option (~25% costs of new hydrogen pipeline) for delivering large volumes of hydrogen and consistent with system-wide decarbonisation pathways to 2050. Hydrogen can be blended at rates of 2-10 vol% H2 without substantial retrofitting of the pipeline system. However, for higher blend rates, the pipeline material response is unknown. The transport of gaseous H2 generates a range of safety concerns due to its ability to diffuse through most materials, wide range of flammable concentrations in air and lower ignition energies which were found to occur at pressures used in current and future (predicated) hydrogen systems . Atomic hydrogen (H) can accelerate steel degradation in the form of embrittlement, hindering the ability of the material s afe deformation capacity, causing subcritical cracking from corrosion defects and increasing the risk of catastrophic failure is major source of concern. There is no existing quantitative and exhausting body of knowledge and evidence about the role of NG/H2 blends on embrittlement and fatigue crack initiation, nor on the effect of the surface condition and pre-existing defects. The relationship between steel grade and embrittlement and cracking under these conditions is also

I believe that experimental data for pristine material under different hydrogen blends is not representative of the conditions at the which aged pipelines will start operating under the new NG/H2 blend services. The absorption of hydrogen is thorough the steel surface, and the condition of the pipelines surface (e.g., general corrosion) will play a key role in hydrogen absorption. Also, the low constraint conditions at any potential crack-like defect will be key to support damage tolerance arguments for their suitability for operating at higher H2/NG blend rates.

The novelty of this proposal lies on the development of comprehensive understanding of the role of the inherited material (e.g. gouges/dents, corrosion products) and operating conditions - NG/H2 blends and pressure/temperature- on (i) hydrogen absorption and ((i) fracture mechanisms. Thus, the primary goals are to:

-Develop enhanced understanding around the absorption of H+ in NG/H2 conditions and incorporate this into novel mechanistic damage models. -Establish the suitability for NG/H2 mixes and pressure conditions for the various steel grades currently in operation.

-Develop a probabilistic condition based lifing approach accounting t for the inherited condition of the pipeline, material and operating conditions.

Resumen del Currículum Vitae:

I am currently a Senior Lecturer (UK Associate Professor) at the University of Bristol and a core member of the Solid Mechanics Research Group (SMRG) at the Department of mechanical engineering. I have over 12 years experience in the development of microstructural and meso-scale models and a strong track record in engineering projects for the energy sector with 25 JCR papers, of which 22 are published in Q1-journals (17 are D1-journals) and a similar number of international conference presentations.

My work is to understand how engineering materials fail and translate that knowledge into models contributing to the global net-zero goals by rationalising high-critical assets for the nuclear, offshore wind and hydrogen transport industries.

I have received funding from several government organisations and industry, mainly to join materials performance with structural behaviour and inspection through non-destructive evaluation (NDE).

Since joining Bristol I have developed a leadership profile in teaching, research and engineering practice. The relevance and upward trajectory of my work is evidenced in my memberships in British Standards committees (BS7910/BS7608) and R6 panels, industrially funded projects (Carbon Trust/Atkins and Magnox), having supervised 8 PhD students (2 completed) and 2 PDRAS and securing more than £500k in income.

I have developed outstanding national and international networks that allowed me to grow my reputation in the structural integrity community, successfully applied for large grants and be seeing as a leader in my field with a strong track record in research outcomes influencing engineering structural integrity practice with demonstrable impact.

I am Fellow Member (FIMMM) of IOM3 because of my contributions to advancing fracture mechanics methods in nuclear standards (method proposed for constraint cited in R6) and have reviewed grant proposals for the UK and Polish Scientific Councils and have provided expert contributions to numerous policy making bodies and technical institutes such as the 'UKAEA's Hydrogen Innovation Facility' (Nov 2021) and the DEGRADATION IN STRUCTURAL MATERIALS: HIGH VOLUME COMPRESSORSFOR HYDROGEN working group requested by Henry Royce Institute (Sep 2021).

I have lead research work of the highest quality that has had a profound and measurable impact on industry which allowed me to gain places in R&D Roadmap developments (Hydrogen). Examples of such impact is evidenced in contributions the UK nuclear structural integrity procedures (R6), Materials for Hydrogen Working Group and integrity assessment of reactor anchors and tendons for Magnox Ltd Oldbury reactors that produce savings of the order of millions of pounds . My role as the Programme Director for the Nuclear MSc, for which I have led its IET accreditation, together with the development of professional development courses (sicourse.com) shows my commitment to teaching and contributing to develop highly skilled professionals. Despite COVID-19, feedback from past and current cohort (most successful MSc in UK) together with that of external examiners

shows that the quality of my teaching and administrative duties is of the highest level. I have also act as an Editor for the Spanish Conference of Fracture Special Issue of International Journal of Pressure Vessels and Piping (2018) and contributed with several invited talks at national international Level (Oxford University, YGN, Manchester CDT, Seville University)





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Área Temática:	Producción industrial, ingeniería civil e ingenierías para la sociedad
Nombre:	GUILLEN BURRIEZA, ELENA
Referencia:	RYC2021-034094-I
Correo Electrónico:	e.guillen@aee.at
Título:	Renewable driven membrane processes for water supply and circular economy

Resumen de la Memoria:

I am an academic researcher enthusiastic about developing sustainable concepts using energy efficient engineering. I have a technical background in environmental water engineering with a strong focus on solar energy and thermally driven separation processes. Specifically, I am an expert on membrane distillation (MD) and Concentrated Solar Power (CSP) technologies. I have also acquired a strong knowledge on polymeric porous materials and membrane fabrication. In the past ten years, I became a recognized expert in MD and I have conducted pioneering research in studying certain aspects (i.e., wetting phenomena, membrane morphology, LEP modelling) and applications of the technology (i.e., ammonia recovery and its use as an energy vector). I have applied my expertise to the desalination field and more recently to the urban, industrial and biorefinery wastewater treatment fields to develop circular solutions.

I have spent most of my career abroad as part of international teams (in appointments in the United Arab Emirates, Cyprus and Austria), collaborating with some of the most relevant experts in the desalination, solar thermal and membrane fields in more than 25 countries and 3 continents including the Massachusetts Institute of Technology (MIT).

I have generated academic impact through high-quality scientific production in top journals (mostly in the top 5% impact factor) attracting more than 300 citations per year in the past 5 years (total citations >2000, h-index 17). Additionally, I have been invited as speaker and keynote speaker to top conferences in the fields of membrane science, desalination and CSP.

I have a very strong global collaboration network, resulting from the international research projects in which I am or I have participated (7 international projects including EU-H2020, EU-FP, IEA and specific US-MENA projects), my involvement in several tasks of the International Energy Agency and the impact of my scientific production.

Besides academic research, in one of my placements I have implemented a large CSP+D demonstration plant, which proved a unique experience. Hence, I am not only a successful scientist but also an accomplished project manager. I have been PI in one National and WP leader in EU H2020 project and I have experience in securing competitive project funding. I also have a proven capacity of leadership and establishing new lines of research when changing workplace. I have been successful in working at the highest scientific level at fundamental, pilot and demonstration scale.

Resumen del Currículum Vitae:

During my PhD at Plataforma Solar de Almeria (PSA), the biggest solar thermal research centre in Europe, I focused on desalination and its coupling to a solar thermal source. It was a very technological dissertation where I was able to focus more on the energetic aspects of membrane distillation (MD) and low temperature solar thermal technologies. The work I did during my PhD had a high impact in the MD scientific community as shown by my citations record of 2 of the articles published at that time (> 200 and >100). In fact, the evaluation of the MD pilot plant I did at PSA was one of the first reported in literature. The things I observed and the challenges I faced during my PhD awoke my curiosity to go deeper, into the heart of the system, the membrane. That is why I chose Masdar Institute (MI), a playground of experts and analytical techniques I could work with to examinate and develop new membranes. I was indeed privileged to learn and use a large number of analytical techniques (i.e., SEM, TGA, AFM, DSC, etc.) for the charaterization of polymeric materials. A particular part of my research that I am most proud of, was the fundamental studies I carried out together with colleagues at MIT on the impact of the membrane structure and physical properties on their hydrophobicity. This was one of the first systematic studies in MD membrane wetting at the time. As a consequence, my work at MI had an even bigger impact in the scientific community, including a highly cited review (1% in the field of chemistry). After 3 years of fundamental studies, I started wondering if solar desalination was a real solution for the water scarcity problems. That thought led me to my second postdoc at Cyl, where precisely a demonstration project was being built in this direction. Three years of intense engineering and a successfully implemented demo where an extraordinary opportunity to develop my project implementation and development skills. At AEE INTEC I explore completely new applications and ideas and I can implement them at pilot scale and act as a project manager. Starting in 2017, I was able to build a new line of research (ammonia valorisation via MD) which led to 4 projects and recently (01/22) one HORIZON-CL5 (FuelSOME) in which I acted/act as main researcher or PI. One of these projects (Ammonia2Power) received the prestigious national State Prize 2021 for Environmental and Energy Technology. During the past year, despite the pandemic situation, I was successful in the deployment and operation (24/7) of a new MD pilot plant (first of its kind) on site. This was a big achievement for the group.





Área Temática:	Psicología
Nombre:	BOBOWIK , MAGDALENA
Referencia:	RYC2021-032887-I
Correo Electrónico:	magdalena@bobowik.net
Título:	Determinants and mechanisms involved in intergroup relations
Description of a la Maria	

Resumen de la Memoria:

I am an interdisciplinary social psychologist, working in the field of intergroup relations. I have pursued three lines of research, with a focus on a) acculturation and intergroup relations, b) collective narratives and intergroup conflict, and c) emotions and wellbeing from the perspective of positive psychology. In the crossroad of these three paths, I have developed my own novel framework to address the role of emotional expression, and in particular positive emotional cues, in an intergroup context, incorporating diverse theoretical angles from emotion perception, intergroup relations, and intercultural communication. The main innovation in my current work lies in the combination of diverse methodological and statistical tools, including multivariate statistics such as structural equation modeling to test complex models in large-scale survey data, and the application of both laboratory and field experimental designs involving manipulation of facial visual stimuli and measuring real behavioral responses (e.g., donation behavior). My research vision is to continue and consolidate this research line into a research lab focusing on emotion perception within the area of intergroup relations and its implications for stimulating solidarity with and empowerment of less privileged social groups.

My research has generated valuable knowledge for addressing challenges in the field of migration and intergroup conflict. This work has been published in high-impact journals in social psychology such as Emotion, Group Processes and Intergroup Relations, European Journal of Social Psychology, or Cultural Diversity and Ethnic Minority Psychology, and has received a remarkable amount of citations (1311 in Google Scholar, on average 185 citations per year in the last seven years; h-index of 21). I have been awarded competitive predoctoral and postdoctoral fellowships from the Spanish Ministry of Education and Science (FPU program) and the University of the Basque Country (postdoctoral training program), respectively, as well as obtained a postdoc position at the Research and Expertise Centre for Survey Methodology (RECSM) at Pompeu Fabra University. I have attracted funding from, for example, the European Commission (Marie Sklodowska Curie Individual Fellowship at Utrecht University, 175,572.48), la Caixa Foundation (17,000), or European Association of Social Psychology (16,000). In parallel, I have initiated international research collaborations in synergy with civil society organizations (SOS Racismo, Refugee.Today) and attracted funding for joint activities.

Currently, as MSCA Research Fellow (see TEARAID) at the European Research Centre on Migration and Ethnic Relations (ERCOMER), Utrecht University, I develop a unique paradigm to examine, in laboratory and citizen science field experiments, the effects of emotional expression in real-life images of refugees on the promotion of prosocial behavior towards them. This experience, as well as research stays at the New School of Social Research in New York, the University of Groningen, the Free University of Brussels, or the University of Kent, among others, have allowed me to build a solid international research consortium, as reflected in the geographical diversity of my co-authorships.

Resumen del Currículum Vitae:

My work pursues three main research lines: a) acculturation and intergroup relations, b) collective narratives and intergroup conflict, and c) emotions and wellbeing. The main innovation in my recent contributions is the development of a novel framework on the role of emotional expression in intergroup relations, combining diverse theoretical and methodological approaches.

My research has resulted in high-impact contributions, with a progressive increase of the profile of my publications, markedly in 2021. I have published in top-level journals in my area in Europe (e.g., Group Processes & Intergroup Relations, European Journal of Social Psychology) and globally (Emotion, Cultural Diversity and Ethnic Minority Psychology). My publications are highly cited (1311 citations, h-index 21 on Google Scholar). My productivity is reflected in 53 articles in peer-reviewed journals (7 in first quartile JCR journals, and 15 as lead author) and 11 contributions to peer-reviewed book chapters in prestigious editorials. My work has been recognized with an Extraordinary Dissertation Award from the University of the Basque Country and a Young Researchers Award from the Spanish Scientific Society of Social Psychology.

My postdoctoral trajectory covers more than 7 years at the Dept. of Interdisciplinary Social Science at Utrecht University (the Netherlands), the Dept. of Political and Social Sciences at Pompeu Fabra University, and the Dept. of Social Psychology at the University of the Basque Country. In combination with mobility periods at renowned institutions such as New School of Social Research (the US) or University of Kent (the UK), this mobility has resulted in an extensive international collaboration network with distinguished researchers in the crossroads between the field of emotions (e.g., J. Zickfeld, Denmark), acculturation research and intergroup relations (e.g., M. Verkuyten and B. Martinovic, the Netherlands), and collective memory (e.g., J. Liu, New Zealand; L. Licata, Belgium; J. Vollhardt, the US). Currently, in the framework of my MSCA Fellowship, I am creating an international, interdisciplinary research consortium in the field of study of non-verbal expression of emotions in intergroup relations.

In recent years, I have demonstrated strong organizational and leadership skills. I currently lead a Marie Sklodowska Curie Individual Fellowship at Utrecht University (funded by the European Commission with 175,572.48). My proposal received an evaluation of 97.6/100 (among 3.7% best applications in a pool of 1740 proposals in the ST-SOC panel). In parallel, I have attracted funding from competitive calls to consolidate my own research, including grants from Ia Caixa Foundation (17,000), Utrecht University Migration and Societal Change Scheme (9,996), and from European Association for Social Psychology for coordinating two scientific events (16,000). I have been actively involved in supervision of doctoral dissertations, master and undergraduate theses, as well as mentoring international visiting junior researchers. I have taught several undergraduate and master s courses as well as summer schools, including Summer School on Migration, Integration and Ethnic Relations at Utrecht University. Along my career, I have also made special effort in creating synergies between academia, civil society and public institutions.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Psicología
Nombre:	CACCIAGLIA , RAFFAELE
Referencia:	RYC2021-031128-I
Correo Electrónico:	rcacciaglia@barcelonabeta.org
Título:	Neuroimaging biomarkers in preclinical Alzheimer's disease
Decumen de la Memo	rie.

Resumen de la Memoria:

I am a cognitive neuroscientist with a background in Psychology and Neuroimaging. My current research activity is devoted to gaining a better understanding of the brain mechanisms and cognitive processes that lead individuals to develop neurodegeneration and ultimately Alzheimer s disease (AD). I combine multimodal neuroimaging techniques with neuropsychological, genetics and biomarker data to pursue my research, with the ultimate goal of slowing down the AD epidemics in the population.

Research lines and perspectives: Over the past recent years, my research activities have focused on the following: (i) Assessing the impact of genetic risk factors for AD on brain morphology, function, and metabolism. My research has shown that the APOE-e4 risk allele for AD affects the brain morphology and function already in asymptomatic individuals. (ii) Discovering novel neuroimaging markers associated with the earliest biomarker changes in individuals at the inception of AD, to aid the design of clinical prevention trials. I have shown that an incipient cerebral amyloid deposition affects the brain structure and function in cognitively intact individuals. (iii) Determining the neural compensatory strategies enabling individuals with increased risk for AD, to maintain an efficient cognitive performance throughout life. My research has uncovered novel brain mechanisms associated to an efficient cognitive performance in individuals at increased risk for AD.

Scientific production and funding: I have published 31 research articles, of which 11 as the first author, in high-ranked peer-reviewed international journals (95% in Q1). According to the Scopus database, I have 574 citations with an h-index of 15. I have accumulated more than 40 participations in international conferences and 7 invited talks. I have also participated as co-investigator in 10 national and European research projects.

Leading capacity: I have supervised 3 master students, and currently supervising one PhD student at the international doctoral programme in Biomedicine of the Pompeu Fabra University. I am the corresponding author in 6 publications, all of them in Q1 journals, including one in the highly accredited journal Molecular Psychiatry (2020 IF: 15.99). Currently, I am co-leading one collaborative project with the Polytechnic University of Catalonia and one international project with the research department at Roche Diagnostic International.

International academic exposure: I have developed my entire research career abroad. In 2007, I moved to Germany to begin my PhD in Neuroscience (2008-12), and subsequently to Spain, to continue my academic training.

Teaching and mentoring activity: I serve as assistant professor at the University of Barcelona. In June 2020, I received the accreditation as tenureeligible lecturer by the Agency for Quality Assurance in the Catalan University System.

Resumen del Currículum Vitae:

I am a cognitive neuroscientist with a background in Psychology and Neuroimaging. My research activity is devoted to gaining a better understanding of the brain mechanisms and cognitive processes that lead individuals to develop neurodegeneration and ultimately Alzheimer s disease (AD). I combine multimodal neuroimaging techniques with neuropsychological, genetics and biomarker data to pursue my research, with the ultimate goal of slowing down the AD epidemics in the population.

I received my B.Sc. and M.Sc. in Psychology in 2005 at the Sapienza University of Rome, Italy, and later in 2006 the accreditation as clinical psychologist by the Italian Minister of Research and University. In 2007, I moved to Germany, where I spent a 6-month stay as research assistant at the University of Würzbug. In 2008, I obtained a competitive doctoral fellowship funded by the German Research Council (Grant. Nr. SFB636/C1), to begin my Ph.D. in Neuroscience at the Medical Faculty of the University of Heidelberg. Throughout my PhD, I worked in the field of psychiatry disorders with a focus on post-traumatic stress disorder, using neuroimaging genetics techniques. My doctoral thesis, which I defended in July 2012, was awarded with honors.

Between 2012 and 2014, I was a post-doc at the Department of Clinical Psychology and Psychobiology of the University of Barcelona, where I conducted research on sensory memory in the auditory perception. During this period, I participated as co-investigator in 5 research projects obtained from competitive calls. Of those, one was funded by the European Union.

Since 2014, I serve as an assistant professor at the Psychology Faculty of the University of Barcelona, where I teach clinical psychophysiology and cognitive neuroscience, in undergraduate and master programs. Throughout my teaching activity, I have developed solid mentoring skills, having supervised two undergraduate and three master theses. In addition, in April 2020, I was accredited as tenure-eligible lecturer by the Catalan University Quality Assurance Agency (AQU).

In April 2016, I joined the Barcelonaeta Brain Research Center (BBRC) as senior postdoctoral researcher. In this context, my primary mission is devising challenging research lines for the discovery of novel brain imaging markers in cognitively unimpaired individuals at genetic risk for Alzheimer s disease (AD). At the present stage, I am building my pathway for becoming an independent researcher. I am the supervisor of one PhD student from the PhD Programme in Biomedicine of the University Pompeu Fabra and co-leader in two collaborative projects with external entities, one of those being the Research Department at Roche Diagnostic International. Moreover, I am the candidate principal investigator in 2 research proposals currently being evaluated at the Spanish Ministry of Science and Innovation (subprogram for Knowledge Generation) and the Alzheimer s Association, respectively. Throughout my research career I have published 31 articles in peer-reviewed journals (95% in Q1), of which 11 as the first author. I am the corresponding author in 6 articles, among which one study recently published in the highly accredited journal Molecular Psychiatry. In addition, I have accumulated 7 invited talks and received 4 full pack travel grants, to present my work at international conferences.









Área Temática:	Psicología	
Nombre:	MUÑEZ MENDEZ, JOSE DAVID	
Referencia:	RYC2021-032929-I	
Correo Electrónico:	david.munez@nie.edu.sg	
Título:	Math learning disabilities: cognitive and environmental factors	
Desumer de la Mana	via -	

Resumen de la Memoria:

While my research program has and continues to evolve, my interests focus on math learning disabilities (MLD). Understanding the cognitive and environmental origins of MLD, how children with MLD can be identified, and how MLD can be ameliorated at early stages in development are questions that my research tries to address. I approach these research topics in a rigorous scientific manner and always think about the practical implications. Thus, my research tries to underscore the relevance of math and numeracy interventions early in development as there is evidence that children with poorer math skills at the onset of formal education have larger high-school dropout rates, as well as precarious jobs and lower wages in adulthood.

To pursue that aim, I have developed most of my research career in Singapore arguably, the place to be for educational research. At the Center for Research in Child Development (National Institute of Education, Nanyang Technological University, Singapore), I have had the opportunity to strengthen my research skills, broaden my research scope, and forge a research network with well-respected international scholars from the US, Canada, Europe, South-East Asia, and Australia. This collaboration has rendered an active research agenda on the topic of math learning disabilities and math achievement in early childhood. Some of my research contributions have helped to differentiate children with mathematical learning difficulties from their mathematically successful counterparts and to provide adequate support to children at risk of MLD.

Whilst my postdoc experience has contributed, mainly, to improving my research capabilities, it has also shaped my character. I believe that researchers must be socially responsible and contribute to establishing clear links between the lab, the classroom, and policymakers. Thus, my dissemination efforts have included both academic and non-academic contexts such as sharing sessions with parents, teachers, and stakeholders, which reflects a three-pronged approach (student, family, and school) to the study of math learning difficulties. This aligns with the well-known proverb It takes a village to raise a child .

Resumen del Currículum Vitae:

I received my Ph.D. degree in Psychology (European Doctorate Mention, Summa Cum Laude) from the Department of Educational and Developmental Psychology at University of Salamanca (Spain). My thesis was awarded the Extraordinary Price for Doctoral Dissertations of the University of Salamanca. As part of my period as doctoral fellow (funded by the European Social Fund and the Regional Government), I was granted a Brief Stay Stipend at K.U. Leuven (Belgium), where I was mentored by Dr Lieven Verschaffel a leading expert in the field of math learning and instruction.

I have 10 years of postdoctoral experience in the field of math learning disabilities and children s math achievement. I have spent most of that period at the Center for Research in Child Development of the National Institute of Education in Singapore (NIE, Nanyang Technological University) NIE is ranked 12th in the world and 2nd in Asia (QS World University Rankings) and is the sole teacher education institute for teachers in Singapore. During this period in NIE, NTU, Singapore, I have improved my technical-scientific capabilities and teaching skills. As part of my duties in NIE Singapore, I have been teaching methodological and statistical courses (quantitative) for the past 4 years and have supervised undergraduate students. Furthermore, I have co-supervised 2 Ph.D. students. I have also established a strong research network with reputable international scholars from Australia, Canada, Europe (Belgium, Spain), and Hong Kong, and have an active research agenda.

Thus far, I have contributed to more than 30 peer-reviewed journal articles and conference proceedings and above 50 peer-reviewed presentations at international conferences and scientific meetings. I have also contributed to secure over USD 5 mill in research grants as PI and Co-PI. I have served in examination boards, assessment programs, and frequently review grant applications for the Education Research Fund of the Ministry of Education in Singapore (ERFP). I serve as Executive Editor of Working Papers in NIE as well as Associate Editor of the Journal for the Study of Education and Development. I have also act as a reviewer of top-tier journals and scientific meetings in the field of Educational and Developmental Psychology.

I have worked hand-in-hand with school communities, and I have disseminated findings in sharing sessions with stakeholders (Singapore Ministry of Education), teachers (Ministry of Education Research Forum), parents, and the media.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:PsicologíaNombre:LOPEZ ROMERO, LAURAReferencia:RYC2021-032890-1Correo Electrónico:laura.lopez.romero@usc.esTítulo:Developmental heterogeneity of child conduct problems: Disentangling the role of psychopathic traits aspotential identifiers of risk

Resumen de la Memoria:

My research trajectory has been developed around the study of child conduct problems (CP), a relevant phenomenon with many different implications at the individual, familiar and social levels. Through longitudinal research, I tried to disentangle the developmental heterogeneity of child CP, examining the role of different temperamental, personality and environmental factors that may account for developmental differences across time. From them, I have particularly focused on the role of psychopathic personality, defined as a constellation of interpersonal (i.e., grandiose-deceitful), affective (i.e., callous-unemotional) and behavioral traits (i.e., impulsivity, need of stimulation), as well as their potential interplay with parenting practices (e.g., low parental warmth).

Across my research career, I was able to identify different developmental trajectories of CP, from childhood to adolescence, examining adaptive and maladaptive outcomes even into early-adulthood. In these studies, psychopathic traits emerged as a potential identifier of a high-risk profile. I have also put some effort in validating measures intended to assess psychopathic traits in childhood. Because it is a construct downward extended from adult research, it was important to first know whether its measurement is reliable and valid in young children.

I have also collected some evidence about the predictive value of psychopathic traits, and how psychopathic personality, reliably identified in early childhood through person-oriented approaches, indeed designates a specific subgroup of children at increased risk for later maladjustment, including stable CP and aggression. Particularly during my postdoctoral period, this research line has been developed within an international network of researchers, with some common publications.

I currently have my own project aimed at further examining cognitive and socioemotional deficits that may underlie CP in the subgroup of children with high levels of psychopathic traits, designating an etiologically distinctive subgroup. This will help to advance new preventive strategies specifically tailored to the unique needs of distinctive subgroups of CP children, including adapted parenting programs and a new-developed proposal based on Attention Modification Training.

Resumen del Currículum Vitae:

Over my research career, I have published 34 scientific papers, 1 dissemination paper, 5 book chapters and 1 book manual, 22 as first author. Among the scientific papers, 32 have been published in JCR journals (5 Q1). They accumulate 548 cites in Web of Science (WOS), with 14.2 cites on average per paper. I have an H-index of 11 according to WOS, and 16 according to Google Scholar (H-Index i10 = 21). My scientific production has significantly increased over the postdoctoral period, with 25 publications, 11 as first author, 4 as PhD supervisor and 10 as regular co-author. From them, 9 are part of international collaborations. I currently have 4 papers under review and 5 more in preparation, all but one in collaboration with international researchers. I overall accumulate 14.665 reads in Researchgate, with a research impact that significantly increased from 95.5 in 2016 to 537.8 in 2021. I have collaborated in more than 10 different projects within the UNDERSIK research group, one of them resulting in a patented product; I am now collaborating in a national funded project developed at the Universitat Autónoma of Barcelona. I made more than 60 contributions, 39 as first author and two as invited keynote speaker, to national and international conferences, including The European Conference on Personality, The EFCAP Conference, The Conference for the International Society for the Study of Individual Differences (ISSID), or the International Conference of Clinical and Health Psychology and Psychiatry, for which I also coordinated two invited symposia. From 2015, I have been invited to review scientific papers in international impact journals, including Child Psychiatry and Human Development, Journal of Abnormal Child Psychology, Journal of Psychopathology and Behavioral Assessment, Social Development, Psychological Medicine, Personality and Mental Health, Psychiatry Research, JAMA Pediatrics, Current Psychology or Neurobiology and Biobehavioral Review. Most of these peer-reviewed activity has been officially recognized in Publons and Elsevier Reviewer Hub. From 2019, I am also Assistant Editor in the Spanish Journal of Psychology. I received 4 awards rom different societies, and I am currently member of three different societies: Red Infancia, AIIDI (Sociedad Iberoamericana para el Estudio de las Diferencias Individuales) and the SSSP (Society for the Scientific Study of Psychopathy). Finally, I accumulate more than 350 hours of official teaching at the USC, I supervise two PhD students, one at the USC, and one at the Universitat Autonoma de Barcelona, and I am currently a PI of my own project and research team. In 2016, my research trajectory was positively assessed by the ANECA, and I was accredited as Profesora Contratada Doctora. My research career has also raised some social interest, and I have been invited to collaborate in different interviews and reports in local and autonomic newspapers and TV programs. I have also imparted some formative talks to parents and teachers in many different schools in Galicia.





Área Temática:	Psicología
Nombre:	JERCOG , DANIEL
Referencia:	RYC2021-031448-I
Correo Electrónico:	djercog@gmail.com
Título:	Neurobiology of aversive and appetitive instrumental learning and generalization

Resumen de la Memoria:

My research line aims to study the neurobiology of behavioral generalization, using behavioral, neurophysiological and computational tools. I m a computational neuroscientist and in vivo neurophysiologist using cutting edge techniques in the study of neurophysiology of associative learning. My personal research approach relies on the combination of a strong quantitative data analysis and computational models of neural networks and machine learning, with animal behavior, in vivo electrophysiology in freely-moving behaving rodents, pharmacology and optogenetics.

My first steps into the study of associative learning were during my computer science undergraduate thesis work at the Univ. of Buenos Aires (Argentina), modeling the learning of reciprocal altruism in an operant conditioning environment using artificial neural networks predicting several classical results from experimental psychology. Motivated to study how biological neural networks work, I moved in the direction of experimental biology and more biological realistic neural network modeling. I did my PhD in Biomedicine at Univ. de Barcelona (Spain) studying the mechanisms underlying the dynamics of cortical spontaneous activity across brain states focused on data analysis and computational modeling and in vitro experiments (Jercog D et al. Elife, 2017; Zabalza et al. 2020, J Physiology). Getting closer to the in vivo data together with the advent of the use of optogenetics in vivo, motivated me to pursue my postdoctoral training combining in vivo electrophysiology with optogenetics and behavior, in the study of the neurophysiology of learning. During my first postdoc at INSERM (France), I ve acquired the practices of behavioral, pharmacological and optogenetic manipulations, along with electrophysiological recordings in freely-moving behaving mice. I also deepened my data analysis skills on neuronal population dynamics and machine learning. I ve been involved in several projects working on the neural basis of learning and expression of defensive behaviors (Rozeske et al. 2018, Neuron; Jercog et al. 2021, Nature; Einarsson et al. 2022, bioRxiv; Winke et al. 2022, bioRxiv).

In my current postdoc (since 09/2020, Université de Bordeaux) at the laboratory of Cyril Herry (INSERM), I m developing a research line in the investigation of the neurobiology of appetitive and aversive generalization. Generalization is an adaptive fundamental process that allows the transfer of past learning towards present situations, if both past and present situations are regarded as similar. Despite its ubiquitous influence on learning, the underlying mechanisms of behavioral generalization remain mostly unknown. Understanding the neuronal circuitry, mechanisms implicated and contributing factors has multidisciplinary significance and remarkable clinical relevance.

I ve designed and established innovative behavioral paradigms and analytical approaches to analyze the information conveyed by neuronal populations' activity by using machine learning tools and study underlying mechanisms using computational models. My quantitative and computational background combined with cutting-edge experimental neurophysiology with causal optogenetic tools, place me in a unique position to comprehensively approach the studies in the neurobiology of generalization, the research line projected in this application.

Resumen del Currículum Vitae:

UNIVERSITY DEGREES
2013. PhD in Biomedicine (Computational Neuroscience). Universitat de Barcelona (SPAIN).
Thesis: Dynamics of spontaneous activity in the cerebral cortex across brain states. (Cum Laude)
Supervisors: Maria Victoria Sanchez-Vives, Albert Compte & Jaime de la Rocha.
2007. Licenciate in Computer Science. University of Buenos Aires (ARGENTINA).
Thesis: Role of Operant Conditioning on Cooperation in the Iterated Prisoner's Dilemma: A
Computational Model
Supervisors: Sergio Lew & Silvano Zanutto.
RESEARCH EXPERIENCE
09/2020 Present : Neuronal circuits of associative learning (Cyril Herry Lab)
Université de Bordeaux, Bordeaux (France)
Postdoctoral researcher.
02/2014 07/2019: Neuronal circuits of associative learning (Cyril Herry Lab)
INSERM (Neurocentre Magendie), Bordeaux (France)
Postdoctoral researcher.
02/2008 12/2013: Institute for Biomedical Research August Pi i Sunyer, Barcelona (Spain)
PhD candidate Thesis.
03/2006 08/2007: Instituto de Ingeneria Biomedica, Univesidad de Buenos Aires (Argentina)
MSc candidate Thesis.
MAIN PUBLICATIONS
peer-reviewed:
-Jercog et al. Nature 2021 (IF:49.9, 1st and corresponding author)
-Bienvenu et al. Neuron 2021 (IF:17.1, 3rd author, review)
-Rozeske et al. Neuron 2018 (IF:17.1, 2nd author)
-Jercog et al. Elife 2017 (IF: 8.1, 1st and corresponding author)

pre-print:



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

-Winke*,Aby*,Jercog* et al. bioRxiv 2022 (1st co-author)

-Einarsson, Flores, Jercog, Herry. bioRxiv 2022 (co-last and corresponding author)

PARTICIPATION IN CONFERENCES

Invited Talks:

10/2021. Bordeaux Neurocampus Day 2021 (Bordeaux, France).

02/2020. 8th International meeting of IBBRC (Haifa, Israel).

06/2013. Barcelona Computational Cognitive and Systems Neuroscience (Barcelona, Spain).

First-author poster presentations:

8 posters in international meetings (Society for Neuroscience, Federation of European Neuroscience).

FELLOWSHIPS

2010. Full scholarship to attend the international 15th Advanced Course in Computational Neuroscience, Freiburg (Germany). Institution: FENS-IBRO / Bernstein Training Center.

2007. Full scholarship to attend the international 5th Antonio Borsellino College on Neurophysics ", Trieste (Italy). Institution: International Center for Theoretical Physics.

TEACHING

2022. Instructor in the "Neural circuit basis of computation and behaviour" Cajal School.

CAJAL - Advanced Neuroscience Training Programme.

- 2007. Teaching Assistant on "Programming Language Theory", Computer Science MSc. Department of Computer Science, University of Buenos Aires (Argentina).
- 2005. Teaching Assistant on "Algorithms and Data Structures II", Computer Science MSc. Department of Computer Science, University of Buenos Aires (Argentina).
- 2003-2004. Teaching Assistant on "Mathematical Analysis", University preliminary courses.
 - Department of Mathematical Science, University of Buenos Aires (Argentina).

MENTORING

- During my first postdoc (2014-2019), I have mentored the work of PhD students and technicians. The outcome of their work has been reflected in publications for conferences or authorship in papers.

- Currently, I m leading a project where I (together with the PI) supervise the work of a postdoc and a technician.



VESTIGACIÓN

 Área Temática:
 Psicología

 Nombre:
 MIGUEL MALAXECHEVARRIA, ZURINE

 Referencia:
 RYC2021-033186-I

 Correo Electrónico:
 zurimiguel@gmail.com

 Título:
 Peripheral Mechanisms by which the peripheral body communicates with the brain and affect cognition and behavior.

Resumen de la Memoria:

I am a behavioral neuroscientist studying the relationship between biology and behavior, my broad research interest is to understand the mechanisms by which the peripheral body affects the brain and its function, including cognitive function and behavior during health and mental illness. I hold an Assistant Professor position in the Psychology Department at California State University (CSUMB) where I run my laboratory in Behavioral Neuroscience and I have obtained full accreditation by the ANECA. I have more than 12 years of international research experience in top research universities such as Stanford University, I have applied and obtained >\$1.2 million dollars in funding from the European Commission (i.e. Marie Curie IOF) and the American Government (i.e. Transportation Agency Monterey Bay and COVID Funds). I have published in high impact journals including Nature (impact factor 49.962) and Molecular Psychiatry, some of which are open access. I have presented my work at National and International conferences including invited oral talks, such as the 2021 Annual Meeting, World Congress on Exercise is Medicine. My work has been covered, and I have been interviewed, by the national and international press, including the New York Times, the Science Magazine, international radio programs and others. I have mentored and taught hundreds of students thru teaching and training in my laboratory. I am the principal investigator of two lines of research which includes the development of a new ethological model in behavioral neuroscience to study the beneficial effects of intermittent hypoxia and a second line of research studying the effects of physical exercise in children. To perform these projects, I have stablished lines of collaboration with the Department of Marine Biology at CSUMB, the external institution of Moss Landing Marine Laboratories and the Transportation Agency in Monterey Bay, California. The knowledge gained from these studies, aims to inform the rational design of new mechanistic studies aimed to de

Resumen del Currículum Vitae:

My research interest is to understand the mechanisms by which the peripheral body affects the brain and its function, including cognitive function and behavior during health and mental illness. My research program addresses questions at molecular, cellular, whole organism system and behavioral levels and l use a variety of techniques such as behavioral analysis, confocal imaging, microdissections, microdialysis, high-throughput RNA sequencing, proteomics and bioinformatics approaches to provide a stimulating and integrative research environment. Previously, I worked at Stanford University, as a Marie Curie International Outgoing Postdoctoral Fellow at the laboratory of Prof. Robert Sapolsky and later I worked as a Senior Scientist at the laboratory of Prof. Tony Wyss-Coray, a lab from Stanford and the Palo Alto Veterans Institute for Research. I have >12 years of international research and I have 15 scientific publications, including 10 publications in high impact factor journals and 2 book chapters, and my most recent manuscript that was published in the journal of Nature (impact factor 49.962). I have presented my work in (>18) conferences including invited to give oral presentations to international renowned conferences, such as the ACSM s 2021 Annual Meeting, World Congress on Exercise is Medicine. I just submitted an invited review for a Special Issue on the journal of Brain Plasticity on the effects of peripheral factors on the central nervous system during physical exercise. My last manuscript, which I developed and codirected, was published in Nature on Dec 2021. My work has received very positive press from journalist and radio programs around the world, including the New York Times, Science magazine, The Scientist, STAT and Alzforum among others. I also attended 14 international conferences where I presented my work as an invited speaker or via poster presentation. I would also like to kindly note here that it was during this postdoctoral time that my husband and I formed our family with 3 wonderful kids and I successfully fought cancer for over a year and half. With all, my scientific trajectory was also evaluated by the ANECA and I was accredited with the three figures, being "Profesora contratada Doctora" the highest accreditation. I did my PhD, between the University of Basque Country in Spain and the University of Colorado at Boulder, studying individual differences in behavioral coping strategies to social stress, the neurobiological and immunological correlates of these behaviors and their impact in the maintenance of chronic disease. I obtained a 4 year PhD fellowship from the Spanish Ministry of Education and within this time, I applied and was granted two international fellowships from the Spanish Ministry of Education (1.5 years total). Alongside my scientific career, I have taught courses in behavioral neuroscience since 2012 at Stanford University, San Jose State University and CSUMB and I have mentored over 30 students final projects. My students have presented their work at International and local conferences (Keystone, Stanford Summer, UROC-CSUMB). Additionally, I have also experience creating and coordinating regular scientific meetings on the topic of "brain inflammation: the role of microglia cells" at Stanford and now at CSUMB. The knowledge gained from my research will help to inform the rational design of new mechanistic studies aimed to develop new treatments for neurodegenerative diseases.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Psicología
Nombre:	COSTUMERO RAMOS, VICTOR
Referencia:	RYC2021-033809-I
Correo Electrónico:	vcostume@uji.es
Título:	Bilingualism and Cognitive Neuroscience
D	

Resumen de la Memoria:

My research can be contextualized in the framework of cognitive and affective neuroscience. I finished my PhD in Psychology at Universitat Jaume I in 2013, with a dissertation focused on studying the neurobiological bases of individual differences in reward processing using MRI techniques. During a two-year postdoc in the same university, I investigated the effects of bilingualism on cognitive control using fMRI network analysis. In 2016, I moved to the University of Valencia as a Juan de la Cierva - formación fellow. There, I performed diverse fMRI studies designed to investigate the neural basis of reading processes. Two years later, I moved to the Speech Production and Bilingualism group of the Universitat Pompeu Fabra after obtaining the postdoctoral fellowship Juan de la Cierva incorporación . There, I focused on the study of Alzheimer s disease and the neural basis of bilingualism as a cognitive reserve factor. Two postdoctoral formation. In 2020, I was granted a JIN type project funded by the national I+D+i program. Currently, I lead this project at the Universitat Jaume I. Over the course of my career, I have developed lines of research on personality, addiction, dementia, and bilingualism, within a common methodological framework: magnetic resonance imaging. I have published 38 research articles (16 as main author) and three book chapters, and I have supervised five PhD students. The next objective in my scientific career is to consolidate my current research team as a group for the study of the neuroscience of bilingualism. In addition to my work as a researcher, I have dedicated part of my time to mentoring activities. Thus, I have officially worked as a teacher in the psychology degree at both Universitat Jaume I and Universitat de València. I have also taught in the master of cerebro y conducta at the Universitat Jaume I. I have been advisor in one doctoral thesis, and I am currently supervising four PhD students.

Resumen del Currículum Vitae:

I have a total of 41 peer-reviewed international publications, including 38 research articles and 3 book chapters. I have played a principal role in 16 of my 38 research articles, including 12 papers as first author, 3 papers as corresponding author, and 1 paper as senior author. My publications have received >800 citations (Google Scholar). 71% of my research articles are published in JCR Q1 journals, 37% of which are published in JCR D1 journals. I have published in some of the highest-impact journals in cognitive neuroscience and neuropsychology, including Alzheimer s Research & Therapy, Addiction Biology (four times), Proceeding of the National Academy of Sciences, Journal of Neurology Neurosurgery & Psychiatry (twice), Neuroimage, Human Brain Mapping (twice), Brain Structure & Function (three times), Cerebral Cortex, etc.

71 works presented at international and national conferences. >30 works at key international conferences (Society for Neuroscience, Organization for Human Brain Mapping, World Congress of Biological Psychiatry, etc.). 4 oral presentations and one invited workshop in national congresses.

Advisor in 5 doctoral theses





Área Temática: Tecnologías de la información y de las comunicaciones Nombre: GARCIA PARDO, CONCEPCION **Referencia:** RYC2021-033207-I **Correo Electrónico:** cgpardo@iteam.upv.es Título: Interaction between electromagnetism and dielectric materials for different applications

Resumen de la Memoria:

Dr. Concepcion Garcia-Pardo, leads her own research line about the interaction between electromagnetism and dielectric materials for different applications, with special emphasis in human body tissues and medical diagnosis.

Dr. Concepcion Garcia-Pardo got her doctoral degree in 2012 by the French University of Lille 1 Sciences and Technologies (USTL) in collaboration with the Universidad Politecnica de Cartagena (UPCT), obtaining the Doctorate Outstanding Prize (Best Thesis Award).

In October 2012, Dr. Garcia-Pardo joined the iTEAM institute of the Universitat Politècnica de València (UPV), where the applicant opened a new research line about the interaction between wireless transmission of signals and the human body, with different applications. Thus, from 2012 to 2020, Dr. Garcia-Paro has led, as scientific coordinator, the European project WIBEC (2016-2019) about propagation for implanted devices, and the projects HEPATOAXIAL (2021-2022), eSCOPE (2021-2022), EMOTE (2020) and STuDER (2018-2019) projects, about body tissue characterization at gigahertz frequencies. Besides, Concepcion Garcia-Pardo has been also actively working on the proposal of chemical formulations (also known as phantoms) that allows a precise emulation of the body tissues for ultra-wide bandwidths in the gigahertz band. Such formulation was patented in 2017, and give rise during 2020 to the project COLODEM, where Concepcion is the Principal Investigator (IP). In addition, Concepcion has also been senior researcher in two European projects (2017-2021): WavecomBe and the 5GPPP 5G-SMART.

The investigations carried out by Concepcion has led her to open 2 new research lines in 2021. The first one about custom semisolid EM materials for future 6G communications, in which Concepcion is the IP of a contract with Huawei Technologies (2021-2022). This concept is expanded in the COREMAT-6G project (Ministerio de Economía, 2022-2024) for the development and prototyping of flexible intelligent surfaces, in which Concepcion is the scientific coordinator. The second research line is about human exposure in future 5G use cases, where Dr. Garcia-Pardo currently leads, as IP, the national project EMERGE-5G (AEI:Retos-JIN 2020, 2021-2024).

As a result, Dr. Garcia-Pardo is author of 39 very relevant papers according to CNEAI: 27 JCR papers and 12 CORE conferences. She is also co-author of 2 book chapters. She has supervised 6 PhD (Cum Laude mention) from 2014 to 2019, 9 Final Engineering-Degree Projects and 6 minor theses (Master degree). Concepcion Garcia-Pardo has been member of the Steering Committee of COST Action CA15104, TPC Chair of 2 international IEEE conferences in 2019, Exhibition Chair at EuCNC 2019, and Workshop Chair at IEEE PIMRC 2018. She is also member of the CCARS (Comité Científico Asesor en Radiofrecuencias y Salud) since 2020. From October 2021, she is also member of the Management Committee of the COST Action CA20120 representing Spain (selected by FECYT).

Resumen del Currículum Vitae:

Dr. Concepción García Pardo got her PhD degree (2012) from the French University of Lille 1 (Université des Sciences et Technologies, USTL) in collaboration with the Polytechnic University of Cartagena (UPCT), obtaining also the Extraordinary PhD Award. In 2012 she joined the Institute of Telecommunications and Multimedia Applications (iTEAM) of the Polytechnic University of Valencia (UPV), as a postdoctoral researcher. Since 2014 she leads her own research group focused on the interaction between the human body and electromagnetism applied to medical diagnosis and materials development for future communications systems.

Dr. García Pardo has participated in 20 R&D&I projects (~23 M total) in different roles: IP, scientific coordinator, work package leader or senior researcher. Specifically, Concepción has been scientific coordinator in the European MSCA-ITN-ETN WIBEC network on communications for implanted medical devices. Concepción has also participated in the European MSCA-ITN-EID WaveComBe and 5G-SMART projects supervising research tasks on the influence of the human body on millimeter band communications. Since December 2021, Dr. Concepción García-Pardo leads as PI the national project EMERGE-5G (2021-2024, 185,000) for the evaluation of human exposure to different scenarios and use cases in 5G. From January 2022 to December 2024, she is also scientific coordinator of the COREMAT-6G project, from the Spanish Ministry of Economy (2.7 M), devoted to the development of intelligent reflecting surfaces for future 6G systems based on custom materials.

In the medical area, Dr. Concepción has led as IP or scientific coordinator 5 research projects (2015-2021, 58.000) of medical diagnosis based on the development of diagnostic tools based on the difference of values of the dielectric properties of both healthy and pathological human tissues. In the area of materials, Dr. Concepción has led research aimed at designing customized materials that model the dielectric constant and conductivity of biological tissues. Currently, the study has been extended to all kinds of communications applications, leading to a contract with Huawei (2021-2022, 292,703), whose IP is Dr. Garcia-Pardo.

Dr. Garcia-Pardo is author of 39 highly relevant articles (CNEAI): 27 articles indexed in JCR (75% in Q1, h-index: 15, i10 index: 25) and 12 conferences indexed in the CORE ranking (Best Paper Award in 2018 at IEEE CSCN). She is co-author of 2 book chapters and 62 contributions to international conferences.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	BERGMEIR , CHRISTOPH NORBERT
Referencia:	RYC2021-031299-I
Correo Electrónico:	christoph.bergmeir@gmail.com
Título:	Machine Learning for Time Series Forecasting

Resumen de la Memoria:

Christoph has made a number of significant contributions to the area of time series forecasting, especially in the area of predictor evaluation, Machine Learning methods in time series forecasting, Recurrent Neural Networks, feature extraction, and ensembling, as well as downstream tasks from forecasting such as causal inference, local interpretability, and the combination of forecasting with optimisation. He has published over 60 peerreviewed papers in this space, with 39 publications in international journals and 22 publications in peer-reviewed conferences. Out of those, 27 publications are in Q1 JCR-indexed journals and 4 of the papers are Clarivate Highly Cited Papers. In total, he has over 3800 citations and an h-index of 23, which are high numbers for a

researcher in his field and stage of career.

Christoph is at the forefront of Global Forecasting Models, with Clarivate Highly Cited papers in the International Journal of Forecasting and Expert Syst. with Applications in this space. Christoph has furthermore published follow-up papers in this research line in top venues such as IEEE-TNNLS, Pattern Recognition and Knowledge-based systems (for details see CV).

In the field of predictor evaluation, Christoph worked during his PhD and after on the use and applicability of cross-validation for forecasting. Evaluation of predictions is notoriously complex (in terms of error measures and model selection), and some of the highest cited papers in forecasting deal with evaluation procedures. Christoph has published in this space two Clarivate Highly Cited papers, together with some other contributions.

Christoph has also made significant contributions around the downstream use of global forecasting models, with works around interpretability, which won a competition and was published in a top AI conference (AAAI, Core A*), and Causal Inference (two conference papers, see CV). The data repository at forecastingdata.org promises to greatly facilitate benchmarking of global models in the future, which is why the associated paper could be published in the corresponding NeurIPS track (one of the 2 leading machine learning conferences, Core A*).

With Christoph s organisation of the ``IEEE-CIS Technical Challenge on Predict+Optimize for Renewable Energy Scheduling he has been able to position himself as a leading researcher in the very relevant and novel research topic of the combination of forecasting and subsequent optimisation. Algorithms of this type are crucial in the transition towards carbon-free energy generation, everywhere along the supply chain, traffic, and many other areas.

Since early on in his career, Christoph focused on implementing useful open-source software (see CV for associated papers), and on the participation in industry projects. More recently, Christoph has led such industry projects, e.g., the development of a wind- and solar short-term forecasting system that is now offered as a product by the industry partner, and that led to coverage across print and online media, as well as a radio interview with Christoph. Finally, Christoph also has a track record of working with high-caliber Silicon Valley companies, with research visits to Uber, talks at Walmart, Uber, Facebook/Meta, and finally a long-lasting and healthy collaboration with Facebook/Meta.

Resumen del Currículum Vitae:

Christoph Bergmeir obtained his PhD degree ("sobresaliente cum laude", "mención internacional") in Computer Science from the University of Granada, Spain, in 2013. Before, he obtained a Master in Soft Computing and Intelligent Systems from the University of Granada in 2009 and a "Diplom-Informatik" degree from the University of Ulm, Germany, in 2008 (homologated in 2011 to "Ingeniero en Informática").

Christoph is a Senior Research Fellow in the Department of Data Science and Artificial Intelligence at Monash University, Melbourne, Australia. He has a permanent Teaching and Research position (Senior Lecturer, equivalent to US Associate Professor) that is currently modified to a 3-year research-only position through a Discovery Early Career Researcher Award (DECRA) from the Australian Research Council (ARC), 2/2019-2/2022.

Before the DECRA, Christoph was a Research Fellow, then fixed-term Lecturer, then permanent Lecturer in the same department, 10/2014 - 2/2019. Before, he was a post-doctoral researcher within the project OPTIRAIL (FP7), University of Granada, Spain (2013-2014).

Furthermore, Christoph is a member of the Department Executive Leadership team as the Director of Engagement (since 2020), and has been an External Engagement Coordinator for the Department and the Machine Learning Subgroup before, since 2018. In the role, he coordinates engagement of the department with industry partners and other external stakeholders. In 2021, he won the Dean's Award for Excellence in Research Enterprise, and in 2018 the Dean's Award for Excellence in Research of an Early Career Researcher, both from the Faculty of IT (over 150 academics) at Monash. Christoph has an h-index of 23, with over 3800 citations (over 1000 in 2021; Google Scholar, 29/1/2022). Four of his publications on time series forecasting have been Clarivate Highly Cited Papers (top 1% of their research field). He has published in total 60 papers: 39 papers in international journals such as IEEE Transactions on Neural Networks and Learning Systems, Pattern Recognition, International Journal of Forecasting, and others, and 21 papers in refereed conference proceedings such as AAAI, NeurIPS, PAKDD, IJCNN, and others. He currently (co-)supervises one research fellow, 7 PhD students, and 3 Minor Master s students, and (co-)supervised another 2 post-doctoral research fellows, 5 PhD students, 29 Minor Master s students to completion. He has produced 12 packages for the R programming language (most of them published on CRAN). Christoph has received more than AUD\$2.7 million (EUR 1.7 million) in external research funding as a Chief Investigator, in a variety of projects with external partners in diverse sectors, such as sustainable energy and supply chain. He has led teams that have delivered systems for short-term power production forecasting of wind and solar farms, and energy price forecasting. His research on wind- and solar power forecasting was covered by several media outlets (print, radio, and online), and is currently offered by the industry partner as a product.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	TAVARES SOUSA, CELIA
Referencia:	RYC2021-034637-I
Correo Electrónico:	celia.tsousa@uam.es
Título:	Functional nanomaterials and devices for biomedical and energy storage technological applications

Resumen de la Memoria:

My research career is dedicated to nanotechnology and my interdisciplinary research has been mainly focused on the development and modeling of new functional materials and devices for biomedical and energy storage technological applications. I would like to stream-line my future research toward the implementation of plasmonic and magneto-plasmonic low-coast nanomaterials in photoelectrochemical solar cells to improve their efficiency.

During my PhD at Institute of Materials Physics of Porto University (IFIMUP, Portugal) and ISOLDE-CERN (Switzerland) under the supervision of Prof. J.P. Araujo (UP) and Dr. J.G. Correia (ISOLDE-CERN), I worked on development of a home-made nanofabrication methods to grow nanowire and nanotube arrays into porous anodic alumina templates and their functionalization for application in biomedical devices.

Upon completion of my PhD (2011), I was awarded with a Post-Doctoral FCT mix-fellowship between IFIMUP (Portugal) and Institute of Nanoscience of Aragon (INA, Zaragoza, Spain). In order to extend the subject of my research, I started a new research line focusing on the development of new materials and devices for solar photoelectrochemical energy storage. I dedicated my work to the development of new nanostructured titania and hematite-based photoanodes. Moreover, and in order to improve the photoanode response, we are currently working in the integration of plasmonic nanostructures into the photoanode. Within this approach, a perfect symbiosis between hematite photoanode and the plasmonic material is being achieved. Between 03/2013 and 03/2014, I was contracted as auxiliar researcher at CEMUP in Porto University for the set up and improvement of a clean-room facility.

In 2017, I was awarded with an FCT research contract for leading the study of the plasmonic and magnetic devices for energy and biomedical applications (the most competitive call in Portugal with success rate ~8%). Moreover, from 2013 to 2019, I was also lecturer (auxiliar professor) at the Portuguese Catholic University (UCP, Portugal).

Since January of 2022 I have a 5-years position as a Senior Researcher at Universidad Autonoma de Madrid, Spain (Program Atracción de Talento (CAM) Modalidad 1 a competitive international call for researchers that have more than 3 years out of Spain).

I already completed the supervision of 3 PhD students and 8 master students, 10 academic internships and 3 project fellows.

Among the different projects I was involved, I was the PI of 2 European projects (MSCA-RISE-734801-MAGNAMED and COST: OC-2016-1-20999) and 3 National (Portugal) and I am currently the PI of the project associated to my contract (200k euros).

Although I had two maternity leaves during my postdoctoral stage, I published 70 papers in international peer review journals with over 1650 citations and my h-factor is 23 (scopus/ISI) and 2160 citations and h-factor 27 (google scholar).

Resumen del Currículum Vitae:

Production metrics: (Scopus Source, 07th Feb 2022)

Peer reviewed articles: 70 (+10 proceedings) Invited book chapters: 4 (+1 in press)

H-index: 23, Citations: 1658, more than 150 citations per year (last 5 years)

25 papers as main author (1st or corresponding) and 7 papers as a research leader (last author/corresponding) in the last 3 years.

I am specialized in nanoscience and nanotechnology and my interdisciplinary research has been mainly focused on the fabrication of nanostructures using self-assembling methods for biomedical and fuel cells technological applications.

After completed my PhD degree in Physics Nanotechnology between Porto University (UP) and ISOLDE-CERN, I awarded a Post-Doc FCT mix-fellowship between IN-FIMUP and INA, Zaragoza University (Spain). Between 03/2013 and 03/2014, I received a contract as a assistant researcher at CEMUP. I also worked as invited professor at the Portuguese Catholic University (UCP) from 2013 to 2019, where I was Coordinator Professor of the degree class of Waves and Electromagnetism (3rd year) and Numerical Analysis (2nd year) for BioEngineers. In the 2017 Investigador FCT call, I awarded a competitive grant (success rate ~8%) and thus I am now researcher at IFIMUP-FCUP.

Since January of 2022, I have a 5-years position as a Senior Researcher at Universidad Autonoma de Madrid, Spain (Program Atracción de Talento (CAM) Modalidad 1 a competitive international call for researchers that have more than 3 years out of Spain).

During my research path, I have spent more than 1 year in an interdisciplinary research institute (INA, Spain) and I performed several short and long stays in highly competitive and multidisciplinary international laboratories such as CERN (8 stays), Hasylab-DESY (Germany), ELECTRA (Italy), CNRS (France), and Max-Plank Institute in Berlin (Germany), UNICAMP (Brazil), UPV (Basque Country, Spain), UCM (Madrid, Spain).

I already completed the supervision of 3 PhD students and 7 master students, 10 academic stages and 3 project fellows. I am the supervisor of 3 ongoing PhD students, one of them will finish the PhD in May 2022, one in 2023 and the other started this year.

I had an active participation in 27 projects, I was Principal Investigator (PI) of 5 projects (3 national and 2 european projects) with a total of > 1M Euros.

I am currently the Principal Investigator (PI) of a 200 k Euros Grant associated to my research contact.

More than 75% of my publications are in Q1 journals (i.e. Energy Environ. Sci., Nano Energy, Chem.Mater. J.Mater.Chemistry A, ACS Appl.Mater.Inter.) I am the first author of 14 papers, and I am the corresponding author of 11 papers. I have 13 invited talks and 76 oral and 88 poster contributions in national (~50%) and international (~50%) conferences. I also have 3 awards of best poster and 1 of best oral presentation. My work was also distinguished several times: IOP selected article 2014; Invited - Nanotechnology Lab Talk, Applied Physics Reviews Editor peak in 2014 and Featured Article at Applied Physics Reviews in 2019.

I am regular Reviewer in more than 10 journals: Nano Letters (ACS); ACS Applied Nano Materials, Nanoscale (RSC).

I was Jury of 5 PhD Thesis and 4 master thesis (U. Minho, Portugal (2018), UCM, Spain (2019), UAM, Spain (2020), UNICAMP, Brazil (2021)).



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:Tecnologías de la información y de las comunicacionesNombre:ABELLAN MIGUEL, JOSE LUISReferencia:RYC2021-031966-ICorreo Electrónico:jlabellan@ucam.eduTítulo:Efficient Data Orchestration in Computing Architectures (EDOCA)

Resumen de la Memoria:

I gained my BSc (2007), MSc (2008), and Ph.D. (2012) in Computer Science and Engineering at the University of Murcia (Spain). In the summer of 2011, thanks to a prestigious HiPEAC collaboration grant, I did a pre-doctoral internship at the University of Ferrara (Italy). From 2012 to 2014, I was a postdoctoral researcher at Boston University (USA). In September 2014, I gained an Assistant Professor position at UCAM University (Spain) my current institution sited in my hometown.

From 2012 until today, I have been able to establish fruitful collaborations with several renowned international researchers from both academia (Boston Univ., Northeastern Univ., KAIST, William&Mary, Univ. of Ferrara, Georgia Tech, and Glasgow Univ.) and industry (AMD, NVIDIA, and Huawei) that have led to collaboration in funded research projects, and multiple publications in highly relevant conferences (two in flagship venues) and in the most prestigious journals, and development of important research tools (MGPUSim and STONNE).

In 2019, I created the ECoArTech lab. (now with 2 postdocs, 3 Ph.D. and 1 MS student). I am a module coordinator in a national 3-year project, leading a 6-member team. I signed a 188K-euro 30-month technology transfer project with Huawei. To accomplish the project goals, I lead a 2-member team. I was the thesis advisor of 37 MSc students and one Ph.D. student (now, of 3 Ph.D. students and 1 MSc).

Currently, I am an internationally recognized expert and leader in my research line: Efficient Data Orchestration in Computing Architectures (EDOCA) targeting CPU, GPU, and customized DNN accelerators. My h-index is 14 and my publications have a total of 620 citations. I have served as a TPC, as a Chair (program, publicity, session, and track chair), and as a co-organizer in numerous international conferences and workshops. I am a full HiPEAC member, an IEEE Senior Member, and a distinguished reviewer of the ACM TACO journal. I am an editor of the MDPI Electronics journal. I got the best paper award at IPDPS 2011, the HiPEAC 2019 and HiPEAC 2020 paper awards, and the best paper nomination at NOCS 2021.

Resumen del Currículum Vitae:

I am currently an Assoc. Prof. at Universidad Católica de Murcia (Spain). I am an internationally recognized expert and leader in my research line: Efficient Data Orchestration in Computing Architectures (EDOCA) targeting CPU, GPU, and customized DNN accelerators. As to my main scientifictechnical achievements, I highlight: 1) Publication of my GBarriers and GLocks on-chip networks for synchronization in many-core CMPs in the ICPP 10 and IPDPS 11 (got the best paper award) conferences, respect., and in TPDS 12 (JCR Q1) and JPDC 13 (JCR Q2) journals, respect. Thanks to gaining a HiPEAC collaboration grant, I published a new version of GBarriers in DATE 12. GBarriers and GLocks have inspired new ways for synchronizing application threads in CPUs and GPUs via wired, wireless and photonics interconnects. 2) Publication in DATE 14 a novel thermal management technique applied to my photonically-interconnected many-core CMP. An extension was published in TCAD 17 journal. This work has inspired new ways to implement thermal management techniques for CPUs. 3) Publication in NOCS 15 of a novel on-chip fabric for GPUs. My expertise in photonics contributed to extending this work with a photonic NoC (the first work in this direction) and was published in ICS 15. I was an invited speaker to present this work at the OPTICS 18 workshop. 4) Publication in IISWC 18 the first profiling of DNN workloads in multi-GPU systems, which entailed a new direction of my EDOCA research line (multi-GPUs). Thanks to this, I was an invited speaker at the AISTECS 19 workshop. 5) I co-designed with my international USA collaborators and AMD a new GPU architectural simulator (MGPUSim). MGPUSim was published in the prestigious ISCA 19. So, I got the HiPEAC 19 paper award. I led an MGPUSim tutorial at ISCA 20. MGPUSim allowed us to publish a new memory-management technique for multi-GPU systems in the prestigious HPCA 20 and I got the HiPEAC 20 paper award. 6) Publication of the first open-source simulator for DNN accelerators (STONNE, which was created by my PhD student) in the IISWC 21 conference. We are extending STONNE in collaboration with Georgia Tech and NVIDIA. Using STONNE we published a new on-chip network for DNN accelerators in NOCS 21, which was nominated as the best paper. I co-organized a STONNE tutorial in the prestigious ASPLOS 22. As to my funding, I signed a 188K-euro 30-month contract (Sept. 2021 - Feb. 2024) with Huawei. As to my leadership, in 2019 I created the ECoArTech lab. (now with 2 postdocs, 3 PhD students, and 1 MS student). I am a module coordinator in a national 3-year project, leading a 6-member team. I lead a 2-member team in my Huawei project. I was the thesis advisor of 37 MSc students and one PhD student (now, of 3 PhD students and 1 MSc). So far, I have developed my publications with a total of 79 researchers (61 international ones), contributing to training a total of 22 young investigators; 8 of them are now PhD researchers in either academia or industry. Since 2014, I have been a regular TPC member and Chair (Program, Workshop, Session, Track, Publicity), and General Co-Chair (AccML 20, '21, and '22 workshops). Since 2011 I have been a regular journal reviewer in 16 JCR journals (as of 2021, I am a distinguished ACM TACO reviewer). I am an editor of MDPI Microelectronics. I am a full HiPEAC member and an IEEE Senior Member.



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:Tecnologías de la información y de las comunicacionesNombre:COCCO , GIUSEPPEReferencia:RYC2021-033908-ICorreo Electrónico:gcocco81@gmail.comTítulo:Reliable wireless communications for IoT and broadband terrestrial and satellite networks

Resumen de la Memoria:

A telecommunications engineer by training, I am a postdoctoral researcher at the Information Theory and Coding group of Pompeu Fabra University (UPF). Previously I held a Marie Skłodowska-Curie Individual Fellowship awarded by the European Commission at the École Polytechnique Fédérale de Lausanne (EPFL) (2017-2019) and worked as Senior Researcher and Project Manager at the Institute for Communications and Navigation of the German Aerospace Center (DLR) (2014-2017). I hold a PhD in Signal Theory and Communications from the Polytechnic University of Catalonia (UPC) (2013) which was carried out under the European Space Agency (ESA) co-funding program Networking/Partnering Initiative - NPI.

I am mainly concerned with communication over wireless channels, with focus on interference and fading countermeasures as well as delayconstrained communications. I strongly believe that a combined knowledge of theoretical and algorithmic/implementation aspects can help me to give a valuable contribution to my research field and students. This is reflected in my CV and in the three different, but interrelated research lines detailed in the following.

My first line of research is concerned with satellite communications (SatCom). SatCom lately gained renewed interest thanks to the NewSpace paradigm, which brought about an increased offer of launch possibilities, with a consequent reduction of the cost for sending satellites into orbit. I target both forward (satellite to user terminal) and reverse (user terminal to satellite) links, tackling impairments such as channel unreliability in Land Mobile Satellite networks, and interference.

My second research line focuses on the study of delay-constrained communications. I study both the intrinsic information-theoretical limits as well as algorithmic approaches capable of achieving them. This research line includes the study of error exponents, that have great theoretical and practical value, as well as delay-constrained video compression and streaming from UAVs and other mobile platforms.

Closely linked to SatCom is my interest in random access (RA) networks, a key enabler for the Internet of Things (IoT), in which a massive number of terminals sporadically transmit short messages. In this case an ALOHA-like random access system is a natural choice for its low complexity. The drawback is the limited peak throughput and the high packet loss rate. I focus on novel MAC and physical layer techniques to improve the performance of RA systems, as well as on the study of new metrics capturing the relevance of the information being transmitted.

Resumen del Currículum Vitae:

I am a research scientist interested in theoretical and algorithmic aspects of terrestrial and satellite wireless communications. I published 13 works (plus two under review) including international journals, one book and one book chapter. My publications include highly ranked journals embracing the broad area of telecommunications and top-quality journals dedicated to the field of satellite communications. I took part to 22 peer-reviewed international conferences and worked in over 10 research projects. I have had one invited talk (Workshop on Coding and Random Access held in Munich, Germany, organized by the MIT U.S.A., DLR and TUM Germany), one invited journal paper and two invited conference papers. I hold three patents, have been twice member of PhD thesis defence evaluation committees, 15 times conference Technical Program Committee (TPC) member and chaired three conference sessions.

I have a highly international profile in terms of academic mobility and scientific collaboration. I was Marie Sklodowska-Curie Individual Fellow at the École polytechnique fédérale de Lausanne (EPFL) in Lausanne, Switzerland (2017-2019). Before that I was senior researcher and project manager at the German Aerospace Center (DLR) in Munich (Germany). I pursued my PhD studies at the Polytechnic University of Catalonia (UPC) (Barcelona) (Mención de Doctor Internacional), while working as research assistant at the Catalan Technological Telecommunications Center (CTTC) (Barcelona). I have been awarded the Networking/Partnering Initiative grant (PhD co-funding) by the European Space Agency (ESA) and between 2010 and 2011 I spent 13 months at ESA s European Space Research and Technology Centre (ESTEC) in Noordwijk, The Netherlands. I got my master s degree in Telecommunications Engineering (Cum Laude) from the University of Pisa (Pisa, Italy) in 2008.

I have a wide network of international scientific collaborators. The works that stemmed from such collaborations range from theoretical ones, such as those with renowned information theorists of Cambridge University (U.K.) and of Imperial College of London (U.K), to high Technology Readiness Level (TRL) projects carried out with ESA, as well as works merging theoretical, algorithmic and experimental aspects, as in my works in collaboration with EPFL and University College London (U.K.).

I have solid experience in securing research funds, project management and leadership. In three occasions I defined the lines, proposed and obtained funding for my own research projects (NPI, Marie Sklodowska-Curie IF, Beatriu de Pinos). While at DLR I managed an ESA-funded project, involving the supervision of a team with six people.

I have student mentoring, supervision and teaching experience: I have been advisor of one PhD student who successfully defended her thesis at the University of Bologna (Italy) in 2019. I also co-supervised one master thesis student, two master-level student projects, have been teaching assistant in three master-level robotics courses at EPFL and two BA courses at UPF.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Since January 2021 I am Topic Editor for the peer-reviewed journal Entropy (Impact Factor 2. 524). In 2020 I have been awarded the Loyal Member recognition for 10 years in IEEE. I am member of the IEEE Inf. Theory Society and the IEEE Commun. Society and I regularly review for top-tier journals in these fields.





Área Temática:Tecnologías de la información y de las comunicacionesNombre:MARTINEZ SANCHEZ, ANTONIOReferencia:RYC2021-032626-ICorreo Electrónico:an.martinez.s.sw@gmail.comTítulo:Computer methods for biomedicine at molecular level

Resumen de la Memoria:

I am a researcher in the field of computer sciences applied to image processing for molecular and cell biology that, before enrolling for the PhD program, acquired 3 years of experience in computer vision applied to the industry. I have strong programming skills focused on algorithms implementation, a solid mathematical background, and knowledge for cell biology and the physics of image formation wide enough to identify which biomedical questions can be solved by applied computer sciences.

My academic career began with a PhD on computer sciences with international doctorate certification by the University of Almería and funded by a FPI grant, thesis entitled Computational techniques based on differential geometry for segmentation in electron tomography. There I participated in several research projects funded by the Spanish Ministry of Science. After my PhD, the software package TomoSegMemTV was released containing the most robust and efficient computational method for membrane segmentation in cryo-electron tomography. This computational method has become the method of choice in the field so is being integrated into AmiraTM 2D/5D image visualization and analysis software, the commercial solution of Themo Fisher Scientific, a worldwide leader in biotech, as well as life and material sciences imaging.

Afterwards, I started a postdoc at the department of molecular structural biology in the Max Planck Institute of Biochemistry (Germany), initially funded for 2 years by a postdoc competitive grant (Fundación Séneca), extended 4 years with funds of an ERC-Synergy Grant and finished as senior scientist at the University Medical Center of Göttingen (Germany), funded by the German Cluster of Excellence program. There I proved that the quantitative analysis of cryo-electron tomography data enables to solve relevant and long-standing questions in biology and biomedicine. More recently, I published a computational procedure for template-free detection and classification of heterogeneous membrane-bound complexes in situ, which has discovered new macromolecular species. There I also supervised a PhD thesis devoted to computer methods and winner of Junior Scientists Publication Award 2020 at the Max Planck Institute of Biochemistry.

In Oct 2020, I started a position as assistant professor in computer sciences and artificial intelligence at the University of Oviedo, there I was also affiliated as senior scientist at the Health Research Institute of Asturias (ISPA). I have gathered funds from international companies and public institutions, with these funds I have raised and lead a stable independent research team with the purpose of accelerating the arrival of new algorithms to enable quantitative imaging for life sciences. I collaborate with prestigious groups at the forefront in cryo-electron tomography and its application in major breakthroughs in biology, biomedicine and applied computer sciences. At the national level, I collaborate with well-established and most-advanced groups in applied computer sciences and image processing. I have already completed a transference project with an international company leader in biotech, currently I have another one in progress with the same company.

Resumen del Currículum Vitae:

CURRENT AND FORMER POSITIONS:

- Assistant Professor in Computer Sciences and AI / University of Oviedo / Oct 2020 present
- Senior Scientist / University Medical Center Göttingen / Jan 2020 Sep 2020
- Postdoctoral associate / Max Planck Institute of Biochemistry / Jan 2014 Dec 2019
- PhD associate / University of Almería / Sep 2009 Dec 2013
- R&D engineer / Private sector (Indra Systems and AIDO) / Jan 2007 Sep 2009

EDUCATION:

- PhD in Computer Sciences / University of Almería / 2013
- MSc in Advanced Computational Techniques / University of Almería / 2010
- << Private sector break>>
- Telecommunications Engineering / Technical University of Cartagena / 2006
- BSc in Optics / University of Murcia / 2001

RESEARCH PROJECTS:

- PI in a research project founded by Thermo Fisher Scientific.

- Participant in 1 ERC-Synergy Grant, 1 German Cluster of Excellence, 4 founded by the Spanish Ministry of Sciences, 2 by regional public administrations, and 1 by private entities.

QUANTATIVE DESCRIPTORS FOR REASEARCH QUALITY:

18 articles in peer-reviewed scientific journals indexed in JCR (1 more in review). 6 are in the top journal in their category (5 in major journals with impact factor > 30), 4 in the 1st decile, 5 Q1 and 3 in Q2. One article was selected for cover in an issue of Cell. First author in 7 contributions and corresponding in 3 and co-author in 1 book chapter (1 more in review).

Presented results in 14 international conferences, 6 with proceedings, selected or invited to talk in 10 and invited in 6 seminars and workshops. Google Scholar: 1020 citations (947 since 2017), h-index 12 (12 since 2017), index i10 13. Web of Science: 674 citations, h-index 12. (Feb 2022)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

TECHNOLOGY TRANSFERENCE:

- Integration of the algorithm developed in [J Struct Biol (2014) 186:49-61] in Amira Software. Thermo Fisher Scientific. 01/2018 12/2018.
- High Performance Computing to accelerate the algorithm developed in [J Struct Biol (2014) 186:49-61]. Thermo Fisher Scientific. 09/2021-present
- Efficient Template Matching with rotations. Thermo Fisher Scientific. 09/2021-present

THESIS SUPERVISION:

- Ludwig-Maximilians-University of Munich:
 - + 1 PhD Thesis (awarded with the Junior Scientist Publication Award of the Max Planck Institute of Biochemistry)
 - + 1 MSc Thesis
 - + Member of the Thesis Advisor Committee for 2 PhD students

- University of Oviedo:

- + 1 PhD Thesis
- + 2 BSc Theses

OTHER RESEARCH ACTIVITIES:

- Senior Scientist at the Heath Research Institute of Asturias (ISPA). 09/2020 present
- Guest Researcher at the Max Planck Institute of Biochemistry. 12/2019 present
- Guest Editor at the journal Computer Methods and Programs in Biomedicine (Q1 in Computer Sciences Theory & Methods)

- Journal reviewer:

- + J Cell Biol (8.891 JIF; Computational Tools Section)
- + IEEE Trans on Med Imag (10.048 JIF; Computer Sciences applications)
- + J Ambient Intell Humaniz Comput (7.104 JIF; Computer Sciences artificial intelligence)

OTHER ACHIEVEMENTS:

- Ranked 1st in the challenge SHREC 19 Track: Classification in Cryo-Electron Tomograms part of Eurographics Workshop on 3D Object Retrieval. 2019

- Awards for the best academic record. University of Murcia. 2001



AGENCIA ESTATL DE INVESTICAL

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:Tecnologías de la información y de las comunicacionesNombre:RAMIRO GONZALEZ, IÑIGOReferencia:RYC2021-034610-1Correo Electrónico:i.ramiro@ies.upm.esTítulo:Quantum-dot based optoelectronic devices

Resumen de la Memoria:

Dr Ramiro s career has focused on advanced optoelectronic devices that exploit the quantum properties of nanostructures to overcome some of the limitations of conventional bulk semiconductors.

From 2010 to 2015, Dr Ramiro pursued his PhD at the Universidad Politécnica de Madrid (UPM). The core of that work was the development of intermediate band solar cells (IBSC) fabricated with epitaxially-grown quantum dots (QD). The IBSC is an advanced photovoltaic (PV) concept that can increase the efficiency of solar cells by extending the photon absorption to energies below the semiconductor band gap. Prior to his PhD work, the underlying physical principles of IBSCs had just been demonstrated. Dr Ramiro carried out relevant contributions in the path towards practical devices. He developed the first experimental set-up capable of spectrally resolving photocurrent via absorption of two low-energy photons and achieved an increase in the IBSC operation temperature from 150K to 260K. During his PhD, Dr Ramiro spent three months at University College London (UCL, UK). In the final stage of his PhD, Dr Ramiro conceived and demonstrated a new kind of QD photodetector: the optically triggered infrared photodetector.

From 2015 to 2016, Dr Ramiro was post-doctoral research at UPM and Principal Investigator of a competitive project sponsored by the industry (Fundación Iberdrola). Within the framework of this project, he contributed to the first demonstration of a three-terminal heterojunction bipolar transistor solar cell. This new kind of PV device offers the conversion efficiency of a tandem solar cell, but with a simpler device structure.

From 2017 to 2020, Dr Ramiro was a Juan de la Cierva fellow at the Institute of Photonic Sciences (ICFO), working with solution-processed colloidal nanocrystals. There, he developed a method for the robust heavy doping of PbS colloidal quantum dots, which enabled the use of this material in applications in the fields of infrared-light detection and emission.

Since 2021, Dr Ramiro is a Marie Curie Fellow at the Materials Research Centre (CENIMAT) of the Universidade NOVA de Lisboa (Portugal), where he coordinates a project on perovskite and quantum-dot based solar cells.

Resumen del Currículum Vitae:

I have more than 10 years of experience in optoelectronics. From 2010 to 2016 I worked in the development of high-efficiency solar cells based on epitaxial quantum dots (EQD), as postgraduate student and graduate student at the Solar Energy Institute of the Universidad Politécnica de Madrid (UPM, Spain). During the PhD, I spent three months at the University College London in London (UK). Later, benefiting from a Juan de la Cierva Scholarship, I relocated to the Institute of Photonics Sciences (ICFO, Spain), where I re-steered my research towards opto-electronic devices based on colloidal-quantum-dot (CQD) technology. There, I began a new research line on intraband photodetectors. In 2019, I successfully applied for a prestigious Marie Curie Individual Fellowship for the study of solar cells based on perovskite materials and CQDs. At the moment, I am developing this project in the Materials Research Center of the NOVA University of Lisbon (Portugal).

During the past five years, I have strongly contributed to the fields of intraband optoelectronics in CQDs and intermediate band solar cells. For example: (1) I have developed a method for heavy n-doping of PbS CQDs, which allowed me to demonstrate the first PbS intraband photodetector, (2) I have demonstrated the existence of 3 quasi-Fermi levels in an EQD-based solar cell, and (3) I have proved that illumination with 2 below-bandgap photons can increase the solar-cell photovoltage. I have demonstrated scientific leadership and maturity, publishing as first author and corresponding author in top journals such as Physical Review Letters, Nano Letters, ACS Nano, and Progress in Photovoltaics. I want to highlight that my tracking record is largely built on works where I have been a main contributor.

I have experience in scientific coordination and staff supervision. Currently, I am coordinating one post-doc and one PhD student within the framework of the project ENLIGHTEN. Previously, I have been co-supervisor of one PhD student and PI of the project CELESTE. Finally, I have experience collaborating with the industry (DHV Technologies), in the fabrication of solar cells intended to power micro-satellites.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	AZPILICUETA FERNANDEZ DE LAS HERAS, LEYRE
Referencia:	RYC2021-031949-I
Correo Electrónico:	leyre.azpilicueta@gmail.com
Título:	Wireless communications-based systems performance, analysis, and design

Resumen de la Memoria:

I am a Research Professor with 11 years of work experience (including PhD) in wireless communications-based systems performance, analysis, and design. My main research interests are focused in analyzing complex electromagnetic scenarios, applied to Context Aware Environments, Intelligent Transportation Systems or Smart Cities. I have intensively worked on wireless system modeling, design, and analysis, providing novel mechanisms of electromagnetic computational tools, based on hybrid approaches. My research interests are on radio propagation, WSN, applied electromagnetics, vehicular communications, beyond-5G and 6G systems, IoT and massive MIMO networks. I have published over 250 contributions (1 book, 95 journals, 8 book chapters and 150 peer-reviewed conferences), mostly in top IEEE conferences and journals, with 56 JCR Q1, 15 JCR as first author and 25 JCR as corresponding author, receiving 1375 citations and an h-index of 20 to date, according to the source Scopus. During my career I have built a large network of collaborations worldwide (i.e., USA, Canada, UK, UAE, Spain) and led five research projects as Principal Investigator (PI), awarded in competitive calls, funded with more than 550K USD by different agencies such as CITRIS Banatao Institute Call 2017 University of California (USA), International Exchanges 2018 R3 Royal Society University of Birmingham (UK), IEEE Antennas and Propagation Society Educational Initiative Proposals 2018 (USA), or Research funds NYU Abu Dhabi 2021 (UAE). I have also been involved as a Research Collaborator in several projects worldwide funded with more than 1.3M EUR by private companies as well as different governmental agencies, such as MINECO, in Spain, CONACYT, in Mexico, and NSF, in USA. I have been the principal advisor of two PhD students already graduated, and a third PhD student in progress, and co-advisor of four MSc students already graduated. I have also served as Associate Editor of highly ranked journals such as Elsevier Computer Communications journal, IEEE Sensors Letters, Wireless Communications and Mobile Computing or International Journal of Electronics and Communications (Elsevier), Guest Editor of several special issues of relevant journals and reviewer of high impact prestigious journals in the communications field. I have also been invited to be a Member of the Technical Program Committee of 15 international conferences, most of them being relevant conferences in the field of wireless communications. I am an active member of the evaluation panels of the Agencia Estatal de Investigación (AEI) of Spain and CONACYT in Mexico, where I have participated in several research evaluation calls and projects. I have received numerous awards and recognitions over the past few years, including the IEEE Mojgan Daneshmand, IEEE Raj Mittra, IEEE Rising Stars, IEEE APS PhD Award, Best PhD thesis by COIT, Santander Young Professors, Distinguished Professor, Best Paper Award at 4 international conferences. Combining my expertise in propagation modeling, simulation and measurement for next generation wireless networks, my future research will be focused on the development of novel approaches for a wide range of applications, including the development of Smart and Sustainable Cities, with beyond-5G and 6G technologies, and the broad field of the Internet of Things and ultra-dense networks.

Resumen del Currículum Vitae:

Leyre Azpilicueta received her Telecommunications Engineering Degree (2009), her Master s Degree in Communications (2011), her Ph.D. Degree (with Cum Laude and International Doctorate mention) in Telecommunication Technologies (2015), at the Public University of Navarre (UPNA), in Spain; and a Master s Degree of Spanish Teacher Certification Program (2013) at the National Distance Education University (UNED), in Spain. Currently, she is a Research Associate Professor at Tecnológico de Monterrey (ranked #161 in QS Global World Rankings 2022), in Campus Monterrey, Mexico, Chair of IEEE Communication Society Monterrey Chapter and Falculty Advisor of IEEE HKN Lambda-Rho Monterrey Chapter. Her research interests are on radio propagation, WSN, applied electromagnetics, vehicular communications, beyond-5G and 6G systems, IoT and massive MIMO networks. She has published over 250 contributions (1 book, 95 journals, 8 book chapters and 150 peer-reviewed conferences), mostly in top IEEE conferences and journals, with 56 JCR Q1, 15 JCR as first author and 25 JCR as corresponding author, receiving 1375 citations and an h-index of 20 to date, according to the source Scopus. She has been the principal advisor of two PhD students already graduated, and a third PhD student in progress. She has also been co-advisor of four MSc students already graduated. She has been the Principal Investigator (PI) of five research projects awarded in competitive calls, funded with more than 550K USD by different agencies such as CITRIS Banatao Institute Call 2017 of University of California (USA), International Exchanges 2018 R3 Royal Society University of Birmingham (UK), IEEE Antennas and Propagation Society Educational Initiative Proposals 2018 (USA), or Research funds New York University (NYU) Abu Dhabi 2021 (UAE). She has also been involved as a Research Collaborator in several projects worldwide funded with more than 1.3M EUR by private companies as well as different governmental agencies, such as MINECO, in Spain, CONACYT, in Mexico, and NSF, in USA. She is also serving as Associate Editor of highly ranked journals such as Elsevier Computer Communications journal (since 2021), IEEE Sensors Letters (since 2020), Wireless Communications and Mobile Computing (since 2017) or International Journal of Electronics and Communications (Elsevier) (since 2018), Guest Editor of several special issues of relevant journals and reviewer of high impact prestigious journals in the communications field (i.e., IEEE ITAP, IEEE VTM, IEEE AWPL, IEEE APM, IEEE TITS). She has also been invited to be a Member of the Technical Program Committee of 15 international conferences, most of them being relevant conferences in the field of wireless communications (i.e., IEEE CAVS 2019, IEEE SECON 2021, IEEE ICC 2021). She is an active member of the evaluation panels of the Agencia Estatal de Investigación (AEI) of Spain and CONACYT in Mexico, where she has participated in several research evaluation calls and projects. She has received numerous awards and recognitions over the past few years, including the IEEE Mojgan Daneshmand, IEEE Raj Mittra, IEEE Rising Stars, IEEE APS PhD Award, Best PhD thesis by COIT, Santander Young Professors, Distinguished Professor, Best Paper Award at 4 international conferences.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MARTINEZ POSSE, MARIA VANINA
Referencia:	RYC2021-030838-I
Correo Electrónico:	vani.martinez@gmail.com
Título:	Four pillars for effective knowledge dynamics
Referencia: Correo Electrónico: Título:	RYC2021-030838-I vani.martinez@gmail.com Four pillars for effective knowledge dynamics

Resumen de la Memoria:

My main research interest concerns the formal modeling of knowledge dynamics in complex intelligent systems embedded in the real world, in order to tackle the different dimensions and the issues that arise in the modeling of such scenarios.

A significant part of my research efforts have been dedicated to the problem of inconsistency management, or inconsistency-tolerant reasoning. The notion of inconsistency arises from the over-specification of information, and has been extensively studied in many contexts; the most well-known one is classical logic, in which an inconsistent set of formulas entails every formula (known as triviality). Many of the approaches to reason about inconsistency are based on the assumption that there is some epistemically correct way of resolving inconsistencies or reasoning in the presence of this kind of uncertainty. My take on inconsistency management in intelligent systems has been that it is a task that cannot be managed or resolved locally, but instead should be addressed sensibly according to the application domain and the user s context, considering both the system KB s (knowledge base) contents and the domain knowledge that is important to the user when making decisions about the world that the KB intends to model. I have mainly followed two lines of work where inconsistency management is the core task to solve: (1) Managing Inconsistent and uncertain information in database models; (2) belief dynamics in agent and multi-agent systems.

The next two lines of work address problems that arise when we think intelligent systems as socio-technical systems. This means that the knowledge representation task needs to take into account the social environment in which the systems are deployed; this implies working on the (3) modelling of complex social interactions, and taking into account the (4) social and ethical implications of such systems.

Most of the developments in my work aim towards a combination of logical representation and reasoning that try to capture high level human cognitive process (such as argumentation, planning, conflict resolution, etc.) and sub-symbolic approaches that solve specific low level cognitive tasks (learning basic concepts, pattern recognition, classification, natural language processing, etc.).

Transversally to these lines, there is the issue of efficient computation, which is crucial for the development of such systems. In my work, I have always provided solutions that seek a tradeoff between expressive power of the models and the efficiency of the related reasoning tasks so they can be applied and adjusted to real world scenarios.

These four lines of work are fundamental in the conception and development of trustworthy artificial intelligent systems, and they align with Scientific Priority Line 11 in the Scientific Perspective of the XXI Century in the CSIC, and Priority Line 6 of the Spanish strategy for R+D+i in AI.

My work and trajectory have been recognized by the community:

- Stimulus Award by the (Argentinian) National Academy of Exact, Physical and Natural Science in the Engineering Science area. 2020.
- AI s Ten to Watch 2018, awarded by IEEE Intelligent Systems to young prominent scientists in Artificial Intelligence.
- Selected by the executive and advisory boards of IJCAI 2017 for the Early Career Spotlight track.

Resumen del Currículum Vitae:

Current Position:

- Adjunct Researcher at the Institute for Computer Science (CONICET-UBA) and Professor at the Department of Computer Science, University of Buenos Aires, in Argentina.

- Director of the Data Science and Artificial Intelligence Program at Fundación Dr. Manuel Sadosky.

SJR articles, h-index, thesis supervised and invited speaker at scientific events:

- Total indexed journal publications: 26 journals (15 in first quartile according to Scopus).
- Total publications in DBLP: 22 journal papers; 47 conference proceedings papers, 3 books.
- Citations: WoS: 166; Scopus:638; Scholar: 1130 (5 last years: 481)
- h-index: WoS: 8; Scopus: 15 ; Google Scholar: 19.

Thesis supervised: PhD (1 defended, 3 in curse), Masters (1 defended, 1 in curse).

Invited speaker at research institutions and scientific events (5 last years): 21 (3 keynote

speaker)

Invited speaker at scientific panels (5 last years): 17

Research stances in international institutions: 10

Number of Memberships to international conference Program Committees: 35 (5 last years),

2 Senior PC Member (IJCAI-PRICAI 2020, AAMAS 2021)

Reviewer for top journals: 10 Journals (5 last years)

Organization of academic events: SIGMOD 2021 (member of the local organization

committee), chair ECI 2022 (School of Information Sciences - Universidad de Buenos Aires),

diversity and inclusion chair KR 2021, co-chair AMW 2020 and NMR 2020; promotion co-chair IJCAI 2015; local organization co-chair SUM 2014

Maria Vanina Martinez Posse obtained her PhD in Computer Science in 2011 from University of Maryland College Park (USA) supervised by V.S. Subrahmanian. Her postdoctoral studies were carried out at Oxford University in the Information Systems Group, from 2011 to 2014. In August 2014, Martinez started as an assistant researcher at CONICET as a member of the Instituto de Ciencias e Ingeniería de la Computación (ICIC, UNS-CONICET);



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

since 2018, she is an adjunct researcher at CONICET as a member of the Institute for Research in Computer Science (ICC, UBA-CONICET) at Universidad de Buenos Aires in Argentina.

Martinez has participated in 14 research projects from Argentina, the United States, EPSRC (UK), the European Union and France. She currently directs 3 projects at national level and is scientific coordinator for one project granted by the STIC AMSUD program (France/Latin America). Martinez has collaborated with more than 35 colleagues and realized 10 research stances in international research institutions. She has been a reviewer and member of program committees of top international journals and conferences and she was also co-chair in the organization of several workshops. She is a member on the steering committees of Computational Models of Argument, the International Workshop of Non-Monotonic Reasoning, and Principles of Knowledge Representation and Reasoning.

Martinez has evaluated scientific projects and researchers promotions for the National Agency of Scientific and Technological Promotion, Uruguayan Research Agency, and United Nations Institute for Disarmament Research. She participated in the revision committee of the UNESCO 2021 recommendation on the ethics of AI as scientific advisor for the Argentinian Ministry of Science. During 2021 she was also an expert consultant for UNESCO in the process of implementing the recommendation in latin america.





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Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MINGUEZ BACHO, IGNACIO
Referencia:	RYC2021-032931-I
Correo Electrónico:	ignacio.minguezbacho@gmail.com
Título:	Innovative Methods Towards Competitive and Sustainable Ultrathin Film Photovoltaic Technologies

Resumen de la Memoria:

I own an international and intercultural professional research career with a consolidated knowledge in nanomaterials engineering and solar energy conversion as a result of my interdisciplinary background in Nanotechnology Engineering including Physics and Chemistry.

I obtained my BSc degree in Physics and MSc degree in Nanostructured Materials which at the Autonomous University of Madrid. I was awarded with a JAE pre-doc grant by the Spanish Research Council to conduct my PhD in Materials Science and Technology at the Materials Research Institute of Madrid. During this early period, I also received scientific training at prestigious international institutions through different short stays at: European Synchrotron Radiation Facility (France, 4 months in 2007); University of Hamburg (Germany, 3 months in 2008); Nanyang Technological University, NTU (Singapore, 2 and 3 months in 2010 and 2011, respectively).

After getting my PhD (European Mention) in 2012, I continued my scientific formation at Nanyang Technological University (NTU) during four years, focusing on solar energy conversion processes based on photoelectrochemistry, In 2016, I moved to Friedrich-Alexander University Erlangen-Nürnberg (FAU), Germany, where I have built up a novel research line within my host group to develop solar cells devices based on ultra-thin antimony chalcogenides layers (< 50 nm) and nanostructured perovskites. These materials are framed within the so-called emerging photovoltaics with disruptive potential.

In 2017, I was awarded by the "Emerging Talents Initiative", program created by FAU to promote outstanding researchers and their research ideas. In 2018, I was awarded with a "Marie Skłodowska-Curie Action - Individual Fellowship" by the European Commission. I have been managing research and financial aspects of my own project.

During this last stage of my scientific career in Germany I have started to develop my independent career, establishing a broad international network with several professors at FAU and from groups at Technical University of Denmark, University of Luxemburg, Lehigh University (US) and in Spain, Polytechnic University of Catalonia, University of Valencia and Autonomous University of Madrid.

Throughout my professional career, I have disseminated my work at international conferences, in peer-reviewed scientific journals and one book chapter (23 publications, 9 as corresponding author and 7 as first author, h-index = 12, cites = 739 via Google Scholar). Along with my research occupation, I have dedicated significant time to teaching activities and supervision of bachelor, master students and PhDs at international level at CSIC (Spain), NTU (Singapore) and FAU (Germany). I am co-supervising PhD students (two of which are finishing their PhD thesis in 2022), organizing and supervising master and bachelor courses, and organising and participating in outreach activities for the general public to disseminate my passion for research and technology.

Resumen del Currículum Vitae:

I own an international and intercultural professional research career with a consolidated knowledge in nanomaterials engineering and solar energy conversion as a result of my interdisciplinary background in Nanotechnology Engineering including Physics and Chemistry.

I obtained my BSc degree in Physics and MSc degree in Nanostructured Materials which at the Autonomous University of Madrid. I was awarded with a JAE pre-doc grant by the Spanish Research Council to conduct my PhD in Materials Science and Technology at the Materials Research Institute of Madrid. During this early period, I also received scientific training at prestigious international institutions through different short stays at: European Synchrotron Radiation Facility (France, 4 months in 2007); University of Hamburg (Germany, 3 months in 2008); Nanyang Technological University, NTU (Singapore, 2 and 3 months in 2010 and 2011, respectively).

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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	HERNAEZ ARRAZOLA, MIKEL
Referencia:	RYC2021-033127-I
Correo Electrónico:	mhernaez@unav.es
Título:	Machine Learning methods for translational biomedicine

Resumen de la Memoria:

Dr. Hernaez has had highly interdisciplinary research training in the last years since the completion of the Telecommunications Engineering degree at TECNUN in 2009. From training in Information Theory during his PhD (2009-2012), followed by his training in Computational Biology during his postdoc at the Electrical Engineering department at Stanford University (2013-2016); to his previous position at the Carl R. Woese Institute of Genomic Biology (IGB) at the University of Illinois (UIUC), USA (2017-2020); where he had ample experience working on interdisciplinary projects. In 2020 he moved back to Spain to lead the Computational Biology Program at the Center for Applied Medical Research (CIMA), University of Navarra. These positions have allowed him to develop clear expertise on the application of computational and statistical methods to solve biological problems as evidenced by his critical involvement in multiple projects that have led to publications in the most prestigious peer-reviewed journals and various international patents.

During his time at Stanford and UIUC, he translated the acquired knowledge on Information Theory to Genomic data storage, processing, and analysis. The overarching goal was to try to quantify the amount of information encoded in the human genome. His work resulted in the design and development of several compression algorithms for different types of genomic data: from whole genomes to raw Next Generation Sequencing (NGS) data, to quality values of NGS data. In addition, Dr. Hernaez started co-leading the initiative from the International Organization for Standardization (ISO) to develop the first standard for genomic data representation, where several of the developed methods became adopted by the standard.

Parallel to his work on genomic data compression, Dr. Hernaez worked on machine learning and translational biomedicine; specifically, on applying statistical learning and Bayesian methods to genomic information to learn useful patterns in these data and characterize the altered transcriptional dynamics associated with disease progression. The developed methods were applied to a pan-cancer analysis to find driver elements across different cancers.

Since 2020, Dr. Hernaez is the head of the computational biology program at CIMA University of Navarra, and a professor of computational biology and machine learning at the department of genetics and biochemistry of the University of Navarra. As an example of the research performed by Dr. Hernaez's lab, they have recently developed a method to elucidate transcriptional rewiring associated with drug response in prostate cancer. They were able to find in silico (and validate in vivo) driver genes whose regulatory program was rewired in non-responders, while the differential expression of such genes did not change across conditions, opening the doors to new treatments for prostate cancer. Additionally, he has been actively working on developing machine learning methods to uncover altered mechanistic dynamics at single-cell resolution. This work has been successfully applied in the context of several biomedical problems.

Resumen del Currículum Vitae:

Dr. Hernaez has authored over 30 peer-reviewed articles with an h-index of 14, several in top journals of engineering (such as IEEE Journal of Selected Areas in Communications, Proceedings of the IEEE), as well as top journals in Computational Biology (such as Bioinformatics, Genome Research). Regarding his recent research trajectory (last 5 years), Dr. Hernaez has authored over 20 peer-reviewed articles with an h-index of 13, all published in either Q1 journals or presented in top conferences in the field.

Dr. Hernaez has received several internationally recognized awards. Dr. Hernaez has been awarded a CZI grant under the Human Cell Atlas (PI, 2018-2019, \$105K), funding from the University of Illinois, USA (co-PI, 2018-2020, \$150K), and a \$1.5M contract (co-PI, 2019-2020) with Mayo Clinic (USA), and, currently, a Spanish Ministry of Science National Research Plan (PI, 2021-2023, \$60K) to bring next-generation sequencing to the clinical bedside through Compressive Learning Methods for Omics Data. Regarding his work on unraveling regulatory dynamics through machine learning, in 2020 Dr. Hernaez was awarded the prestigious Marie S. Curie Fellowship from the EU (PI, \$200K), and also in 2020, he was awarded a research grant from the US Department of Defence (PI, \$750K).

Dr. Hernaez holds two international patents on methods for genomic data representation that are currently incorporated in the upcoming ISO standard for genomic information representation. He is also actively collaborating with Philips, with whom Dr. Hernaez has submitted several projects in genomic data handling.

Finally, Dr. Hernaez is currently supervising 5 PhD students and 2 Master's students, and he has a long track record of advising students. While at Stanford and UIUC, he advised both master and undergraduate students, all interactions resulting in publications in top journals (Bioinformatics). In addition, he is currently co-chairing the Master in Data Science from the University of Navarra, where he is actively supervising master students. He has organized more than 10 workshops and special sessions on the top conferences on Computational Biology (ISMB; Allerton Conference; Stanford Compression forum); and he is a reviewer in the top journals of Computational Biology (Nature Biotech., Nature Comms., Bioinformatics)





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Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	HERNANDEZ RAMOS, JOSE LUIS
Referencia:	RYC2021-033345-I
Correo Electrónico:	joseluishr1@gmail.com
Título:	Machine learning based cybersecurity and data protection

Resumen de la Memoria:

José Luis Hernández Ramos received the MSc (2012) and PhD (2016) degrees from the University of Murcia (UMU), where he was a researcher at DIIC department. During his degree studies, he collaborated as a research assistant and worked as an intern at AGT International in Darmstadt (Germany) within the security group. In 2015, he was a visiting researcher at Instituto de Telecomunicações in Aveiro (Portugal) to work on the topic of authentication and access control of Internet of Things (IoT) platforms. He served as a teaching assistant, and was granted with the Best PhD Thesis Award from the School of Computer Science at UMU in 2017. His thesis was focused on the definition and implementation of a security and privacy framework for IoT scenarios considering user-centric approaches. Since 2018, he is a scientific officer at the European Commission, (DG JRC), where he is involved in the contribution and review of EU funding programmes, and serving as evaluator in the European Blockchain Pre-Commercial Procurement (PCP) on the development of blockchain solutions for the European Blockchain Services Infrastructure (EBSI). He is co-author of the European Cybersecurity Taxonomy, which was adopted by the official EU Vocabulary in 2021, and is intended to align the cybersecurity terminologies, definitions, and domains for the categorization of EU cybersecurity competencies. He has contributed to the definition, management, and support of the EU Cybersecurity Atlas, which represents the management platform to map and categorise EU Cybersecurity capabilities and stimulate collaboration between European cybersecurity experts in support of the EU Digital Strategy. He has served as co-advisor of several BSc, MSc and PhD thesis, including the thesis Definition of a Methodology for the Security Evaluation of Internet of Things Devices authored by Sara Matheu, who received the RENIC cybersecurity award to the best doctoral thesis in cybersecurity, and the SCIE-BBVA as outstanding computing science young researcher in 2021. He is co-author of more than 60 research papers and book chapters, including top journals, such as ACM Computing Surveys, IEEE Internet of Things or IEEE Transactions on Industrial Informatics. He co-edited the book Security and Privacy in the Internet of Things: Challenges and Solutions describing the work of 10 EU H2020/CHIST-ERA projects. As demonstrated by such publications, he has carried out a multidisciplinary research activity around cybersecurity and data protection, including the aspects around security testing and certification, blockchain, federated machine learning, and their application in several scenarios including IoT, transportation systems and the COVID-19 pandemic. He served as a scientific expert for the Agence Nationale de la Recherche, TPC member/co-chair of several conferences, and editor/reviewer in different journals. He co-edited a book and has contributed to reports from the Alliance for the Internet of Things Innovation (AIOTI). He participated in FP7/H2020 research projects, such as SOCIOTAL, SMARTIE and SerIOT (JRC Principal Investigator). He is co-author of eight open software projects. His research activities include the use of artificial intelligence to improve security and privacy in different scenarios, and the data protection aspects around COVID-19 pandemic.

Resumen del Currículum Vitae:

José Luis Hernández Ramos is a scientific officer at the European Commission (DG JRC) within the Cyber and Digital Citizens Security (JRC.E.3) in Ispra (Italy). At the JRC, he has served as reviewer and contributor in some of the main EU funding initiatives, including Digital Europe and Horizon Europe programmes for calls on cybersecurity and Next Generation Internet (NGI). He is co-author of the European Cybersecurity Taxonomy, which was adopted by the official EU Vocabulary in 2021, and contributor in the definition/management of the EU Cybersecurity Atlas. He also worked in the coordination and evaluation of the pilot phase of the Regulation (EU) 2021/887. He serves as evaluator in the European Blockchain Pre-Commercial Procurement (PCP) on the development of blockchain solutions for the European Blockchain Services Infrastructure (EBSI). He also serves as observer member of the European Union Agency for Cybersecurity (ENISA) Ad Hoc Working Group on EU Cybersecurity Market. He received the M.Sc. (2012) and Ph.D (2016) degrees from the University of Murcia (UMU), Spain. He finished his PhD with cum laude and doctorado internacional mentions. He was also a researcher in the Department of Information and Communications Engineering (DIIC). During his degree studies, he collaborated as a research assistant and worked as an intern at AGT International in Darmstadt (Germany). In 2015, he was a visiting researcher at Instituto de Telecomunicaçoes in Aveiro (Portugal). During his PhD studies, he served as a teaching assistant in the Computer Engineering degree at UMU. He was granted with the Best PhD Thesis Award from the School of Computer Science at UMU in 2017. He served as co-advisor of several BSc, MSc and PhD thesis, including the thesis authored by Sara Matheu, who received the RENIC and SCIE-BBVA awards in 2021. He has also participated as a member of the grading committee of two PhD thesis, and is currently serving as co-advisor of a PhD student on the use of federated learning for intrusion detection. He is co-author of more than 60 research papers, including top ACM/IEEE journals. He has collaborated with more than 90 researchers from a plethora of EU research institutions, universities, companies, and public institutions, and also demonstrated independent thinking through such publications, in which he is first author in 20, including papers in IEEE JSAC, IEEE Communications Magazine and IEEE Security & Privacy (3). In January 2022, he had an h-index=15 according to Scopus (19 in Google Scholar) with 884 citations (1765 in Google Scholar). He has served as a scientific expert for the Agence Nationale de la Recherche (ANR), TPC member/co-chair of several conferences, and guest editor and reviewer in different journals. He has contributed to reports from the Alliance for the Internet of Things Innovation (AIOTI) around standardization aspects, and acted as reviewer of ETSI standards on ITS cybersecurity testing and conformance. He participated in different FP7/H2020 research projects, such as SOCIOTAL, SMARTIE, OLYMPUS, and SerIoT (JRC Principal Investigator), in which he has co-authored project deliverables and eight open software projects that are registered under intellectual property. He is accredited as Associate Professor (Contratado Doctor) by ANECA.





AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MARTINEZ MARTINEZ, MATIAS
Referencia:	RYC2021-031523-I
Correo Electrónico:	matomartinez@gmail.com
Título:	Supporting software maintenance and evolution with automated approaches

Resumen de la Memoria:

I have presented important and impactful contributions in the field of software testing, maintenance and evolution. In fact, I have been one of the first researchers in the world focused on automated program repair, a subfield of software maintenance and testing.

Automated program repair has a huge impact on the software industry because it helps developers and companies to reduce the costs and time of maintaining software applications. I have provided multiples important contributions to the field including new state-of-the-art approaches, the implementation of repair frameworks and tools (used by students, researchers and the industry around the world), empirical studies (e.g., of the search space), studies of hypotheses (e.g., code redundancy assumption) and large-scale experiments. Fostering open-science, all my tools are publicly available on GitHub.

Moreover, I was the pioneer of studying the evolution of applications which have migrated to the new programming language named Kotlin. This language has recently gained the attention of the mobile development community because Google, the owner of Android (the most used smartphone platform), is fostering the development of Android apps using Kotlin. I have provided important contributions to the software engineering research community, including qualitative studies (e.g., interview with more than 100 developer) and quantitative studies (automated analysis of development history of Android applications) to know how and why the developers have migrated their applications to Kotlin, and other studies that measure the degree of adoption of that language, the quality of applications written with Koltin, among other contributions under submission.

I have authored 42 research papers focused on software engineering: 17 articles in peer-reviewed journals, 17 in peer-reviewed conference proceedings and 8 papers currently in open-access repository and under submission. In particular, I have published 17 articles in international peer-reviewed top-quality Software Engineering journals, including IEEE Transactions on Software Engineering (7/108 in JCR Computer Science, Software Engineering), and in Empirical Software Engineering (40/108 in JCR Computer Science, Software Engineering). Moreover, I have published in the technical track of top conference of software engineering, ICSE (CORE A*), FSE (CORE A*), ASE (CORE A*), and in track (demonstration, tools, new ideas) of those top conferences such as ICSE. A summary of the articles published in JCR acknowledged journal (16).

Beyond the quality of the journals and conferences where my work has been published, my research is impactful. My work has, according to Google Scholar, 2110 citations.

Resumen del Currículum Vitae:

Matias Martinez is Associate Professor at Université Polytechnique Hauts-de-France and is affiliated to LAMIH, a laboratory acknowledged and funded by CNRS (French National Center for Scientific Research). Since 2021, he is also affiliated to KTH University (Sweden) as a member of EECS (School of Electronic and Engineer Computer Science).

He obtained his Master Thesis in Computer Science from UNICEN (Argentina) and his PhD in Computer Science at the University of Lille and Inria (France) institute thanks to a funding provided by the European Union under the action EADIC II. Before joining the academia, he worked in the industry for 5 years as software developer and consultant.

To date, Matias Martinez has authored 42 publications, including top journals and conferences. He published 16 articles in JCR peer-reviewed journals of which ten publications appeared in Q1 journals and six in Q2 journals. He also published articles in the main track of the most prestigious software engineering conferences (CORE A*) such as ICSE (International Conference on Software Engineering), FSE (Fundations on Software Engineering) and ASE (Automated Software Engineering). He has also developed three research tools which were presented in the Demonstration Track of ICSE, all available for open science in the GitHUB repository. He has made several important contributions to the automated software engineering community, including approaches, tools, and large-scale experiments. For those reasons, he was invited to the prestigious Dagstuhl Seminar (Germany), and periodically receives invitations to review articles submitted to prestigious Q1/Q2 journals such as TSE, TOSEM, EMSE and JSS.

His research record demonstrated a strong impact on the scientific community: according to Google Scholar, his publications have been cited more than 2000 times, and he was recognised as one of the Most Impactful Early-stage Software Engineering Researchers during the period 2013-2020. He has also collaborated with researchers from different universities around the world, including USA, England, France, Portugal, Australia, Sweden, and Italy.

Matias Martinez has supervised three PhD students and he published with them in the most prestigious software engineering journals. Among them, one is an industrial PhD with SAP, one of the biggest multinational software corporations in the world, under the funding program of ANRT CIFRE (France). Additionally, he had collected grants for funding 3 PhD thesis, including his own.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Tecnologías de la información y de las comunicaciones
VICENTE MANZANO, MARIA CRISTINA
RYC2021-030881-I
cristina.vicente@csic.es
Saving- and recovery-energy using electrochemical methods

Resumen de la Memoria:

My research line is based on saving- and recovery-energy, which will be pioneer in the research of devices, combining optical and thermoelectric properties. My research career has covered a multidisciplinary research field, which includes the development of thermoelectric materials for energy harvesting by electrochemical methods, development and optical characterization of AAO nanostructures.

Individual researcher (04/2020-03/2024) at Micro and Nanotechnology Institute (IMN-CSIC). Currently, I am developed my research line based on radiative coolers within the FINDER group at IMN thanks to a Research Talent Attraction project from Comunidad de Madrid, a competitive regional project. I am the Principal investigator of MERITO project with a budget of 301k (200k for the project development), a PhD student and a technician are funded from this project. This project focuses on developing a radiative cooler based on 3D anodic aluminium oxide nanostructures. I have published 5 scientific paper and 1 review.

Individual postdoctoral grant (01/2019-03/2020) at IMN-CSIC. In 2019, I joined the IMN-CSIC, with a postdoctoral fellowship, Juan de la Cierva Incorporación (competitive national fellowship, 64k, 2 years, the success rate of ~10%). I was ranked #2 in the field of materials science and technology. My work was focused on the fabrication of 3D nanostructures for energy harvesting and the fabrication of PEDOT (conductive polymer) and Ag2Se films and nanostructures for thermoelectric applications. During this time, I published 2 scientific articles (1 as the corresponding author) and 1 invited review (first author). I was the official supervisor of two Master s students from the Autonomous University of Madrid (UAM, Spain).

2nd Postdoctoral period (01/2015-12/2018) at Swiss Federal Laboratories for Material Science and Technology (Empa, ETH domain). In 2015, I began a 4 years postdoctoral period at Empa (ETH domain, Switzerland). The first year, I won a Marie-Curie action Cofund (as a principal investigator, PI, 45k). During this period, I worked on anodization of nanostructures and their optical properties, on the electrodeposition of different metals for industrial applications. I have worked on different industry projects carrying out scientific and managing duties, writing several scientific confidential reports. The industrial projects concerned anodization of aluminium, and electrodeposition of semiconductors and metals, with Coloral SA, Audemars Piguet SA, and Galvametal AG. I published 10 scientific papers, 6 as first author and corresponding author, and a European patent paid for and in use by Coloral SA (40% of ownership). I set-up a new anodization laboratory at Empa and I was the official supervisor of a Master's student at the Lorraine University (France). As well, I was the unofficial co-supervision of 3 different Ph.D. students in the group at EMPA from EPFL University (Lausanne, Switzerland) and ETH Zurich University (Switzerland).

1st Postdoctoral period (07/2014-12/2014) at Institute of Microelectronic of Madrid (IMM-CSIC). After my thesis defence, I was working for 6 months in the fabrication, structural, compositional, and morphological characterization of Bi2Te3 nanowires with different diameters (25-200 nm), with high crystallographic order and high aspect ratio for the enhancement of thermoelectric properties. Thi

Resumen del Currículum Vitae:

I have currently a postdoc contratc Atracción de Talento Investigador de la Comunidad de Madrid (regional fellowship, as principal investigator, 301. 045) at Institute of Micro and Nanotechnology (IMN-CSIC) in FINDER (Functional Nanostructures devices for energy). Nowadays, I am working in the fabrication of films and 3D nanostructures of selenide and polymers for energy harvesting and saving energy. Recently, I was invited to the interview for ERC-Starting Grant (European Comission) with the project "Towards the Production of Electricity using Radiative Cooling (TOPCOOL)", obtaining an A qualification after the interview, but not funded because of lack of budget. In 2019, I got a Juan de la Cierva-Incorporación (competitive national fellowship, which I was the second in Material Science and Technology area). Previously, since 2015 (4 years), I joined EMPA-ETH domain (Swiss Federal Laboratories for Material Science and Technology) as a Postdoc. During this period, I was award with a grant Marie Curie Cofund (as principal investigator, PI; 45 000) and I was working in the fabrication and optical characterization of anodic aluminium nanostructures and electrodeposition of nanowires and micro-components. In 2014, I graduated from Physics PhD program at the Complutense University of Madrid (Spain), carrying out my thesis work on "Electrodeposition of semiconductors materials with thermoelectric applications" at Institute of Microelectronic of Madrid (IMM-CSIC) in Spain. This thesis was funded by a competitive national fellowship (JAE-PreDoc). I got a master in Applied Physics-Nanomaterials at the Complutense University of Madrid (Spain) in 2009. My scientific production metrics is of 35 publications in indexed journals, h index 15, 680 cites (Scopus) and h index 16, 833 cites (Google scholar). I am co-author of 1 European licensed patent, where I have 40% of ownership. I am co-author of 41 contributions in International Conferences. I have participated in 23 international conferences (18 oral presentations and 5 posters). I gave an invited talk at EMPA in 2014 and one at IMN in 2019. I received an award as young scientist in the EMRS-2019 conference. I have supervised three Master thesis, one in curse and one thesis in execution. I did 4 different international stays for a total of 54 months in renowned international institutions at Swiss Federal Laboratories for Materials Science and Technology (EMPA-ETH domain (Switzerland)), University of California in Berkeley (USA), University of Florence (Italy) and ESRF, synchrotron of Grenoble. I have participated in 14 projects, 4 with companies and 7 European (ERC Starting grant) or National projects. I was involved in the organization of the 12th European Conference on Thermoelectric, which took place in September 2014 at Madrid (Spain). My research career has covered a multi-disciplinary research field, which includes the fabrication by electrochemical methods, optical characterization of nanostructures and energy harvesting. My research career has covered a disciplinary research field, which includes the fabrication by electrochemical methods, optical characterization of nanostructures and thermoelectric materials. I have worked on the fabrication of nanostructures, micro-components and films of different dielectric materials, semiconductor and metals using electrochemical methods.




Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	STAJNER , SANJA
Referencia:	RYC2021-032790-I
Correo Electrónico:	stajner.sanja@gmail.com
Título:	Natural Language Processing
	-

Resumen de la Memoria:

My research career started when I was 14 years old and attended the first research summer school. I gained a profound knowledge of mathematics and computer science during high school (II prize at the Federal competition in Mathematics, and the member of the Serbian team for the international olympiad in mathematics) and the undergraduate studies in Mathematics and Computer Science (in Serbia). Afterwards, I obtained multiple Masters degree in Natural Language Processing and Human Language Technologies (in Spain and the UK), and PhD in Computer Science (in the UK) with focus on natural language processing (statistical text processing). I graduated all education levels with distinction.

I was a postdoctoral researcher at the University of Lisbon (Portugal) in 2015, and at the University of Mannheim (Germany) in the period 2016-2018.

I have more than three years of industry experience in research-oriented start-ups in Germany, where I led more than ten scientific and commercial projects, and development of one commercial product. I also built and led two departments during that time (psycholinguistic department, and the R&D department).

Since 2009, I have published over 70 peer-reviewed articles in leading international conferences, journals, and books in Artificial Intelligence (AI) and Natural Language Processing (NLP), on various topics: statistical methods for investigating language change, text complexity assessment, automatic text simplification, machine translation, text analysis in political science and finance domains, psycholinguistic modelling, user profiling, and automatic emotion detection. Eleven of them were published in Core A/A+ international conferences. I have served as an ACL 2022 demo chair, COLING 2018 area chair, reviewer for reputable international journals and all major international conferences in AI and NLP.

In scientific circles, I am best known for my contribution to the field of automatic text simplification, as a strong advocate for user-centred text simplification evaluation, lead organiser of several workshops and shared tasks, a pioneer in the use of neural architectures in text simplification, author of state-of-the-art systems for lexical simplification and sentence simplification in English, creator of many publicly available text simplification datasets and tools, and a pioneer in proposing methods for automatic assessment of conceptual complexity of texts.

Resumen del Currículum Vitae:

I have authored over 70 peer-reviewed articles in leading international artificial intelligence (AI) and natural language processing (NLP) journals, conferences, and books, on the topics of automatic text simplification, automatic text complexity assessment, machine translation, psycholinguistic profiling, and computational social science.

I am a demo co-chair at ACL 2022 and the lead organiser of a workshop and shared task at EMNLP 2022. I was an area chair for Cognitive Modelling and Psycholinguistics at COLING 2018, the lead organiser of on workshops and two shared tasks (at NAACL 2018 and LREC 2016), and co-organiser of two workshops (at SEPLN 2021 and INLG 2018).

I review for several reputable international journals and all leading international conferences in AI and NLP.

I delivered tutorials on text simplification at the University Pompeu Fabra (Spain), and several international conferences: COLING 2018, AINL 2018, and RANLP 2017. I also delivered invited talks on the topics of text simplification and text complexity assessment at IBM Research Almaden (USA), and many universities: University of Wolverhampton (UK), Potsdam University (Germany), Linköping University (Sweden), Heidelberg University (Germany), University of Melbourne (Australia), TU Darmstadt (Germany), University of Lisbon (Portugal), and University Pompeu Fabra (Spain).

In the period 2016-2018, I taught five Masters courses and two PhD courses with the focus on NLP and text processing. For all courses, I co-authored teaching materials for the practical exercises. In 2018, I led seminar series on Machine Translation, and team projects on Complex Word Identification and Simplification, for the Masters students. From 2009 until 2011, I was senior associate in Mathematics at Petnica Science Center in Serbia, delivering talks on various topics of applied mathematics. From 2003 until 2009, I was junior associate in Mathematics at Petnica, supervising seminar works of talented high-school students on various topics of applied mathematics.

I supervised seven (successful) Masters dissertations at the University of Mannheim. I led psycholinguistics department at Symanto Research and the R&D department at ReadableAI.

I received PhD Bursary from University of Wolverhampton (UK), Erasmus Mundus Scholarship for International Masters in NLP&HLT, a DAAD scholarship in 2009, and scholarships from Republic of Serbia (2005-2007).

I contributed to writing two successful research proposals: an SFB project proposal (500,000 EUR for our group) in 2018 at the University of Mannheim, and an FP7-ICT project proposal (total of 2M EUR) at the University of Wolverhampton in 2011. In 2021, I led Symanto s contributions to a Horizon 2025 project proposal, with the budget of 300,000 EUR for Symanto (currently under review).

I received the Best Paper by Young Researcher Award at the international RANLP conference in 2019, the Best Paper Award (honourable mention) at International Conference on Semantic Computing in 2017, the Best Paper Award at the student workshop at the RANLP conference in 2013, the Best



Turno de acceso general

Poster Presentation (3rd prize) at the international CICLing conference in 2013, the Best Students Award from Eurobank EFG in 2007, II prize at Federal (Yugoslavia) Competition in Mathematics in 2003, and III prize at Federal (Yugoslavia) Competition in Physics in 2003.



AGENCIA

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MATATAGUI , DANIEL
Referencia:	RYC2021-031166-I
Correo Electrónico:	efrain.mcd@gmail.com
Título:	Microsensores basados en nanotecnología para aplicaciones de salud, medioambiente y seguridad

Resumen de la Memoria:

I have a background in Physics (2007) and an MSc in Advanced Materials and Nanotechnology (2008). In 2008 I started a PhD with an FPI contract to work in the GRIDSEN Group of the Institute of Applied Physic/CSIC, developing gravimetric sensors to detect biological and chemical agents. I completed two research internships at the Laboratoire de l'Intégration du Matériau au Système/CNRS, France. The obtained results during PhD in electronic noses (combined with polymers and nanostructured materials) and biosensors (combined with microfluidics) were published in the most relevant sensors journals and congresses.

Then, I was contracted as a PhD in the ISI/CSIC and worked on the PROSAVE2 project of technology of transfer, CENIT, of the Programa Ingenio 2010, coordinated by CESA Company.

In 2013, I was incorporated with a Postdoctoral Grant into the Microwaves Photonics Group of CCADET/Universidad Nacional Autónoma de México, where I lead a specific research line as a Principal Investigator in a Magnonic Sensors Project, and collaborated with the Swedish Research Council under the international project All Spin Wave Logics. In 2015, I was incorporated as a Scientific Researcher of the Sensor Group of the UNAM to expand its laboratory for chemical and biological sensors. I was Principal Investigator of 2 projects from PAPIIT-UNAM, I imparted different Masters Courses, and I was recognized as a member of the Researcher National System of Mexico. In 2017, I founded the Biomedical Devices Group of the ICAT/UNAM. During this period, nanotechnology was applied to develop innovative chemical sensors and biosensors based on Spin-Waves, Acoustic-Waves and Electrical properties.

In 2018. I returned to Spain through 3 years ComFuturo contract (competitive project found by FGCSIC) to start a new research line at the ITEFI/CSIC, about magnetic and nanostructured gas sensors. From my position, a project from the National R&D&I Plan "Research Challenges" as a Principal Investigator was obtained, I was awarded the Ibero-America Santander Research Grant 2019 and a proposal for synchrotron measurement runs at the ESRF in Grenoble-France was accepted. In this time, different low cost gas sensors to detect pollutant gases and biomolecules were developed; generating publications in the most relevant sensor journals, presentations in congresses and two patents were presented. Besides, I was accredited by ANECA with the figures of PhD Assistant, PhD and Private Universities Lecturers. Therefore, recently I hold a PhD Assistant Lecturer position at the EPS of the UAM.

I have directed 4 Master Thesis and 8 Final Year Projects (in process 2 Doctoral Thesis). I have published 30 JCR articles (80% in Q1, more than 66% as corresponding or first author, two of which have been selected as an issue cover, with H-Index 14 and total cites 522-WoS and 538-Scopus). Two patents have been presented (1 granted and 1 under consideration). I have taken part in more than 60 communications (6 invited and 2 plenary conferences), as an organizer of various conferences, as a Reviewer in more than 10 journals and as a Guest Editor for special numbers of Journal of Sensors and Sensors. The results of my research have been disseminated in relevant media (La 2 - rtve, La Jornada de California, Televisa,). Finally, in Ramón y Cajal Contracts 2019 and 2020 Aids, I was placed on the reserve list.

Resumen del Currículum Vitae:

	Publications *=Corresponding Author		
	Matatagui, D.*, et al., Ultrasensitive NO2 gas sensor with insignificant NH3-interference based on a few-layered mesoporous Graphene		
	(2021) Sensors Actuators B Chem, 335,129657		
	Matatagui, D.*, et al., Chemoresistive gas sensor based on ZIF-8/ZIF-67 nanocrystals, (2018) Sensors Actuators, B Chem, 274, 601-608		
	Fragoso-Mora, J.R., Matatagui, D.*, et al., M.C., Gas sensors based on elasticity changes of nanoparticle layers, (2018) Sensors Actuators		
	Chem, 268, 93-99		
	Matatagui, D.*, et al., Magnonic sensor array based on magnetic nanoparticles to detect, discriminate and classify toxic gases, (2017) Sensor		
	Actuators, B Chem, 240, 497-502		
	Sayago, I., Matatagui, D., et al., Graphene oxide as sensitive layer in Love-wave surface acoustic wave sensors for the detection of chemica		
	warfare agent simulants (2016) Talanta, 148, 393-400		
	. Matatagui, D.*, et al., A magnonic gas sensor based on magnetic nanoparticles (2015) Nanoscale, 7 (21), 9607-9613		
	Matatagui, D.*, et al., Characterization of an array of Love-wave gas sensors developed using electrospinning technique to deposit nanofiber		
as sensitive layers, (2014) Talanta, 120, 408-412			
	Matatagui, D., et al., Detection of bacteriophages in dynamic mode using a Love-wave immunosensor with microfluidics technology, (2013		
	Sensors Actuators B Chem, 185, 218-224		
	Matatagui, D., et al., Love-wave sensor array to detect, discriminate and classify chemical warfare agent simulants, (2012) Sensors Actuator		
	B Chem, 175, 173-178		
	0. Matatagui, D., et al., Chemical warfare agents simulants detection with an optimized SAW sensor array (2011) Sensors Actuators, B Cher		
	54 (2), 199-205		
	ongresses		
	lenary conferences		
	Emerging technologies for the detection of biomolecules and biomarkers. SOMI. Mexico. 2021.		
	Nanomaterials based Gas Sensors. COMCAMPLA. México. 2018.		
Invited conferences			
	Recent progress and perspectives of gas sensors based on nanomaterials. CMSE. Ukraine. 2021		
	Horrillo. Magnetic nanomaterial-based gas sensors. CSMS. United Kingdom. 2020		
	The greatness of magnetic nanomaterials for developing sensors. Materials Summit 2020. United Kingdom. 2020		



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Portable and remote electronic instrumentation laboratory based on embedded systems. CUIEET. Spain. 2017 6.

7. Chemical sensors based on nanotechnology to detect pollutants. I International Symposium on Nanotechnology. 2016

8. Solid state sensors combined with nanotechnology to detect toxic agents. II International Symposium on Nanotechnology. Peru. 2014

Research projects as a Principal Investigator

MAGBIOSENS. Ministerio de Ciencia e Innovación. Plan Nacional (RTI2018-095856-B-C22). 2019-2022. 72.600 1.

2. Nuevos microsistemas analíticos basados en nanoestructuras magnéticas para la detección de tóxicos ambientales. FGCSIC. 2018-2021. 159.000

3. Sistemas analíticos inteligentes y miniaturizados para estudio de alientos en la detección temprana de enfermedades. PAPIIT/UNAM-TA100118. 2018. 10.000

Matrices de sensores basados en capas sensibles nanoestructuradas con aplicación en la detección temprana de enfermedades. 4. PAPIIT/UNAM- IA103016. 2016-2017. 20.000

Transductores ultrasónicos (0.4-2 GHz) basados en ondas magnetoelásticas generadas en capas delgadas de estructuras ferromagnéticas 5. para su uso como sensores químicos. UNAM. 2013-2015

Patents

ES2779151 (2020) 1.

2. P202030712 (under evaluation, 2020)



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

Área Temática:Tecnologías de la información y de las comunicacionesNombre:BERRAL GARCIA, JOSEP LLUISReferencia:RYC2021-033115-ICorreo Electrónico:josepIlberral@gmail.comTítulo:Data-Analytics in Large-Scale Computing Systems

Resumen de la Memoria:

The principal topics of interest and research from Josep Lluís Berral García are the application of Machine Learning and A.I. methods on Cloud Computing and Large-Scale Computing Systems, such as Supercomputers and Edge systems. He is currently interested in large-scale distributed architectures for Data-Analytics applications.

During his PhD at UPC (2006-2013) his research focused on "Green Computing", applying predictive analytics for energy saving on large-scale computing infrastructures. He participated in 3 CICYT (Spanish Gov.) and 1 AGAUR (Catalan Gov.) projects as member of the LARCA Research Group, the Autonomic Research Group (Barcelona Supercomputing Center, BSC) and the "CoreGRID" EU-NoE. He created the first machine learning-based workload scheduler focused on energy optimization. In 2012 he visited Rutgers University (NJ, USA) to participate in the PARASOL project (DarkLab research group) on Green Computing and Solar-powered datacenters.

From 2014 to 2019 his research line focused on Big-Data Analytics Benchmarking, at the Barcelona Supercomputing Center (BSC). He participated in projects with Microsoft, Cisco, IBM and Intel, 2 CICYT projects also in "Hi-EST" project (ERC-StG), as responsible of A.I. topics. In 2015 he started his own research line of "Applied Machine Learning", and in 2018-2019 got a Juan de la Cierva Incorporación grant to start consolidating his research line. During this time, he created the ALOJA open-data repository for knowledge extraction from Data Analytics workloads, and contributed to the creation of the spin-off NearbyComputing with an EU patent on Fog Computing. In 2019 he visited the IBM T.J.Watson laboratories (NY, USA), to collaborate in Cloud Computing optimization topics, publishing a US patent on workload anomaly detection.

Since 2020, he is the group leader of the Data-Centric Computing research group at BSC, focusing on Data-Analytics, AI and workload Orchestration Large-Scale Computing Systems (e.g. Cloud, Data Centers and Supercomputing infrastructures). He is Principal Investigator of 3 private projects with the industry (IBM, Databricks and Petrobras) focusing on Data-Center efficiency, 3 European Projects ("Incisive" and "Callisto" EU-H2020, "FemIoT" EU-ERDF) focusing on optimization of medical, space and IoT computing applications, and 2 internal multi-disciplinary projects on genomics and environment modeling. Additionally, he is participating in 1 another EU-H2020 (MEEP) as scientific advisor, and 1 private project (w. NearbyComputing) on Edge-computing AI. He is collaborating with high-performance groups at UPC, also with Univ. of Punjab, and had collaborations with Univ. of Padova on Internet of Things topics.

He has published in 18 journals (17 JCR-Q1, 1 JCR-Q2), 24 international conferences (4 CORE-A*, 8 CORE-A, 5 CORE-B), 1 Book Chapter, 1 EU patent and 1 US patent (in exploitation). He has been cited more than 1456 times and has an H-Index of 21 (according to Google Scholar, January 2022).

He lectures at the Faculty of Informatics of Barcelona (FIB-UPC), also formerly at UNED and VIU. He s supervised 2 PhDs and 14 M.Sc., and currently supervising 4 Ph.D. and 2 M.Sc. theses. He also has published on-line courses on Data-Centers + A.I. systems.

Resumen del Currículum Vitae:

Josep Lluís Berral García got his Informatics Engineer, his Master in Computer Architecture, Networks and Systems, and his Ph.Doctor degree by the Universitat Politècnica de Catalunya (UPC), from 2007 to 2013. The main research topics have focused on Data Analytics and Machine Learning applications, Data-Centers and Distributed Computing environments, focusing on performance and energy.

From 2008 to 2013 I have worked in the research group LARCA (Laboratory for Relational Algorithms, Complexity and Learning) with professor Ricard Gavaldà, granted by the Spanish Ministry of Science and Innovation (MICINN), and in the research group HPC (High Performance Computing) with professor Jordi Torres, also as associated to the Barcelona Supercomputing Center (BSC-CNS) from 2009. I completed there my master thesis (2008) and Ph.D. thesis (2013), also published in several notable conferences and specialized journals. Additionally, I have been working at the Rutgers University (NJ, USA) during a 6 month pre-doctoral scholar visit in 2012, (DARKLab) with professor Ricardo Bianchini. From 2014 to 2019 I worked as a post-doc at BSC-CNS leading machine learning activities in the research group DCC (Data-Centric Computing) with doctor David Carrera. In 2018 I received a Research Fellowship 'Juan de la Cierva-Incorporación' JdlC-I2016 from the Spanish Ministry of Economy, and started my own research line in Data-Analytics and A.I. for Large-Scale Computing systems, and visited IBM Watson (NY, USA) in 2019 with a Spanish Ministry of Education grant 'José Castillejo'. In 2020 I am the group leader of the Data-Centric Computing group at BSC, managing 13 researchers, also participating in 4 private project agreements and 3 EU projects.

From 2006-2019, I participated in CICYT funded projects BASMATI/SESAAME/MOISES on applications of machine learning, also CICYT CAP-VI/VII project, CoreGRID NoE on high performance computing at UPC, and the PARASOL project on green computing at Rutgers University. At BSC-CNS I participated in the ERC funded Hi-EST project, also in private agreements ALOJA (BSC-Microsoft agreement), and Lighthouse (CISCO-BSC agreement). From 2019-2020, I'm the PI of projects INCISIVE and CALLISTO (EU-H2020) and FEM-IoT (EU-ERDF), also private agreements with IBM, Databricks and Petrobras. Additionally, I participated in projects with Intel and NearbyComputing (private), I'm scientific advisor in MEEP (EU-H2020). I keep internal BSC projects on genomic pattern finding (DM-CANCER) and traffic pollution modelling (PATRONS), and collaborations with UPC and Univ. of Punjab (Pakistan) on data-center efficiency research topics.

I lecture at Facultat d'Informàtica de Barcelona (FIB-UPC) on data analytics, machine learning and computer architecture topics (2011-today), and formerly at Universidad Nacional de Educación a Distancia (UNED) on databases, computer architecture and software engineering topics (2013-2017),



Turno de acceso general

also subject coordinator for Data Driven Security (2017-2018) at Universitat Internacional de València (VIU). I have supervised 14 master theses and 2 Ph.D. at UPC, Univ. Ramon Llull and Univ. Pompeu Fabra, also currently supervising 4 Ph.D. and 2 M.Sc at UPC and Univ. Barcelona. I also lecture seminars and courses for the PRACE EU Network and on-line courses on Data-Centers and AI.



AGENCIA ESTATAL DE INVESTATAL DE

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	FERNANDEZ GRANDE, EFREN
Referencia:	RYC2021-033200-I
Correo Electrónico:	efg@elektro.dtu.dk
Título:	Sound field análisis and acoustical holography

Resumen de la Memoria:

My research expertise is in the field of acoustics, specifically in the areas of sound field analysis, acoustical holography, and acoustic signal processing. I obtained my PhD in 2012 from the Technical University of Denmark (DTU), which resulted in 6 journal publications (Q1 SJR) and 8 international conference publications. I steadily progressed as an independent scientist, obtaining an individual Postdoctoral grant in 2013 from the Danish Council for Independent Research, an Assistant Professor position at DTU in 2014 and an Associate Professor position in 2017. I have contributed to advancing the fields of acoustical holography, sound field reconstruction, sparse array processing and sound field control, as well as contributed to demonstration and transfer of knowledge.

A common thread throughout my research career has been the analysis of complex sound fields, using sensor arrays and advanced measurement techniques. This has enabled to better understand complex sound sources and acoustic environments, to either improve sound quality (of e.g. transducers, communication technology, auditoria, concert-halls, musical instruments, etc.) or reduce unwanted noise (e.g. machinery, vehicles, wind power or vibrating structures). Some important research contributions are 1) pioneering the use of sparse reconstruction techniques in acoustical holography, which extend substantially the frequency range of validity and accuracy of the classical methods, 2) the development of spherical array processing techniques, both for sound field reconstruction and source localization, 3) the quantitative analysis and characterization of random wave fields in enclosures and room acoustics, 4) the characterization of acoustic properties of materials based on spatio-temporal analysis, 5) the development of large-scale active noise control systems to mitigate noise in urban environments, and 6) the introduction of acousto-optical sensing methods (i.e. measuring sound with light) which can reconstruct acoustic sound fields in low-data regimes (with 90% less data than classical tomographic approaches).

I have published 47 journal papers (all Q1) and 64 international conference papers (>40% invited). Since my appointment as associate professor in 2017, I have secured a total research funding of 1.450.000 as principal investigator - including a VILLUM Young Investigator grant (a Danish equivalent of ERC StG), and funding of 15.325.000 as co-investigator. I am a Fellow of the Acoustical Society of America, a VILLUM Young Investigator Fellow and a DFF Sapere Aude Fellow. I serve as Associate Editor for the Journal of the acoustical Society of America and as Associate Editor for the journal Mechanical Systems Signal Processing. I also serve various scientific societies such as the European Acoustics Association, the Acoustical Society of America, the Danish Acoustical Society and the Danish Sound Cluster. I am the head of studies of DTUs MSc programme Engineering Acoustics, which is among the most prestigious in the world.

I have been visiting faculty at the Univ. California San Diego (USA, 2015, 2018 and 2019), Langevin Institute (France, 2015), KAIST (South Korea, 2016), Université du Maine (France, 2016), and MIT Media Lab (currently on hold until April 2022).

Resumen del Currículum Vitae:

EDUCATION	
2009 - 2012	PhD in Acoustics, Near-field acoustic holography with pressure and particle velocity measurements, supervisor Finn Jacobsen,
Technical Unive	sity of Denmark (DTU)
2006 - 2008	MSc in Engineering Acoustics, DTU
2002 - 2006	BSc Telecommunication Engineering, Universidad Politecnica de Madrid.
CURRENT POSIT	ONS
Since 2018	Head of Studies of MSc in Engineering Acoustics, DTU
Since 2017	Associate Professor, Department of Electrical Engineering, DTU
SELECTED PREV	OUS POSITIONS
2014 2017	Assistant Professor, Department of Electrical Engineering, DTU
2012 2015	Postdoc (individual grant, DFF), Department of Electrical Engineering, DTU
PUBLICATIONS:	Total of 99 papers
Journal papers:	46 (all Q1)
Conference pap	ers: 59 (>40% invited).
Citations: 579 (w	eb-of-science), 1153 (google-scholar).
H-index: 15 (we	b-of-science), 18 (google-scholar).
FUNDING: I hav equivalent of an	e secured a total research funding of 1.450.000 as principal investigator - including a VILLUM Young Investigator grant (a Danish ERC Starting Grant), and of 15.325.000 as co-investigator.
FELLOWSHIPS A	ND AWARDS
2020 Fellow	of the Acoustical Society of America for contributions to acoustic signal processing for holography and sound field reconstruction
2018 - 2023	VILLUM Young Investigator fellowship, project Large-scale acoustic holography



Turno de acceso general

Best Teacher Award 2017, Department of Electrical Engineering, DTU.
 Invited Professor, LAUM Universite du Maine, France.

2013 2016 Individual postdoctoral grant, Danish Council for Independent Research, FTP Effective tools for noise source identification

2011 Young Scientist Award, International Institute of Noise control Engineering (i-INCE)

2008 Bang & Olufsen Scholarship for Independent Research

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS: Since 2016 I have advised 3 postdocs and 6 PhDs as principal advisor (two ongoing) and 5 as co-advisor. Since 2014, I have supervised 26 MSc theses as main advisor and 19 as co-advisor.

TEACHING: I have taught approximately 160 ECTS since 2014, out of which approximately 140 have been as course leader/responsible.

EDITORIAL RESPONSIBILITIES

- 2020 Associate Editor for Mechanical Systems and Signal Processing
- 2018 Associate Editor for the Journal of the Acoustical Society of America

CONTRIBUTION TO SCIENTIFIC SOCIETIES AND MEETINGS:

- European Acoustics Association: Chair of Technical Committee in Audio Signal Processing,
- Danish Acoustical Society: Member of Technical Committee in Electroacoustics,
- Acoustical Society of America: Member of Technical Committee in Signal Processing in Acoustics
- Acoustical Society of America: Member of Technical Committee in Architectural Acoustics
- Danish Sound Cluster: Member of Future Sound Tech working group
- IEEE, Member

- Organization of scientific meetings: Since 2015 I have organized 18 special sessions in international conferences and served once as Technical Program Organizer.

INTERNATIONAL STAYS: I have been visiting faculty at the Univ. California San Diego (USA, 2015, 2018 and 2019), Langevin Institute (France, 2015), KAIST (South Korea, 2016), Université du Maine (France, 2016), and (currently on hold until April 2022) MIT Media Lab.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021 Turno de acceso general

 Área Temática:
 Tecnologías de la información y de las comunicaciones

 Nombre:
 PRIETO SANTOS, LUIS PABLO

 Referencia:
 RYC2021-032273-I

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 Título:
 Information and communication technologies to understand and support complex educational practices in the real world

Resumen de la Memoria:

Information and communication technologies to understand and support complex educational practices in the real world

My research sits at the intersection of computer science and education (technology-enhanced learning). Since I started my Ph.D. (after years of industry experience in the telecom R&D sector), I have tried to understand and support how people can use technology for teaching and learning in the real world, especially in blended situations that combine distance and face-to-face activities (critically important, as shown in the recent COVID pandemic), using the latest digital technologies (from log analysis to sensors and eye-tracking). My contributions to the area of learning analytics include software architectures, conceptual and data models, and pioneering the use of these cutting-edge technologies in empirical studies, to analyze and help teachers and learners reflect on their practice (e.g., our seminal work in Switzerland in multimodal teaching analytics). I have taken up science outreach and knowledge transfer, writing a research popularization blog with more than 30,000 visitors and acting as principal investigator (PI) in an Erasmus+ project on digital materials for doctoral education.

The relevance of these contributions has been recognized through awards like the Estonian National Research Award (2020), or a Marie Curie postdoctoral fellowship at the École PolytechniqueFédérale de Lausanne in Switzerland (a top-20 technical university worldwide). Other key metrics of their impact are the number of publications in JCR-indexed journals (23, of which 17in Q1 journals), or the citations to those publications (884 in Web of Science, 2,661 in Google Scholar, h-index 19 in WoS, 30 in GScholar). These contributions have been made, during more than seven years of research in international research institutions, with a wide international network of collaborators (e.g., more than 90 international co-authors). This is also apparent in my extensive experience participating in and leading EU-funded research projects (with a combined worth exceeding 17 M .

In my upcoming research, I will apply these insights and techniques to understand and support a field currently under-served by technology: doctoral education.

Resumen del Currículum Vitae:

Dr. Luis P. Prieto is currently a Senior Research Fellow at the School of Educational Sciences in Tallinn University (TLU) in Estonia. He is currently researching the application of big data techniques to the field of education (learning analytics).

He has developed systematic literature reviews (highly-cited in his field), conceptual frameworks, software architectures, and empirical studies, especially in authentic, real-world educational settings that are challenging to study but offer higher ecological validity. Dr. Prieto has focused on the application of information and communication technologies (ICT) to understand and support complex educational practices in the real world. In the study of such complex phenomena, he has used multiple methods of data collection and analysis, to achieve a more complete view and reliable conclusions. E.g., Dr. Prieto pioneered the use of mobile eye-trackers on school teachers, tracing their orchestration load in real classrooms, and spawning a whole new area of research (multimodal teaching analytics). These contributions are also reflected in a strong publication record: * Publications in JCR-indexed journals: 23

- * ... in JCR top-quartile (Q1) journals: 17
- * ... IN JCR top-quartile (Q1) Journals:
- * ... in JCR top-decile (D1) journals: 4
- * Impact metrics (Web of Science / Google Scholar)
- * Citations: 884 / 2,661
- * h-index: 19 / 30

Dr. Prieto has co-written successful competitive funding proposals at the international level, leading the writing of a Marie Curie Fellowship, which he spent at EPFL in Switzerland (one of the top 20 technical universities in the world). Dr. Prieto has also participated in multiple national and international research projects, including leading positions in multi-million research projects (CEITER, XtreemOS projects). He has developed an extensive network of international collaborators (e.g., more than 90 co-authors from international institutions), used in writing European-level funding proposals (e.g., to the CHANSE consortium, currently at the second stage of review).

Dr. Prieto has contributed to society by participating in technology transfer projects (e.g., INNPACTO funding program) and Erasmus+ innovation projects (he is currently leading one as PI). Detecting the dire need for doctoral training productivity and mental health, he is working on the development of a startup on the topic (Popup Doctoral School). He popularizes doctoral education science through his blog A Happy PhD, which has become popular (more than 30,000 unique visitors) and reaches an international audience (readers from 136 countries).

Dr. Prieto is making important contributions to training novice researchers. Aside from supervising five doctoral students, within the DE-TEL Erasmus+ project, he is co-developing a series of training actions and materials for doctoral students. He regularly runs workshops and seminars about doctoral productivity and wellbeing, held in multiple universities in Estonia and Spain. His blog (see above) has also become a popular resource on those topics for PhD students worldwide.



AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021

Turno de acceso general

In sum, Dr. Prieto s contributions to learning technologies have been numerous and wide-ranging, as recognized by local, national, and international awards: the Estonian National Research Award (the highest accolade by the Estonian Academy of Sciences), a Marie Curie fellowship, or those obtained by his doctoral thesis.