Área Temática:	Biociencias y biotecnología
Nombre:	ALMUEDO CASTILLO, MARIA
Referencia:	RYC2021-031051-I
Correo Electrónico:	malmcas@upo.es
Título:	Cell identity signaling, tissue mechanics and proportionate patterning for the robust formation of embryos and organs

Resumen de la Memoria:

After graduation, I decided to study a Master in Developmental Biology at the University of Barcelona (UB) and found about planarian regeneration. These worms are able to regenerate an entire proportionate animal in a few days after cutting them in pieces. Therefore, understanding how these pieces of tissue identify what they are missing and they regenerate it, was to me the ideal model to learn the mechanisms that control patterning, size and proportionality. During my PhD research period, I described how the non-canonical Wnt signaling is essential to position regenerating organs and how JNK acts as a signaling hub that controls regeneration initiation and re-scaling of the planarian body. Due to major technical limitations of the model, however, I always missed the possibility to quantify these morphogenetic mechanisms more precisely. That is why I decided to move to the Max Planck Institute in Tubingen (Germany) for my postdoctorate, aiming to acquire the knowledge and the tools required to do quantitative morphogenesis, and get a more interdisciplinary background by learning Imaging, Biophysics and Computer Modeling, using the most suitable model for this kind of studies, which is zebrafish. There, together with my computer scientist colleagues we described a novel and very elegant mechanism of scaling, by which embryos sense their size and adjust proportionally the amount of the different tissues. This work showed me how powerful is the dialogue between biology and modeling to explain complex biological processes, and gave me the understanding of the basis of programming required for the success of an interdisciplinary project.

For my next step, aiming to establish the foundations of my independent research, I decided to acquire knowledge on the physical forces and mechanical properties of tissues. To finally use my expertise on signaling identity and scaling to understand how these different sources of information are interconnected to generate an organ that is perfectly formed, patterned and that is scaled proportionally to its final size. With that in mind, I moved to the Centro Andaluz de Biología del Desarrollo (CABD), which provided me an excellent infrastructure to conduct the innovative and multidisciplinary project that I envisioned. With this project, in 2019 I obtained a Marie Sklodowska-Curie postdoctoral fellowship that allowed me to develop my independent research lines and to obtain a Junior Leader grant from Fundación Social La Caixa, with which I started to lead my own research team. In 2021 I obtained my first Proyecto Nacional I+D+i from the Ministerio de Ciencia e Innovación of Spain to consolidate my independent research group. With my new team, I aim to describe the molecular and transcriptional basis of the communication between Wnt identity specification and YAP mechanoregulation to generate a proportionate and perfectly shaped eye. To later analyze if these mechano-signaling interplay and scaling abilities are maintained in in-vitro eye organoids generated from ESCs. I ultimately aim to contribute to establish the biological groundwork for next generation regenerative therapies, since the coordination between the mechanics, identity specification and organ size, is crucial for organ plasticity and integration, which is required for organ regeneration and its later transplantation.

Resumen del Currículum Vitae:

I obtained the Biology degree from the University of Sevilla in June 2008. In October 2008, I decided to study a Master in Developmental Biology at the University of Barcelona (UB) and found my personal devotion to this field. For my PhD, I then joined Dr. Saló & Dr. Adell s lab at the Genetics Department of the UB. Using planarians, I demonstrated the role of specific signaling pathways in processes that allow regeneration of a proportioned body plan. This work resulted in three first-author publications in relevant journals (PNAS, PLoS Genetics and Int J Dev Biol) and a fourth project that I continued supervising and I will submit as senior co-corresponding author. I obtained my PhD in July 2014, which was awarded the 4th best doctoral thesis prize of the UB.

For my first postdoc, I decided to join Dr. Müller lab at the Max Planck Institute of Tübingen to use zebrafish as a model system and to get an interdisciplinary training in biophysics and computer modeling. There I designed a project to study scaling and proportionate patterning that was awarded with an EMBO long-term fellowship. Using a computational model and validating experimentally its major predictions, we identified a novel scale-invariant patterning model based on size-dependent changes in the concentration of the Nodal inhibitor Lefty. I published this work as first author in Nature Cell Biology in August 2018.

I then obtained a Juan de la Cierva contract to start my independent research lines in the lab of JR Martínez-Morales at the CABD in Seville. With this project, in 2019 I first obtained a Marie Sklodowska-Curie fellowship and then a Junior Leader grant from Fundación Social La Caixa. This highly competitive program allowed me to lead my own independent research at CABD, where I am co-supervising the PhD of Ana Sousa. In 2021 I obtained my first Proyecto Nacional I+D+i that consolidated my group. My team aims to understand the complex formation of organs from a mechanical and patterning comprehensive perspective, using as a paradigm the vertebrate eye. My ultimate goal is to analyze if organ properties such as mechanical robustness and tissue plasticity are maintained in eye organoids, which have grown up outside the organism. The foundation of my group has been complicated considering that since late 2019 until now, I had to deal with two maternity leaves, a long pregnancy leave and the coronavirus pandemics. Despite these difficulties, I was able to set up my research lines in the lab, to train my lab manager and students, and to release a preprint in which I am co-corresponding author as part of the PhD research of my student.

The internationalization and impact of my research is evidenced by indicators such as securing my own funding with highly competitive European fellowships and grants (Proyecto Nacional I+D+i, Proyecto PAIDI Junta de Andalucía, La Caixa Junior Leader, MSCA-IF, Juan de la Cierva and EMBO Long-term), my network of international collaborators and the oral presentations of my research in 11 research centers and conferences. Moreover, I am very committed with mentoring younger scientists, science outreach and the promotion of women in academia. All this together has prepared me to be a successful and fair leader of my team, which together with my pioneering research program, have set the solid foundations of my career as an independent researcher.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	Biociencias y biotecnología
Nombre:	RUIZ ORERA, JORGE
Referencia:	RYC2021-033839-I
Correo Electrónico:	jorge_ruiz_orera@hotmail.com
Título:	Evolutionarily young proteins in human biology and disease

Resumen de la Memoria:

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

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

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

Resumen del Currículum Vitae:

I am a Computational biologist with an academic background in Biotechnology and Bioinformatics. I completed my Ph.D. in Biomedicine with Dr. Mar Albà (GRIB, Barcelona) in 2017. As a predoctoral trainee, I pioneered the study of de novo genes, and my work resulted in the publication of five high-impact articles, three of which as the main author. One of them is a highly cited landmark publication (Ruiz-Orera et al. 2014, 372 citations) where I proved that many non-coding RNAs are translated in humans and other species. My Ph.D. was funded by the Spanish Science Ministry and was awarded the Special Prize of the Ph.D. Programme and the International Mention for a research stay hosted by Dr. Diethard Tautz at the MPI for Evolutionary Biology (Plön, Germany) in 2015.

I am currently a Postdoctoral Researcher at the Max Delbrück Center for Molecular Medicine (MDC) in Berlin, under the supervision of Prof. Dr. Norbert Hübner, a referent researcher in the field of Cardiovascular Disease. I have demonstrated leadership and research excellence in the fields of genomics and evolutionary biology. My research track has provided me with an excellent background in multiple state-of-the-art computational disciplines. I have developed methods for the analysis of large-scale multi-omic data, including an approach for the genome-wide identification of novel human translations and microproteins generating the first catalog supported by GENCODE.

My track record consists of 15 scientific articles and 2 preprints. My independent and committed involvement is emphasized by 9 first author (cited 626 times) and 2 co-correspondence author contributions. Also, I have made a significant contribution to several ongoing international collaborations and I have currently applied for joint funding with M.D. John Prensner, an Instructor at Harvard Medical School supervised by Dr. Todd Golub, director of the Broad Institute of MIT and Harvard.

I have explicitly supported public open access and ensured research reproducibility by using open repositories. I have completed a career development track (MDC Aspire) to complement my academic leadership skills and gain additional qualifications. I have trained two master students and guided the work of four Ph.D. candidates. I promote a supportive and dynamic working environment and I foster a shift in the culture of science in favor of diversity and inclusion, promoting women s visibility and progress.

I regularly build upon my scientific knowledge through workshops and conferences. I support community building, and I have developed my own independent networks in evolutionary biology, bioinformatics, and reference annotation communities. I have independently initiated and co-founded an international consortium to create a unified catalog of microproteins and non-canonical translations. This consortium is supported by the main reference annotation databases and includes several world-recognized researchers in the fields of genomics, proteomics, and database annotation, including Dr. Nicholas Ingolia and Dr. Jonathan Weissmann the developers of ribosome profiling .

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

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biociencias y biotecnología**
Nombre:	ALONSO , ALVARO
Referencia:	RYC2021-031965-I
Correo Electrónico:	alvaro.alons@gmail.com
Título:	Nanomechanics of bacterial adhesion and mechanotransduction

Resumen de la Memoria:

Mi carrera ha estado centrada en comprender como las fuerzas mecánicas modulan la función de proteínas involucradas en adhesión celular y mecanotransducción. Usando técnicas de molécula única, he explorado la nanomecánica de proteínas que virus, bacterias y células eucariotas utilizan para adherirse a huéspedes y para detectar y responder a los estímulos mecánicos del medio que las rodea.

Tras completar mis estudios en biología, quise abordar los problemas biológicos desde una perspectiva cuantitativa, con especial interés en las fuerzas e interacciones que, a nivel molecular, modulan los procesos de adhesión patogénica y permiten a las células reconocer su entorno. Con este fin, orienté mi carrera al campo de la biofísica de moléculas únicas, donde durante los últimos 10 años he tenido el privilegio de trabajar con expertos de talla mundial para explorar estos temas desde un punto de vista multidisciplinar.

En mi etapa predoctoral estudié la nanomecánica de proteínas de adhesión vírica y bacteriana. Descubrimos como el plegamiento asistido bajo fuerza y ciertas modificaciones postraduccionales afectan la estabilidad mecánica de estas proteínas, lo que nos permitió inferir como estos eventos a nivel molecular podrían determinar el éxito en el anclaje de estos patógenos a sus huéspedes. En mi primer postdoctorado, me enfoqué en estudiar como la fuerza mecánica modula la reactividad química de proteínas de adhesión bacteriana, lo que me permitió elaborar hipótesis para explicar cómo los patógenos pueden cambiar de estados de adhesión fuerte, que garantizan la unión al huésped aun en presencia de grandes perturbaciones mecánicas, a estados de adhesión débil que permiten al microorganismo moverse y colonizar nuevos nichos. Esta aproximación me permitió explorar estrategias antiadhesivas, orientadas a combatir la creciente epidemia de resistencia a antibióticos.

Actualmente, estoy realizando una investigación que aúna abordajes de molécula única y de escala celular para explorar procesos de adhesión y mecanotransducción en bacterias, con financiación de una beca Marie Curie. En el futuro quiero profundizar en estos dos temas, que se enmarcan en el todavía inexplorado campo de la mecanomicrobiología, y combinar mi experiencia en biofísica de moléculas únicas con mi preparación en biología y microbiología. Específicamente, quiero dirigir mis esfuerzos a estudiar las interacciones mecánicas que experimentan las bacterias durante la colonización de la rizosfera: cómo estos organismos y la planta huésped se reconocen mutuamente, y como se produce la adhesión bacteriana. Tanto el huésped como la bacteria poseen estructuras proteicas que responden a diferentes magnitudes de fuerza; mientras que unas proteínas están involucradas en detectar y transducir estímulos mecánicos externos, lo que promueve cambios en el estilo de vida de las bacterias, otras están implicadas en proporcionar a la bacteria con una adhesión fuerte una vez que el huésped ha sido reconocido. Este campo es de gran interés en la industria agroalimentaria, de capital importancia en la economía de España. Comprender el papel que juegan las fuerzas mecánicas en las interacciones moleculares que se establecen entre el microbio y la planta puede servirnos para desarrollar estrategias que permitan mejorar la producción agrícola, y para combatir y dificultar procesos patogénicos.

Resumen del Currículum Vitae:

He centrado mi carrera en comprender como las fuerzas mecánicas modulan la función de proteínas involucradas en los procesos de mecanotransduccion y adhesión celular. Me he especializado en el uso de técnicas de espectroscopia de fuerza de molécula única para explorar como la fuerza afecta a la dinámica conformacional de estas proteínas, y como esta perturbación modula estos procesos.

En mi doctorado (CIC nanoGUNE, 2013-2017) estudié como la fuerza modula al receptor CD4 de los linfocitos, la primera interacción que el VIH-1 establece para infectar células, y como la reducción de puentes disulfuro y la unión de anticuerpos afectan el anclaje viral (ACS Nano, 2014). Profundizamos en el papel evolutivo de los puentes disulfuro en la proteína muscular titina (Nat. Struct. Mol. Biol., 2017), y el papel de estos enlaces en la estabilidad mecánica de proteínas (J. Biol. Chem., 2017). Estudié la nanomecanica y el plegamiento asistido por chaperonas y enzimas de las proteínas del pilus tipo I de Escherichia coli uropatogénica. Descubrimos que esta estructura adhesiva, utilizada para colonizar el tracto urinario, muestra una jerarquía mecánica, y que la enzima oxidorreductasa que cataliza la formación de puentes disulfuro en estas proteínas posee además actividad de chaperona (Nat. Commun., 2018).

Posteriormente me uní como investigador postdoctoral al laboratorio del profesor Julio Fernández en Columbia University (2018-2020), donde profundicé en la biofísica de proteínas expuestas a fuerzas mecánicas. Desarrollamos una estrategia para alterar el plegamiento in vivo de proteínas del pilus de organismos Grampositivos (PNAS, 2018), y descubrimos como las fuerzas modulan la reactividad química de un enlace tioéster localizado en la proteína adhesiva que Streptococcus pyogenes utiliza para colonizar el epitelio respiratorio (Nat. Chem., 2020), un hallazgo que nos permitió hipotetizar sobre los mecanismos que reconcilian adhesión y movilidad durante la infección, y además nos permitió explorar una estrategia para impedir la adhesión bacteriana. Exploramos el papel de la fuerza en dos proteínas involucradas en mecanotransduccion, talina y vinculina, esenciales en la formación de las adhesiones focales y responsables de la transducción de señales mecánicas al interior de la célula (Sci. Adv., 2020; PNAS, 2020). Participé como profesor asistente en el curso Computer models in biology , donde estudiantes de grado y máster eran introducidos a problemas biológicos como el movimiento browniano o el plegamiento de proteínas desde una perspectiva física. Los estudiantes tenían que desarrollar rutinas de programación que produjeran simulaciones de los procesos explicados, y mi papel consistió en ayudar con la escritura del código y con los conceptos que abordamos en clase. Además, he estado también involucrado en el desarrollo de instrumentación de pinzas magnéticas para la manipulación de moléculas únicas (bioRxiv, 2021).

En 2020, me uní al laboratorio del profesor Garcia-Manyes en King s College London, donde actualmente estoy desarrollando mi proyecto sobre mecanotransducción bacteriana con una ayuda Marie Curie. Quiero desarrollar una visión holística de los procesos de adhesión y mecanotransducción en bacterias, desde una aproximación de molécula única, al estudio de comunidades bacterianas e interacciones microbio-huésped.

Área Temática:	**Biociencias y biotecnología**
Nombre:	MARCOS SANMARTIN, ENCARNACION
Referencia:	RYC2021-035061-I
Correo Electrónico:	encarni.marcos@gmail.com
Título:	Decision making and its neural substrates

Resumen de la Memoria:

My research has focused on the understanding of decision making in the brain. For that, I use a combined experimental and theoretical approach that takes advantage of my skills as an engineer. During my PhD and postdoctoral training, I have complemented by technical skills with neurobiological knowledge thanks to the multidisciplinary approach that I have always used.

My PhD studies were an important period of my scientific career that determined my future line of research. At that time, I had the opportunity to work together with a neurophysiologist to investigate how signals integrate in the brain to make decisions. Thanks to this collaborative work, I learned to analyze neuronal data from experiments with animals and to work close to experimentalist, which has been fundamental for my research. During my subsequent postdoctoral periods, I have further complemented by neurobiological and experimental background, being able to work with large datasets and to participate in the design of new experimental tasks with animals and in the collection of behavioral and neuronal data. I have made important contributions to the literature with studies that have opened new avenues to explore in the future, such as the finding of the across-trial variability of premotor neurons response as a signature of memory and as an influencer of behavior.

My research has provided a detailed description of the dynamics of prefrontal neurons during decision-making tasks and has led to the development of a computational model with three fundamental axis, perception, memory and action, together with all the mechanistic details necessary to investigate decision making. My future research will take advantage of this framework to provide an integrative model of the brain able to solve complex decision-making tasks that include multisensory information, working memory and contextual cues and to investigate decision making in depression.

Resumen del Currículum Vitae:

My research interest is focused on the understanding of the decision-making network in the brain. To advance in this field, I use a combined computational and experimental approach that builds on my degree in Engineering and my complementary skills on biological sciences achieved during my PhD and post-doctoral training. My rather unique skills as a computational and experimental neuroscientist have put me in an excellent and very competitive position to make significant contributions to the research field of decision making. My research goals are the mechanistic explanation of the decision-making process, its implementation in a biological network and its application to develop new therapies to improve decision making in patients suffering from mental illness.

I have published my work in scientific peer-reviewed journals (15 articles/9 first author/1 last and corresponding author), some of them in leading journals such as Neuron, Cell Reports or PNAS, and most of them without my thesis supervisor (12 articles). I have also published 4 book chapters (1 first author), 4 scientific papers in Conference Proceedings (3 first author) and presented my work at several international conferences and seminars (>15 posters, talks and invited talks). I have also participated in several activities for the general audience to disseminate science: Semana del cerebro , ESCOLAB, Día Internacional de la Mujer y la Niña en la Ciencia or UPF Open day.

During my scientific career, I have obtained funding in highly competitive calls: PhD grant (2009-2014) from Universitat Pompeu Fabra, Juan de la Cierva-incorporación (2016) from Ministerio de Economía, Industria y Competitividad, one 2-years postdoctoral contract within the Severo Ochoa Postdoctoral programme (2020) from Instituto de Neurociencias de Alicante and one APOSTD (2021) from Generalitat Valenciana. I have participated in 7 different funded projects, 1 of them as principal investigator (Avvio alla Ricerca) and 3 of them funded by the European Commission, allowing me to work in an international and multidisciplinary environment and to establish long-term collaborations. I have done two international stays. First, as a PhD student, I joined the lab of Prof. Paul Cisek at University of Montreal for a 3-months stay and then, as a postdoctoral researcher, I joined the lab of Prof. Aldo Genovesio at Sapienza University of Rome for more than 3 years. These stays, together with my past and ongoing collaborations, show the international impact of my research.

I have supervised 4 master students, within the Interdisciplinary Master in Cognitive Systems and Interactive Media (Universitat Pompeu Fabra), and I am currently supervising one graduate student.

I am actively involved in the revision of scientific abstracts and articles in conferences and journals and I am also part of the Banco de Evaluadores from Agencia Estatal de Investigación.

Área Temática:	**Biociencias y biotecnología**
Nombre:	CHOROSTECKI , UCIEL PABLO
Referencia:	RYC2021-032641-I
Correo Electrónico:	ucielp@gmail.com
Título:	Evolution of non-coding RNAs in plants, animals and fungi

Resumen de la Memoria:

My fascination with RNA biology led me to join Dr Palatnik s lab (IBR, Argentina) to combine biology with my Computer Science background. I was the first computational researcher in his group. During that time, I did a 4-month research stay in INRIA (Lille, France), which reinforced my decision to continue in research. Then, I obtained my master degree in Computer Science, so I became a full-time PhD Fellow at Palatnik s lab. The central aim of my research focused on computational strategies to study microRNA (miRNA) in plants. I discovered and experimentally validated several novel miRNA targets in Arabidopsis thaliana and tobacco plants (Chorostecki et al. Nucleic Acids Res 2012), and I developed a computational approach to identify miRNA-mRNA target interactions in plants mainly based on sequence conservation (Chorostecki et al. Bioinformatics 2014).

Additionally, during my PhD, I studied plant miRNAs biogenesis. My contribution in the lab in miRNA processing led to several co-authors publications in international high-index journals (Current Biology, Genome Res, Plant physiology, Nucleic acids research and Nature communications). Furthermore, in a 2-month stay in the lab of Dr Cedric Notredamem (CRG), I ve developed an approach to systematically analyze conservation patterns of miRNA precursors in plant species (Chorostecki et al. Plant Cell 2017).

After acquiring solid expertise in small non-coding RNAs, I wanted to study the evolution of long non-coding RNAs. To develop this research interest, I obtained both a MARIE CURIE ACTIONS and then a Juan de La Cierva Incorporación postdoctoral fellowships, which allowed me to perform that project in Gabaldon s lab. Here, I combine computational and sequencing techniques to fill the gap between the structure and functions of lncRNAs. We experimentally determined for the first time the secondary structure of a human lncRNA, NORAD, that is dysregulated in cancer (Chorostecki et al. Comput Struct Biotechnol J 2021). We provide a thorough characterization of NORAD structure using nextPARS, an in-vitro enzymatic probing technique developed in our group (Saus and Willis et al, RNA 2018; Chorostecki et al. RNA Bioinformatics 2021). Furthermore, I was involved in developing several tools from the group: MetaPhOrs (Chorostecki et al., 2020 Nucleic acids research), PhylomeDB (Fuentes & Molina et al., 2021 Nucleic acids research) and Evolclustdb (Chorostecki et al., in preparation). During my career, my work has produced 12 publications (all of them in Q1) and a book chapter in which I sign as the first author in six of them.

The main goal of my future research line is to study the evolution of RNAs structures from plants and animal kingdoms. By combining computational and experimental methods, the anticipated results will most likely make a crucial breakthrough in the RNA structure field.

Resumen del Currículum Vitae:

I have a degree in Computer Science, and I did a PhD in Biological Science at the National University of Rosario, Argentina (laboratory of Javier Palatnik). Currently, I am a Postdoctoral Researcher in the Barcelona Supercomputing Centre and Institute for Research in Biomedicine (laboratory of Toni Gabaldón).

I have published 12 peer-reviewed scientific articles in leading journals, all of them are in the 1st Quartile of their respective areas (such as Nature Communications, Nucleic Acid Research, Plant Cell, Current Biology, Genome research and Bioinformatics). From these total, I was the first author in five of them. I wrote one book chapter in RNA Bioinformatics. Overall my work has received over 480 citations with an average of ~80 citations/year during my postdoctoral period and an h-index of 9. Several publications are highly cited and represent significant advances in their respective fields.

During my career, I have received independent funding, including prestigious fellowships and grants, such as Marie Sklodowska-Curie Individual Fellowship, Juan de la Cierva postdoctoral fellowships Incorporación and Wood-Whelan Research Fellowship. Furthermore, I have received numerous awards from several international scientific organizations such as Keystone scholarship, RNA Society travel fellowship and EMBO course fellowship.

As a recognition of my independent research, I was invited as a speaker to prestigious international scientific meetings or institutes from different countries (Scotland, Spain, Italy, Bangladesh and Argentina); and I have participated in several international conferences (in Canada, Sweden, France, Italy, Spain, Brazil and Argentina). I act as guest editor in IUBMB-Life and as a reviewer for several scientific journals (Bioinformatics, Computational and structural biotechnology, Genomics, Planta, among others).

Throughout my scientific career, I have been working in several scientific institutes and universities worldwide, allowing me to establish an international network of collaboration with top research groups from different countries worldwide (US, Germany, Netherlands, Spain, France and Argentina). Moreover, I have vast experience mentoring undergraduate and graduate students from diverse backgrounds. I have also participated in teaching activities for more than ten years, and since 2018, I m teaching at the Functional and Comparative Genomics course of the Bachelor's Degree in Bioinformatics (ESCI-UPF). I have participated as coordinator in several outreaches activities and in the organization of Scientific Meetings

Since the end of 2021, I m a co-founder of a Biotech startup for nutraceutical and cosmeceutical products based on regulatory small RNAs.

Área Temática:	**Biociencias y biotecnología**
Nombre:	PEREZ , MARCOS FRANCISCO
Referencia:	RYC2021-034496-I
Correo Electrónico:	perez.mf@gmail.com
Título:	Epigenetics, metabolism and DNA repair

Resumen de la Memoria:

My aim is to become an independent researcher. I have a strong background in experimental and computational biology. I have 3 first author research papers in Nature, Current Biology and Genome Biology (also co-corresponding author) as well as 2 review articles in Nature Cell Biology and Frontiers in Physiology, with a total of 257 citations.

My work has centred on epigenetics. My doctoral studies and first postdoctoral position at the CRG in Barcelona focussed on the role of non-genetic inheritance of parental environment and physiology in generating phenotypic differences between individuals. I found that maternal age is a major cause of inter-individual variation in C. elegans, identifying the mechanism as the increasing flow of yolk from soma to germline (Perez et al., Nature 2017). During my postdoctoral work I characterised how an individual s social environment, perceived neuronally via pheromone signalling, led to delayed sexual maturity in the next generation   one of the few convincing examples of inherited neuron-to-germline signalling of natural stimuli in an animal (Perez et al., Current Biology 2021).

In order to develop computational skills I switched fields to become a bioinformatics researcher at the MRC London Institute of Medical Sciences. Within a short time I developed a new methodology for analysing gene expression correlations in large datasets, allowing me to discover a novel connection between mitochondrial and nuclear gene expression in cancer (Perez* & Sarkies*, Genome Biology 2021).

My current research lies at the intersection of metabolism, epigenetic gene regulation and DNA repair. One line of enquiry I am currently pursuing is the possibility that metabolic regulation may be a key function of methylation of histone proteins. This is a new and potentially revolutionary idea in the field. Second, I am using novel coevolutionary analyses to discover new sources of DNA damage in cells, giving new insights into the causes of cancer.

Resumen del Currículum Vitae:

Since my PhD, my main research interest is epigenetics. Working on inter-individual physiological variation in the nematode worm Caenorhabditis elegans, it was clear that a significant contributor is transgenerational or intergenerational epigenetic inheritance. There are many alternative non-genetic routes to inheritance of environmental or physiological influences. During my doctoral work I discovered that the massive flow of yolk from soma to germline in C. elegans is a signal of maternal age with an impact on progeny physiology; younger mothers supply less yolk and so produce progeny that are smaller, slower growing and susceptible to stress. My PhD work was published in Nature in 2017 as first author. In 2019 I also published a review of epigenetic inheritance in animals published in Nature Cell Biology and a review in Frontiers in Physiology in 2019 on functions and regulation of yolk in C. elegans.

I stayed in the Genetic Systems group as a postdoctoral researcher. I published a paper in Current Biology (2021) as first author, in which we demonstrated that in C. elegans the social environment of the adult, as perceived by pheromone signalling, is signalled to their progeny, leading to changes in physiology with effects lasting up to adulthood. This is one of few convincing examples to date of inherited neuron-to-germline signalling of naturally occurring environmental cues in an animal.

I wanted to broaden my experience and learn computational approaches to biology. In November 2020 I started as a postdoctoral researcher in bioinformatics in the Epigenetic Inheritance and Evolution group (Dr. Peter Sarkies) in the MRC London Institute of Medical Sciences (MRC-LMS) in the United Kingdom. Here my research has focussed on the controversial metabolic role of epigenetics, particularly histone modification, in healthy tissues and cancers, as well as the inadvertent DNA damage that epigenetic and metabolic processes can wreak. In the course of this I developed a method for gene expression correlation analyses on large RNA-seq datasets that led me to discover a novel link between mitochondrial and nuclear gene expression in cancer; these results were published in Genome Biology (2021) as first and co-corresponding author.

My publication record is a testament to my scientific excellence. To date I have 5 first author peer-reviewed publications, three original research papers and two literature reviews, with 4/5 in Q1/D1 journals (top quartile & decile of the field), with 257 citations. My review article on epigenetic inheritance is evidence of my standing as an expert in the field, as is an opinion article in Nature Cell Biology. Additionally, I have been often sought as a reviewer. For my doctoral work I received awards for scientific excellence, including the Premio Extraordinario by the UPF and an Honorable Mention in the International Birnstiel awards.

I have disseminated my work at several conferences and have also been involved in disseminating my research to the general public. I was interviewed on the Nature podcast in 2017 about my Nature paper. I also gave a talk for a lecture series organised by the Escola Europea d Humanitats, writing up my talk as a book chapter which was published in the anthology Deu aportacions catalanes a la ciència actual. Overall, I have demonstrated an ability to communicate my research to both academic and general audiences in writing and in speech in both English and Spanish.

Área Temática:	**Biociencias y biotecnología**
Nombre:	MATEO BONMATI, EDUARDO
Referencia:	RYC2021-030895-I
Correo Electrónico:	eduardo.mateo-bonmati@jic.ac.uk
Título:	Epigenetic and hormonal aspects of developmental transitions

Resumen de la Memoria:

Plants are not only a source of energy, oxygen, raw materials, and food but also fantastic models to study dynamic processes. Because of their sessile nature, plants need to integrate internal and external signals often implying transcriptional rearrangements and lending to unusual phenotypic plasticity. A mechanistic understanding of how that is achieved is not only interesting from a curiosity-driven scientific perspective but also necessary to fully understand how to modulate gene expression patterns for human benefit.

I graduated in Biochemistry with honours from the Universidad Miguel Hernández. Several internships stimulated me to initiate a PhD in Plant Genetics in the group of Prof Jose Luis Micol. Aiming to shed light on the morphogenetic basis of leaf dorsoventrality, I ended up working in two main pathways: the morphogenetic function of the translational machinery and characterizing a new family of redundant chromatin remodelers controlling vegetative identity. During my period as a PhD student, I was awarded grants to cover my salary by three different institutions on a competitive basis: Universidad Miguel Hernández, Generalitat Valenciana (ACIF program), and Ministerio de Educación, Cultura y Deporte (FPU program).

Fascinated about how plants organize massive transcriptional rearrangements to move between developmental phases, I wanted to gain expertise on how internal signals such as plant hormones govern these transitions. Thus, I decided to join Prof Karin Ljung group at the Swedish University of Agricultural Sciences in Umeå (Sweden) which has decades of experience studying auxin and cytokinins metabolism. In the Ljung group, I lead several initiatives including an auxin profiling-guided forward genetic screen and a CRISPR/Cas9 reverse genetic approach to characterize the auxin inactivation pathways. Some of my achievements were finding a new set of enzymes able to inactive auxin by sugar conjugation and discovering a link between blocking the auxin amino acid conjugation pathway and drought tolerance. I have been awarded a Postdoctoral grant from Generalitat Valenciana (APOSTD program) and my proposal to improve crop drought tolerance modulating auxin conjugation was selected for the Marcus Wallenberg Young Researchers' Challenge. Evidencing my productivity, my stage in Sweden rendered me 5 publications (4 as a first or co-first author), and demonstrating my leadership, I was the corresponding author in 2 of these publications. I envisage publishing at least 3 more papers from my time in Sweden during 2022.

Chasing my interest on transcriptional reprograming I join Prof Caroline Dean group at John Innes Centre in Norwich (United Kingdom). For thirty years, her lab has been mechanistically dissecting the transcriptional dynamics of FLC, a key factor controlling the flowering transition. My project, hopefully supported by a MSCA Postdoctoral Fellowships 2021 currently under review (ID: 101060067), eagers to explain how different processing steps of the FLC antisense transcript COOLAIR connects with the chromatin remodeling of the locus to silence the gene. In the Dean lab, I have significantly improved my understanding of the mechanistic bases of transcription, and epigenetics and how the mathematical modelling, feedbacks and supports the dissection of these biological problems.

Resumen del Currículum Vitae:

I am a plant molecular geneticist with more than ten years of experience in the field. Generally, I have been trained in genetics, molecular biology, genomics, and bioinformatics as well as in some aspects of biochemistry, cell and developmental biology, and plant physiology.

After obtaining my Licenciatura en Bioquimica (BcS) and Master en Bioingenieria (MSc) at the Universidad Miguel Hernandez, I joined Prof Micol group to start a PhD to find what genetic factors determine the leaf adaxial-abaxial pattern. Forward genetics drove me to study different pathways affecting this aspect, including translational and transcriptional processes. The main finding of my PhD was the discovery of a new group of proteins with chromatin remodeling functions and that triggered my interest into how plants rearrange transcriptional programs.

After my PhD defence, which received the maximum score, I joined Prof Ljung laboratory in the Swedish University of Agricultural Sciences, aiming to acquire knowledge about how internal signals, such as hormones, control these transcriptional rearrangements. In the Ljung group I could develop my own ideas and projects, building up my scientific independence. Among others, some of my achievements during this period was the finding of new factors involved in auxin inactivation and how the attenuation of this inactivation provides salinity tolerance.

After working on chromatin remodelers during my PhD and how hormones control the integration of a plethora signals during my first postdoc, I aimed to keep pursuing my interest on transcriptional reprograming, and thus I joined Prof Dean group at John Innes Centre (UK) to enquire into the molecular mechanisms behind vegetative to reproductive transition. In the Dean lab, I am improving my understanding of the mechanistic bases of transcription, and epigenetics. My project addresses how different processing steps of the FLC antisense transcript COOLAIR connects with the chromatin remodeling of the locus to silence the gene.

I have been awarded with fellowships to cover my salary during all stages of my career by different institutions on a competitive bases: (1) PhD fellowships from Universidad Miguel Hernández, Generalitat Valenciana (ACIF program), and Ministerio de Educación, Cultura y Deporte (FPU program), and (2) Postdoctoral fellowships from Generalitat Valenciana (APOSTD program) and European Commission (MSCA Postdoctoral Fellowships 2021 ID: 101060067, under review).

Overall, my scientific impact is demonstrated by 11 scientific publications, 7 as first or co-first author, and 2 as corresponding author. My postdoctoral experiences in Sweden and England have allowed me to develop a multidisciplinary scientific network, currently with nodes in Sweden, Czech Republic, USA, England, and Denmark which will help me to pursue my own biological questions from different angles through international collaborations.

My multidisciplinary background, scientific network, leadership, capacity of adaptability, productivity, and research vision will significantly contribute to the innovation of the Spanish Plant Biotechnology field, and the Ramon y Cajal contract is, certainly, the ideal opportunity to lead my research program.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: **Biociencias y biotecnología**
Nombre: PEREZ SANCHEZ, CARLOS
Referencia: RYC2021-033828-I
Correo Electrónico: b32pesac@uco.es
Título: Identification of novel therapeutic targets and biomarkers of disease and response to therapy in autoimmune and inflammatory diseases

Resumen de la Memoria:

My main research line in the group of "systemic and chronic autoimmune diseases" at the Biomedical Research Institute of Cordoba (IMIBIC) is the identification of novel therapeutic targets and biomarkers of diagnosis, prognosis and therapy response in autoimmune and inflammatory disease using high-throughput technologies and computational tools in a precision medicine approach. I have a PhD in biomedicine, two masters, an H-index of 17, 40 peer-reviewed publications (85% in the first Quartile-JCR) and 958 cites. I am the main author in 23 of these publications (first author in 16 and last author in 7) in journals such as Blood (IF:22), Annals of the Rheumatic Diseases (IF:19) or Journal of Experimental Medicine (IF:14). I have participated in 15 research projects from national, regional and international calls, leading 3 as PI. I am the co-inventor of 5 patents and founder and director of two start-ups (Shortcut Scientific LTD, UK and Cobiomic Bioscience SL, Spain -first spin-off at IMIBIC-). I collaborate with international groups as a result of research stages in centres such as Lupus Unit Research of London (UK, 6 months) and the Univ. of Cambridge, Smith Lab (UK, 24 months). I teach classes in the degree of Medicine at the University of Córdoba. I have a large experience in communication and dissemination, including more than 200 oral and poster presentations (5 invited talks) in national and international congresses (70 as main author), along with numerous outreach activities. I have obtained more than 25 regional and national research awards. I have directed 1 doctoral theses (3 ongoing), 5 final master's projects and 2 final degree projects. I have been part of the theses, final master's projects and final degree´s projects evaluation committee. I have been moderator in several scientific meetings. I participate as member of several Scientific Societies, Evaluator panels (AgEInvs) and Reviewer boards.

Resumen del Currículum Vitae:

I have a PhD in biomedicine and two masters and I have been researching in the field of autoimmune diseases and biomarker discovery since 2010. I have an H-index of 17, 40 peer-reviewed publications (85% in the first Quartile-JCR) and 958 cites. I am the main author in 23 of these publications (first author in 16 and last author in 7) in journals such as Blood (IF:22), Annals of the Rheumatic Diseases (IF:19) or Journal of Experimental Medicine (IF:14). I have participated in 15 research projects from national, regional and international calls and clinical trials, leading 3 as PI. I am the co-inventor of 5 patents and founder and director of two start-ups (Shortcut Scientific LTD, UK and Cobiomic Bioscience SL, Spain -first spin-off at IMIBIC-). I belong to several reference research groups such as PAIDI, CTS-1004 and GC05 group from IMIBIC, recognized in the latter as "Emerging Researcher". I collaborate with international groups as a result of research stages during my PhD and postdoc training in centres such as Lupus Unit Research of London (UK, 6 months) and Department of Medicine at the Univ. of Cambridge, Smith Lab (UK, 24 months). I teach classes in the degree of Medicine and in the Master of Translational Biomedical Research in the Department of Medicine at the University of Córdoba. I also have a large experience in communication and dissemination, including more than 200 oral and poster presentations (5 invited talks) in national and international congresses (70 as main author), along with numerous outreach activities. During my scientific career, I have obtained more than 25 regional and national research awards, including the extraordinary award for the best PhD Thesis in 2017, "Juan de la Cierva Formacion" fellowship in 2020 and the best research publication in 2018 and 2021 from the Spanish Society of Rheumatology (SER) among others. I have directed 1 doctoral theses (3 more ongoing), 5 final master's projects and 2 final degree projects. I have been part of the theses, final master's projects and final degree´s projects evaluation committee. I have been moderator in several research conferences and scientific meetings. I participate as member of several Scientific Societies (SER, RICORS, APS Action), Evaluator panels (AgEInvs) and Reviewer boards.

Área Temática:	Biociencias y biotecnología
Nombre:	RUBIO ARAUNA, LARA
Referencia:	RYC2021-031549-I
Correo Electrónico:	lararubio01@gmail.com
Título:	Inferences on genetic and sociocultural interactions using human genomic approaches

Resumen de la Memoria:

Since the beginning of my scientific career, I have focused my research on the study of the genetic diversity of human populations, with the aim of disentangling the genomic and evolutionary histories of modern humans. Specifically, I am interested in the interaction between culture and genetic diversity, and I explore it through the study of the demographic and adaptation history of human populations. I started my career by conducting experimental work, and I had the opportunity to learn a wide range of laboratory experimental techniques, from DNA extraction to genotyping. Then, during my PhD, I followed the computational shift in the human population genetics field, and I specialised in big data analyses through bioinformatic pipelines.

During my PhD, I explored the genetic diversity of North African populations. In this project, I focused on various demographic aspects on their history, such as the admixture events between North Africans and nearby populations. The results revealed a high genetic heterogeneity of these populations, enabling us to unveil historical migrations contributing to their gene-pool. Interestingly, we found that the Arab expansion had not only a cultural impact in North Africa, but also it left a profound genetic signature in the genomes of its inhabitants, owing to a complex pattern of admixture in these populations. We also characterized the gene-flow received from sub-Saharan Africans at different time periods, possibly, as a consequence of slave trade. Finally, we described the gene-flow from North African into its nearby populations, including the Canary Islands and the Iberian Peninsula. In parallel, I participated in other projects running in the lab, for example, in the study of the genetic structure of Brazilian and Roma populations.

In 2018, I moved to Paris as a postdoctoral researcher at the Institut Pasteur, in Lluís Quintana-Murci s group. Since then, I have focused my research on the study of Oceanian populations, in particular on events of biological adaptation, and found that different selection regimes targeted functions associated with immunity and metabolism. Furthermore, I have characterized the early phases of the settlement of Remote Oceania, with a focus on the Vanuatu archipelago. In doing so, I have found a more complex settlement process than previously described, including an uneven population replacement in the archipelago and Polynesian migrations in the last millennium. Lastly, I have studied the interaction between genetic and sociocultural factors, focusing on assortative mating and differential migration patterns between men and women.

Resumen del Currículum Vitae:

I am presently a Research Assistant at the Institut Pasteur, in Paris, where I hold a Pasteur-Roux-Cantarini fellowship. I work in the Human Evolutionary Genetics Unit, led by Prof. Lluis Quintana-Murci, in the Department of Genomes and Genetics.

I studied Human Biology at the UPF (Universitat Pompeu Fabra, Barcelona, 2008-2012). During that time, I did different research internships at the IBE (Institut de Biologia Evolutiva, UPF-CSIC, Barcelona), where my interest in the study of human genomic diversity born. Then, I specialized in Genetics and Genomics in a Master at the Universitat de Barcelona (2013) and developed my Master s project at the IBE. I obtained my PhD in Biomedicine in the UPF in 2017, supervised by Prof. David Comas. The focus of the project was the genomic diversity of North African populations. During my PhD, I collaborated with Dr. Garrett Hellenthal s group, at the UCL (University College of London), and I spent a period of a month in his group to implement haplotype-based methods to the inference of population demography.

During my PhD, I published four articles as first author, relating to the North African project, three of them original research articles: Bekada and Arauna et al. 2015 (23 citations in SCOPUS), Arauna et al. 2016 (37 citations) and Arauna et al. 2019 (6 citations); and a review: Arauna et al. 2017. I also collaborated in a number of other projects, which resulted in four additional manuscripts: Font-Porterias et al. 2019 (13 citations), Lorente-Galdos et al. 2019 (24 citations), Mas-Sandoval et al. 2019 (3 citations) and Secolin et al. 2019 (14 citations).

In 2018, I joined Prof. Lluis Quintana-Murci group to study the genetic diversity of Oceanian populations, and, in 2019, I was awarded the Pasteur-Roux-Cantarini fellowship. As a result of my postdoctoral research, I have published a research article as first co-author: Choin*, Mendoza-Revilla*, Arauna* et al. 2021 (18 citations) and a preprint: Arauna et al. 2022, which is currently under review.

More generally, I have participated in multiple conferences from different disciplines, including a selected oral presentation at the SMBE (Society of Molecular Biology and Evolution) in 2021, and a talk as invited speaker at the Musée de l Homme seminars. I have also participated in outreach activities (e.g. Open Day at the Parc de Recerca Biomedica de Barcelona; talks in secondary schools during the Day of Women and Girls in science).

I have reviewed research articles for PLOS One and Scientific reports, and grant proposals for the National Science Foundation Faculty Early Career Development (CAREER) program.

I have experience in teaching that I developed at the UPF in the Human Evolution and Health, Ecology and Molecular Biology bachelor courses. I have also mentored Master and PhD students.

In parallel to my research career, I have studied a Bachelor in Psychology (UNED), of which I have accomplished 222 ECTS, and I am currently conducting the practicum and final project focusing on research on psychology, specifically on career development and gender.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: Biociencias y biotecnología
Nombre: BELENGUER SANCHEZ, GERMAN
Referencia: RYC2021-032190-I
Correo Electrónico: gerbesan3@gmail.com
Título: Regulation of the quiescent-to-active state transitions in adult stem cells

Resumen de la Memoria:

Graduated in Biochemistry (2008) and Biology (2009) at the Universidad de Valencia, in the last 12 years I have contributed to 12 different publications, 4 as first author, in the field of adult stem cells (SCs) and tissue regeneration, with contributions to the fields of neural stem cell (NSC) biology (predoctoral stage) and also of liver regeneration and pathology (postdoctoral stage). My predoctoral studies in the team of Dr. Isabel Fariñas at the Universidad de Valencia (2010-2018) contributed to the NSC field by designing and characterizing a new tool based on a flow-cytometry multicolor panel to analyze and isolate, for the first time, NSCs in a quiescent primed state. By applying this technique, I was able to demonstrate that primed NSCs are activated before they return to a quiescent state during systemic inflammation, opening venues to comprehend the response of SCs to remote injuries, a work awarded with the Premio Joven Investigador CIBERNED 2021. Additionally, I collaborated with different groups to understand the behavior of adult NSC in different physiological and pathological scenarios using my technology, including renin-angiotensin system, Parkinson disease or glioma and leukemia. In 2019 I moved to Dr. Meritxell Huch lab, initially at the Gurdon Institute in Cambridge (2019) and later at MPI-CBG in Dresden (2020 to present), to explore the ability of liver quiescent SCs to activate, proliferate, generate new cells and reverse to the quiescent state. In summary, I collaborated in the understanding of the signaling involved in the remodeling of chromatin required for quiescent liver cells to acquire an active progenitor state and also helped in the identification of the mesenchymal compartment as a critical niche element that modulate the activation and maintenance of quiescence of liver cells. As a first author, I addressed de role of the Wnt inhibitors RNF43 and ZNRF3 in the maintenance of the hepatocyte quiescent/differentiated and metabolic ground state and their contribution to the malignancy progression of liver cancer patients, first into a steatohepatitis/NASH pathological state and later into liver cancer. Finally, I have been able to setup at MPI-CBG a novel technique called scNMT, of notice for the first time out of the original lab (Dr. Wolf Reik lab at Babraham Institute, Cambridge). With this tool, we will be able to analyze the changes in the nucleosome, methylome and transcriptome of individual liver cells along the different liver regenerative stages (unpublished).

Resumen del Currículum Vitae:

In the last 10 years I have contributed to 12 different publications, 4 as first author, in the field of adult stem cells (SCs) and tissue regeneration, with contributions to the fields of neural stem cell (NSC) biology (predoctoral stage) and also of liver regeneration and pathology (postdoctoral stage). My predoctoral studies in the team of Dr. Isabel Fariñas at the Universidad de Valencia, initially with a FPU fellowship and later as a graduate and postdoctoral CIBERNED researcher (2010-2018), contributed to the NSC field by designing and characterizing a new tool based on a flow-cytometry multicolor panel to analyze and isolate, for the first time, NSCs in a quiescent primed state (STAR Protocols 2021 2:100425; Cell Stem Cell 2021, 28:285-99). By applying this technique, I was able to demonstrate that primed NSCs are activated before they return to a quiescent state during systemic inflammation, opening venues to comprehend the response of SCs to remote injuries. Additionally, I collaborated with different groups to understand the behavior of adult NSC in different physiological and pathological scenarios using my technology, including renin-angiotensin system, Parkinson disease or glioma and leukemia (J Neurosci 2018, 38:814-25; Cells 2019, 8:1551; Proc Natl Acad Sci U S A 2020, 117:31448-58; Haematologica 2022, Jan 20). Motivated by the quiescent state of adult SCs and to learn new state-of-the-art techniques in tissue regeneration I moved to Dr. Meritxell Huch lab, initially at the Gurdon Institute in Cambridge (2019) and later at the Max Planck Institute of Cell biology and Genetics (MPI-CBG) in Dresden (2020 to present), as a junior postdoc to explore the ability of liver quiescent SCs to activate, proliferate, generate new cells and reverse to the quiescent state. During my initial stages at the Gurdon Institute, I collaborated in the understanding of the signaling involved in the remodeling of chromatin required for quiescent liver cells to acquire an active progenitor state (Nat Cell Biol 2019, 21:1321-33) and also helped in the identification of the mesenchymal compartment as a critical niche element that modulate the activation and maintenance of quiescence of liver cells (Cell Stem Cell 2021, 28:1907-21). Later, already in Dresden, and as a first author, I deepen into the regulation of quiescent liver cells and addressed de role of the Wnt inhibitors RNF43 and ZNRF3 in the maintenance of the hepatocyte quiescent/differentiated and metabolic ground state and their contribution to the malignancy progression of liver cancer patients, first into a steatohepatitis/NASH pathological state and later into liver cancer (Nat Commun 2022, 13:334). Finally, aiming to understand the complex heterogenic response of quiescent liver cells and the potential memory that could remain in cells before and after regeneration, during the last period of my postdoctoral stage, I have been able to setup at MPI-CBG a novel technique called scNMT, of notice for the first time out of the original lab (Dr. Wolf Reik lab at Babraham Institute, Cambridge). With this tool, we will be able to analyze the changes in the nucleosome, methylome and transcriptome of individual liver cells along the different liver regenerative stages (unpublished).

Área Temática:	**Biociencias y biotecnología**
Nombre:	MARTINEZ CORRAL, ROSA
Referencia:	RYC2021-033860-I
Correo Electrónico:	rosamcorral@hotmail.com
Título:	The system-context dialogue in cellular regulation

Resumen de la Memoria:

I have used theory and mathematical modelling, alongside analysis of experimental data from collaborators, to interrogate multiple biological problems from a quantitative and dynamical perspective, at multiple scales and in multiple systems. Concrete findings include a new mechanism for stochastic pulse generation in signalling circuits (RMC et al., Cell Syst. 2018), a biophysical mechanism for oscillations in bacteria biofilms (Liu, RMC et al., Science, 2017; RMC et al., PNAS 2018, RMC et al., Phil. Trans. R. Soc. B 2019), a role for cell-cell contact area in cellular-decision making (Guisoni*, RMC* et al., Development 2017), the discovery of allostery as a mechanism for flexibly integrating ligand binding information (Biddle*, RMC* et al., eLife 2021) and the demonstration that gene regulatory molecules can synergise through functional rather than binding interactions (RMC et al., bioRxiv 2020). Through this work, I have found a consistent and fundamental issue that will be the focus of my independent research program: how to meaningfully account for context when reasoning about biological systems. Biological function emerges from dynamically interacting molecules and cells at multiple levels of organisation. Given this complexity, studying a biological process requires us to choose which components to focus on and abstract away the rest into the so-called context. My goal is to find effective, rigorous and general ways to grapple with context in our conceptual and mathematical models of biological systems, without including all molecular details, aiming to answer: 1) What cellular elements should we focus on? 2) How do their interactions generate a given behaviour? And 3) How does the context influence the behaviour? I have proven that this is possible by building mathematical models of the key elements underlying a biological behaviour, rigorously interrogating its emergence at a quantitative and dynamical level, and asking how it might be affected by contextual elements. This approach to the fundamental issue of context in biology will provide mechanistic insight and facilitate practical progress in applied areas from synthetic biology to personalized medicine, where we must intervene in contexts that can vary from cell to cell, tissue to tissue and patient to patient.

Resumen del Currículum Vitae:

After graduating in Human Biology from Universitat Pompeu Fabra (UPF, Spain), I enrolled in an MSc in Bioinformatics to acquire the quantitative and programming skills required to perform theoretical and computational research in systems biology. I obtained my PhD with the thesis "Modelling spatiotemporal cell regulation" under the supervision of Prof. Jordi Garcia-Ojalvo also at UPF, with funding from a LaCaixa fellowship. My PhD work was recognised by a UPF PhD extraordinary award. As a graduate student, I collaborated with and performed research stays at the Elowitz lab at California Institute of Technology (2 months), Suel lab at University of California San Diego (1 month), de Navascués group at Cardiff University (1 week), and the Gunawardena group at Harvard Medical School (HMS) (3 months). Afterwards, I was invited to join the groups of Profs. Jeremy Gunawardena and Angela DePace at HMS as a postdoctoral fellow, where I am currently supported by an EMBO long-term fellowship (ALTF 683-2019).

My contribution has been key to all the projects where I have participated, as evidenced by holding first authorship positions in all but one of my publications, where the first position was granted to the leading experimentalist. Beyond publishing in top journals in the field (Science, eLife, PNAS, Cell Systems, Development), part of the work was featured in mass media. I have also served as a reviewer for various journals and platforms. I have presented in international conferences and symposiums, and have also helped organise scientific conferences. Moreover, I contributed to the writing of a funded NIH-R01 grant with the DePace and Gunawardena groups.

Teaching and mentoring have also constantly been part of my work. At UPF, I was teaching assistant in computational labs of Systems Biology and Biocomputing, I designed, led, and taught labs for Basic Sciences I, Mathematics, and I designed, led, and taught lectures and labs in the Systems and Network biology course of the Bioinformatics degree from ESCI-UPF. I co-supervised two master thesis projects and was invited to serve as a reviewer for the 2019-2020 master thesis projects of the MSc in Bioinformatics.

At Harvard, I am currently supervising two more master thesis projects and have mentored and supervised four undergraduate students over the past three years. To improve my management and leadership skills, I have recently taken the EMBO Lab Leadership course. Moreover, I have taken leadership roles (chair, treasurer) at the Harvard Medical Postdoc Association, a postdoc led organisation that works alongside the HMS postdoctoral office to enhance the training and growth of postdocs while at HMS.

Other merits include the participation in the internal committee involved in the process to renew the accreditation on track to excellence from AQU (the Catalan university system quality control organization) to the PhD Programme in Biomedicine at the Department of Experimental and Health Sciences, UPF, in 2018. I also enjoy contributing to scientific dissemination, and have written on online blogs, participated in various editions of the Barcelona Biomedical Research Park Open Day, and the Calculus Project at HMS, an educational initiative that shows our work to school students from marginalised neighbourhoods in the Boston area.

Área Temática:	**Biociencias y biotecnología**
Nombre:	GARCIA HERNANDEZ, ROSENDO MIGUEL
Referencia:	RYC2021-033058-I
Correo Electrónico:	rgarcia20@us.es
Título:	Trophic and synaptic dependences of the oculomotor system

Resumen de la Memoria:

As a young Neuroscientist, I am a Systems Neurophysiologist with a primary dedication to brainstem and cerebellar oculomotor mechanisms as well as the implications of trophic neuronal dependencies on target-derived factors which have been the main focus of my research over my PhD and postdoctoral studies. These exemplary structures have been dedicated for more than a century to resolving their biology and still are plenty of secluded mechanisms. To add on, there is no field in Neuroscience that has not resulted benefited from the structural and synaptic mechanisms of brainstem and cerebellar circuits. I have developed and worked with preparations in mice, rat, cat and primate using behavioural, electrophysiological, pharmacological and anatomical techniques.

I have 9 years of research experience. Out of my 7 publications, I am first author in 6 and second author in the seventh. The main interest of my PhD research has been to clarify the morphological and functional changes and their relationship with trophic dependences after an injury in the oculomotor system. I also was interested to elucidate if there is any peculiarity in the trophic patterns in the oculomotor circuit in contrast with other cranial motor systems. After my PhD, I did a first 8-month postdoc in Universidad de Sevilla to prove that there is not division of labour between abducens SIF and MIF motoneurons. Then, I did a 26-months postdoctoral stay in Washington University in St. Louis, where I centered my attention in the role of the cerebellum modulating vestibular and oculomotor behaviours. More recently, I became a postdoctoral Talento Doctores (Jan 2021) mentored by Drs Pastor and de la Cruz evidencing the physiology and anatomy of oculomotor MIF and SIF motoneurons.

I am in a very creative period of my scientific career and I believe in the collaborative construction of science so I actively work with two foreign laboratories (Drs Blazquez & Yakusheva, WUSTL, and Dr Blumer from Medical University Vienna) plus with my current laboratory in Seville.

Resumen del Currículum Vitae:

I am a young and highly-motivated systems electrophysiologist specialized in oculomotor and vestibulo-cerebellum circuits, and their plasticity under control and pathological conditions. I have a B.S. in Biology (2011) and a M.Sc. in Physiology and Neuroscience (2013). I received my PhD in the Molecular Biology, Biomedicine and Clinical Research program of the Universidad de Sevilla under the supervision of Prof. Angel M. Pastor and Dr. Beatriz Benítez-Temiño in February 2018, Cum Laude and Extraordinary Doctorate award. My PhD thesis was focused in understanding the plasticity processes underlying after the central deafferentation of the oculomotor motoneurons. I also did a short stay at Washington University in St. Louis (USA) along 4 months and supervised by Dr. Pablo M. Blazquez & Dr. Tatyana Yakusheva, where I studied the role of the cerebellar Nodulus and Uvula during vestibular stimulation with my own project supported by the Plan Propio from Universidad de Sevilla. Then, after my PhD, I moved back with them for my two-year postdoctoral training. During this period, I was interested in the role of the vestibulo-cerebellar cortex interneurons in the visual cerebellum. This collaboration still continues, plus another with Dr. Blumer from Medical University of Vienna. In December 2020 I was granted with the Talento Doctores fellowship (Junta de Andalucía) to continue my postdoctoral career.

I have published 7 peer-reviewed articles, in 6 of them as first author (D1: 1, Q1: 5, Q2: 1). These publications are the result of my PhD and postdoctoral stages, where I have actively participated in the design and performance of the experiments. Besides, I have presented 15 contributions to 10 different, national and international, congresses, 8 of them as first author. I have participated in 6 projects. I have also been awarded with 7 personal fellowships for assistance to Congresses, Symposia or Workshops.

I am actively involved in teaching, training, and mentoring activities. I have taught classes in the Biology and Pharmacy degrees during my PhD and postdoctoral stages (>250 hours). At present, I supervise the final project of 2 students (1 master & 1 undergraduate) with my own projects. I am accredited as Assistant Professor by ANECA (November 2021). I have organized and engaged into public dissemination and outreach activities such as Brain Awareness Week, Scientific Outreach Week and the Conference of Neuroscientific women from University of Seville and the Spanish Society of Neuroscience.

I think my particular expertise on systems electrophysiology gives me a distinct and fresh profile to be a candidate for the 2021 Ramón y Cajal fellowship. The support from the Ramón y Cajal program will allow me to consolidate and expand my research career as an independent neuroscientist.

Área Temática:	**Biociencias y biotecnología**
Nombre:	AREVALO , LENA
Referencia:	RYC2021-031922-I
Correo Electrónico:	lena.lueke@gmail.com
Título:	Male and female processes of molecular and evolutionary reproduction

Resumen de la Memoria:

I am an interdisciplinary scientist with expertise in reproductive biology and biomedicine and molecular evolution.

I optained my PhD from the Universidad Autónoma de Madrid. My doctoral work focused on the evolution and function of protamines, which are small, arginine-rich DNA binding proteins exclusively expressed in sperm. They replace histones in the sperm nucleus during the final stages of spermiogenesis. During my postdoctoral phase with Dr. Polly Campbell at Oklahoma State University studied how loss of imprinting in hybrid mice leads to differential expression in brain and placental tissue, ultimately affecting the behavior of mothers and offspring. I conduct my current, grant funded research at the University Hospital Bonn (Germany). The project focuses on the function of the cleaved domain of sperm nuclear protamine 2 using CRISPR/Cas9 gene editing, followed by detailed analyses of gene edited mice in combination with cell culture based approaches.

My future research will focus on the molecular basis of reproductive processes. Specifically, the post-copulatory molecular interactions between male and female as well as the selective forces driving the evolution of these processes.

Resumen del Currículum Vitae:

Research:

My PhD was financed by a fellowship of the Spanish Research Council (JAE-predoc) and focused on the evolution and function of protamines (PRM1 & PRM2), which are small, arginine-rich DNA binding proteins exclusively expressed in sperm. They replace histones in the sperm nucleus during the final stages of spermiogenesis. Successful fertilization and interaction of the paternal and maternal genomes depend on the correct execution of this exchange, which significantly reduces nucleus size. I focused on the question of whether sexual selection drives protamine evolutionary rates and the potential effect this has on the sperm head phenotype. During my doctoral work I published six papers in top journals in my field, including Proc. Royal Soc. B, Biology of Reproduction, and Molecular Biology and Evolution. I gained significant experience in molecular evolutionary analysis and phylogenetics.

During my postdoctoral position in Dr. Polly Campbell s lab at Oklahoma State University I was able to gain insight into mouse pregnancy and the effects of paternally-derived placental expression on maternal brain and behavior. Specifically, I studied gene expression in hybrid mouse placentas and in the medial preoptic area of female mice pregnant with these hybrids. The results of our work were recently published in Proc. Royal Soc. B and Evolution. Additionally, I analyzed gene expression and methylation changes in the mouse hybrid hypothalamus, and the potential association between altered expression and methylation and behavior. The manuscript detailing these results is currently in preparation. Due to my intensive work with omics data and other large datasets, I gained considerable bioinformatic expertise during this time.

To study molecular reproduction from all angles I next aimed to gain experience in reverse genetics. Joining Dr. Hubert Schorle s lab allowed me to become familiar with transgenic approaches. A question that intrigued me since my doctoral studies was the function of the cleaved-PRM2 domain. According to my previous results the two PRM2 domains differed in the selective pressures affecting them. I generated and extensively analysed Prm2 domain-specific KO mouse lines. The first paper summarizing the results of my work has been published as a preprint and is currently under revision for PLOS Genetics. An additional first-author paper is in preparation. During my work on this project, I gained substantial expertise in CRISPR/Cas mediated gene editing, production, maintenance and analysis of transgenic mouse lines, as well as stem cell culture, molecular cloning, IHC/IF and Mass Spec data analysis.

Teaching:

I have mentored and co-mentored several undergraduate and graduate students. I have given both undergraduate and graduate level lectures at US and German institutions on diverse topics, including genetics, epigenetics and imprinting, CRISPR/Cas technology and ethics, and germ cell development. Due to the pandemic and my involvement in teaching in an online university, I am familiar with various teaching approaches, including active, collaborative and problem-based learning, and flipped class room. I have facilitated online classes and prepared and edited instructional videos on different lab methods in order to replace in person university courses during the pandemic.

Área Temática:	**Biociencias y biotecnología**
Nombre:	DEL CERRO SANCHEZ, PABLO
Referencia:	RYC2021-034359-I
Correo Electrónico:	pdelcerro@us.es
Título:	Unravelling essential components of endosymbiotic plant-microbe interactions for application in agriculture to increase crop production

Resumen de la Memoria:

I am a Microbiologist and Plant scientist with 10 years of experience and currently working at The John Innes Centre (Norwich-UK) as a Marie Curie Individual Fellowships Fellow. To develop my pre- and post-doctoral research activities, I have received funding from different agencies (BBSRC-UK, EMBO short-stay fellowship, The University of Seville, and Ministerio de Educacion FPU and research stay fellowships).

During my career, I have studied the essential components of symbiotic plant-bacteria interactions for their application in agriculture. During my undergraduate, master, predoc, and PhD research, I have focused on identifying symbiotic bacterial components such as bacterial polysaccharides, Nod factors, and biofilms involved in the beneficial interaction with legumes. I identified more than 20 novel genes involved in this symbiotic interaction. Moreover, I made major contributions to the field when I discovered a novel way of activation (under osmotic stresses) of the NodD2 protein of CIAT 899 strain, which is essential for symbiosis. The results obtained enabled me to publish 7 articles as first author (6 Q1 and 1 Q2) in journals including Scientific Reports and Applied and Environmental Microbiology and receive the Best Thesis award.

This experience obtained motivated me to develop basic research lines that can be transferred into applied sciences. For example, I focused on isolating and concentrating novel specific molecules produced by the symbiotic bacteria CIAT 899. The final product developed by RESBIO AGRO S.L. was successfully tested in field trials in Brazil, and commercialized by Total Biotecnologia Ind. e Com S/A for application in soybean agricultural practices.

Aiming to extend my knowledge in the plant side of the symbiotic bacteria-legume interaction, I joined Dr. Myriam Charpentier's lab as a postdoctoral researcher. I identified mechanistically how the legumes transduce the perception of Nod factors in the nucleus. The research led to my successful Marie Curie fellowship application and the publication of an article in PNAS (IF 11.2, Q1) as first author. In addition, I have co-supervised 2 PhD students (ongoing), 2 Masters, and 3 undergraduate projects; I have taught 180 hours at the University of Seville. I have communicated my research knowledge with the public as a speaker or through dissemination videos on YouTube.

The research experience gained and the management skills obtained have motivated me to develop new research lines that I would like to investigate. I feel strongly motivated and confident to apply for the present Ramon y Cajal fellowship.

Resumen del Currículum Vitae:

Since I started a Biology degree at the University of Seville, I was inspired to pursue a research career in bacteria-plant symbiotic interactions. To gain research experience alongside my degree, I wrote 2 successful grants to join the Microbiology Department (Universidad de Sevilla). Here, I studied the importance of bacterial molecules in plant symbiosis. The exciting results motivated me to perform a Masters in this lab. I identified new bacterial transcriptional regulators essential for symbiosis. The results obtained were published in 3 articles (Q1), 2 as first author. Aiming to transfer the basic research developed into agricultural practices, I applied for predoc contracts collaboratively funded by companies (RESBIO AGRO S.L. & Fundacion de Invesgacion Universidad de Sevilla) to develop new crop inoculants using bacterial molecules to increase plant growth.

PhD research (2015-2019)
Developing my predoc research inspired me to apply for a PhD fellowship (FPU). During my PhD, I became an expert on bacterial symbiotic signaling. I published the exciting results in 5 articles as first author, 1 article as corresponding author, and received Premio extraordinario de doctorado for the best Thesis. In addition, I successfully applied for 3 short stays funded via EMBO and Ministerio de Educacion. These visits expanded my international network, industrial experience, research skills, and knowledge of symbiosis. First, I worked for 3 months in EMBRAPA-SOJA (2016, Londrina-Brazil) supervised by Prof. Hungria. Here, I tested novel symbiotic bacteria in soybean field trials alongside Rizobacter and BASF companies. I performed my second and third stays (6 months) in the Dr. Charpentier lab at the John Innes Centre (2017-2018, Norwich-UK). Here, I studied the importance of the plant nuclear movement during bacterial root colonization in collaboration with Prof. Iris Meier's lab (Ohio State University-USA). We published this work in Plant Physiology (2019).

Postdoctoral research (2019-present)
My stays at the Dr. Charpentier lab led to exciting new research lines, which motivated me to apply for a postdoc in this lab. Here, I extended my knowledge in the plant side of the symbiotic interaction by studying the role of nuclear calcium signaling in symbiosis. To further pursue my own research questions within this lab and explore applications for agriculture, I successfully applied for a Marie Skłodowska-Curie Individual Fellowships Standard EF. I identified a point mutation in a key symbiotic protein that enhances the symbiotic interaction and, subsequently, crop productivity. The research outcomes include developing a patent in collaboration with Plant Bioscience Limited (ongoing), 1 research article as first author (recently accepted to PNAS), and 2 first-author manuscripts in preparation.

Academic impact
I have published 17 peer-reviewed papers, 9 as first author (8 Q1 and 1 Q2), and 1 as corresponding author (Q1). I have 475 citations (WoS) and H-Index 11. I have contributed to more than 35 communications in conferences, where I was selected as speaker 5 times.

Teaching and supervising experience.

I consider that inspiring the next generation of students is fundamental. I taught 180 hours at the University of Seville during my PhD. I have co-supervised 2 PhD students (ongoing), 2 Masters, and 3 undergraduate projects.

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Área Temática:	**Biociencias y biotecnología**
Nombre:	FERNANDEZ ABASCAL, JESUS
Referencia:	RYC2021-031269-I
Correo Electrónico:	jfdez.abascal@gmail.com
Título:	Mitochondrial prohibitins in Nervous system degeneration and Ageing

Resumen de la Memoria:

I have a profound interest in understanding the pathophysiology of the nervous system. I have explored this phenomenon for 6.5 years across the main stages of my career:

-During my PhD (2014-18) at the University of Siena (Italy) I explored the role of the metabolic system Cytochrome P-450 (CYP) in dopaminergic cells and its contribution to neurodegeneration. Mentored by Massimo Valoti.
-During my postdoctoral stay (2018-today) at the University of Miami, I studied the neuron-glia interaction and behavior in C. elegans, a research field of wide interest that helped me to expand my knowledge in several nervous system disorders. Mentored by Laura Bianchi.

During my PhD at the University of Siena, I studied how exposure to exogenous and endogenous compounds that contribute to cellular stress promote neurodegeneration in a cellular model of Parkinson s disease (PD). My studies identified that xenobiotics widely available to humans induce the expression of several CYP isoforms in dopaminergic cells. Interestingly, those CYP isoforms are also induced in brain samples of PD patients. An important finding of my research was that induction of such isoforms promoted neuroprotection against neurotoxic compounds such as MPP+ and rotenone. Part of these key findings were achieved during my stay at the TBSI under the supervision of Prof. Gavin Davey, where I was trained in confocal imaging and mitochondrial kinetics and studied mitochondrial fission events in vivo. This helped me to demonstrate that induction of CYP in dopaminergic cells contributes to mitochondrial homeostasis and neuroprotection. As a result of my 3 years research, I published two first and corresponding author articles. This published research helped to bring new insights in the neurodegeneration of dopaminergic cells from a metabolic point of view, revealing possible key therapeutic targets to avoid mitochondrial oxidative stress, which is one of the first causes of cell death in most of the neurodegenerative diseases. They also revealed important components of genetic regulation and mitochondrial homeostasis involved in the metabolism of drugs. These advances may help in the development of new therapeutic approaches aiming to improve the life quality of patients.

During my stay at the Bianchi Lab, I focused on the study of neuron-glia interaction and behavior. My research focused on a nociceptive neuron and an accessory glial cell morphologically and functionally resembling the Meissner and Pacinian corpuscles. With my results, I showed for the first time that glia release GABA and regulate the chloride concentration around the sensory neuron to modulate its responses to touch. These results were published in one of the most important journals of neuroscience in the world (Neuron). Other research lines to decipher the molecular mechanisms underlying the glial response to touch are under development. My postdoctoral work highlights the important role of glia in the function of the nervous system.

Taken together, my scientific contributions helped to shed new light on the function of central nervous system in health and disease and could lead to the design of new therapeutic interventions. My long-term goal is to become an independent investigator and to establish my own laboratory in the field of neuroscience to pursue new therapeutic approaches for neurodegenerative diseases.

Resumen del Currículum Vitae:

After obtaining a master s degree in Physiology and Neuroscience, I joined the lab of Prof. Valoti at the University of Siena as a PhD student, under a Marie Sklodowska-Curie (MC) fellowship aimed at providing excellent training in neuroscience to young researchers of outstanding potential. I used pharmacological and microscopy techniques to study the metabolic underpinnings of the Cytochrome P450 system in mitochondrial neurodegeneration. I also performed research at the Trinity Biomedical Sciences Institute, the most prestigious research center in Ireland, under the supervision of Prof. Davey, where I acquired skills on in vivo confocal microscopy. As a result of my 3 years PhD work, I published 2 research articles as first and corresponding author in Q1 journals (IJMS 2018; 2020). I also attended to 3 international conferences (FENS, 2016; SEBBM, 2016; MNS, 2017) where I presented my work, and promoted outreach of the MC project in congress and press interviews. Furthermore, I supervised 3 students during their experimental theses for their Pharmacy degree   all of whom were awarded with the highest grade   what allowed me to develop leadership skills.

After obtaining the PhD, I continued my international career in USA to get new insights from a global research community and to improve my knowledge in state-of-the-art technologies such as in vivo calcium and chloride imaging. Thus, I joined in 2018 the lab of Prof. Bianchi at the University of Miami, where I worked on neuron-glia interaction and the molecular mechanisms underlying the regulation of sensory neuron by glial cells. In 3.5 years, I have been highly productive and developed two independent projects focused on the regulation of touch responses in neurons by glial cells and the transcriptional adaptation of genes. I have also established important protocols in molecular biology and behavior for the lab, including the assembly of the imaging equipment and the set up of in vivo calcium and chloride imaging upon touch stimulation procedures. Thus, I published 3 research articles (2 as first author, 1 as co-first author) in prestigious journals of the field, including a first author publication in Neuron (D1, 2021); as well as a book chapter as first author with the editorial Springer Nature (2021). Also, the main protocol that I developed to demonstrate the key role of glial cells in touch responses (Neuron, 2021) is now under review (STAR protocols, Cell press), a publication in which I am first and co-corresponding author. Additionally, I serve as a reviewer in several Q1 journals. During my postdoctoral stage I improved my leadership skills by supervising 5 undergraduate and 4 rotating students. I also gave talks in several research centers and universities and attended to international congresses, where I have presented my work and being awarded for the best poster (1st prize, postdoc category).

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As a result of my scientific contributions, I was awarded in 2021 with the prestigious Lois Pope Fellowship in recognition of my research trajectory in the field. I also obtained a Maria Zambrano contract of excellence under a competitive call from the Spanish Ministry of Universities to recruit international talent and will join the lab of Prof. Artal-Sanz at the University Pablo de Olavide (Seville, Spain) in July 2022 to continue my postdoctoral studies.

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Área Temática: Biociencias y biotecnología
Nombre: BORRAJO LOPEZ, ANA
Referencia: RYC2021-031699-I
Correo Electrónico: ana.borrajo@hotmail.com
Título: Discovery the news antifungal target by the study of regulated cell death mechanisms

Resumen de la Memoria:

The study of the processes involved in the development of knowledge of neurocognitive disorders, infectious diseases and fungal infections involves the acquisition of ability of combination of different laboratory techniques, the multidisciplinary approaches and different analysis of the results with the appropriate bioinformatics tools depending on the type of genetic variation studied and the characteristics of the disease.

My career research started on the study of the regulation of neuroinflammation, oxidative stress and the progression of dopaminergic degeneration in Parkinson Disease (PD) participating in important in vitro and in vivo studies that led to the best knowledge of the role of microglial activation induced by Angiotensin and the determining duty of TNF-α of microglial origin in dopaminergic cell.

Furthermore, I have changed the approach in my postdoctoral experience and in this period I have evaluated the antiviral activity of novel antiretroviral drugs in HIV-1 infected macrophages. One of these projects has been directly funded by the pharmaceutical company ViiV Healthcare.

In my current main line of research, on the study of the regulated cell death mechanisms involved in the C. albicans response to oxidative stress that will open new horizons regarding the discovery of new antifungal targets As a goal of current research, the C. albicans PeptideAtlas will be update and will be a very useful resource for the scientific community.

My long career and expertise in diverse disciplines have led me to participate in studies of the most relevant research groups and to establish an international network of collaborators in both different fields: PD, HIV-1 and C. albicans infections. During all this period, I have published 17 peer-review papers (6 in D1, JCR) (4 as corresponding author, 7 as first author).

Thanks to my research activities I have been awarded with competitives grants and prizes as the Ayudas de apoyo a la etapa de formación postdoctoral I2C, Xunta de Galicia (2016-2019), the Medicine Extraordinary Doctorate Award (2018), and a competitive Atracción de Talento investigador postdoctoral fellow (2019-now).

Finally, I have reached a position of professional maturity thanks to supervising 1 MSc thesis in Italy, teaching at the Department of Microbiology of Complutense University of Madrid (UCM), with the obtaining of the evaluation by the ANECA for a position of "contratado doctor" professor, participating and preparing proposals for competitive research projects and demonstrating an equilibrium between teamwork and professional independence.

Resumen del Currículum Vitae:

Two key points of my curriculum are versatility and multidisciplinarity. I have worked in different research areas (proteomic techniques applied, neurodegeneration in the Parkinson's disease, study of novel antiretroviral drugs to HIV infection and characterization of new proteins to discover alternative therapeutic targets to candidiasis) and professional environments (Universities of Santiago de Compostela, Madrid and Rome or Hospitals of Vigo and Coruña), which has provided me with a broad skill set and a flexible mind set to approach questions from different angles. I started studying the microglial activation mechanisms in dopaminergic degeneration in Parkinson s disease at the Department of Neuroanatomy at the University of Santiago de Compostela, where I published my first peer-reviewed manuscripts, three in top tier Neuroscientist journals, (Glia and The Neuroscientist). I was awarded Extraordinary Doctoral Thesis Award from the Santiago de Compostela¿s University.

Since my PhD, I have been employed full time on prestigious competitive research fellowships (two postdoctoral fellowships I2C Xunta de Galicia and Atracción de Talento, Comunidad de Madrid).

I wanted to continue my research in virology of HIV-1 infection in the University of Tor Vergata of Rome (Italy). I specialised in the research of novel antiviral drugs, studying their effects in vitro in HIV-1 infected macrophages. The findings have given rise to numerous publications and a book chapter.

Currently, my scientific goals are focused on the analysis of post traductional modifications (PTM) and production of protein interaction network to the deep knowledge of C. albicans biology, virulence factors, survival strategies and host interaction.

During my career, I have participated in 17 peer-reviewed publications and I am the first author in eight of them, published in high impact journals. All these publications accumulate about 572 citations in total and a h index=11.

I have established a network of national and international collaborators, and I have participated in the organization of a symposium UniStem Day 2015 that was simultaneously maintained in 46 European universities facilitating the transfer of knowledge. In addition, I have made stays abroad of scientific interest, such as the one carried out in the summer of 2013 in Bamenda (Cameroon) to a clinical analysis laboratory.

During my scientific career I have participated in 28 national and international congresses and important national and international projects. Furthermore, I have been awarded the third prize in the "Research Awards on HIV and/or other sexually transmitted infections 2020 by Xunta de Galicia.

I also play a considerable role as a reviewer by providing constructive comments on many papers for over 10 international journals. I have endeavoured to communicate my results through divulgative articles.

One of my passions is science communication and training. In Rome University I have supervised a

MSc student. In UCM I am involved in teaching diverse courses of different Degrees (Dept of Microbiology) since 2020.
After 2 postdoctoral positions, almost 3 years abroad, 4 different Universities and countless hours
leading innovative research, I am ready to establish my research group and consolidate my position as
a leading scientist, developing an ambitious research plan of my actual research line.

Área Temática: **Biociencias y biotecnología**
Nombre: MEDINA CARMONA, ENCARNACION
Referencia: RYC2021-031155-I
Correo Electrónico: emedcar@ugr.es
Título: Understanding general principles governing the catalytic power of the enzymes and the protein structure-function relationships

Resumen de la Memoria:

Since I graduated in Chemistry I was captivated by the complexity of proteins and their potentiality. I started research enjoying an undergraduate fellowship from the MEC. My interest in understanding how function, stability, and interactions interconnect with the structure and sequence of proteins grew and drove my master (M.S in Biotechnology) and doctoral studies at the University of Granada (UGR). I received a PhD fellowship (Andalusian Government) to carry out my thesis project in which I mostly combined biophysical, structural biology and cell-biology tools to tackle fundamental questions in protein dynamics and their relationship to conformational diseases. Specifically, I identified dynamic hot-spots as the source of loss-of-function in a NQO1 cancer-associated polymorphism, which provided an in-depth understanding of its pathogenic mechanism and interesting information that could be used to design small pharmacological molecules specifically targeting dynamic alterations. During this time, I performed numerous collaborations with national and international groups, including a research stay at the University of Perugia (Italy). In 2018 I finished my predoctoral stage (International PhD in Chemistry - Cum Laude Mention) and received a postdoctoral fellowship from Andalusian Government.
Interested in increasing my background in structural biology, I moved to the University of Kent (UK) where I joined Dr. Ortega-Roldán s group. I was mainly trained in structural techniques that I had never used before (i.e. Solution and In-Cell NMR, Mass Photometry and Cryo-EM). Moreover, I was able to continue working with mammalian cell cultures, increasing my knowledge of microscopic techniques. During this time, I obtained very interesting results related to the Ortega-Roldán s project but also, I leaded my own research project that allowed me to develop a novel methodology to determine the natural lipid environment around membrane proteins by NMR. At the end of 2019 I returned to the UGR, as a postdoctoral researcher in Prof. Sánchez-Ruiz's group to work on the search for de novo enzyme functionalities using directed evolution. Following this research line I have obtained two grants, that which has been a starting point for my career as an independent researcher.
Overall, I hold a multidisciplinary research background with an important record of first-author scientific publications in top journals (14 papers in total being first author in 7 of them) co-corresponding author of two manuscripts currently in preparation. In addition, I am principal investigator of two research projects. In addition, during all this time I have taught in different university degrees at the UGR (310 hours) and I have participated in numerous scientific dissemination activities at this university. Furthermore, I have mentored 4 master s thesis, and 2 bachelors thesis. Last year we received a Teaching Innovation Project (FIDO-UGR).
My long term goal is to use the directed evolution technique for understanding how proteins can evolve to acquire new functions and harness their potential for biotechnological applications. I will bring the host centre the opportunity to establish new scientific collaborations and import new scientific perspectives.

Resumen del Currículum Vitae:

I received my B.S. in Chemistry from the University of Granada (UGR) in 2012. During the last year of my degree, I was awarded a student research fellowship from the MEC in the Dept. Physical Chemistry. I earned my M.S. in Biotechnology in 2013 from the UGR carried out my Master's thesis in the Dept. Physical Chemistry working in Biophysical techniques. In 2014, I began a training period as a pre-doctoral researcher in the same department, completing a period of four years with a fellowship awarded by the Andalusian Government. In 2018, I received my Ph.D. in Chemistry from the UGR with Cum Laude and International Mention. During this stage my research was mainly focused on studying alterations in the protein dynamics of certain human proteins and its link with conformational diseases, specifically those that generate a loss-of-function phenotype of the protein. During this stage, I received a fellowship to carry out an international research stay at the University of Perugia (Italy). The training I received during my pre-doctoral stage allowed me to get extensive experience in molecular biology, X-ray crystallography and biophysical techniques. In addition, I stablished a cell-lab within my group to work on different eukaryotic systems which allowed me to validate the results obtained in vitro. Thanks to the latter, I acquired an extensive training in culture, expression, transfection and activity assays of different cell lines using different techniques. These skills postulate me as no conventional structural biologist who stand out mainly for the inherent transversality and interdisciplinary nature of all my projects. As a consequence of the result achieved during my thesis I got a postdoctoral fellowship awarded by the Andalusian Government which was carried out at the University of Kent, UK. There, I characterized the molecular mechanism of activation and membrane insertion of CLICs proteins by the use an integrative structural biology approach combining state-of-the-art techniques. Then, I joined Prof. Sanchez Ruiz's group at the UGR, where I am still working. In January 2021 I received a fellowship awarded by Andalusian Government (Ref: DOC_00809). In January 2022 I was awarded a research project (Proyectos I+D+i FEDER-Andalucía; E-BIO-464-UGR20) to develop my own research line focused on the search for new enzyme functionalities in vivo using directed evolution. The results we are getting from this research project are quite promising and this project is allowing me to establish international research collaborations.
Overall, I've published 14 papers on top journals being first author in 7 of them. During all this time, I've participated in 8 different research projects obtained in competitive calls, attended 15 specialisation courses, acted as a reviewer for international journals and contributed with 16 communications to national and interanational conferences. In total, I've received 6 fellowships and 2 grants. I've taught in different university degrees at the UGR (310 hours) as well as I've mentored 4 master s thesis, and 2 bachelors thesis. Last year we received a Teaching Innovation Project (FIDO-UGR).

Área Temática:	**Biociencias y biotecnología**
Nombre:	PEREZ GONZALEZ, ANA
Referencia:	RYC2021-031246-I
Correo Electrónico:	anapgonz@gmail.com
Título:	Synthetic biology applied to multiple organisms for the improvement of agriculture

Resumen de la Memoria:

My career has been focused on the use of Biotechnology and Synthetic Biology applied to multiple organisms for the development of tools, resources, and knowledge to be applied for the improvement of agriculture. My scientific background covers the areas of biotechnology, synthetic biology, plant biology, genetics, biochemistry, microbiology, and bioinformatics. Presently, my research goals are focused on understanding the molecular mechanisms involved in nitrogenase catalysis and the assembly of its associated cofactors.

I started researching in 2010 as an undergraduate student in Biology at the Genetics Department in Complutense University of Madrid (UCM). I obtained a Master s Degree in Agroforestry Biotechnology from Polytechnic University of Madrid (UPM) in 2014. In 2018, I defended my thesis dissertation entitled Synthetic biology tools for the study of relevant factors in the control of transgene expression and obtained a Ph.D. in Biotechnology and Genetic Resources of Plants and Associated Microorganisms from the Polytechnic University of Madrid. During my Ph.D. and my first year as a postdoc in Dr. Elena Caro lab and Dr. Luis Rubio lab (CBGP (UPM-INIA), Madrid), my research goal was the development of synthetic biology tools to be applied in biotechnology projects, especially for the study of the control of transgene expression regulation in plants and yeast. In particular, I focused on finding ways to increase and stabilize transgene expression, and the transfer of bacterial nitrogen fixation genes into heterologous systems. In February 2020, I joined Dr. Dennis Dean at Virginia Tech (USA) as a postdoctoral associate, where I participate in collaborative projects with international laboratories. Currently, my research is focused on the study of the maturation pathway of the nitrogenase enzyme regarding its catalytic properties, and also which nitrogenase-related accessory proteins are needed for its correct function. During my career, I have been part of 6 national and international R&D projects as a team member, and I have been awarded fellowships to do research as an undergraduate, graduate, and postdoctoral researcher.

I am the author or co-author of 9 published research articles, 6 of them as the first author. 4 of these publications rank in the Q1 of their corresponding categories. I am the author of other 3 research articles that are currently under review, 1 of them as the first author. I have published 2 book chapters in Synthetic Biology and Plant Biotechnology, both as the first author. I have presented my results in national and international congresses, including poster and oral communications.

In addition, I have collaborated as an assistant teacher in practical classes in UCM and UPM universities and, in 2020, I received a positive evaluation from ANECA as Profesora Ayudante Doctora . I have attended several specialization courses and seminars, served as a reviewer for scientific journals, and organized and participated in scientific dissemination activities including Madrid Week of Science , European Researchers' Night , and activities regarding the International Day of Women and Girls in Science.

Resumen del Currículum Vitae:

EDUCATION
2018: PhD. in Biotechnology and Genetic Resources of Plants and Associated Microorganisms. UPM, Spain.
2014: Master s Degree in Agroforestry Biotechnology. UPM, Spain.
2013: Graduate Degree in Biology (Major in Biotechnology). UCM, Spain.

EMPLOYMENT
Feb 2020   present: Postdoctoral Associate. Dean lab, Virginia Tech, USA.
Ene-Dec 2019: Postdoctoral Researcher. Rubio lab, UPM, Spain.
Sep-Dec 2019: Visiting scientist. Dean lab, Virginia Tech, USA.
Oct-Dec 2018: Graduate Researcher. Caro lab, UPM, Spain.
Oct 2014-Oct 2018: Ph.D. student. Caro lab, UPM, Spain.
Feb 2010-Jul 2014: Undergraduate, Master Student. Genetics Dept., UCM, Spain

FELLOWSHIPS
2019: José Castillejo Mobility Grant for young investigators , Ministerio de Ciencia, Innovación y Universidades.
2016: Programa Propio del Personal Investigador en Formación UPM , UPM.
2012: Beca-Colaboración , Ministerio de Educación, Cultura y Deporte.
2009: Beca de Excelencia . Consejeria de Educación, Comunidad de Madrid.

PARTICIPATION IN R&D PROJECTS
2020-Present: BNF Cereals Phase III (Bill & Melinda Gates Foundation). Virginia Tech. Team member - Postdoctoral.
2020-Present: Nitrogenase reduction of N2 and CO2 (US Department of Energy). Virginia Tech. Team member - Postdoctoral.
2016-2019: BNF Cereals Phase II (Bill & Melinda Gates Foundation). UPM. Team member - Predoctoral, postdoctoral.
2015-2017: Silenciamiento génico en aplicaciones de biotecnología vegetal (Ministerio de Economía y Competitividad). UPM. Team member - Predoctoral.
2014-2016: BNF Cereals Phase I (Bill & Melinda Gates Foundation). UPM. Team member - Predoctoral.

2013-2014:   Presiones selectivas del cambio climático sobre la ecofisiología y la estructura genética de árboles y comunidades microbianas del suelo en ecotonos forestales (Ministerio de Economía y Competitividad). Team member- Undergraduate and Master's student.

PUBLICATIONS
Pérez-González, A., et al. (2022) Molecular microbiology (accepted pending minor review).
Pérez-González, A., et al. (2021) mBio, 12(4) e01568-21.
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OTHER RELEVANT ACHIEVEMENTS
2020: ANECA positive evaluation (Profesora Ayudante Doctora).
2015-2019: Assistant teacher in practical classes, UCM and UPM universities.
Since 2014: Scientific dissemination activities (Madrid Week of Science ,   European Researchers' Night , Women and Girls in Science Day).

Área Temática:	**Biociencias y biotecnología**
Nombre:	MALIEIEVA , GALYNA
Referencia:	RYC2021-033056-I
Correo Electrónico:	gmalieieva@ibecbarcelona.eu
Título:	Photopharmacological and pharmacological modulation of brain activity

Resumen de la Memoria:

Throughout my research career, I have focused on studying neurochemistry of the brain and innovative ways to modulate brain activity in the case of neurological disorders.

My Ph.D. was focused on studying new aspects of molecular physiology and pharmacological modulation of inhibitory brain receptors. The Ph.D. project was a co-supervised study between the Institut de Neurosciences des Systèmes (INS, France) and the Bogomoletz Institute of Physiology (Ukraine). During my Ph.D. I acquired expertise in several important experimental techniques: patch-clamp technique for monitoring of neuronal activity and the activity of overexpressed neuronal ion channels, cell culturing methods, confocal microscopy and immunohistochemistry. For the first time I have demonstrated that niflumic and ginkgolic acids can control the activity of glycine receptors and determined the sites of their interaction with the receptor. Our findings were published in 4 peer-reviewed articles with me being first author in 2 of them, co-first author in 1, and presented at 4 international conferences.

During my first postdoctoral study at the Institut de Neurosciences des Systèmes (France), as a part of MODULIGHTOR project (ERA SynBio), I was introduced to the exciting and innovative field of photopharmacology, which is based on the use of photoswitchable molecules for the light-driven control of biological processes. Using my expertise in patch-clamp technique, molecular physiology of inhibitory brain receptors and their pharmacological profiles, I have led the development of novel photo-switchable modulators of GABA and glycine receptors. I have tested the biological activity of more than 30 molecules, successfully determined the active ones, and studied their selectivity over the wide range of biological targets. For the first time we have established a photoswitchable blocker of GABA receptors (Azo-NZ1), photoswitchable antagonist of glycine receptors (Glyght) and photoswitchable fulgimide-based potentiator of GABAA receptors (Fulgazepam). Our achievements were summed up in 5 peer-reviewed publications, with me being a first author in 2 of them, co-first author in 1 and co-corresponding author in 1, I contributed to 2 review articles and presented my results at 5 international congresses.

In 2019 I obtained Marie Curie and Severo Ochoa BEST scholarship (funding: 81.000) to become a member of the group of ICREA Professor Pau Gorostiza (IBEC, Spain). I was recruited to lead a research line on photoswitchable modulators of inhibitory brain receptors within the group. At IBEC, I have complemented my robust electrophysiological background with advanced in vivo imaging techniques and especially chemical biology methods. Currently, I am pursuing several research lines dedicated to photomodulation of the brain activity: (i) development and implementation, for correction of pathological states, of novel photoswitchable modulators of inhibitory brain receptors; (ii) development of photoswitchable modulators of neuronal activity, based on antiepileptic compounds. These projects will provide new photopharmacological tools for brain physiology and circuits research and are important steppingstones in the way for the phototherapy of excitatory/inhibitory brain disbalance

Resumen del Currículum Vitae:

In 2012 I obtained an excellence scholarship from French and Ukrainian governments for co-supervised doctoral study at the Institut de Neurosciences des Systèmes (France) and Bogomoletz Institute of Physiology (Ukraine). In my Ph.D. thesis (Aix-Marseille University, France, 2017), I have for the first time demonstrated that ginkgolic and niflumic acids modulate the activity of glycine receptors and determined the sites of interaction of these compounds with glycine receptors. This work provided new tools for studying the role of the glycine receptors in the brain circuits and for the correction of their activity. Results of this study were published in 4 peer-reviewed articles and presented at 4 international conferences.

My postdoctoral research project (2017-2019) at the Institut de Neurosciences des Systèmes was a part of the European project MODULIGHTOR (ERA SynBio). Using my expertise in patch-clamp technique, molecular physiology of inhibitory brain receptors and their pharmacological profiles, I have led the development of new photo-switchable modulators of GABA and glycine receptors. For the first time we have established a photoswicthable blocker of GABA receptors (Azo-NZ1), photoswitchable antagonist of glycine receptors (Glyght) and photoswitchable fulgimide-based potentiator of GABAA receptors (Fulgazepam). Our achievements were summed up in 5 peer-reviewed publications, with me being a first author in 2 of them, shared first author in 1 and co-corresponding author in 1. In the frame of this project, I have contributed to 2 review articles and presented my results at 5 international congresses.

In 2019 I obtained Marie Curie and Severo Ochoa BEST scholarship (granted funding: 81.000) to join the group of ICREA Research Professor Pau Gorostiza at the Institute for Bioengineering of Catalonia (IBEC) to continue my research in the field of photopharmacology. My current line of investigation is focused on the in vivo photoswitchable modulation of the inhibitory brain receptors with non-invasive techniques as well as on the development of photoswitchable antiepileptic pharmacological agents. Now we are preparing 3 publications that will sum-up the results of my latest research.

In total I have published 14 articles (Q1 9 articles), Index h = 7, total citations 144 (Google Scholar), made 17 poster presentation, and gave 3 talks at international conferences I have been participating in 5 international projects and 1 national Spanish project as "Equipo de Investigación". I have attracted 108.500 personal funding for my PhD and postdoctoral projects as well as for attending conferences and summer schools.

I have trained and supervised 7 young researchers, I am an active participant of several international scientific societies (ESN, ISN, FENS), mentoring programmes and sciences dissemination actions.

Área Temática:	**Biociencias y biotecnología**
Nombre:	MEJIAS PEREZ, ERNESTO
Referencia:	RYC2021-031751-I
Correo Electrónico:	e.mejias2@gmail.com
Título:	Advancing translational biomedicine through cutting-edge research in oncology, virology, immunology and vaccines

Resumen de la Memoria:

Over the past 14 years, my research career has evolved to where I am today   working at the forefront of translational biomedicine through advanced skills and experience spanning cancer biology, virology and immunology.

In my current capacity as a LMU-Marie Curie postdoctoral fellow at Prof. Keppler's laboratory, I have designed, established and continue to advance the understanding of SAMHD1-associated chemoresistance/chemosensitization in cancer and actively pursuing therapeutic leads based on these findings that have the potential to revolutionize cancer therapy in a relatively short time period. With the help of small group that I am directing, the extensive network of international collaborations that I have established and significant external funding that I have obtained, I am able to pursue a completely novel and game-changing approach for the treatment of some tumors that takes representing an effective alternative that can improve the overall success of the therapy and patient well-being.

My previous research experience gathered before, after and during my PhD work at the Poxvirus and Vaccines laboratory at CNB-CSIC has helped me lay a strong foundation in areas that are crucial for successful translation projects   including vaccinology, virology, immunology and cancer biology. I was able to design and develop: 1) safe oncolytic viruses with the ability of targeting and lysing tumor cells, 2) several vaccines and immunization protocols against different infectious diseases and 3) immunological and host-vector strategies that improved the immunological efficiency of viral vectors.

I have also contributed to several complementary research lines (the most recent being in the field of SARS-CoV-2) that have enriched my skills and experience with collaborative, multi-disciplinary and multi-party research projects.

As a fruit of this combined experience and skill-set, I now look forward to continuing my translational research career and work towards practical outcomes with the potential to help save and improve lives.

Resumen del Currículum Vitae:

Dr. Mejías Pérez's curriculum presents a well-rounded profile that demonstrates his ability to create, collaborate & contribute to translational biomedical science both inside & outside the laboratory. Through rigorous research over 14 years, Dr. Mejías Pérez has developed significant expertise in virology, oncology, immunology & vaccinology. His innovative ideas have transformed into meaningful projects yielding impactful results that are being communicated for the use of the wider scientific community while representing enormous application potential.

During his PhD research, Dr. Mejías Pérez gathered relevant experience in viral vector design, construction & pre-clinical evaluation by developing oncolytic agents & prophylactic candidates for several disease models including HIV, Malaria & Leishmaniasis. He also developed expertise in host-virus interactions & translational immunology during this period, as evident from the high-impact publications & communications carried out. His ability to propose new projects & collaborate with colleagues on different challenges resulted in his active participation in more than 7 national & international projects in his PhD laboratory, 13 publications & several international collaborations, among others.

With the combined experience, skills & inspiration from his formative years, Dr. Mejías Pérez is now exploring cutting-edge research SAMHD1-based therapeutics for cancer within Prof. Keppler's laboratory at LMU, Munich. He directs a small group of 5 in researching a unique strategy for the treatment of challenging tumors through the understanding of SAMHD1-associated chemoresistance /chemosensitization in a novel & highly translational approach that can improve the overall success of cancer therapy. To advance his research, he established a strong network of high impact collaborations (that have also extended to other important fields including SARS-CoV-2) and transferred critical know-how gained from an EMBO short-term fellowship visit.

Ever since his Master's degree, Dr. Mejías Pérez has been supported almost exclusively by competitive scholarships in recognition of his outstanding academic performance. A prestigious LMU-Marie Curie fellowship (covering work contract for 2.5 years & start-up funding of   34.766,80) allows him to currently pursue his postdoctoral research with Prof. Keppler's laboratory. He has also been instrumental in securing competitive grants to aid his postdoctoral research including   Junior Research Fund LMU (49.980) &   Friedrich-Baur-Stiftung (6000), thanks to his innovative proposals & excellent track record.

With a penchant for mentoring, Dr. Mejías Pérez has contributed significantly to the guidance & direction of junior colleagues - currently he is co-supervising a PhD student within his group while also guiding 2 technical assistants on everyday work. In the past, he has co/supervised 2 Master's & a Bachelor's research projects, while serving as a mentor for numerous other colleagues. He has also contributed to workshops on Molecular & Infection Biology towards Master's courses at LMU & imparted practical classes on Experimental Biochemistry at UAM, Madrid.

In summary, Dr. Mejías Pérez is uniquely positioned to propose, develop & implement innovative concepts for solving biomedical challenges that give back to science & the society at large.

Área Temática:	**Biociencias y biotecnología**
Nombre:	WILSON SANCHEZ, DAVID
Referencia:	RYC2021-031985-I
Correo Electrónico:	dws1985@hotmail.com
Título:	Eudicot leaf patterning and development

Resumen de la Memoria:

During my career I dedicated to two main research topics. On one hand, I contributed to plant developmental biology, focusing on leaf development and evolution. During my PhD I participated in projects to isolate leaf mutants and make them publicly available, and I characterized a novel gene with a role in leaf patterning and symmetry. At the moment I continue studying how leaves are patterned to form the different shapes found in nature. In particular, I have made advances on how the molecular components of the core pattern generator machinery interact at the cell and tissue levels to create the form of a leaf. On the other hand, I focused part of my career on the creation of novel methodologies and software solutions for mapping mutations using high throughput sequencing data. In particular, I developed a methodology to simulate mapping experiments to obtain insight that helps designing real experiments, and a software package that makes the analysis of mapping-by-sequencing data accessible to any researcher. During my career, I acquired a solid knowledge in genetics, plant and developmental biology, and to a decent extent in computational biology. I became skilled in a very broad spectrum of techniques, setting me apart from other researchers around me. These include genetics, genomics, molecular biology, microscopy, mathematical modeling and computer programming. Finally, I progressed from PhD student and Postdoc to staff scientist, which combines research and management.

Resumen del Currículum Vitae:

I started a strong relationship with plant biology when I joined the lab of Prof. J.L. Micol in 2010 to pursue a PhD focused on the analysis of leaf development in Arabidopsis. In 2018 I had the opportunity to work as a postdoctoral researcher in the lab of Prof. M. Tsiantis. Two years later I was offered a new role as staff scientist. During these stages, I expanded my knowledge about Plant Biology and acquired the required experimental skills, but I also opened doors to other scientific and technical fields, especially Bioinformatics and software development, and more recently Mathematical modelling. As a result, now I am a multidisciplinary researcher.

I participated in several projects and all produced publications in reputed journals in the field of Plant Biology (Plant Journal, The New Phytologist) or in wide spectrum Biology journals (Cell, Nucleic Acids Research, Elife). I also took part in a specialized review related to my research topic. Besides contributing to the generation of knowledge in the form of peer-reviewed manuscripts, I am co-author of Easymap, a software solution to map mutations that is currently being used by the genetics scientific community. I also review manuscripts within the field of leaf development.

I have always had a good experience interacting with others in two different labs, where continuous communication with colleagues has been essential to make progress. I have contributed to train 15 undergraduate students and 4 PhD students. Many of the undergraduates expressed that our interaction was a key motivation to pursue careers in Developmental Biology or in Bioinformatics. I am currently member of Thesis Advisory Committees to guide PhD candidates to successfully complete their projects. Furthermore, I am co-supervising a technician to curate and generate new genetic stocks.

I wrote several manuscripts to communicate original research. Currently, I contribute to project writing to support funding applications within my department. I have had different experiences in project management: the creation of database to coordinate a large-scale genetic screen performed by three researchers, the design of a project to develop methods and tools for mapping-by-sequencing, and the coordination of 3 researchers writing the code of the Easymap software. I also gained some experience in project management as member of the organizing committee for the meeting Plant Organ Growth Symposium in 2017.

Overall, I believe I gained merits and skills to transition to lead research.

Área Temática:	**Biociencias y biotecnología**
Nombre:	LASO PEREZ, RAFAEL
Referencia:	RYC2021-031775-I
Correo Electrónico:	rafael_laso@hotmail.com
Título:	Deciphering microbial metabolisms combining culture-dependent and -independent methods

Resumen de la Memoria:

Archaea are one of the three domains of life and play an important role in global biochemical cycles. Especially relevant is their role in the carbon cycle because of their unique capability to produce methane as metabolic product, a potent greenhouse gas (Reeburgh, 2007). The key enzyme of methanogenesis is the methyl coenzyme M reductase (MCR) which catalyzes the last step of the methanogenesis pathway: the reduction of a methyl group to methane.

Methane and other hydrocarbons are energy-rich substrates that can be consumed by microorganisms. However, under anoxic conditions the biochemical activation of such compounds is chemically challenging. When I started my research career, archaea were known to exclusively metabolize methane under anoxic conditions. The anaerobic methane-oxidizing archaea (ANME) thrive on the greenhouse methane in a process known as anaerobic oxidation of methane (Knittel and Boetius, 2009). ANME organisms reverse the methanogenesis pathway and their MCR catalyzes the reaction in the opposite direction: the activation of methane as methyl groups bound to coenzyme M. Besides this multi-directionality, MCR enzymes were thought to only catalyze C1 reactions.

My research career has focused on the field of environmental microbiology, especially in the role of archaea in the anaerobic degradation of hydrocarbons, where I have made ground-breaking contributions. The key finding of my career is the discovery that divergent MCRs present in archaea activate non-methane hydrocarbons under anoxic conditions (Laso-Pérez, et al., 2016, Nature). Here, I described the novel archaeal clade Candidatus Syntrophoarchaeum, a group that activates short-chain alkanes (like butane and propane) under anoxic conditions using a modified version of the MCR enzyme. This was an extremely striking finding, since MCR was thought to exclusively catalyze methane metabolism. The combination of classic microbiology with modern multi-omics approaches enabled me to prove my genomic-derived hypothesis with physiological experiments and develop a conclusive model on the functioning of this organism. This model has crystallized in a novel pathway to degrade non-methane hydrocarbons using the alkyl-CoM activation mechanism catalyzed by divergent MCRs. I participated in later cultivation experiments where we have described other archaeal groups degrading ethane (Ethanoperedens; Hahn et al., 2020, mBio) and long-chain alkanes (Methanoliparia; Laso-Pérez, 2019, mBio and Zhou, 2021, Nature). In the latter, we have described a novel way of methanogenesis from long-chain hydrocarbons. These cultivation experiments have expanded the range of hydrocarbons that archaea can degrade anaerobically including to methane the utilization of short-chain alkanes (ethane, propane, butane), long-chain alkanes (>C16) and alkyl-substituted aromatics and cycloalkanes.

In my Postdoc phase, I have used omics techniques to characterize methanotrophic ANME archaea and study the differences with methanogenic organisms (Chadwick et al., 2022, PLoS Biology). I have also used bioinformatic tools to study the metabolic diversity of deep-sea gammaproteobacteria (Hoffman, 2020, ISME J).

Resumen del Currículum Vitae:

I studied Biology (2008-2013) with a major in Genetics at Universidad Complutense in Spain obtaining excellent marks (Premio Nacional Fin de Carrera) including an Erasmus intership at the University of Cologne (Germany). With a DAAD scholarship from the German government, I continued my education with a Master in Marine Microbiology at the MARMIC school (Bremen, Germany, 2013-2015) of the Max Planck Institute for Marine Microbiology and the University of Bremen. My master focused on molecular ecology and included a one-month internship at the GFZ (German Center for Geosciences, Potsdam).

I continued with a PhD in the laboratory of Prof. Antje Boetius at the Max Planck Institute for Marine Microbiology focusing on novel archaea that degrade hydrocarbons anaerobically (2015-2018). My discoveries included a novel pathway for the degradation of non-methane hydrocarbons in archaea that I identified by combining culture-dependent and -independent methods (cultivation, microscopy, omics' approaches). Besides, I had a two-month internship in the group of Prof. Victoria Orphan (Californian Institute of Technology, Pasadena, USA) and I participated in the four-week scientific cruise PS107 (2017) to the Arctic Ocean. I have as well developed teaching and supervising skills as tutor of three lab rotation students and in different courses, being awarded twice with teaching prizes by the students of the MARMIC program. I was also elected General Secretary of the PhDnet (2017), the network of 4000 PhD students of the Max Planck Society. Here, I led two working groups organizing the elections at 84 institutes and conducting a survey on PhD working conditions (https://t1p.de/dquz). Based on this experience I was appointed as student consultant (2018) for the evaluation panel of two postgraduate programs in Zagreb and Split (Croatia). The groundbreaking discoveries of my PhD were recognized with the MARUM Research Award for Marine Sciences and the Otto Hahn Medal from the Max Planck Society.

In 2019, I started as a Postdoc at the MARUM institute (Bremen University, 2019-2021) under the supervision of Excellence Chair Victoria Orphan. There I collaborated in the cultivation of novel hydrocarbon-degrading archaea and used omics approaches to explore the diversity and metabolism of methanotrophic archaea. This position included a one-month research stay in the Californian Institute of Technology (Pasadena, USA) as instructor in the 2019 Geobiology summer course. Since 2021, I am a Postdoc with a " Juan de la Cierva - Formación" grant in the Microbiome Analysis Laboratory of Javier Tamames and Carlos Pedrós-Alió at the Centro Nacional de Biotecnología (Madrid, Spain), where I study the microbial metabolism in different environments using omics' techniques. Here, I established links with the Universidad Autónoma of Madrid giving a seminar to the students of the Master in Microbiology.

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I have published 7 scientific articles, all in Q1 journals with an impact factor over 7. I have also presented my results at 8 national and international conferences (4 oral presentations, 4 posters). I am engaged in outreach activities with blogs (https://go.nature.com/2Y6C1VR, https://t1p.de/kizz), participation in a science slam (6th Vision in Science, Berlin, 2017; 1st prize) and a pub talk in the frame of "Science goes PUBlic" (Bremen, 2019).

Área Temática:	**Biociencias y biotecnología**
Nombre:	MARTINEZ CORRALES, GUILLERMO
Referencia:	RYC2021-031912-I
Correo Electrónico:	gmc201189@gmail.com
Título:	Control genético y metabólico de la longevidad/Genetic and metabolic control of longevity

Resumen de la Memoria:

Early-life nutrition has a high impact in subsequent adult health in humans. The food we eat is not only important for our current health, but accumulating evidence is demonstrating that diet can have long-lasting effects in old age. This is exactly the question that I am trying to answer during my current project. I am interested in the Insulin/IGF-Like Signalling pathway, employing Drosophila as a model. Our lab previously identified that a short-term alteration of sugar levels in early life significantly reduces life expectancy in flies and worms, and that this reduction is directly dependent on FOXO, the downstream effector of the IIS pathway. I am currently exploring the programmatic role of FOXO in early life and its consequences in late life. I induced the expression of FOXO only in early life and studied its effects once it is switched off. I combined RNA-Seq and ATAC-Seq to visualise gene expression and chromatin architecture changes and demonstrated that early induction of FOXO has strong effects even when it is switched off. Previous to this research, I participated in another project focused on understanding the role of RNA polymerase (Pol) I in healthy ageing. Employing an in vivo approach, we demonstrated that reducing the activity of this polymerase has beneficial impacts on health and extends the lifespan of Drosophila.

During my PhD studies I studied the processes that govern the development of the kidney. I collaborated with different research groups that worked with cell culture, mammalian models and organoids.
First, I performed a screening analysis for genes essential for the development of the fly kidney, and selected those that, upon depletion, induced a stronger phenotype in this organ. Subsequently, I studied in depth the involvement of one of those genes, GATAe, in the adult physiology of the fly kidney.

Prior to my PhD, I undertook my undergraduate in Biology and master s degree in Genetics and Genomics at the University of Barcelona. During that period, I did my master s dissertation in a project focused on the development of the breathing system of Drosophila. During that period, I learned a lot, especially about working effectively in a laboratory environment. After this stage, I performed an internship at the University of Cambridge. In Peter Lawrence s Lab I worked as a research assistant, and I continued working on the development of Drosophila. I studied the development of the epithelium of this animal.

During my scientific career I published 3 first-author research articles (with one more article soon to be published), and a review article in prestigious peer-reviewed journals. I also collaborated in the elaboration of a protocols book chapter and presented my work in several international conferences.

During my PhD and first postdoc I started my research in the field of ageing and transcription, a field that fascinates me and in which I am motivated to continue working. My current research is, as mentioned above, focused on identifying the molecular mechanisms of healthy ageing. Understanding longevity at a genetic and molecular level, especially in an in vivo model such as Drosophila is essential to then be able to extrapolate this understanding to human longevity. This is precisely the path that I want to take in my future research, using mammalian models such as mice or mammalian cell culture.

Resumen del Currículum Vitae:

I am a highly motivated postdoctoral researcher at the Institute of Healthy Ageing, University College London. I am currently finishing my first postdoc in the field of ageing and my research is focused on finding the molecular and genetic mechanisms that determine longevity. In particular, I study animal longevity from a transcriptional level, aiming to identify the master regulator genes that limit lifespan and understand how they work. I have extensive experience in the manipulation of Drosophila melanogaster, and I use a wide range of techniques, both high-throughput (RNA-seq, ATAC-seq and metabolomics, among others) and molecular techniques (western-blot, qRT-PCR, confocal microscopy, among many others). As a result of my work in the field of ageing, I recently published a research article (Cell Reports) and a review article (Trends in Genetics), both as first author, with another publication currently under review in Nature Aging. Previous to my current position, I obtained my PhD degree with a Marie Sklodowska-Curie ITN fellowship, focused on the development of the kidney. In particular, I studied the transcriptional mechanisms of the development of this organ in a collaborative project with the RENALTRACT network. I published an article with my research during my PhD as a first author (and corresponding author, in Development). I also participated in the elaboration of a book chapter containing protocols for the study of the kidney (Methods in Molecular Biology). Through my collaborative work during my PhD and postdoc, I enhanced my other relevant skills, including presentation, laboratory, technical, and scientific writing skills, and I have presented my work in oral presentations and posters in several national and international conferences. I also led the organisation of an international research conference. Furthermore, during my PhD and first postdoc, I supervised a number of Masters (4) and undergraduate students (4) for their laboratory placements. During my PhD I performed an internship at Biocenter Oulu (Finland). During this internship I learned and improved my skills in confocal and multiphoton microscopy and Optical Tomography Projection microscopy.
Before starting my PhD, I completed my undergraduate (Degree in Biology) and master s studies (Master s in Genetics and Genomics) at the University of Barcelona, and I did my laboratory practical work in the Institut de Biologia Molecular de Barcelona (IBMB-CSIC), focused on the development of the Drosophila embryo, and I published a research article as first author (PLoS Genetics). After finishing my master s I moved to Cambridge to work as a laboratory assistant at the University of Cambridge.
I have also participated in numerous outreach activities, including those directed to the general public, and I volunteered helping in the organisation of research conferences, including the European Drosophila Research Conference and the aforementioned RENALTRACT conference.

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I am passionate to continue pursuing my career in the field of ageing, now working from a vertebrate perspective employing a mammalian model, combined with mammalian and human cell culture studies. Understanding how healthy ageing is regulated is crucial to tackle and delay many of these diseases all at once, and in an effective manner.

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Área Temática:	**Biomedicina**
Nombre:	ARRUABARRENA ARISTORENA, AMAIA
Referencia:	RYC2021-031924-I
Correo Electrónico:	aarruabarrena@cicbiogune.es
Título:	Decrypting the cellular identity and metabolic cues underlying epigenetic plasticity in cancer

Resumen de la Memoria:

I carried out my PhD studies uncovering prostate cancer-metabolic drivers at the Carracedo lab in CICbioGUNE. Using cutting-edge metabolic profiling technologies, we described that prostate cancer (PCa) cells show increased production of the oncometabolite dcSAM due to the elevated activity of the enzyme AMD1, which is upregulated in PCas with aberrant PI3K-mTORC1 signaling (Zabala-Letona*, Arruabarrena-Aristorena* et al., Nature 2017; Arruabarrena-Aristorena*, Zabala-Letona* et al., Science Adv 2018).
I decided to pursue my post-doctoral training at the Memorial Sloan Kettering Cancer Center (MSKCC, New York, USA), one of the top cancer research centers worldwide, where I joined the Baselga-Scaltriti lab. My work provided mechanistic insights into how FOXA1 mutations are associated with worse outcome to standard of care aromatase inhibitors and positioned these genetic alterations as potential biomarkers of endocrine therapy response and targets for the treatment of metastatic ER+ breast cancer (Arruabarrena-Aristorena et al., Cancer Cell 2020).

My current research line is summarized below:
 Decrypting the cellular identity and metabolic cues underlying epigenetic plasticity in cancer

Urogenital cancers, such as PCa and bladder cancer (BlCa) embody second and sixth most prevalent cancer types among men worldwide, respectively. Data simulations predict a 30% increase in new cases of both cancer types over the next two decades in Europe (Globocan, WHO 2020), posing it as a rapidly growing socio-economic concern.
Genetic, environmental, and metabolic insults disrupt chromatin homeostasis leading to abnormal epigenetic restriction or plasticity that confers oncogenic properties. How metabolic reprogramming driven epigenomic adaptation impacts cell fate remains elusive. Metabolic intermediates represent crucial substrates for chromatin-modifying enzymes, creating an interdependent communication by reflecting microenvironmental perturbations onto the chromatin status.

The two crucial epigenetic substrates or   epimetabolites , s-adenosylmethionine (SAM) and acetyl-CoA, are metabolically interconnected through a unique metabolic route, polyamine (PA) synthesis and catabolism network. We previously showed that hyperactivation of the adenosylmethionine decarboxylase 1 (AMD1) downstream axis increases de production of dcSAM, PAs, and acetyl-PAs, leading to enhanced oncogenicity in PCa. PA pathway disruption has been described in a variety of cancer types, including BlCa. Thus, my current research is based on the hypothesis that local and finely tuned production of   epimetabolites   may be essential for a functional nuclear metabolism-epigenetics (epimetabolic) axis and control of chromatin accessibility upon specific cellular stimuli.

Based on this premise this research line aims to:
1) Study of the impact of polyamine metabolism reprogramming in epigenetic plasticity in cancer.
2) Investigate the regulation of the metabolic machinery involved in controlling the chromatin state and identify key nuclear regulators relevant to the control of chromatin homeostasis.
3) Modulate the metabolic-epigenetic axis to therapeutically restore chromatin homeostasis.
Decryption of this nuclear epimetabolic network will provide crucial insights on its vulnerabilities, potentially uncovering novel therapeutic avenues for precision medicine.

Resumen del Currículum Vitae:

I am a doctor in biomedicine and molecular biology with more than 10 years of experience on cancer metabolism and epigenetic regulation.
My first contribution to science came from my master¿s work at Dr. Belandia¿s lab at Instituto de Investigaciones Biomédicas (CSIC-UAM), when I studied the regulation of p53-dependent transcription by HEY1 (Irene López-Mateo I.; Arruabarrena-Aristorena A. et al. Biosci. Rep. 2016). After exploring different research areas, I joined the laboratory of Prof. Carracedo to devote my graduate studies to cancer research. By using cutting-edge metabolic profiling technologies (TOF/MS, LC/MS, and isotope-labeled tracing fluxes) we described that aberrant PI3K-mTORC1 signaling in prostate cancer (PCa, >70% of the cases) mediates overexpression of AMD1 and increases production of the oncometabolite dcSAM (Zabala-Letona*, Arruabarrena-Aristorena* et al., Nature 2017; Arruabarrena-Aristorena*, Zabala-Letona* et al., Science Adv 2018). These findings were presented at three international conferences, including two oral communications as selected-speaker and a best poster award. After graduating, I decided to pursue my post-doctoral training at a lab focused on translational research. To this end, I moved to New York to work at the Memorial Sloan Kettering Cancer Center (MSKCC, USA), where I joined the Baselga-Scaltriti lab. I devoted my research to the study of recurrent genetic alterations on FOXA1 and their impact on the epigenetic landscape and therapy response in breast cancer. My work provided mechanistic insights into how FOXA1 mutations are associated with worse outcome to standard of care aromatase inhibitors and positioned FOXA1 alterations as potential biomarkers of endocrine therapy response (Arruabarrena-Aristorena et al., Cancer Cell 2020).
Besides my postdoc abroad, along my scientific career I had several opportunities to visit other laboratories abroad, such as a three month visit to Dr. Martinez-Maza¿s lab at the University of California (UCLA, Los Angeles) and a short stay during my graduate studies at Dr. Manning¿s lab at Harvard School of Public Health (Boston, USA) in order to deepen my understanding on mTORC1 complex.

In September 2020 I returned to the Basque Country to join CIC bioGUNE funded by a Juan de la Cierva Incorporacion fellowship. Since I joint the Cancer Cell Signaling and Metabolism lab, I lead a project aiming to elucidate the nuclear regulation of epigenetically relevant metabolites in PCa. In

this short time, I have been awarded the Ikerbasque Research Fellow grant as a junior leader, I co-supervised a TFM student and I generated a murine and human prostate cancer organoid bank. Besides my lab work, I am also actively implicated in science dissemination activities (talks at schools, AECC; "Conócelas by ASEICA Mujer; member of ASEICA Postdoc group and section editor for EKAIA, EHU/UPV).

In summary, I have a noteworthy publication record composed of 2 first-author articles in high impact journals, 1 review (co-first author), 1 auto-commentary (first and co-corresponding) and 11 more articles fruit of my collaborative spirit (480 citations total). My work has been presented in 10 international conferences (2 as selected speaker and 1 best poster award), I am an inventor in a registered American patent and I have participated in 3 international and national research projects.

Área Temática:	**Biomedicina**
Nombre:	VALERO GARCIA, MANUEL
Referencia:	RYC2021-032543-I
Correo Electrónico:	valegarman@gmail.com
Título:	Inhibitory-to-excitatory control in high-level neural representations

Resumen de la Memoria:

I aim to become an independent scientist studying the neural circuits of memory. I am especially interested in the neural interplay of excitatory and inhibitory activity in cortical networks and how these dynamics create neural representations and memories. My long-term goal is to uncover the precise mechanisms that permit the maintenance of a balanced, prewired network, while allowing some degrees of imbalance to generate the plasticity that leads to memory.

During my PhD (2013-2017) in Menéndez de la Prida¿s Lab (CSIC, Spain) I used a wide set of tools   single-cell recordings in freely-moving rodents, simultaneous intracellular and extracellular recordings, large-scale multi-site electrophysiology and optogenetic manipulations - to unveil the fundamental rules that govern cell recruitment during memory consolidation. I discovered the network motifs underlying the cell-selective firing during the hippocampal sharp-wave ripples, and how deviations from balanced excitatory-inhibitory dynamics lead to (or rescues from) memory deficits. These results generated two scientific articles (Nature Neuroscience and Neuron) and a review (Current Opinion of Biology) as the first author contributor. Throughout these projects I performed three short-term fellowships in three renowned international institutions: Professor Peter Somogyi s lab in University of Oxford (UK), the Professor Gabor Tamas¿s lab in Szeged University (Hungary) and Professor György Buzsáki¿s lab in New York University (US), founded by two short-term fellowships from the Spanish Ministry of Economy and Competitiveness (FPU Estancias Breves).

For my postdoctoral period (2018-2022) I established my own research lines in the laboratory of György Buzsáki (NYU, US) on high-resolution optogenetics and novels promotor-specific transgenic strategies. In the first half of my postdoctoral training period (2018-2020), I led a project on the circuit mechanisms of the NREM sleep-related slow-oscillations. I described a unique population of inhibitory interneurons, uniquely active during sleep down-states and able to gate memory consolidation (Nature Neuroscience). To accomplish this project, it required establishing and managing a collaboration with Dr. Tim Viney (Oxford University, UK) and a long-term research partnership with the laboratory of Professor Bernardo Rudy (New York University, US), who provided me access to several novel promotor-specific transgenic strategies. For the second half of my postdoc (2020-2022) I led and developed three scientific projects: (i) I created a method to probe subthreshold dynamics in up to 100 simultaneous recorded cells with ultra-weak optogenetic pulses by multi-site neuron-size light-emitting diodes (Science, as the first author and corresponding author). (ii) By employing novel genetic strategies throughout my independent partnership with Rudy s lab, I have created a catalog of the interneurons diversity and functional connectivity in the hippocampus (manuscript in preparation). Finally, (iii) combining intracellular and extracellular recordings, pharmacogenetic manipulations and computational neural models, I have defined the physiological basis of the rate and temporal code in CA1, with special emphasis on the role of the spatial modulation of the inhibitory inputs (under review).

Resumen del Currículum Vitae:

I have a Degree Biological Sciences (School of Biological Sciences, UCM, Spain), a MC in Biochemistry, Molecular Biology and Biomedicine (School of Chemical Sciences, UCM, Spain) and a PhD in Biochemistry, Molecular Biology and Biomedicine (School of Biological Sciences, UCM, Spain). Over the course of my scientific career I have worked in different laboratories in Europe and the US (UCM, Spain; Cajal Institute, Spain; University of Oxford, UK; Szeged University, Hungary; New York University, US), widening my background in system and cognitive neuroscience and publishing 23 articles (and two upcoming articles) in some of the most significant journals in my field (Science, Nature Neuroscience and Neuron) including 6 as the first author and 3 as the corresponding author. I have trained and supervised 7 PhD candidates and I have built independent collaborations with several national and international laboratories. I have presented my results in more than 30 national and international conferences and meetings (including 3 best talks awards and two symposiums, one of which I personally organized). Finally, I have obtained highly competitive funding at all stages of my scientific career (FPU as a PhD fellowship, and EMBO and HFSP as postdoctoral grants).

As an undergraduate student (2010-2012) I researched in the laboratory of Dra. Maria Paz Viveros s lab (UCM, Spain) to study the neurophysiological alterations of neonatal stress in adult and adolescent rats, contributing to four scientific publications. Thanks to my academic track and my early research experience I obtained a competitive PhD fellowship (FPU, 2013-2017) to join the laboratory of Liset Menéndez de la Prida (Cajal Institute, CSIC, Spain), where I studied the network motifs underlying the cell-selective firing during the hippocampal sharp-wave ripples. I published these results in leading journals of the field (Nature Neuroscience, 2015, and Neuron, 2017) and contributed to a critical review (Current Opinion of Biology) as the first author. Apart from my main projects, my unique set of skills and my will to collaborate contributed to five additional research articles in my PhD host lab (including The Journal of Neuroscience, Nature Communication and Cell Reports).

For my postdoctoral period (2018-2022) I earned prestigious support from the EMBO and the HFSP to establish my own research lines in the lab of György Buzsáki (NYU, US) on high-resolution optogenetics and novel promotor-specific transgenic strategies. In the first half of my postdoctoral period (2018-2020) I described the role of ID2/Nkx2 neurons in slow waves sleep and memory consolidation (Nature Neuroscience, 2021). For the second half of my postdoc (2020-2022) I developed a method to probe the subthreshold dynamics of up to 100 simultaneous cells in freely moving animals optogenetically (Science, 2022, as the first author and corresponding author). In addition to the four projects (including two upcoming works) that I have led and developed during my postdoctoral period, I have also contributed to 8 other publications.

Taken together, I believe my expertise, publication track, leadership, collaborative potential, and abilities to obtain funding endorse my full transition to an independent research position.

Área Temática:	**Biomedicina**
Nombre:	VIEITES PRADO, ALBA
Referencia:	RYC2021-033623-I
Correo Electrónico:	alba.vieites.prado@gmail.com
Título:	Brain plasticity and repair

Resumen de la Memoria:

Brain activity needs to be tightly regulated throughout life to ensure appropriate communication with the external and internal environments. Whether and how neuronal circuits can be reshaped after critical periods of plasticity, or under pathological conditions is still an open question. I seek to understand the nature of brain plasticity in the adult brain, focusing in the analysis of structural remodeling.

I joined the Laboratory of Clinical Neurosciences, at the Health Research Institute of Santiago (IDIS) for my doctoral training. This research group is internationally recognized for their work on the preclinical study of new therapeutic approaches for neurovascular diseases. As a beneficiary of a FPI grant, I studied the therapeutic mechanisms and effects of hypothermia for brain ischemia, and, in collaboration with Dr. Iglesias-Rey, developed methods for non-invasive temperature measurement using Magnetic Resonance Imaging (MRI) techniques. In May 2017 I successfully defended my Ph. D. Thesis entitled   Brain hypothermia in ischemic stroke: non-invasive thermometry and molecular basis , obtaining the International Mention and graded as Summa Cum Laude, supervised by Dr. Francisco Campos, Dr. Tomas Sobrino and Dr. José Castillo. After five years in a clinical Neurosciences research laboratory, I aimed to study the fundamental mechanisms of brain repair and plasticity using model systems and cutting-edge methodologies. Therefore, I pursued a postdoctoral project on the study of activity-dependent structural plasticity. In January 2018, I joined the Laboratory of Structural Plasticity, led by Dr. Nicolas Renier at the Paris Brain Institute (ICM), the French leading international research center in Neuroscience. In 2019 was awarded with a Marie Skłodowska-Curie Individual Fellowship from the European Commission, to implement the project   Long-Range Plasticity of Neuronal Networks in the adult Brain . During my postdoc, I specialized large scale whole-brain 3D imaging and analysis with light sheet microscopy and tissue clearing. I co-developed TubeMap, a methodology to label, image, reconstruct and analyze the entire mouse brain microvasculature, and other bioinformatics tools for the analysis of whole-brain connectivity.

I have published 20 articles in peer-reviewed journals, 4 of them as 1st author (Cell, Stroke, Development, Brain communications). I actively collaborate with researchers from different institutions/countries working in different fields, which helps me to maintain an open-minded view of research in Neurosciences.

Resumen del Currículum Vitae:

Internationalization:
1.   2017 - PhD in Neurosciences - International mention   Summa Cum Laude and more than 4 years of international experience (France and Switzerland)

Scientific production (sorted by relevance):
2.   Kirst C*(AC), Skriabine S*, Vieites-Prado A*, Topilko T, Bertin P,   [+5], Renier N (AC). 2020. MAPPING THE FINE-SCALE ORGANIZATION AND PLASTICITY OF THE BRAIN VASCULATURE. Cell. Vol 180(4):780-795. [Research article] (Pos. 1/9)

3.   Vieites-Prado A*, Iglesias-Rey R*, Fernández-Susavila H, da Silva-Candal A,   [+4], Castillo J (AC), Campos F (AC). 2016. PROTECTIVE EFFECTS AND MAGNETIC RESONANCE IMAGING TEMPERATURE MAPPING OF SYSTEMIC AND FOCAL HYPOTHERMIA IN CEREBRAL ISCHEMIA. Stroke, Vol 47:2386-96. [Research article] (Pos. 1/10)

4.   Song E*, Zhang C*, Israelow B, Lu-Culligan A, Vieites-Prado A,   [+33], Akiko Iwasaki. 2021. NEUROINVASION OF SARS-COV-2 IN HUMAN AND MOUSE BRAIN. Journal of Experimental Medicine, Vol 218 (3):e20202135. [Research article] (Pos. 4/38)

5.   Ávila-Gómez P*, Vieites-Prado A*, Dopico-López A, Bashir S,   [+1] Hervella P (AC), Campos F (AC). 2020. COLD STRESS PROTEIN RBM3 RESPONDS TO HYPOTHERMIA AND IS ASSOCIATED WITH GOOD STROKE OUTCOME. Brain Communications, Vol 2(2), fcaa078. [Research article] (Pos. 1/2)

6.   Vieites-Prado A, Renier N (AC). 2021. TISSUE CLEARING AND 3D IMAGING IN DEVELOPMENTAL BIOLOGY. Development, Vol 148 (18), dev199369. [Primer - Review] (Pos. 1/2)

Leadership:
7.   H2020-MSCA-IF-2018 (ID: 845685). LONG-RANGE PLASTICITY OF NEURONAL NETWORKS IN THE ADULT BRAIN (LongPlaNet). Entity: European Commission. Call: 2018. PI: Vieites-Prado A, Paris Brain Institute. Timing: 2019-2021. Budget: 184.707,84   (included 19.200   for research). Role: PRINCIPAL INVESTIGATOR.

8.   I am currently supervising a Master student, and I have previous experience in mentoring and training of students.

Prizes:

9.	Vieites-Prado A, Hernández-Susavila H, Iglesias-Rey R, Rodríguez-Castro E, Sobrino T, Campos F, Castillo J. COMPARATIVE ANALYSIS OF SYSTEMIC AND FOCAL BRAIN HYPOTHERMIA IN AN ANIMAL MODEL OF CEREBRAL ISCHEMIA. 24th European Stroke Conference. May 12th to 14th 2015, Vienna, (Austria) [Oral communication]. This communication was awarded with The Investigator Award prize.

Teaching experience:
10.	ANECA accreditation to work as Profesor contratado doctor , Profesor ayudante doctor and Profesor Universidad privada in the Spanish University system.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: **Biomedicina**
Nombre: PALOMINO SEGURA, MIGUEL
Referencia: RYC2021-033511-I
Correo Electrónico: mpalomino16@gmail.com
Título: Innate immunity and the molecular mechanisms associated with protective and pathogenic inflammatory responses.

Resumen de la Memoria:

I am a researcher in the field of innate immunity, with particular interest in the role of inflammation in the protection against infections, as well as the development of cardiovascular disease and aging. In 2018, I obtained my PhD in immunology in the University of Bern (Switzerland), were I defended my thesis titled Role of Innate Immunity in the Protection against Influenza Infection , which received the highest distinction summa cum laude . After my PhD, I was granted with two international fellowships, the FEBS (2020-2021) and the EMBO long-term fellowships (2021-present) to explore the role of innate immune cells in tissue homeostasis and cardiovascular diseases in the Dr. Andrés Hidalgo group at CNIC (Spain). Since 2013, I have published 13 research items, including articles in high-impact journals (Nature, Nature Microbiology, JEM, Curr. Biol.), with 8 of them as leading author (Nature 2022; Nature Vaccines 2021; JEM 2021; Curr. Biol. 2020; EJI 2020; Nature Microbiology 2019; Methods in Molecular Biology 2019, JOVE 2018). In addition to work describing mechanisms of immunity and inflammation, I have also published technical papers reporting methods and bioinformatics tools for the field of intravital microscopy (2 as leading author), review articles (2 as leading author) and a book chapter (1 as leading author). My H-index is 7 and my research holds a total of 145 citations (source: Google Scholar). Throughout my career, I have presented my results in 7 different international congresses and workshops, including the International Congress of Immunology (2016) and the Toll Editing Innate Immunity (2018), which highlighted the interest of these projects for the scientific community. During the past years, I have demonstrated that I can successfully address novel scientific questions, establish fruitful international collaborations and become an expert in some of the most advanced techniques in the field of immunology, such as intravital microscopy and associated computational methods. Despite the early stage of my carrier, I believe that my research output and expertise, as well as the significant contributions to the field of inflammation, makes me a strong candidate to address new, high-impact questions in the field of immunology and cellular biology.

Resumen del Currículum Vitae:

I currently am a Post-doctoral fellow at the laboratory of Dr. Andrés Hidalgo at CNIC (since March 2020). My research career has been dedicated to the study of innate immunity and the development of therapeutic strategies to modulate immune responses. To do my PhD, I moved to Switzerland for my PhD in the Infection and Immunity lab led by Dr. Santiago F. González, at the IRB (Bellinzona). During my PhD and a brief period as a Post-doc there after my thesis defence (Sept 2013-Sept 2019), I focused on the role of the innate immunity in the early defense against influenza infection and the activation of adaptive immunity as a strategy to develop therapeutics against infections. The first part of my studies yielded two publications on the development of optimal adaptive responses after vaccination (Cell Reports. 2017/ co-author and Cell Reports. 2019/ co-author). The second part of my PhD focused on early innate immune responses in the upper respiratory tract during influenza infection, which led to the publication of two manuscripts as first author (Nature Microbiology. 2019/ first author and European Journal of Immunology. 2020/ first author). In these studies, I discovered molecular targets that modulate innate immune responses against influenza infection. Importantly, during this period I developed state-of-the-art skills for complex in vivo imaging modalities using multiphoton microscopy, which I applied here to the infected murine trachea infection (JOVE. 2018/ first author and Methods in Molecular Biology. 2019/ first author). As a result of an international collaboration, I also published a manuscript describing neutrophil-based mechanism that shape antigen-specific T cell responses during vaccinia infection (Nature vaccine 2021 / first author). After my PhD, I wished to extend my skills in the field of innate immunity, with a focus towards the broad immune mechanisms that allow preservation of tissue physiology and homeostasis. During this period I successfully applied to two prestigious postdoctoral fellowships, one from the FEBS and the second from EMBO (long-term fellowships) to move to the lab of Dr. Hidalgo at CNIC. During the past 2 years, I have focused my work on the field of neutrophil biology and circadian rhythms that already yielded published work as a Commentary and a Review (Current Biology 2020 /first author; JEM 2021 / first author). Despite the challenges of these two years of the COVID pandemics, I was able to apply my expertise on intravital microscopy to develop an exciting new methodology to describe immune heterogeneity in vivo purely based on imaging. Specifically, in collaboration with other members of the Hidalgo lab I could generate behavioral descriptors of individual cells at sites of active inflammation. The use of high-dimensional datasets containing hundreds of morpho-kinetic parameters over tens of thousands of cells demonstrated that rich biology can be described using behavioral outputs, and we could in fact discover a continuum of neutrophil states inside blood vessels, including one that is associated with pathogenic inflammation. This work, and its associated methodology, has been a major breakthrough in the field of immunology as indicated by its recent publication on a two high-impact journals (Nature 2022 / co-first author and Medical Image Analysis 2022/co-author).

Área Temática:	**Biomedicina**
Nombre:	CHINER OMS, ALVARO
Referencia:	RYC2021-031461-I
Correo Electrónico:	alchiner@gmail.com
Título:	Genómica y bioinformática de patógenos

Resumen de la Memoria:

Durante mi etapa de doctorando, estudié el complejo Mycobacterium tuberculosis (MTBC), el agente causal de la enfermedad de la tuberculosis en humanos y otros mamíferos. Centré mis esfuerzos en estudiar su diversidad genética, evolución, el uso de datos experimentales derivados de cepas de referencia para construir modelos computacionales de expresión génica y el efecto de la diversidad genética sobre los patrones de expresión génica del complejo. Para ello, combiné datos "ómicos" de diferentes fuentes, así como datos fenotípicos para comprender las diferencias epidemiológicas y biológicas entre las cepas del MTBC. Apliqué técnicas de biología evolutiva, biología de sistemas computacionales y genómica comparativa. También realicé una estancia de 3 meses en la London School of Hygiene and Tropical Medicine, donde estudié el transcriptoma y metiloma del MTBC.

Tras obtener mi título de doctorado, fuí contratado en la Unidad de Genómica de la Tuberculosis del Instituto de Biomedicina de Valencia (IP Dr. Iñaki Comas), en el marco de un proyecto europeo para continuar realizando análisis epidemiológicos, genómicos, evolutivos y transcriptómicos de las bacterias causantes de la tuberculosis. Recientemente, he investigado los cambios en las presiones selectivas a lo largo del tiempo para cada gen del MTBC. Desarrollé una metodología para analizar señales temporales de selección en un gran conjunto de datos de 5000 genomas completos.

Por otro lado, desde el comienzo de la pandemia de COVID-19, he estado involucrado en el núcleo del consorcio SeqCOVID-España. El consorcio ha supuesto un esfuerzo a nivel nacional para secuenciar y monitorizar la epidemia de SARS-CoV-2 durante los años 2020 y 2021. Gracias a nuestro trabajo, España fue el 2º país europeo y 4º a nivel mundial en número de genomas secuenciados, analizados y depositados en repositorios públicos durante la primera ola epidémica de SARS-CoV-2. He estado directamente involucrado en la coordinación y desarrollo de los pipelines bioinformáticos utilizados por el consorcio para analizar los genomas virales obtenidos por diferentes tecnologías de secuenciación (nanopore e illumina). Los resultados obtenidos se han utilizado para informar a las autoridades sanitarias de la evolución de la pandemia en tiempo real, la abundancia de variantes y mutaciones de interés en el pais, así como para realizar estudios de brotes concretos. Además, investigamos de manera retrospectiva las introducciones iniciales de SARS-CoV-2 en España, la evolución y desarrollo de la primera ola, y la efectividad de las medidas de confinamiento para atajar las transmisión del virus durante marzo de 2020.

Resumen del Currículum Vitae:

Obtuve un contrato FPU (2014) para realizar la tesis doctoral en la Universidad de Valencia. Durante el doctorado, realicé una estancia de 3 meses (2017) en Reino Unido, en la London School of Hygiene and Tropical Medicine. Tras la defensa de mi tesis, en 2019 comencé una etapa postdoctoral en el Instituto de Biomedicina de Valencia (IBV-CSIC), contratado con cargo a un proyecto europeo en la Unidad de Genómica de la Tuberculosis. Durante la pandemia de COVID-19 (2020), formé parte del núcleo principal del consorcio SeqCOVID-Spain, y tomé parte en la coordinación y desarrollo de los análisis bioinformáticos. En 2020 comencé un contrato indefinido en el IBV-CSIC (2020).

Actualmente tengo 28 publicaciones JCR (23 Q1, 14 D1), siendo varias como primer autor en revistas de alto impacto como Science Advances, Nature Communications o Nature Genetics. También varios artículos en colaboración con otros grupos nacionales e internacionales. Muchos de ellos se han publicado en revistas de alto impacto como Science Advances, Nature Communications, Eurosurveillance, Nature o Emerging Infectious Diseases. A día de hoy (26/01/2022) my h-index es de 9. He realizado 32 presentaciones en congresos, entre ellas presentaciones orales como las realizadas en el VII Congreso Bienal de la Sociedad Española de Biología Evolutiva, en el 40 congreso de la Sociedad Europea de Micobacteriología o en la 14 Conferencia Internacional en Epidemiología Molecular y Genética Evolutiva de Enfermedades Infecciosas. Además, he realizado 17 revisiones por pares de artículos, para revistas como The Lancet Microbe, Frontiers in Microbiology, Scientific Reports o The International Journal of Infectious Diseases.

He colaborado en actividades divulgativas en colegios y he sido coautor de dos artículos de divulgación en la revista The Conversation, teniendo uno de ellos (¿Qué sabemos hasta hoy sobre la transmisión del SARS-CoV-2? , 2020) más de 300.000 lecturas, 218 tweets y 5633 recomendaciones en redes sociales.

Mi tesis doctoral obtuvo el Premio Extraordinario de Doctorado (2021). También he sido el primer clasificado en la 16 edición del Premio científico-técnico de la Ciutat d Algemesí , en la categoría de Investigador Joven Consolidado (2021).

He impartido docencia en la Universidad de Valencia, tanto para el Grado en Biología como el Máster de Bioinformática (144 horas hasta la fecha). He estado implicado en la organización y docencia de 5 ediciones de la FISABIO Summer School (de 2016 a 2021) y del workshop Bioinformatic tools in TB genomics: pathogen diversity & host transcriptomics organizado por la Red de Investigación Española en Micobacterias (2021).

He participado como vocal en comités de evaluación de ANECA (2019 y 2022) y Aqu Catalunya (2018 y 2019), para los procesos de evaluación y acreditación de distintos programas de doctorado.

Finalmente, he participado en 8 proyectos de investigación financiados por entidades públicas, como investigador miembro de equipo. Entre ellos, una ERC Starting Grant de 2015 a 2020 (1.6 mill), un proyecto del ISCIII para realizar la epidemiología genómica de SARS-CoV-2 a nivel nacional de 2020 a 2021 (1.7 mill) y una ERC Consolidator que inició en 2021 y finaliza en 2026 (2.7 mill).

Área Temática:	**Biomedicina**
Nombre:	PARIS FERNANDEZ DE LA PUENTE, JUAN LUIS
Referencia:	RYC2021-034536-I
Correo Electrónico:	juanluisparis@outlook.com
Título:	Nanomedicine strategies for diagnosis and treatment of various diseases.

Resumen de la Memoria:

The research career of Juan Luis Paris has focused on the use of biomaterials, and particularly nanomaterials, to develop therapies for many biomedical applications, such as cancer therapy, pain management, antibacterial therapy, gene therapy and, more recently, allergy immunotherapy.

Juan Luis Paris obtained his PhD at Universidad Complutense de Madrid (UCM) in 2017. His PhD thesis focused on ultrasound-responsive nanoparticles for application in biomedicine. He completed two predoctoral research stays abroad: at Boston Children's Hospital, Harvard Medical School (USA) and at the University of Oxford (England). Through these research stays, he extended his scientific training in animal experiments and acoustic engineering, respectively.

After his PhD, he was first involved in the development of a chick embryo model for evaluation of nanotherapeutics at UCM. Then, he obtained a prestigious postdoctoral fellowship from the Ramón Areces Foundation, which he carried out at the International Iberian Nanotechnology Laboratory (INL, in Portugal). During his time at INL he worked with a wide variety of soft material formulations for different biomedical, which greatly widened his nanomedicine toolbox, and provided him with a new physical chemistry perspective on nanomedicine. Subsequently he was awarded a Sara Borrell contract (ISCIII) at the Instituto de Investigación Biomédica de Málaga (IBIMA). At IBIMA, he studies nanoparticles for allergy diagnosis and therapy, working much closer to the clinical setting, mainly with patient samples and animal models of allergic disease. He is currently a visiting scholar at Queen s University Belfast (Northern Ireland), working on nanoparticle-loaded microneedle patches for allergy immunotherapy. His broad multidisciplinary background provides him with the skills needed to begin the next step of his independent career, developing nanomedicine strategies for specific tolerance generation in immune diseases.

Dr. Paris has participated in over 30 conference communications, and he has published 1 book chapter and 25 articles (20 as first author and 6 as corresponding author), many in leading journals in their fields (Nature Biomedical Engineering, ACS Nano, Chemical Engineering Journal, Allergy). He has received several awards, most recently the Young Investigator Award by the Iberoamerican Academy of Pharmacy. He has supervised or is currently supervising several students (1 TFG, 1 MSc, 1 Youth Guarantee Program contract) and he is already a PI in a 2-year grant (including the salary for a PhD student), which shows that he has already achieved a significant level of scientific independence and leadership.

Resumen del Currículum Vitae:

Juan Luis Paris holds a BSc and a PhD in Pharmacy from Universidad Complutense de Madrid (UCM) (2013 and 2017, respectively). He carried out his PhD under the supervision of Prof. M. Victoria Cabañas and Miguel Manzano, at the Smart Biomaterials Research Group headed by Prof. María Vallet-Regí. His PhD thesis focused on the design, synthesis, characterization and biological evaluation of stimuli-responsive nanomaterials for application in biomedicine. For his PhD, he obtained an Extraordinary PhD Award, as well as the Antonio Doadrio López award of the Royal National Academy of Pharmacy (January 2019) and the award for the best doctoral thesis (2017-2019) of the Spanish-Portuguese Local Chapter of the Controlled Release Society (SPLC-CRS). During his predoctoral training, he completed two research stays in prestigious centers abroad: a 4-month stay at Boston Children's Hospital, Harvard Medical School (USA) in 2016 (with Prof. Daniel Kohane) and a 3-month stay at the University of Oxford (England) in 2017 (with Prof. Constantin C. Coussios). After defending his thesis, Juan Luis Paris worked briefly as a postdoctoral researcher associated to a European research project at UCM, until he obtained the prestigious postdoctoral fellowship of the Ramon Areces Foundation, which he enjoyed at the International Iberian Nanotechnology Laboratory (INL, in Portugal), under the supervision of Dr. Bruno Silva. During his time at INL he worked with soft materials for biomedicine, including lipid and polymer nanoparticles. Subsequently he was awarded a Sara Borrell contract from the Instituto de Salud Carlos III, which he is carrying out at the Instituto de Investigación Biomédica de Málaga (with Prof. María José Torres), where he works on nanoparticles for allergy diagnosis and therapy. As part of this

Fellowship, he is currently a visiting scholar at Queen s University Belfast (Northern Ireland) for 8 months (February-September 2022), working with Prof. Ryan Donnelly on nanoparticleloaded microneedle patches for allergy immunotherapy. He was recently awarded the Young Investigator Award by the Iberoamerican Academy of Pharmacy, and he is already a PI in a 2- year grant. As a summary of his scientific production, he has participated in over 30 conference communications, and he has published 1 book chapter and 25 research articles. Many of these articles were in leading journals in their discipline, such as Nature Biomedical Engineering, ACS Nano, Chemical Engineering Journal and Allergy, among others. Out of these 25 articles, he was first (or co-first i.e. equally contributing with first author) author in 20 of them, and co-corresponding author in 6 of them. His work has had a significant impact in the scientific community, being cited over 970 times, with an h Index of 16 (both according to Scopus).

Área Temática:	**Biomedicina**
Nombre:	GONZALEZ GARCIA, ISMAEL
Referencia:	RYC2021-031225-I
Correo Electrónico:	ismael.gonzalez@helmholtz-muenchen.de
Título:	Hypothalamic mechanisms in the regulation of metabolism: from molecular factors to cell types

Resumen de la Memoria:

I have almost a decade of research experience investigating the hypothalamic regulation of metabolism. In 2012, I started my scientific career as a PhD student (Xunta de Galicia and FPU fellowships) at CIMUS-University of Santiago de Compostela under the direction of Dr. Miguel López and Dr. Carlos Diéguez. During this period, I discovered how central ceramide-induced hypothalamic lipotoxicity and ER stress regulate energy balance and their role in the development of diabetes and obesity. In parallel, I also studied how estrogens play a major role in the modulation of energy balance through their action in the hypothalamus, characterizing three different mechanisms which explain their action on BAT thermogenesis and food intake. Following my interest in brown fat physiology, in a long-term pioneer project in collaboration with the Neonatology Service (Clinical Hospital of Santiago de Compostela), we used infrared thermography to demonstrate that BAT temperature correlates with body temperature and that a mild cold stimulus promotes BAT activation in human newborns.

Since 2018, I have been a postdoc at Helmholtz Center Munich (Germany) under the supervision of Dr. Cristina García-Cáceres and Dr. Matthias H. Tschöp. To acquire an independent researcher profile and my own research funding, I obtained the Alexander von Humboldt and the Marie-Curie postdoc fellowships (2019). Here, I pursued my own hypothesis on how astrocyte-neuron communication in the hypothalamus may act as a key component of energy balance regulation. At the same time, I also studied new hypothalamic genes associated with metabolism. Taking advantage of my previous experience, I identified a novel transcription factor (Cited1) in mediating estradiol-dependent leptin anorectic actions specifically in Pomc neurons and its role in the development of obesity.

The results of my research lines have been published as 8 original research articles where I contributed as first author: Cell Reports 2014, Endocrinology 2015, International Journal of Neuropsychopharmacology 2017, Diabetes, 2017, Journal of Endocrinology 2018, Cell Reports 2018, Nature Communications 2021, and Metabolism 2022 (first and corresponding). 2 papers as second author: Cell Metabolism 2014 and Metabolism 2021. In addition, I have one manuscript as first author currently under review in Cell Metabolism. I am also first author of several reviews (5) and commentaries (4), as well as a book chapter. In summary, the entire aforementioned research career has strengthened my scientific background and leadership profile, and the Ramón y Cajal grant would be the next step to consolidate my independent research in the Spanish Science System.

Resumen del Currículum Vitae:

In 2011, I graduated in Pharmacy from the University of Santiago de Compostela (USC) (Premio Extraordinario de Licenciatura) and the following year I obtained a University Master's Degree in Biomedical Research at the USC (Premio Extraordinario de Máster). In 2012, I started my PhD at CiMUS-USC supported by 2 competitive fellowships (Xunta de Galicia and FPU fellowships). In April 2018, I received my PhD in Endocrinology (Premio Extraordinario de Doctorado). Since May 2018, I have been a postdoc at Helmholtz Center Munich (Institute for Diabetes and Obesity) supported by Alexander von Humboldt and Marie Curie fellowships.

During my PhD training I acquired essential skills in metabolic phenotyping and molecular biology, along with a wide expertise in neuroendocrinology and metabolism. During my postdoc I acquired additional technical-scientific skills in confocal microscopy and genetic mouse models, but also astrocyte biology and neuroscience knowledge. Throughout my career I have also developed my independent thinking, project management skills, and leadership qualities.

My main scientific-technical achievements are the result of my research on the hypothalamic regulation of energy homeostasis. Specifically, I described the key role of hypothalamic ceramide-induced lipotoxicity (and ER stress) in the regulation of energy balance and its relevance in the development of diabetes and obesity. Moreover, I have also discovered several unprecedented central pathways through which estrogens regulate BAT thermogenesis and feeding behavior. Recently, my work has also involved human neonatal thermogenesis physiology and the role of astrocytes on metabolism.

As result, I have published 28 peer-reviewed papers (17 as 1st author, and 6 as corresponding author) including 10 contributions in high-profile journals: 3 Cell Metab (1 as 2nd author), 3 Cell Rep (2 as 1st author), 1 Diabetes (1st author), 1 Nat Commun (1st author), 1 Nat Metab, 1 Nat Rev Endocrinol (1st author). I am the author of 1 book chapter. I have presented 23 contributions in 14 international and 9 national congresses (4 invited talks). I have an H-index=14, and >1100 citations (January 2022, Google Scholar). I participated in 3 outreach activities to promote science in society.

I have been awarded with 2 PhD and 2 Postdoctoral fellowships attracting >250K in independent competitive funding from national and international funding agencies. I have participated in 5 national and 5 international competitive projects (2 ERC Starting Grants), 2 of them as PI (Humboldt and Marie Curie research costs). I have established international collaborations with researchers from USA, Sweden, France, Portugal and Germany institutions.

I mentored 2 PhD students (USC and Helmholtz) and several master students. I gave lessons (90 hours) at the School of Pharmacy and Biology (USC). I am officially accredited as Profesor Contratado Doctor, Profesor Ayudante Doctor y Profesor de Universidad Privada by ANECA since 2020.

I have served as a reviewer in >15 scientific journals since 2014, for instance: Mol Metab, Metabolism, Neuroendocrinology, etc. I have participated as an expert external reviewer in the evaluation of researchers and projects for the Spanish National Research Agency since 2018. I have participated as an academic expert evaluator for a PhD thesis (2021) from Rey Juan Carlos University.

Área Temática:	**Biomedicina**
Nombre:	RODRIGUES , PEDRO MIGUEL
Referencia:	RYC2021-034679-I
Correo Electrónico:	pedro.rodrigues@biodonostia.org
Título:	Translational study of non-alcoholic fatty liver disease and cholangiocarcinoma pathogenesis: from diagnosis, to risk factors and therapeutic targets and interventions.

Resumen de la Memoria:

My scientific career has been focused on the study of the liver, from health to disease, like non-alcoholic fatty liver disease (NAFLD) and liver cancer. After finishing my PhD (Cum laude) on the study of NAFLD pathogenesis (Lisbon, Portugal; 2013-2017), I moved to the Liver Diseases Group at the Biodonostia Health Research Institute (Donostia Univ. Hospital, San Sebastian, Spain) to conduct my international post-doctoral studies (03/2018 12/2019). During this period, I was contracted through an EU H2020 project (ESCALON) in which I was deeply involved in the discovery of novel biomarkers and therapeutic targets for hepatobiliary cancers. In the end of 2019, I obtained the very competitive and prestigious Juan de la Cierva and Sara Borrell postdoctoral contracts, from the Spanish Ministry of Innovation and Carlos III Health Institute (ISCIII), respectively, and I am now employed with the Sara Borrell contract (2020-2022). In March 2020, I was positively evaluated by the   Centro de Investigación Biomédica en Red   (CIBER), from ISCII, being accepted as a CIBERehd Investigator. More recently, in 2021, I was awarded as IKERBASQUE Investigator (IKERBASQUE Research Fellow; IKERBASQUE, Basque Foundation for Science), which allowed me to consolidate as an independent Principal Investigator at Biodonostia, and to be able to continue to apply for my own research projects funded by competitive calls.

I have been focusing my lines of research in the study of hepatobiliary cancers. Cholangiocarcinoma (CCA) includes a heterogeneous group of malignancies that can emerge at every point of the biliary tree. Incidence is rising worldwide and CCA already represents the second most frequent primary liver tumor. Patients with CCA are generally asymptomatic in early stages and this cancer is commonly diagnosed at advanced phases, when symptoms associated with biliary obstruction arise. This circumstance extremely compromises the potential curative options. The etiopathogenesis of CCA remains elusive. Consequently, depicting new molecular mechanisms underlying their pathogenesis, aggressive progression and appearance of chemoresistance, as well as the search of new accurate non-invasive biomarkers for early diagnosis and follow up is urgent. Krüppel-like factors (KLFs) comprise a family of 17 transcription factors that are key regulators of tissue homeostasis, organogenesis and cell differentiation but also strongly participate in carcinogenesis. However, the role of KLFs in cholangiocarcionogenesis remains totally unknown.

NAFLD encompasses a spectrum of liver lesions ranging from simple steatosis to non-alcoholic steatohepatitis (NASH), which may further progress to cirrhosis and HCC, substantially contributing to liver-related morbidity and mortality. Furthermore, although still understudied, NAFLD was also shown to increase the risk for CCA development, in parallel with an evident augmented proportion of CCA development in obese patients and in individuals with metabolic abnormalities. Therefore, the study of the exact mechanisms by which CCA arises on a NAFLD background is of pivotal importance. My research group, which contains 6 multidisciplinary scientists, is chiefly focused on studying the molecular mechanisms involved in liver pathobiology (i.e. NAFLD, fibrosis, cirrhosis, HCC and CCA), looking for novel diagnostic and therapeutic strategies.

Resumen del Currículum Vitae:

My research career has been focused on basic research applied to translational medicine, mainly in liver pathophysiology. In July 2017, I obtained my PhD in Pharmacy, from the University of Lisbon (Portugal), resulting in the publication of 2 articles as a first author (Sci Rep and Cell Death & Dis) while collaborating in other projects that resulted in different original manuscripts (8) and 2 bibliographic reviews. In March 2018, I joined the Liver Diseases Group led by Dr. Banales in Spain. During these 4 years, I published 33 manuscripts, including literature reviews as first author in high-impact journals (Nat Rev Gastroenterol Hepatol IF 46.8, J Hepatol, IF 25.1 and Annu Rev Pathol, IF 23.5) as well as several editorials as first/corresponding author (Nat Rev Gastroenterol Hepatol IF 46.8; J Hepatol IF 25.1, Cell Mol Gastroenterol Hepatol IF 9.2, Aliment Pharmacol Ther IF 8.2), among other original papers published in J Hepatol IF 25.1, Gut IF 23.1, Hepatology IF 17.4. Recently, I also published an original article in Cells IF 6.6 as senior/corresponding author. During the COVID19 pandemics, I was involved in the publication of important papers in N Engl J Med (IF: 91.2), Nature (IF: 50) and in J Clin Invest (IF: 14.8). Noteworthy, I was closely involved in the elaboration of the Expert Consensus on CCA (Nat Rev Gastroenterol Hepatol, IF 46.8), which currently constitutes an important hallmark in the field. In summary, I have published a total of 43 papers, from which 36 articles were published in first-quartile, and 22 of them in first-decile journals. I have received several prestigious awards, including the National Scholar Award, from the European Gastroenterology Union (UEG), the Young Investigator Award and the Early Career Investigator Award in Basic Science from the American Association for the study of liver diseases (AASLD). Outstandingly, I received the UEG Rising Star 2022 from the UEG Association, which distinguishes young (<40 y/o) emerging leaders in the field of gastroenterology. Notably, I am PI in active research projects funded by National and International Institutions (Total Number of Projects funded as PI: 7 projects: 457.457), such as the Diputación Foral de Guipuzcoa (Spain), Basque Government, the Spanish Association for the Study of the Liver (AEEH, Spain), the AMMF the Cholangiocarcinoma Charity (UK) and the Portuguese Science and Technology Foundation (Portugal). Notably, as Associate Investigator, I participate in 16 national and international projects funded with a total of 5.8 M . Importantly, I am co-leading important International Projects, such as the ones granted by LaCaixa Foundation (Portugal-Spain; 500.000), PSC Supports (UK; £45.000), PSC Partners (USA; $60.000), the European Association for the Study of the Liver (EASL; 30.000) and H2020 ESCALON Project (500.000). I am also Management Committee Member at: (1) the European Network for the Study of Cholangiocarcinoma (ENS-CCA) and (2) the EURO-CHOLANGIO-NET COST Action (EU H2020). I have reviewed more than 100 articles for scientific journals and I am member of the Editorial Reviewer Board of Cancers (IF. 6.6) and Frontiers in Pharmacology (IF. 4.3). Regarding student supervision and leadership skills, I have supervised 2 master students and 1 PhD student and I am currently supervising 4 doctoral students and 2 post-doctoral researchers.

Área Temática:	**Biomedicina**
Nombre:	BALBOA ALONSO, DIEGO
Referencia:	RYC2021-033131-I
Correo Electrónico:	diebalboa@gmail.com
Título:	Modeling diabetes with human pluripotent stem cells

Resumen de la Memoria:

My research career is focused on the use of human pluripotent stem cells differentiation and transcriptional control of cellular identity to solve scientific challenges about diabetes disease.

I have implemented several approaches to generate pancreatic islet cells from human pluripotent stem cells, which have led to the obtention of functional glucose-responsive stem cell-derived islets that secrete insulin and are remarkable similar to primary human adult islets.

With the rising of CRISPR-Cas9 technologies, I adopted and optimized them to genome edit efficiently human pluripotent stem cells, generating numerous cell lines that carry deletions of diabetes-relevant genes and regulatory regions, correction of point mutations causing diabetes or fluorescent reporter systems to follow the expression of critical stem cell and pancreatic genes.

Fascinated by the versatility of CRISPR systems, I engineered them to generate transcriptional activators based in dCas9 effectors, which enabled the development of a powerful inducible CRISPR activator system. This can be used to reprogram somatic cells to pluripotency with high fidelity or to induce the differentiation of stem cells. These advancements have led to numerous collaborations with academic and industrial partners and the filing of a patent application.

Diabetes disease is a rising pandemic soon affecting 10% of the human population. However, how human genetic variantion leads to the disease remain poorly understood. To tackle this problem, I have developed numerous stem cell-based models to dissect disease molecular mechanisms behind protein coding genetic defects responsible for neonatal diabetes.

I currently work on refining these modeling approaches to ascertain the impact of non-coding regulatory genetic defects in causing more common forms of diabetes. To elucidate the dynamics and cell-type specific usage of regulatory regions orchestrating islet development and function, I have utilized single cell RNA and ATAC techniques to systematically map these regulatory elements. This is resulting valuable novel knowledge that facilitates the understanding of the precise molecular pathogenesis of diabetes, enabling better precision medicine approaches to prevent and combat it.

Resumen del Currículum Vitae:

I studied Biotechnology at the University of León, then moved to Finland to do a PhD at the University of Helsinki, where I worked on the development of stem cell-based models for the study of neonatal diabetes and novel approaches for transcriptional control using CRISPR-Cas9 tools. Since 2019, I have worked at the CRG as an EMBO Long-term postdoctoral fellow, where I lead several projects using stem cell-based models, genome editing and single cell approaches to understand how genetic variation in non-coding regulatory regions leads to diabetes.

Main scientific achievements: a) Generation of human pancreatic islets cells from human pluripotent stem cells: I have worked on the optimization of stem cell differentiation protocols to generate pancreatic islet cells. My latest research study demonstrates the advanced degree of functionality of the stem cell derived islets, supporting their use in further efforts to understand and combat diabetes. Currently, I continue working on the characterization of stem cell derived islets using single cell transcriptomic and epigenomic methods. I am involved in a Human Cell Atlas studying the pancreas at the single-cell level; b) Establishment of stem cell models for the study of diabetes mellitus: I have developed methods to efficiently genome edit human stem cells using CRISPR-Cas9, which have enabled me to generate isogenic mutation-corrected lines for disease modeling. Combined with differentiation to pancreatic cells, they have facilitated the study of the disease molecular mechanisms triggered by mutations linked to diabetes present in different coding genes and non-coding regulatory regions of the genome; c) Development of transcriptional activation methods based in CRISPR for the reprogramming of cellular identity: these approaches make possible the reprogramming of somatic cells to pluripotency state and to induce their differentiation.

I have published 26 research articles (all are open access), 1 in press and 5 in revision. Also, I have presented these results as invited speaker, oral or poster presentation in numerous international scientific conferences like the annual meetings of the International Society for Stem Cell Research or the European Association for the Study of Diabetes. I have been granted funding from an EMBO Long-term fellowship-2019; and. as PI, several small grants from different foundations.

During my research career I have acquired important technical laboratory capabilities as well as skills in conception, conceptualization and management of projects, scientific writing and presentation, grants writing, budgeting and execution. I have supervised 2 PhD students, master students and short-term internship students, and I have trained technicians in stem cell culture and genome editing. I have given lectures at Genome Editing Workshops and Doctoral Program courses. I have also participated in science popularization and dissemination of my research to people with diabetes. In 2019 I was awarded several prizes for my thesis work.

Área Temática:	**Biomedicina**
Nombre:	DUMITRU , ANDRA
Referencia:	RYC2021-032895-I
Correo Electrónico:	acdumitru@cnic.es
Título:	DECIPHERING NUCLEAR MECHANICS IN PATHOLOGICAL CONDITIONS: A MULTI-SCALE PERSPECTIVE

Resumen de la Memoria:

Research Experience

My research focuses on the application of different bio Atomic Force Microscopy in combination with other biophysical approaches to decode the mechanical fingerprints of cellular components in pathological contexts. My intense international research activity in Spanish and Belgian research institutes exposed me to outstanding scientific environments, which motivated me to fund my research through competitive programs (JAE-Predoc, MoveIn Louvain co-funded by Marie Curie Actions, FNRS Charge de Recherche, Juan de la Cierva Incorporacion and Atraccion Talento). I have a very effective research output, with contributions to 25 publications (8 as first/co-first author) published in top nanoscience venues like Advanced Science, Nano Letters, Nanoscale Horizons. I participated in writing a book chapter and three reviews, one as corresponding author and another in Chemical Reviews. My mentoring skills were reinforced by supervising 5 undergraduate, master and PhD students.

Research Interests

My aim is to address biomedical problems relevant for the society, such as diabetes mellitus or laminopathies. I propose a unique approach that combines advanced nanoscopy methods with cell biology and biochemical assays to generate fundamental insights in nuclear lamin organization mechanisms. My research is currently focused on understanding the dynamic interplay between mechanotransduction and lamin isoforms organization in pathological conditions. My solid background in cell nanomechanics is complemented by a strong expertise in molecular biophysics, allowing me to tackle interdisciplinary research topics, such as how force transduction is modulated by lamin A proteins within the cell nucleus. I am currently involved in different studies quantifying lamin A response to mechanical forces in pathological conditions. More broadly, this line of research addresses relevant biomedical problems such as tissue stiffening in diabetes or abnormal nuclear mechanics in laminopathies with a cross-disciplinary approach, which will have a profound impact on the future direction of disease progression and curative strategies of these diseases.

Resumen del Currículum Vitae:

During my research career, I have repeatedly demonstrated high adaptability and mobility, integrating new concepts and skills with smooth transitions. After earning a Master degree in Organic Chemistry, my broad scientific curiosity brought me to change gears from the chemistry field and start a PhD in Physics with one of the top names in the field of atomic force microscopy (AFM), Prof. R. Garcia (ICMM-CSIC, Spain), supported by a JAE-Predoc fellowship.

As a PhD student, I enjoyed a rich research environment and acquired extensive theoretical and experimental expertise for the nanoscale mechanical characterization soft matter. This equipped me with the necessary skills to lead an international collaborative project and implement AFM nanomechanical mapping in situ to study polymer degradation dynamics (Dumitru et al., Nanoscale 2015). As a chemist, I was drawn towards surface functionalization and bioAFM approaches, which motivated me to embark on a challenging task of setting up AFM-based force spectroscopy methods at the single-molecule and single cell level in the lab. This new research line sparked several collaborations, leading to several high-impact articles of molecular recognition studies (Dumitru et al., Nanoscale 2015; Casalini et al., ACS Nano 2015; Vilhena et al., Nanoscale 2016). The strong theoretical and interdisciplinary skills acquired in the lab of Prof. R. Garcia allowed me to successfully transition to a postdoctoral position in nanobiology, supervised by Prof. D. Alsteens (UCLouvain, Belgium) and funded by 3 competitive postdoctoral grants. Here, I integrated my expertise in cell nanomechanics by opening a new line of research in the group and successfully implementing nanoscale multiparametric imaging for soft matter (Dumitru et al. Adv. Sci., 2020, 7, 2002643; Dumitru et al. Nanoscale Horiz., 2018). I also expanded my skillset to image single proteins and living cells at high resolution, while mapping the mechanical or biophysical interactions (Dumitru et al. Nano Lett., 2021; Dumitru et al. Commun. Biol. 2020; Dumitru et al. Chem. Commun. 2018; Koehler et al. Nat. Commun. 2019; Eubelen et al. Science 2018).

I was recently awarded two prestigious Spanish fellowships, Juan de la Cierva Incorporacion and Atraccion de Talento to lead a project that focuses on the mechanical regulation of nuclear lamin proteins in pathogenic conditions. My background in mechanical profiling of cells is unique at CNIC, where AFM-based cell nanomechanics approaches are missing. Being hosted by CNIC is a key strategic move towards my goal of establishing an independent research line and a research niche. My intense international research activity exposed me to outstanding scientific environments, which motivated me to fund my research through competitive programs amounting a total of 500 k .

My aim for this path-to-independence stage of my career and beyond is to address biomedical problems relevant for the society, such as diabetes mellitus and laminopathies, with a cross-disciplinary approach that combines state-of-the-art cell nanomechanics with single-molecule techniques, protein biochemistry and animal models. This Ramon y Cajal grant will allow the me to transition into an independent researcher position, providing me the necessary training required to reinforce my profile as a leading biophysicist in Spain and worldwide.

Área Temática:	**Biomedicina**
Nombre:	PEREZ-HERNANDEZ DURAN, MARTA
Referencia:	RYC2021-032735-I
Correo Electrónico:	martaphd@hotmail.com
Título:	The role of Fgr kinase in cardiovascular diseases: a novel target?

Resumen de la Memoria:

My main scientific interest is to understand the mechanisms that alter the homeostasis of the heart in different cardiomyopathies. Cardiovascular diseases are by far the leading cause of death around the world (estimated 18 million deaths in 2019), and even though the term englobes many different pathologies, there is an urgent need to understand how the heart functions at a holistic level to improve current treatments. Throughout my scientific career, I have learned multiple techniques that have enabled me to approach cardiomyopathies from different angles. To understand the heart at every level, I have studied one by one all its most elemental characteristics.

I did my PhD (2012-2017) in cardiac electrophysiology and pharmacology at Universidad Complutense (School of Medicine). I gained strong knowledge in cardiac ion channels, responsible for the electrical activity of the heart, and how mutations in these genes are associated with arrhythmias and sudden cardiac death in patients with a structurally normal heart.

I then moved to the US as postdoctoral fellow at New York University (2017-2021) to keep learning about the heart and the importance of calcium homeostasis for the proper contraction of the cardiac muscle. In the process, we implemented super resolution imaging methods to study protein interactions at a nanomolecular level.

In August 2021, I joined the CNIC to study another fundamental characteristic of the heart: mitochondria metabolism. Altered mitochondrial function associates with multiple cardiomyopathies.

Throughout my career I have learned techniques such as molecular and cellular biology, patch-clamp, imaging (confocal, super resolution microscopy and complex image analysis), hiPSC manipulation and animal models, as well as bioinformatics (RNAseq and R programming). I have complemented that experience with other relevant activities like grant writing, reviewing publications, oral presentations, teaching assistance (3rd year Medicine students) and supervision of other lab members (junior Postdocs and students).

This combination of skills and tools, and all the steps that I have taken in my career, have given me a strong background to pursue an independent path in the cardiac field, and specifically to accomplish the research line proposed, which aims to study the role of Fgr kinase in the heart, that will ultimately guide future treatment strategies.

Resumen del Currículum Vitae:

For the last ~10 years, I have become increasingly passionate about the complexity of the heart and the mechanisms behind cardiomyopathies. Given that they are the leading cause of death, my main interest is to increase knowledge that will allow an improvement in their treatment.

I first studied one of the heart¿s most remarkable characteristics: the electrical impulse. I did the PhD in cardiac electrophysiology with Prof. Tamargo. My thesis project analyzed the functional interaction between two cardiac ion channels and the consequences in Brugada syndrome, disease associated with high propensity of sudden death (Matamoros-Pérez-Hernández et al, Cardiov Res, 2016; Pérez-Hernández et al, JCI insight, 2018; Ponce-Balbuena et al, Circ res, 2018). These studies offered a novel paradigm about the molecular mechanism of arrhythmia susceptibility. The work was presented in multiple congresses. It led to fruitful international collaborations. I did two research visits to University of Michigan with Prof. Jalife and University of Bern with Prof. Abriel. Moreover, we collaborated with Hospital Gregorio Marañón, which provided us with atria samples of atrial fibrillation patients (e.g. Pérez-Hernández et al, Cardiov Res, 2016). The translational value of our research has been a priority, and our group was pioneer in creating the ITACA Consortium with 7 hospitals in Madrid. We received the Almirall Award and the BBVA Award. My training was complemented with teaching assistance to Medicine students. I was also member of the Red Heracles and SEF. I finally presented my thesis in 2017 (cum laude and   Premio extraordinario).

I then moved to the US to Prof. Delmar¿s lab at New York University with two fellowships (Rafael del Pino and Heart Rhythm Society). I learned superresolution microscopy which led to many collaborations (e.g. Marchal-Pérez-Hernández et al, Circ res, 2021; Quijada et al, Nat Com, 2021; De Smet et al, JCI, 2021). Superresolution allows to decipher protein interactions at a nanomolecular level, and we started implementing it in 3D and in live cells. Importantly, we defined a functional interaction between sodium channels and mitochondria (Pérez-Hernández et al, Circ res, 2021). We also unraveled the mechanisms that lead to cardiomyopathy in a mouse model of arrhythmogenic cardiomyopathy (Kim et al, Circulation, 2019; Pérez-Hernández et al, Front Phys, 2021; Cerrone et al, Eur Heart J, 2022; Pérez-Hernández et al, Circulation, in revision R1). The latter has been submitted for the Young Investigator Award at the HRS and at the SADS Foundation. We actually propose novel anti-inflammatory and antioxidant treatments to reduce myocardial damage. Moreover, I have been actively involved in the Leducq in which Prof. Delmar is co-PI: I did two research stays in Amsterdam Medical Center and in Utrecht University; and I have presented my work in all Sessions. I have also supervised students and trained PhD fellows. I am a Review Editor for Frontiers in Pharmacology.

Intrigued by the effect of anti-inflammatory and antioxidant in cardiomyopathies, I recently moved back to the CNIC with an Atracción de talento to Prof. Enríquez lab, who is an expert in mitochondria.

In summary, I am confident that my passion and favorable results to fully comprehend the heart s biology have given me a solid background to become an independent researcher.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biomedicina**
Nombre:	DE BARRIOS BARRI, ORIOL
Referencia:	RYC2021-031197-I
Correo Electrónico:	odebarrios@carrerasresearch.org
Título:	Targeting epigenetic regulation in early lymphopoiesis: towards precision medicine in B cell malignancies

Resumen de la Memoria:

From 2011 to 2017, I conducted my PhD Thesis at Gene Regulation of Cell Plasticity Lab (IDIBAPS institute, Barcelona), under the supervision of Dr. Antonio Postigo and Dr. Antoni Castells. The main goal of my Thesis was to define the role of ZEB transcription factors in colorectal carcinoma (CRC), dissecting the mechanisms through which they promote distinct cancer hallmarks and identifying entry points to interfere with its function for the development of potential therapies. During the PhD studies, I made fundamental contributions to the knowledge on this topic and, through the publication of 3 original articles as first author, I described how ZEB1 promotes CRC cells malignancy by inducing key cancer hallmarks, like invasiveness, senescence evasion and inflammation. Moreover, I performed relevant contributions to further studies of the group, such as describing the cooperation between ZEB1 and Wnt signaling pathway and why tumor-associated macrophages require ZEB1 presence to promote cancer progression. Globally, my PhD thesis results have set ZEB1 as key driver of CRC progression through a plethora of simultaneous mechanisms that endow tumor cells with enhanced malignant properties.

In March 2018, I joined the Cell Differentiation group at IDIBELL institute (Barcelona), led by Dr. Maribel Parra, which in late 2019 moved to Josep Carreras Leukaemia Research Institute (IJC, Badalona), renamed as Lymphocyte Development and Disease group. During my postdoctoral training in Dr. Parra s lab, I have broadened my knowledge in molecular biology of cancer towards the hematologic field, specializing in the mechanisms underlying early B lymphocyte development and how their disruption leads to the onset of blood malignancies, such as leukemia. In fact, I have defined the epigenetic modulator HDAC7 as a prognostic biomarker in infant leukemia, setting it as potential candidate for novel precision medicine therapies. Remarkably, I have unveiled that HDAC7 is associated to an improved outcome in an aggressive and ultra-rare subtype of infant pro-B acute lymphoblastic leukemia (pro-B-ALL). Moreover, expression of HDAC7 blocks oncogenic properties and resistance to conventional chemotherapy in this set of patients.

In 2020, I was awarded a Postdoctoral fellowship from Asociación Española Contra el Cáncer (AECC), which has allowed me to pursue my research career on infant leukemia for the last two years. Remarkably, I have already identified a combinatorial therapy with HDAC7-inducing activity, that can be potentially applied to other hematologic malignancies beyond infant leukemia. The European Patent request for this therapy was filed in 2021. In consequence, the future research lines of my career are: i) to implement the already patented combinatorial therapy in clinical practice for the treatment of infant pro-B-ALL, ii) to define immunotherapy candidates in infant leukemia for potential use of CAR-T therapy and, iii) to identify further therapeutic options with HDAC7-inducing activity in B cell malignancies beyond infant leukemia. Being awarded with a Ramón y Cajal contract in this 2021 call would constitute an essential step to consolidate my research career and would provide me the long-term stability, as it is desired to fulfill the ultimate goal of translating laboratory findings in this field into the clinics.

Resumen del Currículum Vitae:

After obtaining the Pharmacy degree at University of Barcelona (UB) in 2010, I carried out my Master in Biomedicine s project (UB, 2010-2011) in Gene Regulation of Cell Plasticity Lab, at IDIBAPS research institute (Hospital Clínic, Barcelona), under the supervision of Dr. Antonio Postigo. In 2011, I was awarded a predoctoral F.P.U. fellowship in the same research group. The results obtained during my PhD studies resulted in the publication of 3 original articles and a bibliographic review as first author, in high impact journals. Moreover, I was involved in the publication of another review and 3 additional articles, published in worldwide recognized journals. I also collaborated in two publications with international researchers; one of them, derived from a 6-month stage at University of Copenhagen (Denmark). Finally, I defended my PhD Thesis in February, 2017, that received a Doctorate Extraordinary Prize from University of Barcelona. Later on, I remained as postdoctoral researcher at Dr. Postigo s lab until December 2017.

In March 2018, I joined the Cell Differentiation group at IDIBELL research institute (Barcelona), led by Dr. Maribel Parra. Some months later, I received a competitive Juan de la Cierva-Formación 2017 grant from the Spanish Ministry of Science for the period 2019-2020, to investigate on an adverse prognostic subtype of infant acute lymphoblastic leukemia. In August 2019, Dr. Parra s group moved to Josep Carreras Leukaemia Research Institute (IJC, Badalona), changing its name into Lymphocyte Development and Disease group. During this period, I have contributed as first author to the publication of two bibliographic reviews and one original article, published in 2021 in one of the main journals in leukemia research field. In December 2020, I received a prestigious 4-year Postdoctoral Fellowship from Asociación Española Contra el Cáncer (AECC), providing me with a long-term contract to pursue my research on infant leukemia. In parallel, I was awarded a Juan de la Cierva-Incorporación 2019 grant, declined due to funding overlap with AECC fellowship.

During my postdoctoral training, I have gained skills in the preparation and writing of scientific projects, submitted to competitive calls, such as Health Research Project (Instituto de Salud Carlos III, Spanish Ministry of Science), awarded to Dr. Parra in 2021. In addition, I have co-directed my first Master s Project (Master in Biomedicine, University of Barcelona) and I am co-supervisor of the Thesis Project of Mar Gusi, PhD student in the lab.

In terms of technology transfer activities, the results of the project have led to the identification of a promising combinatorial therapy for poor-prognosis infant leukemia, with potential applicability in other hematologic malignancies. The European Patent request for this precision medicine therapy was filed in 2021, in order to industrially protect the finding. Moreover, I have been involved in applying to competitive calls on innovation and transfer field. The project has been awarded a Gínjol CERCA grant from the Catalan government and reached the final stage in CaixaImpulse

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Validate 2021 call. I plan to continue with my training on this field during forthcoming years, with the final aim of transferring lab knowledge to the clinics.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biomedicina**
Nombre:	COLLADO DIAZ, VICTOR
Referencia:	RYC2021-034540-I
Correo Electrónico:	victorcdiaz@gmail.com
Título:	Study of the inflammatory process. Collector entry as a new pathway to modulate the immune response.

Resumen de la Memoria:

My research career has been directed towards academia from a very long time. I chose to study the inflammatory process, focusing in Neutrophils and Dendritic cells due to its great clinical relevance. My PhD, in which I studied the vascular inflammation associated with Abacavir - one of the most common drugs in antiretroviral therapy - led to five different publications (two as a first author) where I described the mechanism of action by which this drug produces cardiovascular toxicity. The discovery of this mechanism modified the guidelines in the HIV treatment by not recommending Abacavir to patients with cardiovascular risk. During my PhD I stablished many collaborations to study the inflammatory processes associated with other drugs (i.e against Psoriasis) that led to three publications. A 5-month internship in Harvard Medical School entices my curiosity for the Immunology field. Thus, I joined Prof. Cornelia Halin group at ETH Zurich as a postdoctoral researcher. I continued studying the inflammatory process, focusing in dendritic cell migration through lymphatic vessels. Hence, I discovered a new route of migration, where dendritic cells can migrate through lymphatic collectors, which serve as a fast route to arrive to the lymph nodes for a more efficient immune response. My current research is focused in the functional relevance of this new pathway that can be used to modulate the immune response. Moreover, I have collaborated with several research groups studying the molecular mechanism of leukocyte migration in inflammation. All this work has resulted in six publications: two as a first author, one as a second author in the prestigious Journal of Science Immunology and two reviews as a first author.

Overall, having made many clinically relevant discoveries, leading research projects including many collaborations, supervising students, and having teaching responsibilities, entitles me to become an independent investigator under this program.

Resumen del Currículum Vitae:

I graduated in Pharmacy (2012) with first class honours at the University of Valencia. I obtained my master degree and my PhD in 2018 with the highest qualification. During my doctoral thesis I did a 5-months internship at Harvard Medical School, the 5th best university in the world. My work as a PhD finished with the discovery of the mechanism of action of the vascular toxicity of Abacavir, one of the most used drugs against HIV. This result lead to the modification of the official guidelines about HIV treatment. The importance of these findings dragged the attention of GILEAD SCIENCES which financed this research. My doctoral thesis led to 8 different scientific articles in the field of Infectious Diseases, such as AIDS, Journal of Infectious Diseases and Frontiers in Pharmacology, the majority of which are in the first decile or quartile of their category, two of them as a first author. After completing my PhD, in 2019, I joined the group of Prof. Cornelia Halin at the department of Immunology (ETH Zurich) as a postdoctoral researcher, in order to studying different pathways of dendritic cell and neutrophils migration through afferent lymphatic vessels. At ETH I discovered a new route of migration of DCs through afferent lymphatic vessels which can be targeted to modulate the immune response against different pathogens. As a postdoctoral researcher I have published 8 different scientific articles in the field of Immunology and Cell Biology, such as Journal of experimental medicine, Science Immunology or Immunological Reviews, he majority of which are in the first decile or quartile of their category, 4 of them as a first co-author.

Scientific productivity:

  Co-authored 16 peer-reviewed scientific articles. 6 as a first/co-first author and 2 as a second author. My work has been cited 103 times, giving me an h-index of 6. I have published in several high impact journals including Journal of experimental medicine (first author), Immunological Reviews (first author) and Science Immunology (second author).
  Participated in 45 international and national conferences. Including the SSMVR, AIDS Conferences, Lymphatic forum and CROI

Teaching, supervision and mentoring:

  Lecturer in the course of Pharmaceutical Immunology (Pharmaceutical sciences bachelor) and scientific concepts and methods (Master of Pharmaceutical Sciences) at ETH Zurich.
  Teaching 120 hours of Pharmacology in the University of Valencia
  Speaker of the learning academy   cell and gene therapy   in Novartis Pharma Stein
  Supervision of three MSC theses at ETH Zurich: Tue Nha Tran, Gabrie Maiwaldl and Gabriella Toscano

Awards and funding

  Degree in Pharmacy with   First class honours
  Short-term grant (PhD funding) from   Conselleria d' Educaci , Investigaci , Cultura i Esport , Valencian Regional Government. BEFPI/2017/053
  Post-graduate grant (PhD funding) from   Conselleria d' Educaci , Investigaci , Cultura i

Esport , Valencian Regional Government. ACIF/2015/316

Área Temática:	**Biomedicina**
Nombre:	LUCANTONI , FEDERICO
Referencia:	RYC2021-034092-I
Correo Electrónico:	lucantoni.federico@hotmail.it
Título:	BCL2 proteins interactions and metabolic rewiring as treatment points for colon and breast cancer

Resumen de la Memoria:

My scientific path started in 2011, as a master s student, when I decided to develop work at the edge of cell death and medicinal chemistry. During my master's thesis, I was involved in a project to better understand the interaction network of BCL2 proteins and to find new therapeutic targets for the treatment of cancer. As part of the project Spanish Ion Channel Initiative funded by the Ministerio de Ciencia e Innovación, my project focused on the biochemical characterization of peptides derived from a specific region (the transmembrane domain - TMD) of several BCL2 proteins. Through one year s project I demonstrated a membrane perturbation effects induced by the BCL2 TMD peptides and their relevance as new chemical tools to sensitize tumor cells to chemotherapeutic agents. Thanks to the work and the expertise I developed in the field of BCL2 proteins, In 2013 I have started a PhD in the lab of Prof Jochen Prehn, with a project focused on studying a mathematical model of the BCL2 proteins interactome (named DR_MOMP) and to further study the biology of BCL2 proteins at the mitochondrial level (in triple negative breast cancer - TNBC). After completing my PhD in 2017, I performed a postdoc to complete and expand my work in the field of BCL2 proteins and metabolism. During my 5 years time in Ireland I have found that DR_MOMP is an excellent chemotherapeutic outcome predictor in TNBC in vitro and in patient setting and highlighted that BCL2 and BCL(X)L overexpression improve mitochondrial metabolism and dynamics in breast cancer cells. Moreover, I have found that BCL2 and BCL(X)L selective inhibitors decrease mitochondrial bioenergetics and dynamics and observed that the fission inhibitor MDIVI-1 decreases mitochondrial ATP production and is synergistic when combined with 2-deoxy-D-glucose. From 2019 to 2021, I have developed a research project at the University of Valencia, in the field of drug pharmacology and liver diseases. My work focused mainly on the drug repurposing of Rilpivirine (an agent used for the treatment of HIV) as an antifibrogenic drug, in the context of liver fibrosis. In a 2 years project I have highlighted that Rilpivirine increases autophagy in activated HSC and in livers of mice challenged with a high fat diet or CCl4. Moreover, I have shown that Rilpivirine possess a synergistic effect on the viability of activated HSC, when combined with SV.

In 2021 I moved to the Centro de Investigacion Principe Felipe to carry out a project on BCL2 proteins and breast cancer. Specifically, this research focuses on previous work done by myself with the BCL2 proteins TMDs and also integrates a relevant part of my PhD and Postdoc research in the field of mitochondrial biology and cell death. My current research aims to analyse if MCL1 / BOK (two BCL2 proteins) interactions are appropriate intervention points for the design of new colon and TNBC therapies and to deepen our insight on BCL2 interactome in cancer biology. Additionally, I am trying to address the current lack of 2D/3D-physiologically relevant culture models to reveal new mechanistic insight on metabolic rewiring in several cancer models such as colon and TNBC. Collectively, I have shown a cohesive research plan, as my main line of research, throughout the years, ranged from drug development to cancer research, to Cell death/BCL2 proteins and mitochondria.

Resumen del Currículum Vitae:

I graduated with a Bachelor s degree and Master s degree in cell and molecular Biology at the University of Roma Tor Vergata . In 2011, I was awarded an Erasmus placement grant to develop my thesis in the lab of professor Enrique Pérez Paya s laboratory in Valencia (Centro de Investigacion Principe Felipe), where I published a paper in ACS Chem Biol journal. After graduating from my master s, I moved back to Prof. Perez-Paya lab to start my PhD project, as I was awarded a Santiago Grisolia fellowship. Unfortunately, Prof. Perez-Paya passed away on June 2013 and in September 2013, Prof. Jochen Prehn (chairman of the Physiology and medical Physics department and director of the Centre for Systems Medicine Royal College of Surgeons in Ireland) offered me with a fully funded PhD fellowship as part of the project Irish Cancer Society Collaborative Breast Cancer Research Centre BREAST-PREDICT. After completing my PhD, I was immediately offered a postdoctoral contract by the Irish Cancer Society. In total, I stayed in Ireland for 5 years and I have published 5 first author papers (in highly relevant journals such as Cell Death and Disease, Cell Death and Differentation, Oncotarget, Frontiers in Cell and Developmental Biology and BBA molecular cell research), two additional papers as collaborator and a book chapter. Moreover, I have participated in the dissemination of my results, by collaborating with the national Irish news outlet and the Irish Cancer Society. I was selected to give a thesis in three talk at the RCSI research day, a talk at the Irish National summit in technology and I have participated to several conferences with a talk at the Cell death meeting in Cold Spring Harbor. I have obtained funding by the Irish Cancer Society to attend these conferences and I was involved in the training of a MD-PhD student. Moreover, I have collaborated with several scientists ranging from cancer biology, computational biology and physics. In 2019 I moved to Valencia and obtained a postdoctoral contract in the lab of Prof Rosa Noguera at INCLIVA-Universidad de Valencia. After few months of accepting the above-mentioned position, I have obtained a 2-years postdoctoral fellowship from the GVA to develop a research project in the lab of Prof Juan Vicente Esplugues, in the department of Pharmacology at the University of Valencia. The work developed in the last two years, resulted in several important reviews in the topic of cancer and liver disease, an additional collaboration paper with Prof Francisco Galindo (UJI) and a first author paper, recently accepted in Cell Death and Disease. I have collaborated with Diario Medico , INCLIVA and Universidad de Valencia in order to disseminate my results. More importantly, I have supervised a TFG students in the degree of Pharmacy at the Universidad de Valencia and I have also obtained a position as TFM tutor at the Valencia International University for the master in Epidemiology (where I am currently supervising two master s students). In 2021, I have obtained a prestigious AECC (Asociacion Española Contra el Cancer) postdoctoral fellowship to carry on work in the lab of Dr Mar Orzaez at the Centro de Investigacion Principe Felipe .

Área Temática:	**Biomedicina**
Nombre:	NIETO FONTARIGO, JUAN JOSE
Referencia:	RYC2021-032676-I
Correo Electrónico:	juanjose.nieto.fontarigo@gmail.com
Título:	Translational Research in Airway Diseases: Novel Biomarkers and Pathogenesis Mechanisms of Different Asthma Phenotypes

Resumen de la Memoria:

My goal is to find specific biomarkers of asthma that help to understand the complexity and heterogeneity of asthmatic pathology, identify different patient subsets, and pave the way to novel targeted therapies. I started my scientific career at the BioLympho group, University of Santiago (2014-2019). During that time, I have studied different molecular drivers of asthma pathogenesis (e.g., CD14, CD26-DPP4), whose levels were associated to specific cell subpopulations or asthma phenotypes (Nieto-Fontarigo et al; 2018, 2019). In addition, I have investigated the low abundance serum proteome in rhinitis and different asthma phenotypes, discovering a set of serum biomarkers associated to allergic or non-allergic asthma (Nieto-Fontarigo et al, Allergy, 2020). During that time, I presented 3 national (all of them awarded) and 3 international congress communications, and collaborated with the staff from the University Hospital of Santiago to publish 4 additional articles. In 2019 I have finished my international PhD, with a cum laude mention and I have received the "2018/19 Extraordinary Doctorate Award".

In August 2019, I started a postdoctoral position in Lena Uller¿s group, Lund University (2019-2022; 2 years, 5 months). During this stay, I studied the response of bronchial epithelium to virus in different asthma phenotypes (atopic/non-atopic; T2-high/T2-low) and severities, the effect of several treatments (ICS, Tezepelumab) in this response, as well as new immunopathogenic mechanisms of this disease. As a result, I have already published one work in ERJ (sharing first authorship with Professor Celeste Porsbjerg) and another in Allergy (Cerps et al, Allergy, 2022; accepted), 3 more additional articles are in preparation, and I generated 3 ERS congress communications (1 as first author, 2 as co-author). Finally, I have also performed studies on new treatments for COVID-19, resulting in another article published in Frontiers in Immunology (1st author sharing) as well as 1 poster at ERS congress 2021.

In 2022, I started a postdoctoral position at TRIAD group in FIDIS (Sara Borrell fellowship), collaborating in different projects from Instituto de Salud Carlos III (FIS) and GlaxoSmithKline (GSK), and being PI in one of them (SEPAR). My future career path is to continue using novel -omic approaches to find primary biomarkers and potential therapeutic targets in non-invasive samples (serum/plasma, urine) from patients with respiratory diseases, and validate them in different cohorts and using different in vitro (bronchial epithelial cells, primary T cells, eosinophils) and in vivo (in collaboration with Lena Uller group) asthma models.

Despite this short career, I am convinced that the background acquired over the last years and the international network built gives me enough credit to be an independent group leader and a strong candidate to a RyC grant.

Resumen del Currículum Vitae:

Scientific contributions. My research experience is reflected in the publication of several original articles in high-ranked journals (11 original articles and 1 review, 7 of them as first author), as well as several oral and poster communications to national (5 communications, 3 of them as first author in the Sociedad Española de Neumología y Cirugía Torácica (SEPAR) congress awarded with SEPAR-AstraZeneca prize for best contributions in 2016, 2017, and 2019) and international (7 communications, 4 of them as first author in the European Respiratory Society (ERS) Congress) congresses in the field of asthma and respiratory diseases.

Mobility. During my thesis, I have performed a 3-months research stay in the Respiratory Immunopharmacology unit at Lund University, directed by Professor Lena Uller, and internationally recognised for its contribution to the study of asthma pathology and rhinovirus exacerbation. In this group, I have also started a postdoctoral position in 2019 for 2 years and 5 months. During this stay, I have participated in different translational studies using the established in vitro (primary bronchial epithelial cells) and in vivo (mouse models) experimental models of asthma and rhinovirus-induced asthma exacerbation. I have particularly studied the specific response of bronchial epithelium to virus in different asthma phenotypes and severities, the effect of several treatments in this response (highly translational), as well as new immunopathogenesis mechanisms of the disease. As a result, I have published 1 article as 1st author (sharing 1st; ERJ), 1 co-author (accepted in Allergy); 3 new articles are in preparation phase. In addition, we also performed studies to find new treatments for COVID19 and we recently published 1 paper (1st author sharing) in Frontiers in Immunology.

Leadership. Despite my short research career, I actively participate and have participated in different national and international projects awarded from Instituto de Salud Carlos III (FIS), SEPAR or GlaxoSmithKline (GSK), being principal investigator in one of them. I have intervened as chairman in two poster sessions of the international congress of the European Respiratory Society (ERS2020). I am part of the reviewers' panel for the ERS congress 2022. I have also collaborated as reviewer for several research journals. I have participated in teaching tasks, including the co-direction of a Master Degree Project in Lund University and 180h of oficial teaching in the subjects of the Biological Science Degree such as Immunology, Clinical Biochemistry and Molecular Pathology, and Basic Techniques. I have attended several innovation and teacher improvement courses (57h) and I have participated as Academic member of the Teaching Evaluation Committee of the Science Branch of the DOCENTIA Program. In June 2019 I have finished my Ph.D. with the highest qualification "Cum laude" and "Internacional Mention". Moreover, I have been granted with the "2018/19 Extraordinary Doctorate Award". Nowadays, I am accredited for the figure of Doctor Assistant Professor by the Quality Agency for the Galician University System (ACSUG). In 2021, I was granted with Sara Borrell postdoctoral fellowship (starting 01/01/2022) in the TRIAD group of FIDIS.

Área Temática:	**Biomedicina**
Nombre:	MORENO TORRES, MARTA
Referencia:	RYC2021-031346-I
Correo Electrónico:	marta.moreno7@gmail.com
Título:	Molecular mechanisms behind nutrient signaling pathways and its impact in metabolic diseases

Resumen de la Memoria:

My research has focused on understanding the molecular mechanisms behind nutrient signaling pathways and its impact in cancer and metabolic diseases. For that, I have got skilled in biochemistry, molecular and cellular biology techniques as well as state-of-the-art mass spectrometry 'omics' technologies that allowed me to augment knowledge in three central areas:

i) Coordination of cell growth with cell cycle: Of great interest I found novel TORC1-dependent regulatory mechanisms controlling G1/S cell cycle progression in coordination with nutrient availability. These outstanding results contribute to our basic understanding of a wide number of cancers associated with hyperactive mTORC1 and to the development of diagnostic/therapeutic tools.

ii) Metabolic diseases: I combined multiple omics approaches to profile systems-wide tissue-specific effects on metabolism upon diet-induced obesity (DIO) and upon inhibition of de novo sphingolipid synthesis. I identified lipid species correlated with insulin resistance and glucose tolerance. Specifically, I found that increased sphingolipid synthesis massively augments phospholipid levels and enhances glucose uptake and metabolic flux in brown adipose tissue. I provided the research community the most detailed lipidomics analysis of DIO that serves as a resource for further mechanistic studies of obesity and sphingolipid functions.

iii) Translational liver research: My actual research line is based on the joint analysis of bioanalytical information from multiple platforms (e.g. metabolomics, lipidomics, proteomics, miRNA) and clinical data using novel chemometric and machine learning approaches. We are identifying effective biomarkers and phenotypes for personalized therapy surveillances, diagnosis and prognosis evaluation in different clinical areas such as hepatology and liver transplantation.

The results of my research have been disseminated in 11 conferences/meetings (1 of them as invited speaker).

Scientific Output: I authored 12 articles and 1 book chapter in scientific journals including: Nature Communications, Ang Chem Int Ed. and Cell Metabolism. 8 articles as first author; 7 articles in the first Quartile (Q1) and 3 in first decile (D1) journals (83% in D1/Q1). These works have been cited 329 times, 59 cites/year since 2019.

International Research and Collaboration: Short and long-term research stages in international research centers in Germany, Spain, Ireland, Switzerland and Denmark. Active collaborations with international research groups including Dr. Granemman (Wayne University, USA), Dr. Ejsing (Syddansk Universitet, Denmark), Dr. Gerhart-Gines (University of Cophenague, Denmark), Dra. Pareja (Hospital Peset, Spain), Dra. Verfaillie (KU Leuven, Belgium), Dr. Ian Cotgreave (RISE, Sweden) and Dr. Lluis Vinas (KU Leuven, Belgium). Researcher in 2 european projects (EU-ToxRisk y ONTOX).

Mentorship and teaching (divulgation): Supervisor of 3 Bachelor thesis and 3 Master Thesis and lecturer and teaching assistant in a total of 967 hours in different national and international universities. Accredited as a PhD Lecturer by ANECA in 2021.

Leadership and research management: Principal investigator in 2 competitive projects from Spain and Denmark with an overall budget 254.220 .

Translational research: Named inventor of a patent sold to Senolytic Therapeutics for its commercialization.

Resumen del Currículum Vitae:

I finished my bachelor degree in Biotechnology performing research stays in the Technische Universität München (TUM, Munich, Germany) and the department of Biotechnology of the Polytechnic University of Valencia (UPV, Valencia, Spain). After that, I did my master in Biomedical Biotechnology with research stays at the Institute of Cellular and Molecular Biology of Plants (IBMCP, UPV-CSIC) and at the National University of Ireland (NUIG, Galway, Ireland). During that period I was awarded with two student fellowships, published two articles and participated as an inventor of a patent.

I decided to continue my research in nutrient signaling pathways with an international PhD, so I moved in 2012 to the Université de Fribourg (UniFr, Fribourg, Switzerland). I obtained a fellowship for partial funding of my pre-doctoral studies from Novartis, published two articles as first author and participated for 269 teaching hours as lecturer. After my PhD, I was awarded in 2016 a highly competitive 2-year postdoc fellowship (161.220) from the Danish Diabetes Academy, and I moved to Syddansk Universitet (SDU, Odense, Denmark) to perform my research in mice models and cell lines and to learn state-of-the-art mass spectrometry instrumentation. I established a number of fruitful collaborations with international groups, participating in research lines that provided me a deep insight in metabolomics and expertise on mass-spectrometry instrumentation. I collaborated with Prof. Granneman, Wayne State University (USA), PhD. Gerhart-Hines, University of Copenhagen (DK) and PhD.Christer Ejsing, SDU (DK). Once my fellowship finished, my contract was extended for 8 additional months. I published one book chapter and two journal articles, and two other have been submitted/prepared for publication. I was also involved for 686 teaching hours as lecturer in different courses.

In August 2019 I joined the Health Research Institute Hospital La Fe (IISLAFE, Valencia, Spain) were I achieved a competitive postdoctoral contract funded by the EU-ToxRisk European project H2020. In July 2020 I continued my research within the same group funded by a Juan de la Cierva Incorporación fellowship. I have published 6 scientific articles (4 as first author), supervised one master and one bachelor thesis, and lectured 12 teaching hours. Currently, I also participate in several research collaborations with Dra. Pareja (Spain), Prof. Verfaillie (Belgium), Prof. Gotreave (Sweden) and Prof. Lluis Vinas (Belgium) and PhD. Kuligowski (Spain).

I am academic member of the board of experts of the Agencia Estatal de Investigación and evaluator of the National Science Center Poland, and peer-reviewer of the journals Infection, Genetics and Evolution and Experimental Biology and Medicine. I am a member of the Nordic Metabolomics Society, and I participate in the Local Scientific Organizing Committee of the conference "Metabolomics 2022" from Metabolomics Society. I am accredited by ANECA as PhD lecturer, Assistant Lecturer and Private University Lecturer.

Área Temática:	**Biomedicina**
Nombre:	ARENAS LAHUERTA, ENRIQUE JAVIER
Referencia:	RYC2021-034368-I
Correo Electrónico:	earenas@vhio.net
Título:	OVERCOMING CANCER IMMUNOTHERAPY RESISTANCE: NEW COMBINATORIAL STRATEGIES TO IMPROVE IMMUNOTHERAPIES

Resumen de la Memoria:

I am a highly motivated PhD with the long-term aim of achieving a research career. I am very passionate about the knowledge regarding cancer disease. I joined Prof. Joaquín Arribas laboratory in 2017, after defending my PhD project in breast cancer at IRB under the supervision of Roger Gomis. Among these years I gained large expertise in molecular and cellular biology that have allowed me to publish 4 articles as first author in high impact factor peer-reviewed journals and award 2 highly competitive fellowships. Now, I am a senior postdoc and Scientific Manager in Prof Arribas group, leading the projects related to Immunotherapy resistance, a recently established research line in our laboratory. Indeed, a manuscript in which I am the corresponding lead author is in second round of revision in the highly profiled journal Cell Reports.

As soon as I defended my thesis, I was strongly committed to work on immunotherapy, which has raised unprecedent expectations in the treatment of virtually every cancer. However, despite some remarkable successes, resistance remains an unsurmountable hurdle. For this reason, in 2017, I decided to start a project with the aim of understanding mechanisms of resistance and to identify novel and more efficacious immunotherapy-based strategies for the treatment of cancer. During my stage at VHIO, I have established a proper model of resistance to T-cell based therapies and identified a novel mechanism of resistance, which I have included in a manuscript, recently published in Nature Communications (2021) and recently a review in Clinical Cancer Research (2021). This project and own future projects have been funded with several competitive grants such as the AECC proyectos coordinados or Breast Cancer Research Foundation BCRF.

Currently I am establishing a research line exploring new vulnerabilities of cancer cells resistant to immunotherapy. After a decade of astonishing progress, immunotherapy has emerged as a breakthrough in cancer treatment, accelerating innovation, changing cancer care and saving lives. However, cancer is still on course to become the leading cause of death worldwide. That s why research cannot stop and there is still a need to continue to tackle the profound and unanswered questions in cancer research. Our laboratory demonstrated that deficient IFN-gamma response through JAK2 downmodulation leads to immunotherapy resistance, highlighting the critical importance of this pathway. Therefore, our results unveil a novel mechanism of resistance to T-cell based therapies, implying the potential use of JAK2 and IFN-gamma response as surrogate biomarkers of response to immunotherapies. In addition, they open the avenue for the screening of therapies that can overcome deficient IFN-gamma response or restore JAK2 levels, which are promising potential candidates to increase the benefits of immunotherapies. That is exactly what our goal is, to identify a regulator that could be used as a reliable biomarker of response by performing a genome wide CRISPR screening and an ATAC-seq; and to find a new treatment by performing a FDA-repurposing drug screening library of more than 60.000 chemical compounds.

The feasibility and success of the proposal is guaranteed. The applicant has been working in science for the past 9 years, and his actual research has been very prolific and impactful.

Resumen del Currículum Vitae:

The major highlights of the CV are the publications in high impact journals, the participation in competitive European projects, the award of highly competitive grants and co-director of a PhD thesis.

SCIENTIFIC PAPERS

1. Martínez-Sabadell A; Morancho B; Ruis I; et al; Arenas EJ (AC). (10/ 10). 2022. The target antigen determines the mechanism of acquired resistance to T cell-based therapies Cell Reports. pp.Resubmission invited, under second round of revision. Corresponding lead author.

2. Review. Martínez-Sabadell, A; Arenas EJ; Arribas J. 2021. IFN-gamma signaling in natural and therapy-induced anti-tumor responses Clinical Cancer Research. Accepted, Co-First Author. CCR-21-3226, pp.10.1158/1078-0432.

3. Arenas EJ; Martínez-Sabadell A; Rius Ruiz I; et al; Arribas J. (1/10). 2021. Acquired cancer cell resistance to T cell bispecific antibodies and CAR T targeting HER2 through JAK2 down-modulation Nature Communications. 12-1237, pp.DOI:10.1038/s41467-021-21445-4.

4. Mateo, F.; Arenas, EJ.; Aguilar, H.; et al; Pujana, MA.(2/93). 2016. Stem cell-like transcriptional reprogramming mediates metastatic resistance to mTOR inhibition.Oncogene. pp.2737-2749 DOI: 10.1038/onc.2016.427. Co-First Author. ISSN 1476-5594.

5. Morales, M.; Arenas, EJ.; Urosevic, J.; et al; Gomis, RR.(2/13). 2014. RARRES3 suppresses breast cancer lung metastasis by regulating adhesion and differentiation.EMBO Molecular Medicine. 6-7, pp.865-881 DOI: 10.15252/emmm.201303675. Co-first Author. ISSN 1757-4684.

6. Gawrzak, S.; Rinaldi, L.; Gregorio, S.; et al; Arenas, EJ.; Gomis, RR.(4/ 34). 2018. MSK1 regulates luminal cell differentiation and metastatic dormancy in ER[+] breast cancer.Nature cell biology. 20-2, pp.211-221 DOI: 10.1038/s41556-017-0021-z. Epub 2018 Jan. ISSN 1476-4679.

RESEARCH PROJECTS

1. Redirection of T cells against HER2-driven tumors. GCAEC1917ARRI. Asociación Española Contra el Cáncer (AECC). (FUNDACIO PRIVADA INSTITUT D'INVESTIGACIO ONCOLOGICA DE VALL-HEBRON (VHIO)). 01/11/2019-01/11/2024. 1.000.000 .

2. EDIReX: EurOPDX Distributed Infrastructure for Research on patient-derived Xenografts Horizon 2020 call H2020O-INFRAIA 2016-2017. (FUNDACIO PRIVADA INSTITUT D'INVESTIGACIO ONCOLOGICA DE VALL-HEBRON (VHIO)). 01/01/2018- 31/12/2022. 5.156.198,75   .

GRANTS AND OTHERS

1.   Award of highly competitive grants such as: AECC postdoc, Juan de la Cierva Formación, La Caixa PhD fellowship.
2.   Co-director of the PhD thesis from: Alex Martínez-Sabadell: Identificacion of mechanisms of resistance to immunotherapy. Expected date of dissertation: December 2022.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biomedicina**
Nombre:	DEVIS JAUREGUI, LAURA
Referencia:	RYC2021-034346-I
Correo Electrónico:	laura.devis.jauregui@gmail.com
Título:	Understanding and overcoming cancer metastasis in aggressive endometrial tumors.

Resumen de la Memoria:

During my PhD I studied the role of activated leukocyte cell adhesion molecule (ALCAM) in endometrial cancer (EC) progression (Devis L et al., Journal of Pathology 2017; Devis L et al., Oncotarget 2018, both as co-corresponding author). I also participated in several publications focused on deciphering the mechanisms involved in endometrial cancer metastasis (Pedrola N, Devis L et al., Clin Exp Metastasis 2015; Colas E et al., Oncogene 2012) and in the application of mass spectrometry-based methods for the identification of protein biomarkers to improve endometrial cancer diagnosis (Martinez-Garcia E, Lesur A, Devis L et al., Clin Cancer Res 2017; Martinez-Garcia E, Lesur A, Devis L et al., Oncotarget 2016). In addition, I could present 28 works in national/international congresses. I have also participated in the elaboration of different reviews on endometrial cancer dissemination, as well as on a book chapter (Colas E et al., Clin Transl Oncol 2012; Llaurado M et al., Mol Cell Endocrinol 2012; Reventos J et al., eLS, John Wiley & Sons 2013). In addition, I could participate in the study of the understanding of E-cadherin expression in cell spreading in ovarian cancer (Rosso M*, Majem B*, Devis L et al., Plos ONE 2017).

On 2018, due to my interest in the endometrial cancer field, I accepted a postdoctoral stage in the Dr.David Llobet-Navàs laboratory. From that moment, I have mainly been conducting two main research projects. One of them, is a project focus on miRNA 424(322)/503 cluster and its role in adipose tissue. We evidenced for the first time that miR-424(322)/503 targets γ-Synuclein (SNCG), a factor that mediates this program rearrangement by controlling metabolic functions in fat cells, allowing adipocyte differentiation and adipose tissue enlargement (Rodriguez-Barrueco R*, Latorre J*, Devis L* (*co-first author) et al., Adv Sci. 2022). We also unveiled an unknown link between the miR-424/503, regulation of Wnt signaling, mammary epithelial stem cell population (MaSCs) expansion, and breast tumorigenesis (Nekritz A E et al., EMBO Rep. 2021).

The second project is a new research line that I started in the group, which nowadays, is my main research line: deciphering key genes involved in anchorage-independent survival in metastasis-initiating cells in highly aggressive EC. Thanks to my work, we elucidated a list of specific target genes, opening diverse and completely novel lines. The process of detachment from the primary tumor, when the epithelial cell loses its attachment to the extracellular matrix (ECM), represents the first line of defense against tumor dissemination. After detachment from ECM, to survive, tumor cells must adapt to multiple external stresses. Thus, anchorage-independent survival, avoiding various forms of cell death, such as anoikis, autophagy (Devis-Jauregui L et al., Autophagy 2021), cell cycle arrest, is essential for the success of metastasis. The objective of this project is the identification of the key genes involved in anchorage-independent survival in gynecological tumors, and their exploitation as therapeutic targets. To do this, we combined RNA-sequencing from anchorage-independent hyper resistant generated cell lines (gain-of-function) and a genome-scale loss-of-function screening (CRISPRi), future studies in preclinical mouse studies and primary samples (primary tumors and liquid biopsies).

Resumen del Currículum Vitae:

My scientific career started at Dr. Jaume Reventós laboratory in 2011. I pursued an International PhD in Cell Biology (Excellent Cum Laude) at the Universitat Autónoma de Barcelona (2017), which was awarded with the Special Award for Doctoral Studies. My thesis was framed in the field of endometrial cancer and was performed at the Vall d Hebron Research Institute (VHIR) in the Group of Biomedical Research in Gynecology (Barcelona, Spain). During this period at VHIR, I published 9 scientific papers (2 of them as first and co-corresponding author) and 1 book chapter.

I also performed two international internships. First internship was conducted in the Institut Curie (Paris, France) at Dr. Sylvie Dufour s laboratory: Biophysical and molecular basis of cell adhesion and migration , in collaboration with the Colby-Sawyer College (USA) (I was awarded with a RTICC Spanish network for cooperative research in cancer). This work led to the publications Devis L et al., Journal of Pathology 2017 and Devis L et al., Oncotarget 2018, both as co-corresponding author. Second internship was completed in the Institute of Biology and Experimental Medicine (IBYME, Buenos Aires, Argentina). It was performed under the Marie Curie International Research Staff Exchange Scheme (IRSES) framework, in collaboration with Dr. Mónica Vázquez laboratory: Studies on cell-cell interaction in reproduction and cancer models this leading to the publication Rosso M*, Majem B*, Devis L et al., Plos ONE 2017.

With the experience acquired in the endometrial cancer field I started a Postdoctoral position at Dr. David Llobet-Navás laboratory, at the Bellvitge Biomedical Institute (IDIBELL, Barcelona, Spain) from 2018 to date. During this period as Postdoctoral researcher I achieved promising preliminary results that we expect to publish in high impact journals and that open the avenue to several future works. I already published 6 scientific papers (2 of them as first and co-first author in 2021: Devis L et al., Autophagy IF 16.06, Barrueco-Rodríguez R et al. Advanced Science IF 16.8 -please check the "Author Contributions" section in this last publication-) in high impact journals, and I acquired valuable skills ideal to lead my own line of research. Importantly, I have grown as a researcher, developing leadership aptitudes by co-supervising two Master thesis, as well as in the academic field by earning a position as Adjunct Professor in the University of Barcelona (UB, Barcelona, Spain).

In summary, during my research activity, I have contributed to providing novel insights in cancer research by publishing 15 scientific articles (including Advanced Science, Autophagy, Oncogene, Clinical Cancer Research, Clinical and Translational Medicine, EMBO reports, The Journal of Pathology), 4 of them as first or co-first author (2 as co-corresponding author). Moreover, I have published 1 chapter of international publisher. I have presented 30 communications in national and international meetings. I have participated in 9 research projects of national or internationals scope.

Finally, I have been co-director of 2 Master s students, and I have acquired academic experience by teaching Cell Biology to Medicine, Dentistry and Biomedicine degrees.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biomedicina**
Nombre:	BARCENA FERNANDEZ, CLEA
Referencia:	RYC2021-031291-I
Correo Electrónico:	cleabarcena@gmail.com
Título:	Unraveling the molecular mechanisms of ageing and age-related blood malignancies

Resumen de la Memoria:

Feeling fascinated by the crosstalk between genes and health, I started my PhD in 2011 with Prof. López-Otín aiming to deep in the genetic, cellular and molecular causes of aging by using murine models of accelerated aging. During my PhD I explored the genetic bases of aging syndromes by performing exome sequencing and identifying a novel mutation in PIK3R1 as the genetic cause of an aggressive form of Short syndrome (Barcena et al., BMC Med Genet, 2014); successfully studied the effect of dietary methionine restriction (MR) in progeroid mice, observing an extension of healthspan and lifespan and a novel connection between MR and bile acids (Barcena et al., Cell Rep, 2018); and characterized the gut microbiome of human and mouse aging, proving that its external manipulation can positively affect health and longevity (Barcena et al., Nat Med, 2019). In 2014, I was awarded a short-term EMBO fellowship to spend 3 months in the lab of Dr. Feng Zhang at the Broad Institute, where I participated in the design and generation of a CRISPR/Cas9 activation tool (Konermann et al., Nature, 2014). During my PhD I also collaborated in other works from my home lab related to inflammation and aging, mitochondrial proteases and autophagy, plus some international collaborations with other labs; and wrote 2 book chapters, a Methods, 2 article commentaries, and a review. In 2017 I completed my PhD with summa cum laude, International PhD mention and Extraordinary doctorate award. In December 2017 I had my firstborn and in October 2018, after being awarded a long-term EMBO fellowship, I joined Prof. George S. Vassiliou laboratory as a postdoctoral fellow with the aim of exploring clonal haematopoiesis (CH), a process in which an expansion of individual blood stem cells and their progeny occurs. This phenomenon is highly associated with age and with the development of haematological diseases and is driven by somatic mutations in genes such as DNMT3A, TET2 or ASXL1. To carry out this project I was awarded a project grant from Kay Kendall Leukaemia Fund as co-applicant with my supervisor. Through the generation of mouse models carrying driver mutations in Tet2 and Dnmt3a together with a transposon-based mutagenesis strategy, I have described the specific genetic landscape associated to the most common TET2 and DNMT3A alterations found in CH (manuscript in preparation). During my postdoc I have also participated in the identification of NMP1 mutations in blood samples from individuals apparently healthy months before they develop a fatal leukaemia (Quiros et al., Blood Advances, 2021); and in the genomic analysis of the UK Biobank cohort to investigate the causes and consequences of CH (Kar et al., medRxiv 2022.01.06.22268846). In October 2020 I gave birth to my second child, being on leave until March 2021. Independently from both my PhD and my postdoc supervisors, I currently participate in a research project from Instituto de Salud Carlos III (PI20/00645). Also, I have co-supervised one Final year project and one Master thesis, and I am currently co-supervising a last-year Doctoral Thesis at Universidad de Oviedo. The Ramón y Cajal Jóvenes Investigadores program would allow me to continue developing my career studying the implication of environmental stimulus on health and disease, particularly in the development of haematological alterations.

Resumen del Currículum Vitae:

I graduated with first class honours in 2010 and joined the lab of Prof. López-Otín during my Master in Cancer Research. I started my PhD in 2011 to study the causes of ageing by using murine models, completing my PhD with summa cum laude, International PhD mention and Extraordinary doctorate award in the summer of 2017. In October 2018, I joined Prof. George S. Vassiliou laboratory as a postdoctoral fellow with the aim of exploring age-related clonal haematopoiesis and its relation to the development of haematological disease.

Scientific production
- 19 publications (12 in the first quartile (Q1))
- Cites: 2,065
    - Average per item: 121.5
    - Average per year: 187.7
- H-index: 11
- Google scholar: h-index 14; i10 index 15; citations 3,027

Key scientific contributions
- Identification of a novel mutation in PIK3R1 as the genetic cause of an aggressive form of Short syndrome (Barcena et al., BMC Med Genet, 2014)
- Generation of a CRISPR/Cas9 activation tool (Konermann et al., Nature, 2014)
- Identification of mechanistic link between autophagy and weight control (Fernandez et al., Cell Death Dis, 2017)
- Methionine restriction in progeroid mice extends healthspan and lifespan, uncovering a novel connection with bile acids (Barcena et al., Cell Rep 2018)
- Characterization of the gut microbiome of human and mouse aging; proved that external manipulation can positively affect health and longevity (Barcena et al., Nat Med 2019)
- Identification of NMP1 mutations in blood samples from healthy individuals months before they develop a fatal leukaemia (Quiros et al., Blood Advances, 2021)

Training and teaching
- 1 Final year project supervised (2016)
- 1 Master thesis supervised (2017)
- 1 Doctoral Thesis currently co-supervising (expected 2022)
- Teaching experience as Ayudante LOU during 3 academic years (2016-2018)
- 1 certified academic triennium

Collaborations in R&D projects
- Project grant Kay Kendall Leukaemia Fund as co-applicant
- Independent collaboration as team member (Proyectos de Investigación en Salud   ISCIII)

International mobilisation
- Short-stay at the Broad Institute (US) during my PhD at the laboratory of Prof. Feng Zhang (3 months)
- Postdoctoral stay at the laboratory of Prof. George S. Vassiliou (Sanger Institute and the Stem Cell Institute of Cambridge, UK) since 01/10/2018 to present (3 years and 4 months)

Fellowships
- PhD:
        - FICYT   awarded in October 2011, declined after 2 months
        - FPU   awarded in December 2011
        - Short-term EMBO fellowship   awarded in 2014
- Postdoc:
        - EMBO long-term fellowship   awarded in 2018

Oral communications
- 1 oral communication at the Keystone Symposia meeting on 'Aging and mechanisms of age-related disease' (Yokohama, Japan, 2017)
- Invited to an oral communication at the Centenarians Symposia CIBEFEES (Donostia, May 2020, cancelled due to the covid-19 outbreak)

Additional activities
- Member of the academic evaluation committee for the Scholarships for Academic Excellence 'Maria Cristina Masaveu Peterson' (2015-17)
- Member of the Green Impact team at the Stem Cell Institute of Cambridge, working to improve the environmental performance of our Institute (since 2021)
- Reviewer in journals such as Nutrients, Scientific Reports and Aging Cell (since 2018)

Área Temática:	**Biomedicina**
Nombre:	MARTINEZ LOPEZ, MARIA
Referencia:	RYC2021-033382-I
Correo Electrónico:	martinezmlo66@gmail.com
Título:	Dendritic Cells: Neuroimmune Sensors

Resumen de la Memoria:

From the beginning of my career, I have been interested in the essential role of the dendritic cell (DC), a particular immune cell that senses environmental signals and initiates the immunological processes, for the host inter-systems coordination to ensure the organism's homeostasis.

Data generated during my PhD indicate that the immune response generated upon any particular challenge depends on the specific DC subset involved. Finding a huge versatility within the conventional DC, where the cDC1 are essential for the anti-viral or anti-tumoral response but dispensable for the anti-parasitic response. In contrast, the anti-parasitic response requires the highly versatile cDC2, which are at the same time maintaining the mutualism host-microbiota.

Our data demonstrated that cDC2 flexibility relies in part on the expression of the sensor Mincle. The C-type lectin receptor Mincle was targeted to manipulate the host immunity, by the parasite Leishmania to impair cDC2 function evading the anti-parasitic response and by the microbiota to reinforce the host-microbiota symbiosis.

My previous work sheds new light on how DC's function is driven by the integration of different environmental signals through several DC-sensing mechanisms controlling the tolerance and immunity balance accordingly.

Therefore, I hypothesize that DC capacity to integrate the surroundings put them at the interface of the neuroimmune axis. In this way, DC integration of nervous system-derived cues affect the nature, the quality and the specificity of the adaptive immunity. On the other hand, DC-derived signals could be perceived by the nervous cells to quickly reinforce or shut-down the host immune response to preserve the homeostasis. Thus, understanding the molecular language as well as the neuronal circuits employed during this neuroimmune dialog has a vast potential to finely-tune the host immune responses.

Resumen del Currículum Vitae:

Over the last years, I have contributed to our understanding of how sensing of environmental signals including pathogens, commensals and tissue damage signals by dendritic cells (DC) impacts on host tolerance and immunity.

My scientific career started at the University of Granada when I achieved a fellowship to join the Department of Cell Biology under the supervision of Dr. David Martín Oliva. Following my graduation in Biochemistry, I moved to the Spanish National Centre for Cardiovascular Research (CNIC) to do my PhD under the supervision of Dr. David Sancho and Dr. Salvador Iborra. We uncovered the relevance of the C- type lectin receptor (CLR) Mincle in DC to integrate the surroundings and modulate the host immune response accordingly. Our results demonstrated that the CLR Mincle in DC is targeted by Leishmania to sabotage the immune system (doi:10.1016/j.immuni.2016.09.012) whereas Mincle recognition of the microbiota modulate DC function to promote the host-microbe mutualism (doi: 10.1016/j.immuni.2018.12.020). This research was awarded with the extraordinary PhD award from the Autonoma University of Madrid (UAM) and the Young Women Researchers Award from Lyceum de Ciencia-Banco Santander.

During this period, I have received in-depth training in immunology, particularly in DC research, and DC-T cell interaction in infections, tumours and steady-state. In addition, the novelty and relevance of these findings let us to obtain two research grants. Additionally, I have established several national and international collaborations (doi:10.1158/2159-8290.CD-15-0510; https://doi.org/10.4049/jimmunol.1800446; 10.1016/j.celrep.2020.108468; 10.1038/s41598-021-85347-7). Notably, I had the opportunity to collaborate with two mucosal immunology experts, Dr. Salome LeibundGut (Zurich, Switzerland) and Dr. Fiona Powrie (Oxford, UK). It increased my technical skills and international network and resulted in two fruitful collaborations (doi: 10.1016/j.immuni.2018.12.020; doi: 10.1016/j.chom.2017.11.002).

In summary, I have uncovered discrete molecular pathways in DC that can be targeted by pathogens to evade immunity whereas at the same time underlie their capacity to combat infection or to promote the host-microbe commensalism in steady-state.

To pursue my career path in Immunology, after my PhD, in 2019, I was awarded an EMBO Long-Term (ALTF 463-2019) and H2020 Widening Fellowships (EU proposal 867431) to study neuro-immune interactions at the laboratory of Dr. Veiga-Fernandes, who is at the forefront of this topic. Since joining Veiga-Fernandes lab, I set out to understand whether the DC can integrate neuronal-derived signals, the molecular pathways underlying this crosstalk and their impact on the host homeostasis, by using an interdisciplinary approach in which we combine cutting-edge technology from neuroscience and immunology to establish their influence to the host physiology. Having collected preliminary data that sustain the proposed research. Notably, I secured an SR&TD grant from the Portuguese Fundacao para a Ciencia e Tecnologia (FCT) as the researcher in charge (PTDC/MED- IMU/2628/2020; 248988,37) to further develop my management and leadership skills.

Área Temática:	**Biomedicina**
Nombre:	PETIT PEDROL, MARIA DEL MAR
Referencia:	RYC2021-031070-I
Correo Electrónico:	mar.petit@gmail.com
Título:	Immune-mediated diseases of the synapse: from symptoms to neuronal receptors

Resumen de la Memoria:

For the last 11 years, I ve been devoted to the understanding of Autoimmune encephalitis, a group of neuro-immune disorders characterized by the inflammation of the brain, neuropsychiatric symptoms and associates to autoantibodies that target the extracellular epitope of different neuronal proteins. The presence of autoantibodies directed to a specific protein, serves as a biomarker and defines the clinical syndrome. My research career has been dedicated in identifying the target antigens in those autoimmune encephalitis that were considered idiopathic, which constitutes 37% of all encephalitis. At the same time, I studied the molecular events that take place in the pathological context of autoimmune encephalitis. I participated in the identification of 3 new target antigens (GABAaR, Neurexin and Sezl6) that constitute 3 different new diseases. By characterizing the target and the clinical symptoms involved, I contributed in defining the clinical presentation and biomarkers associated, which has had a significant impact on the clinical practice.

I demonstrated that the autoantibodies in patients with autoimmune encephalitis are pathogenic, causing brain alterations and, what is more important, these alterations can be restored upon elimination of the autoantibodies. I ve also decipher the downstream consequences beyond the target antigen, and I ve shown that once we understand the molecular changes behind the pathological autoantibodies, we can then develop a specific drug to target it.

My research has filled the gap between clinical neurology and basic neuroscience through the demonstration that observed changes in behaviour, memory loss correlate with changes at the molecular level, which are reversed by eliminating the antibodies.

I've made major advances to our understanding of how autoantibodies can cause neuropsychiatric illnesses, as well significant contributions in therapeutic approaches for preventing those consequences. By investigating the impact of autoantibodies on the subcellular localizations of these receptors and their ramifications on neurotransmission, I've developed a multi-scale method.

Furthermore, the established in vitro and in vivo models in which the application of autoantibodies alters the trafficking and density of specific neuronal receptors provides an interesting scenario in which I can transiently disrupt, with antibodies, the organization and crosstalk between receptors that are critical for brain neurotransmission. Therefore, the implications of these results are beyond AE and can be applied for understanding many other neurological disorders, with a special focus on neuropsychiatric disorders.

Resumen del Currículum Vitae:

After completing my university degree in Biology (2012), I joined the laboratory of Neuroimmunology (IDIBAPS, Barcelona) to pursue Masters and PhD in the field of neuro-immune disorders. In 2018, I obtained my PhD in Biomedicine, in the area of Neurosciences from the University of Barcelona (Barcelona, Spain). In 2020, I moved to Bordeaux (France) at the Institute for Interdisciplinary Neuroscience where I brought my expertise in neuroimmunology while improving my skillsets and knowledge in advance imaging techniques that I am applying to my research.

During this time, I have made significant contributions to our understanding on how autoantibodies can lead to a neuropsychiatric disorder, and providing mechanisms by which those effects can be prevented. I ve disseminated my work in a total of 17 national and international congresses and my work has been translated into 25 articles in high-impact peer-reviewed journals.

My research experience has involved working in different countries (Spain, Denmark, Germany and France) where I had the opportunity of increasing my network in different fields related to neuroscience (clinical neurology, physics, biotech).

I am currently in a position in which I ve proven to have the leading capacities to carry out a research project and coordinate a multidisciplinary team. I have trained and mentored many students and researchers and co-directed a masters project.

My career has been defined by a translational research, demonstrated by an intense intersection of disciplines in the different projects (medicine, biology, physics,) and by a transnational academic and professional mobility, as demonstrated by my previous experience internationally (Spain, Denmark, Germany and France). Obtaining a postdoctoral grant and my experience as a senior postdoc in Bordeaux (France) has been a strategic for launching my career as an independent scientist. It has allowed me to have the needed space to be creative, to establish an extensive network and to consolidate my leadership skills to achieve my goals in research.

My background has enabled me to pursue an independent research career focusing on fundamental brain topics. I am a mid-career researcher who has established myself as an expert in the field of Autoimmune Encephalitis. My expertise in autoimmune neurological illnesses, including cellular and molecular approaches, as well as the knowledge of the underlying biological concerns that remain unanswered puts me in an advantageous position to tackle the next challenges in the field.

Área Temática: **Biomedicina**
Nombre: ALBERO GALLEGO, ROBERT
Referencia: RYC2021-031306-I
Correo Electrónico: robert.albero@gmail.com
Título: Epigenetic characterization and therapeutic vulnerabilities in aggressive non-Hodgkin Lymphoma

Resumen de la Memoria:

Non-Hodgkin lymphoma comprises a group of heterogeneous malignancies. Despite the improvement in survival rates, many aggressive subtypes remain incurable. I am determined to increase our understanding of blood cancer mechanisms and discover new target therapies.

During my PhD I focused on the epigenetic characterization of Mantle cell lymphoma (MCL) in Elias Campo s laboratory in Barcelona. MCL is an aggressive lymphoma with rapid clinical course and with non-specific therapeutic options. Myfirst goal was to clarify the potential contribution of altered DNA methylation in the development and/or progression of MCL. I found that primary MCL displayed a heterogeneous methylation pattern dominated by DNA hypomethylation when compared to normal samples. Our results showed that a subset of MCL displayed changes in DNA methylation and were associated with increased proliferation (Enjuanes*, Albero*,2013).

Cyclin D1 plays a major role in MCL pathogenesis, since it is overexpressed in virtually all cases driven by the t(11;14) translocation. Hence, I hypothesized that cyclin D1 overexpression could contribute to the aberrant epigenetic and transcriptomic profiles of MCL. My work dissected in detail a novel mechanism driven by cyclin D1 causing a global transcriptional donwregulation. More importantly,I showed that these results have a potential application in developing new therapies for MCL (Albero et al,2018). Interestingly, we defined a 37-gene cyclin D1 signature with clinical correlation that validated in different MCL cohorts (Demajo, Albero, 2021).

Following my deep interest in the study of the molecular basis of hematologic malignancies I sought to further develop my epigenetic background joining Ferrando laboratory in Columbia University. There, I have been sharpening my skills in muti-omic data integration and functional and therapeutical validation of epigenetic candidates. In this laboratory my main work consists in the elaboration of a leukemia regulatory atlas, where I dissect the chromatin accessibility architecture of primary T-cell leukemia samples (in preparation). In addition, I participated in the last epigenetic projects of the lab, such as the characterization of GATA3 in the nucleosome remodeling of leukemia enhancers (Belver, Yang*, Albero*,2019), the epigenetic effect of statins on T-ALL cell lines (Rashkovan, Albero, 2021) and the role of PHF6 tumor suppressor in DNA damage response and leukemia epigenetics (in revision).

During my postdoctoral appointment I had the opportunity to work in close collaboration with Palomero lab. My work, focused on the transcriptional analysis of primary samples of T-cell lymphoma samples, showed aberrant transcriptomic profiles with important implications in the pathogenesis and the tumor microenvironment (in revision). Genome wide mutation profiling by the Ferrando and Palomero labs have demonstrated a driver role for mutations disrupting epigenetic regulator in T-cell lymphomas. However, the epigenetic mechanisms and master transcription factor regulators responsible for T-cell lymphomagenesis, and the transcriptional pathways aberrantly activated, remain largely unknown. My long-term goal is to study the epigenetic mechanisms underlying T-cell lymphomagenesis and elucidate novel targetable dependencies.

Resumen del Currículum Vitae:

I majored in Biotechnology (Politechnical University of Valencia,2010) and Biochemistry (Valencia University,2013). During my graduate and undergraduate career I was awarded with multiple grants that allowed me to study a MSc at Cranfield University in the United Kingdom (EUROMOVEX programme) and a MSc in Biomedicine in Barcelona University (La Caixa fellowship for Master in Spain). In 2011 I joined Elias Campo s laboratory at Fundacio Clinic per a la Recerca Biomedica. My PhD was supported by a Formacion Personal Universitario (FPU) fellowship. My main achievement was the identification of a targetable therapeutic mechanism based on the synthetic lethality between cyclin D1 overexpression and transcriptional inhibitors. During my PhD I contributed to four research articles in first decile and first quartile peer-reviewed journals (two first-authored, one second-authored manuscript). I also participated in multiple international and national seminars, and I was involved in multidisciplinary projects in collaboration with Barcelona University and the Pathology Department in the Hospital Clinic.

In 2018 I moved to the Institute of Cancer Genetics (Columbia University) to Ferrando lab. Here, I worked on multiple studies characterizing the epigenetic landscape of T cell acute lymphoblastic leukemia. To date, I have published two second author papers and a review in first decile journals. Currently, I have another second author paper now under revision in Blood and a first-author paper in preparation. In addition and in collaboration with the Palomero lab (Columbia University), I worked in a study in T cell lymphomas as a part of a multi-PI project, now in revision as a second author. My postdoctoral training at Columbia University has been supported and recognized with a Career Development Program from the Leukemia and Lymphoma Society and with a Lymphoma Scientific Research Mentoring Program award by the Lymphoma Research Foundation. These awards currently support my research and training fostering my transition to independence in the T cell lymphoma field.

During my scientific career I have demonstrated a strong commitment with mentoring and teaching. For instance, I mentored several PhD students and technicians. In addition, as a part of my FPU grant I taught in the Biomedical Science degree at Barcelona University. During my PhD I established scientific collaborations with members of other departments, such as Systems Biology department (Columbia University) or the Pathology Department at the Clinic Hospital (Barcelona). These experiences has inspired me to become an independent principal scientist and provide mentoring guidance to my future team.

Área Temática:	**Biomedicina**
Nombre:	CORTES LOPEZ, JOSE ERNESTO
Referencia:	RYC2021-031317-I
Correo Electrónico:	jeclimperialcollegelondon@gmail.com
Título:	Targeting fibrosis to reprogram the tumour microenvironment in pancreatic and liver cancers

Resumen de la Memoria:

Pancreatic ductal adenocarcinoma (PDAC) and hepatocellular carcinoma (HCC) are the most common types of pancreatic and liver cancers, respectively. Both are associated with a strong desmoplastic reaction or fibrosis that surrounds the tumour core and is known as tumour microenvironment. Cancer-associated fibroblasts are the main resident cells in the tumour microenvironment. They adopt the activated myofibroblastic phenotypes and remodel the tissue to modulate tumour progression.

During my research career, I have combined highly specialised biophysical techniques with cell biology and animal models to elucidate cellular signalling pathways leading to new microenvironmental-based therapies in medicine and oncology. These projects highlighted the retinoic acid receptor beta (RAR-beta) and G protein-coupled estrogen receptor (GPER) as main targets for mechanodriven stromal therapies in fibrosis, HCC, and PDAC.

Using all trans-retinoic acid (ATRA) and tamoxifen, to activate RAR-beta and GPER respectively, we suppressed myofibroblast activation and their capacity to remodel the matrix, which in turn creates a microenvironment unfavourable for cancer cell invasion and immune evasion. ATRA and tamoxifen have been used for many years in clinics and have a well-established safety. The newly uncovered RAR-beta and GPER mediated mechanisms open the possibility of repositioning these two drugs as stromal therapy for PDAC, HCC, and possibly other solid cancers. ATRA is undergoing phase II clinical trial in PDAC patients in the UK. Other retinoid and estrogen analogues targeting RAR-beta and GPER, respectively are widely used in clinics. Thus, our findings have also therapeutic value for other diseases with a wider impact on the worldwide population, such as non-alcoholic fatty liver disease and early fibrosis.

More recently, I have worked on elucidating the structure of GPER and the validation of its mechanosensing capacity as a key regulator of the tumour microenvironment. Elucidating the GPER structure is a critical milestone in cell biology and GPER-targeted molecular therapeutics. The idea that GPER is regulated by mechanical perturbation has significant implications in biology and medicine.

Resumen del Currículum Vitae:

I obtained my BSc degree in Biology at the City University of New York in 2012 and immediately after this, I briefly worked at the Barts Cancer Institute at Queen Mary University of London. In 2013, I joined Imperial College London as Research Assistant, where I became interested in the fields of fibrosis and cancer. Based on academic records, in 2014 I was admitted to the PhD program in Bioengineering (part-time) in the same institution. I obtained the PhD degree in 2019.

During my PhD work, I gained a solid background in biophysical techniques that allowed me to tackle fundamental problems in medicine and provided me with the ability to apply physical techniques into biological contexts. I particularly worked on elucidating molecular mechanisms that led to new therapeutic options for fibrosis and cancer. My research projects identified the retinoic acid receptor beta (RAR-beta) and G protein-coupled estrogen receptor (GPER) as fundamental mechanoregulators of the liver and pancreatic myofibroblasts. Independent activation of each of these receptors reverts fibrosis and reprograms the tumour microenvironment to conditions not favourable for tumour progression. After my PhD, I decided to explore further therapeutic options of GPER. For this, I embarked on a postdoctoral training focused on elucidating the structure of GPER and investigating its mechanosensing capacity.

I authored 18 original research articles (first or co-first in 10) in international peer-reviewed journals such as Nature Materials, Nature Communications, Hepatology, Oncogene, EMBO reports, ACS Nano, and PLoS Biology. These publications attracted one journal cover and four editorials from leading scientists to bring attention to our findings. One publication is included in the picks collection of cell biology. Moreover, these articles have received more than 1000 citations in the last five years and my h-index is 14.

I have presented my work in more than 20 international congresses and conferences and my presentations were selected for the best poster award and best oral presentation prize in two of them. I have led four independent research projects (two in graduate work and two during postdoctoral training). The results from my projects have been used in successful research grant applications, in which I contributed with grant writing and preparation. I received two BBSRC talent mobility awards as principal investigator to work six months in Manchester BIOGEL, which is a UK company that commercialises 2D and 3D matrices for cell culture and drug delivery. The outcomes from this work have been published in two joined research articles and there is a pending patent application.

Throughout my scientific career, I have gained significant expertise in supervising and managing research projects. I have supervised 3 PhD and 16 MRes students and trained multiple junior members in the use of biophysical tools, cell and molecular biology techniques, and microscopy. Because the multidisciplinary nature of my projects, I needed to establish solid collaborations with other scientists and clinicians within the UK and Europe. This network of collaborations will contribute to launching my independent research career as well as to the rapid dissemination of our results.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: **Biomedicina**
Nombre: DE JUAN GUILLEN, ALBA
Referencia: RYC2021-031768-I
Correo Electrónico: alba.dejuan89@gmail.com
Título: Myeloid cells, from circadian biology regulation of their effector function to the factors that control monocyte differentiation in inflammation and tumors

Resumen de la Memoria:

As a whole, my research interests have explored different aspects in myeloid cells, from circadian biology regulation of their effector function to the factors that control monocyte differentiation in inflammation and tumors.

For my BSc thesis, I undertook a project focused on the role the transcription factor c-Myc in tumor-associated macrophages (TAMs) differentiation and its contribution to tumor growth. During this time, I set up the base of my experimental skills learning techniques such as cell culture, immunohistochemistry, tumoral animal models, molecular biology and Western Blot.

Later, for my PhD thesis, I joined a lab interested in leukocyte trafficking and immune system, so I could increase my knowledge in the basic immunology field as well as learned powerful techniques such as multi color flow citometry, surgery and in vivo imaging.

During my postdoctoral experience, I could combine the knowledge acquired during my previous steps and go deeper into the onco-immunology field. I become trained in cut-edge technologies such as RNAseq, R programming or the use of different human models.

My international experience and my deep curiosity in tumor immunology, cancer and physiology motivate me now to lead a project focus on circadian regulation of cancer. I am an enthusiastic person who takes her work very seriously and I am deeply committed to my scientific career. Performing a senior postdoc at the CNIO would give me the opportunity to supervise students who will benefit from my experience abroad, which gave me expertise working with colleagues from different backgrounds and trained me to adapt to new surroundings, and my experimental skills obtained over the past few years. At the same time, this exercise will be key in order to improve my leading and mentoring skills, essential factors in the development of my career towards scientific independence. Finally, working at a center as CNIO will allow me to translate the knowledge gained from basic research into better strategies in the design of treatments for patients.

Combining my vast background in circadian biology and basic and anti-tumor immunology and my experience in other international laboratories, joining the Cancer Immunity Laboratory, led by Dr. Casanova, would be an excellent mutual benefit. Therefore, I believe a postdoctoral fellowship grant from Ramón y Canal program is the perfect funding that would support my growth towards a more independent investigator and establishing my own research group in the years to come.

Resumen del Currículum Vitae:

I am currently working as a postdoctoral researcher at the Institut Curie (Paris, France) in the Cancer and Immunity Unit since August 2018, where I obtained the prestigious Marie Curie individual Fellowship (MSCA-IF-EF-ST 842535) in order to decipher how microbiota modulate anti-tumor immune responses in checkpoint therapy.

For my PhD, I joined Dr Scheiermann s lab in Munich. My project focused on uncovering how sympathetic innervation input controls rhythmic leukocyte trafficking into venules. Leukocyte recruitment into tissues -an essential step in the initiation of inflammatory processes- is temporally regulated by circadian rhythms and this is tightly controlled by the sympathetic nervous system. Nevertheless, venules are devoid of sympathetic innervation, yet they are the main site of leukocyte recruitment into tissues. The goal of my PhD project aimed to identify how adrenergic stimuli reach veins and ultimately, promote leukocyte extravasation into tissues to provide tissue immune defense. I found an important role of artery-associated sympathetic innervation in governing rhythmicity in vascular inflammation in both arteries and veins and its potential implications in the occurrence of time-of-day-dependent vessel type-specific thrombotic events (de Juan et al., 2019). In addition, I was part of other projects in the lab which resulted in publications of high-impact journals (2 papers published in Immunity, 1 Journal of Experimental Medicine and 1 Nature Communications, which is currently under revision).

During my postdoctoral training under Dr. Segura s supervision, I carried out two different projects where I studied the role of aryl hydrocarbon receptor (AhR) in type 2 immunity and in checkpoint immunotherapies against cancer. The results from my first project, have been recently submitted for publication. An additional first-author publication will soon be finalized from the second project in which I explored how AhR ligands from microbiota affect checkpoint therapy in cancer. Importantly, I coauthor two other articles focused on monocyte differentiation. Moreover, I developed my mentoring skills by supervising a master s student who has recently submitted her thesis.

Combining my scientific and technical background in circadian biology together with my postdoctoral training in tumor immunology make a perfect fit to join the Cancer Immunity Laboratory led by Dr. Casanova-Acebes at CNIO. Therefore, I believe this grant is the ideal funding to support my growth towards an independent research path and establishing my own research group in the years to come.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biomedicina**
Nombre:	ROMEO GUITART, DAVID
Referencia:	RYC2021-032235-I
Correo Electrónico:	romeoguitart@gmail.com
Título:	Boosting endogenous mechanisms of protection to maintain neuronal fitness

Resumen de la Memoria:

I am a passionate and young scientist with the clear goal of performing state of the art and translational research. My main interests focus on deciphering the mechanisms that cells and organisms endogenously use to cope with stress/injury and regenerate, and boost them to develop innovative therapies to treat neuronal disorders, ranging from neurotrauma to neuronal ageing.

I started my scientific career in the fields of neurodegeneration and autophagy as a PhD student in the laboratory of Dr. Caty Casas (INc-UAB). So far, my main research achievements were: i) demonstrate that the activation of endogenous mechanisms leads to neuroprotection; ii) discover NeuroHeal pharmacotherapy, validate its wide-range neuroprotective effects, and found the company NeuroHeal Biomedicals S.L. From this period, I have published 15 articles (6 as the corresponding author), supervised undergraduate students, obtained 2 granted patents and got funding as Postdoctoral Entrepreneur.

After my PhD, I got interested in the hormonal regulation of physiological functions as a holistic endogenous mechanism of protection that has evolved in organisms to maintain neuronal fitness (i.e., cognition and locomotor functions). I moved to Paris to work in Dr. Franck Oury`s team (INEM, France), and develop deeper knowledge about the crosstalk between hormonal regulation of autophagy and ageing, and its role in the maintenance of neuronal functions. In the Oury`s team I am performing multidisciplinary research to unravel the mechanisms that promote age-related cognitive and locomotor disorders. Therefore, I undertook 3 complementary research lines: i) the role of epigenetics in the control of autophagy and memory fitness, ii) the function of primary cilium-dependent autophagy in the regulation of cognition, iii) the impact of hormones in the maintenance of locomotor functions. Up to date, I am co-first author of 1 article and second in another one. Moreover, I got a MSCA-IF fellowship to fund my research and 2 granted patents. Furthermore, I am supervising BSc, MSc, PhD students and research technicians.

My career path allowed me to develop the skills required to perform multidisciplinary and interdisciplinary research, and to become soon an independent researcher.

Resumen del Currículum Vitae:

I obtained a PhD in neurobiology from the Universitat Autònoma de Barcelona (Spain), where I focused my research on neurodegeneration under the supervision of Dr. Caty Casas (INc), a world-class scientist in the fields of neurodegeneration, cell death and autophagy. During my PhD, I gained a wide expertise in neuroprotective and neurodegenerative processes, system biology approaches, artificial intelligence-based computational tools for drug screening, autophagy, and locomotor functions. My main research achievements were the following: i) demonstrate that the activation of endogenous mechanisms of protection leads to neuroprotection; ii) discover NeuroHeal (NH) pharmacotherapy and validate its wide-range neuroprotective effects. Additionally, I established collaborations leading to scientific publications and I supervised MSc and PhD students. Moreover, I got 2 grants as postdoctoral entrepreneur to develop NH pre-clinical studies, I am the inventor of 2 patents, and I founded the spin-off NeuroHeal Biomedicals. This spin-off was founded with a private company, which highlights the translational nature of my research.

In 2019, I moved to INEM (Institut Necker Enfants Malades, Université de Paris, France) to join the team of Dr. Franck Oury. Here, I started to study the role of hormonal factors in the regulation of memory, locomotor functions, and ageing. Moreover, I am deciphering the impact of these factors on neuronal autophagy. I got a MSCA-IF fellowship to develop CAJAL. Currently, I am involved in 3 grants, and I am developing 3 projects to elucidate the impact of ageing on nervous system functions. I have under review/in preparation 2 articles where I am 1st and 2nd author. At the end of my stay in Paris, I will publish 2 more articles as 1st author, and another one in collaboration. Here, I supervised BSc, MSc, PhD students and research engineers of different nationalities, I obtained 2 patents about the anti-ageing role of autophagy in cognition and locomotor fitness, and I have stablished international collaborations.

In summary, I have published 11 research articles in important peer-reviewed journals; 9 as 1st author and 2 as 2nd author. I also published 4 reviews/opinions; 2 as 1st and 1 as last author, and I am the corresponding author of 6 publications. My 1st-author articles are mainly in Q1 of Neuroscience/Molecular biology. All of them are focused on autophagy, motoneurons, axonal regeneration, or muscle biology. My H index is 8, and I have an accumulated impact factor of 99. I reviewed for high-impact journals such as Nature comms, Theranostics, Cell death & Diff., and I participated in 8 projects/contracts. Furthermore, I have presented my work at the most important international conferences of Neuroscience and in several national meetings (18 poster and 7 oral communications). Lastly, I have expertise in Intellectual property protection and technology transfer, I am the inventor of 4 patents, the founder of a spin-off, and I have participated in CAJAL Advanced Training.

Thanks to my mentors, I developed essential scientific skills: mentoring, founding a spin-off, submitting scientific articles, writing grant proposals, and establishing collaborations. I am confident all these experiences will allow me to become an independent researcher with the clear goal of developing novel autophagy-based anti-ageing therapies.

Área Temática:	**Biomedicina**
Nombre:	LOPEZ FABUEL, IRENE
Referencia:	RYC2021-032322-I
Correo Electrónico:	irlpefa@gmail.com
Título:	Metabolism and redox signalling in the physio(patho)logy of brain function.

Resumen de la Memoria:

My scientific trajectory has focused on characterizing the relevance of metabolism and redox signalling in the physio(patho)logy of brain function. During my International PhD and first postdoc, in the laboratory of Prof. Juan Pedro Bolaños (University of Salamanca), I was involved in the characterization of mitochondrial electron transport chain in neurons and astrocytes. The different organization of mitochondrial complexes in these cell types has a direct consequence in the levels of mitochondrial reactive oxygen species (mROS) and explains their different bioenergetic profile (PNAS, 2016). The relevance of mROS for proper brain function was determined using different specific genetic models (Nature Metab. 2019, Redox Biol. 2021), allowing us to determine that those produced in astrocytes play an important role for neuronal integrity. We also showed that astrocytic mROS are important for brain homeostasis, as their absence during cannabis abuse (Nature 2020) or its upregulation in Parkinson s Disease (Neurochem. Int. 2017) or Batten Disease (Nature Comm. 2022) lead to severe problems. With this training and experience, I arrived at the laboratory of Prof. Isabel Fariñas (University of Valencia, 2020) with a contract of the Juan de la Cierva-Formación call that has been continued with an APOSTD contract from the Generalitat Valenciana. I am currently investigating the relevance of ROS and metabolism in an adult neurogenic niche, in order to better understand their role in the physio(patho)logy of neural stem cells.

Resumen del Currículum Vitae:

My work aims to understand how metabolism regulates physio(patho)logy of brain cells. This objective started during my International PhD (2015) at Prof. Juan Pedro Bolaños laboratory, which focused on the study of the mitochondrial electron transport chain in neurons and astrocytes and included a stay abroad in the lab of Prof. Michael P. Murphy at Cambridge-UK (EMBO Short Term Fellowship). We discovered that the differential assembly of complex I in these cells results in differences in mitochondrial reactive oxygen species (mROS) production (PNAS 2016, first author >150 citations). mROS in astrocytes, the cells with higher levels, are necessary for proper neuronal integrity (Nature Comm. 2019) and animal social behaviour (Nature 2020). We also contextualized these changes for neuropathologies like Parkinson s disease (Nature Comm. 2014; Neurochem. Int. 2017, first author) or Batten Disease (Nature Comm. 2022, co-first author). Altogether, these works, that formed part of my predoctoral and first postdoctoral period (11 articles, 6 as first author, 1 as corresponding author), have changed the generalized view of ROS as deleterious molecules, especially for brain function. These works involved international collaborations in academia (among which we can highlight the BatCure consortium, EU H2020) and cooperation with a pharmaceutical company. Our recent description of tamoxifen as a therapeutical agent for Batten s disease (EMBO Mol. Med. 2021, co-first author) is now the subject of a patent application currently under revision. With a Juan de la Cierva-Formación training grant, I joined the laboratory of Prof. Isabel Fariñas (University of Valencia) in 2020. There, I started a new research topic to try to clarify the relevance of metabolism and mROS in the adult neurogenic niche of the subependymal zone, part of which also constitutes the master¿s final project of a student that I am currently supervising. Being in academia has offered me the opportunity to collaborate in the teaching of various subjects, to train several students, including two international students, and to supervise one final degree project and two final master projects. Students under my supervision are developing careers at different companies, academia, and editorial offices. I have also participated in dissemination and outreach activities in schools (Biotechnofarm, 11F, and Science Day), media and social networks because I believe that science approach to children and the diffusion of research results is very important for our society.

Área Temática:	**Biomedicina**
Nombre:	PLANELL PICOLA, NURIA
Referencia:	RYC2021-032197-I
Correo Electrónico:	nuriaplapi@hotmail.com
Título:	Characterization of the gene regulatory network of the early B cell differentiation in healthy individuals and the link of this canonical regulation to pathogenesis

Resumen de la Memoria:

Since I started in Life Sciences, my researcher career allowed me to be involved in several complementary research fields: basic research, clinical research, and data analysis, converging to a very unique profile which   to my understand   is the necessary profile in the current (an highly competitive) translational research. I developed my profile in three steps: (1) a MSc in Statistics and Operative Research with Bioinformatics and Biostatistics specialty; (2) a Ph.D. in Medicine and Translational Research focused on the study of Inflammatory Bowel Disease (Ulcerative Colitis and Crohn s Disease); and (3) a first post-doctoral position aimed to develop methods for multi-omics data analysis and data integration. Then on 2020 I obtained a Juan de la Cierva national grant (FJC2019-042304-I) that gave me the independence to merge the complementary skills and knowledge and the passion for applying it in a biological and biomedical context. Specifically, my current research line aims to characterize the gene regulatory network (GRN) of the early B cell differentiation in healthy individuals and   importantly - the link of this canonical regulation to different immune-related diseases such as the acute lymphocytic leukemia (ALL), multiple myeloma, autoimmune diseases (multiple sclerosis, rheumatoid arthritis, lupus), and inflammatory bowel diseases, among others. In order to decipher the B cell regulation, we are working with several omic data types; most importantly, we have generated paired RNA-Seq and ATAC-Seq profiles for 8 immune cell populations (derived from more than 10 healthy individuals) representing the early lymphoid hematopoietic differentiation cascade along the B cell lineage from healthy adult human bone marrow precursors and peripheral blood. The integrated analysis of RNA-Seq and ATAC-Seq data gave us a way to identify the cis- and trans- regulatory elements, which are the key players of the gene regulation. Furthermore, after GRN characterization in B cell differentiation, to further validate our findings, we are integrating public data; mainly, we are exploring Hi-C and promoter capture Hi-C data and histone modifications marks. Additionally, we are analyzing single-cell RNA-Seq and ATAC-Seq data to perform a deeper characterization and validation of the gene regulatory network in a healthy context. Once defined the canonical GRN for early B cell differentiation we aim to investigate its value to understand better the disease context. Initially, we are focusing on B-cell acute lymphocytic leukemia (B-ALL), a type of cancer that starts in early forms of white blood cells. We are currently finalizing the analysis to proof if we are able to identify the differentiation state at which the malignant transformation can take place and characterize it.
The Ramon y Cajal grant will allow me to investigate further the GRN of the full B cell differentiation process (from HSC to plasma cells) and the translational aspects to disease; specially focused in Multiple Myeloma, an aggressive and incurable neoplasm caused by the clonal expansion of malignant plasma cells in the bone marrow.

Resumen del Currículum Vitae:

Post-doctoral researcher in the Translational Bioinformatics Unit (TransBio) at Navarrabiomed - Miguel Servet Foundation. Ph.D. in Medicine and Translational Research at the University of Barcelona in 2018 with extensive training in bioinformatics and biostatistics. During my Ph.D. I characterized at the transcriptional level the mucosa of patients with Ulcerative Colitis (UC), opening new ways to understand the disease etiology. Moreover, I explored the transcriptional alterations in blood in order to identify powerful biomarkers of UC activity, a key point to improve the monitoring and management of the disease. During this period, I was able to master many key tasks of the laboratory (cellular cultures, extraction, and quantification of nucleic acids (qPCR), immunohistochemistry, immunofluorescence, among others) originally learned during my BSc in Biotechnology. However, my implication in the research lines required me to master also data analysis practices of initially microarray and, posteriorly, next generation sequencing data; to this end I completed my formation with a MSc in Statistics and Operative Research (Bioinformatics and Biostatistics specialty).

Finishing the Ph.D. I joined the Translational Bioinformatics Unit, under the leadership of David Gomez-Cabrero, in order to master the next necessary challenge: multi-omics data analysis and its application in a clinical/translational context. During that period, in addition to participate in multiple research multi-omics projects, I was able to convey all the experience into a framework also published as an OpenSource Bioconductor package STATegRa. After two years in the unit, during 2020 I obtained a Juan de la Cierva national grant (FJC2019-042304-I) that gave me the independence to merge the recent acquired knowledge and the passion to apply it in a biological and biomedical context. Nowadays, I m on the second year of my grant focusing my research on the characterization of the gene regulatory network of the early B cell differentiation in healthy individuals and the link of this canonical regulation to different immune diseases such as the acute lymphocytic leukemia (ALL), autoimmune diseases (multiple sclerosis, rheumatoid arthritis, lupus), inflammatory bowel diseases (Ulcerative Colitis and Crohn s Disease), between others.

Moreover, as part of my post-doctoral research development, I have enrolled as a supervisor: co-supervisor of a Ph.D. student and co-supervisor of TFMs. Furthermore, I also have been involved in lecturing: organization and lecturing on two courses on omics data integration (STATegra Summer School on NGS and Data Integration; Navarra and Tiblisi end of 2018), start lecturing in the King s College London,   in the Innovation and Entrepreneurship in Biomedical Engineering Master (Barcelona) and in the PhD courses from Medbioinfo (https://www.medbioinfo.se/)   The Swedish Research School in Medical Bioinformatics. Also, I have the opportunity to conduct a 1-month research visit at the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia, with whom we collaborate actively.

Área Temática:	**Biomedicina**
Nombre:	GARMENDIA ITURBE, IRATI
Referencia:	RYC2021-032477-I
Correo Electrónico:	irati.garmendia@crc.jussieu.fr
Título:	The role of tumour microenvironment in lung cancer and its exploitation for the identification of new therapeutic targets

Resumen de la Memoria:

I work as a Postdoctoral Fellow in the Inflammation, Complement and Cancer Department at the Centre de Recherche des Cordeliers - Sorbonne Université (Paris, France) since September 2019. During this time, I have demonstrated that acute influenza A virus infection accelerates lung cancer progression by modulating the tumor microenvironment. Influenza A infection impairs tumor-antigen specific T cell response while induces exhaustion of T cells. This work is under review in the American Journal of Respiratory and Critical Care Medicine. I am currently studying the key molecular mechanisms implicated in the pro-tumoral role of this respiratory virus. Understanding the molecular events that are induced following viral infections would serve to design new therapeutic strategies for lung cancer patients.

Before my postdoctoral stage in Paris, I performed my PhD at the Center for Applied Medical Research (CIMA; Pamplona, Spain) under the direction of Dr Jackeline Agorreta and Dr Luis Montuenga. During my thesis, I deciphered for the first time the pro-tumoral role of YES1, a member from the SRC family of kinases, in non-small cell lung cancer. I also demonstrated that YES1 is a potential stratification biomarker for the refinement in the patient selection criteria to maximize dasatinib treatment efficacy. The results of my PhD project were published in the American Journal of Respiratory and Critical Care Medicine (Garmendia, 2019). Due to my growing interest in the tumor microenvironment and its involvement on tumor progression, after defending my thesis on December 2018 (with a distinction Cum laude) I decided to focus my career on the study of lung tumor microenvironment. Thus, I set a new goal in my project in order to analyze the effect of SRC family kinases on the lung tumor microenvironment and I demonstrated that high YES1 expression is associated with immunosuppression. Moreover, inhibition of YES1 modifies the tumor microenvironment and acts synergistically with anti-PD-1 treatment to cause tumor regression mediated by a decreased conversion of CD4 T lymphocytes to regulatory T cells. This work led to a co-first authored manuscript (Redin*, Garmendia*, J Immunother Cancer 2021). The research line that I opened in the Dr Montuenga's lab is still being very successful. They recently confirmed that YES1 is also a potential therapeutic target in small cell lung cancer, a subtype of lung cancer with no current approved targeted therapy.

My stay in the Dr Isabelle Cremer s team will presumably conclude in September 2022, due to my desire to get involved in a new project and take the next step of my scientific career as an independent researcher. I have already had contacts with Biodonostia Health Research Institute (San Sebastian, Spain), where I will join to the Oncology Department as an independent PI in case I am awarded this Ramon y Cajal Fellowship. My work has always been linked to lung cancer research and it has been focused on the finding of new therapeutic targets. Now, I am interested in continuing to study how the crosstalk between lung tumor cells and their surrounding stroma mediates immune evasion, tumor progression and metastasis. Understanding the events that occur in that dynamic microenvironment will optimize the development of approaches to modulate it with the aim of impairing lung tumor progression.

Resumen del Currículum Vitae:

I work as a post-doctoral researcher in the Centre de Recherche des Cordeliers (CRC, Paris) since September 2019, in the Dr Isabelle Cremer's team. During this time, I have demonstrated the pro-tumoral impact of influenza A virus in lung tumor progression, due to a modulation of the anti-tumor T cell response. I am currently studying the mechanisms involved in this effect, in order to identify new therapeutic options for lung cancer patients. For this aim, I obtained a prestigious post-doctoral fellowship from SIRIC-SARPEM (established by the Institut National du Cancer, ni France) in September 2021. Previously, I performed my PhD thesis in the Dr Luis Montuenga's lab, where I identified YES1 kinase as a stratification biomarker to define patients that may benefit from SFK inhibitors.

INTERNATIONAL EXPERIENCE: 2+ years as post-doctoral researcher in the Centre de Recherche des Cordeliers - Sorbonne Université (Paris, France) in the Dr Isabelle Cremer's team that will still continue for another year. Short stay in the Vancouver Prostate Centre - University of British Columbia (Vancouver, Canada) under the supervision of Dr Michael Cox (3+ months in 2018).

PUBLICATIONS: 7 original articles and 1 review. Publications as first or co-first author: 2 original articles in D1 and 1 review in Q1. Publications in D1: 2. Publications in Q1: 8. Citations indices (source: Goggle Scholar 07/02/2022): h-index: 6, i10-index: 4, number of citations: 101. Publications submitted/under review: 2 (first author in one).

TEACHING EXPERIENCE: Co-director of the Master's Final Research Project of Cécile Havy (to be presented in July 2022). Co-director of the Bachelor's Final Research Project of Héctor Caballero (2021) and Mirari Echepare (2019). Assistant teacher in the Degrees of Biology, Biochemistry and Medicine (University of Navarra, 2014-2018). Instructor student in the Degrees in Biology, Medicine and Pharmacy (University of Navarra, 2009-2013).

FELLOWSHIPS: Post-doctoral Funding from SIRIC-CARPEM (2021); Travel Fellowship from the University of Navarra in collaboration with La Caixa Foundation and Caja Navarra Foundation, and Travelling Fellowship from The Company of Biologists (2017); Predoctoral Fellowship from the Basque Government (2016); Incentive Program Fellowship from the University of Navarra and University of Navarra-Santander Group Scholarship for the completion of the Master's degree); Collaboration Grant from the Basque Government (2012).

RESEARCH NETWORK: Productive national and international collaborations during my PhD with the teams of Dr Xosé Bustelo (Cancer Research Center, Salamanca), Dr Juana M Garcia-Pedrero (Instituto de Investigacion Sanitaria del Principado de Asturias, University of Oviedo), Dr Luis Paz-Ares (12 de Octubre University Hospital) and Dr Ignacio Wistuba (The University of Texas MD Anderson Cancer Center, Houston).

SCIENCE DISSEMINATION AND CONTRIBUTION TO SOCIETY: Member of the post-docs groups within ASEICA. CONOCELAS (ASEICA) 2021 and 2022. "Emakumeak eta zientzia" round table (2018). Participation in an informative video about Electron Microscopy, currently in use by the Univerrsity of Navarra as educational material (2013). Collaboration contract, together with Dr Jackeline Agorreta, with the private company Bristol-Myers Squibb (2017).

Área Temática:	**Biomedicina**
Nombre:	BACHILLER SANCHEZ AREVALO, SARA
Referencia:	RYC2021-031661-I
Correo Electrónico:	sbachiller-ibis@us.es
Título:	The role of exosomes in neuroinflammation-induced cognitive dysfunction in people living with HIV

Resumen de la Memoria:

Dr. Bachiller is a neuroscientist dedicated to study the mechanisms behind neuroinflammation that underlying neurodegenerative diseases. She graduated in Biochemistry (University of Córdoba, 2006-2011) and performed her PhD in Neuroscience under the supervision of both Dr. Carrión and Dr. Ruiz at Pablo de Olavide University (International Mention, Cum Laude and Extraordinary PhD Award, 2013-2017). During her PhD, she studied the role of LINE-1 retrotransposition and neuronal DNA breaks and repair mechanisms in memory formation. In addition, she analyzed the effect of HERC1 E3 Ubiquitin-Ligase in the motor function, neuromuscular transmission and myelination of the peripheral nervous system using an ataxic mouse model called tambaleante. In 2017, she joined Prof. Deierborg s lab at Lund University (Sweden, 2017-2020) in which she established a new line of research to investigate the role of microglia and the immune system in postnatal early-life stress (ELS) and their implication in the onset/development of Alzheimer s disease (AD). She demonstrated that ELS elicited strong and long-lasting inflammation/microglia activation leading to mood and cognitive disturbances in the adolescence and in the adulthood. Further, using the AD mouse model 5xFAD, she confirmed that ELS enhanced the onset and the AD pathology in a sex-specific manner. During this period, she published 8 papers (3, senior authorship) and got funding as PI and/or Co-PI from four different Swedish competitive calls. At the beginning of 2021, she enrolled Dr. Ruiz-Mateos lab at Institute of Biomedicine of Sevilla (IBiS) with a postdoctoral fellowship granted by Junta de Andalucía-PAIDI-Doctor. In this lab, she is establishing a new research line that encompasses a comprehensive understanding of the mechanisms behind neuroinflammation-induced memory alterations in people living with HIV. Her research is focused on exosomes, extracellular vesicles that can be considered as carriers for HIV spreading as well as excellent tools in the searching of biomarkers related to neuroinflammation and neurodegeneration. She has participated in more than 25 communications at national and international congresses and as a reviewer of top scientific journals.

Resumen del Currículum Vitae:

Current position: Postdoctoral Researcher at Institute of Biomedicine of Sevilla (2021-present).

Education and previous positions:
- 2017-2020: Postdoctoral Research Fellow, Lund University, Lund, Sweden.
- 2013-2017: PhD Student, Division of Neuroscience, Pablo de Olavide University, Sevilla, Spain.
- 2016: PhD Student exchange, Brain Mind Institute, École Polytechnique Fédérale de Lausanne, Switzerland.
- 2011-2013: Master s Degree in Neuroscience and Behavioral Biology, Pablo de Olavide University, Sevilla, Spain.
- 2006-2011: Biochemistry, University of Córdoba, Spain.

Teaching and mentoring activities:
- External teacher at Centro Universitario San Isidoro-Pablo de Olavide University (2021-present).
- Teaching at University of Sevilla (2021), at Lund University (2017-2020) and at Pablo de Olavide University (2014-2015).
- Supervision of 2 PhD Students, 2 Master s Students, 2 Bachelor s Students and 3 students from the ERASMUS+ programme (2018-2022).

Project grants: 4 projects as PI and/or Co-PI from Swedish calls (2019-2020, 21.000) and a postdoctoral stipend granted by Olle Engviskt Foundation (2018-2020, 169.576).

Publications: 8 peer-reviewed articles and 5 reviews (6 as first-author, 3 as corresponding author, 85% in Q1, h-index 7).

Conference participations: 1 invited talk, 5 oral communications and 19 poster presentations.

Awards: PhD Extraordinary award (Pablo de Olavide University, 2016-2017) and 2 awards, scientific images (Spanish Society of Neuroscience, 2014 and University of Castilla-La Mancha, 2017).

Other activities:
- Scientific member of the mouse behavioral platform at Lund University (2018-2020).
- 6 travel grants to attend international conferences (IBRO, FENS, SENC, among others).
- Ad hoc reviewer: IJMS, Scientific Reports and Frontiers in Cellular Neuroscience.
- Spanish Accreditation: Ayudante Doctor.
- Committee member for the evaluation of PhD Students (Belén Calvo, University of Castilla-La Mancha, 2020; Irene García-Domínguez, University of Sevilla, 2020), Master s and Bachelor s Students at Lund University (2019-2020).

Área Temática:	**Biomedicina**
Nombre:	MARTIN SUAREZ, SORAYA
Referencia:	RYC2021-033215-I
Correo Electrónico:	smartin087@gmail.com
Título:	Neural Stem Cells, Neurogenesis, Neuroinflammation and Neuronal Network Activity

Resumen de la Memoria:

I graduated in Biology by the University of the Basque Country (UPV/EHU) in 2011 and obtained my Masters in Neuroscience in 2012. Then I joined the Neural Stem Cells and Neurogenesis Lab at the Achucarro Basque Center for Neuroscience for my doctoral thesis to work on aging and epilepsy.

We discovered new properties of NSCs and the discovery was published in Cell Stem Cell (Sierra, Martín-Suárez et al., 2015), one of the most important journals on the field. We later advanced further on this line of research (Muro-García; Martín-Suárez [co-first authors] et al., 2019 Frontier in Cell and Develop Bio) and (Valcárcel Martín; Martín-Suárez [co-first authors] et al., 2020. Front in Neurosci).

A bit later I started to study the intrinsic properties of NSCs and how they changed with ageing, because the current models could not explain the actual observations. I made pioneering discoveries in a work published in Martín-Suárez et al. 2019 (Aging Cell). In this paper we made predictions that have been recently confirmed in several high-impact articles that I commented on by invitation in Cell Stem Cell (Martín-Suárez and Encinas, 2021). I collaborated in one of these articles (Schouten et al., 2020. Molecular Psychiatry).

As the size of the population of NSCs and neurogenesis are maximal in the early postnatal period I became interested in on Dravet Syndrome (DS). It is a rare but devastating treatment-resistant form of epilepsy that starts in the first months of age. I first contributed to the characterization of a novel inducible transgenic mouse line as new model of DS (Satta et al. 2021. Front Mol Neurosci). Then, we demonstrated for the first time the alterations of NSCs and neurogenesis in a DS mouse model. (Martín-Suárez et al., 2020, Frontier in Cell and Develop Bio).

In total, I accumulate: 9 scientific peer-reviewed articles in international journals being first author or first co-author in 5 of them; 8 of them in Q1 journals; a total of 330 cites (267 since 2017); h-index: 5 (5 since 2017) and i10-index: 4 (4 since 2017).

After obtaining my PhD in Dec 2018 I applied and obtained one of the Juan de la Cierva-Formación (call 2018) postdoctoral contracts to join Dr. Paolo Bonifazi¿s laboratory at BioCruces health research Institute (Bilbao, Spain). Dr. Bonifazi is an expert in neuronal and circuit activity. He for instance discovered hub neurons (Science 2009). In his lab implemented 2-photon-microscopy and epifluorescence-based calcium imaging to analyze single-neuron and neuronal network activity in epilepsy models: in vivo, by use of a wearable Miniscope; and in vitro in hippocampal organotypic slices. By manipulating neuroinflammation I have been able to restore normal neuronal and circuit activity, in a work that we are finishing for submission and of which I am first and co-corresponding author.

I have made 5 stays in other laboratories (some with competitive funding) and also have gotten several grants to attend scientific meetings such as the Keystone Symposia Future of Science Fund (Colorado, USA. 2017) and SENC (Alicante-2017, Lleida-2021).
I have given 4 invited or selected talks in national international meetings and I have also presented more than 30 posters in national and international meetings. Finally, I have trained and supervised Masters and PhD students.

Resumen del Currículum Vitae:

Current position
Juan de la Cierva-Formación Post-doctoral Contract. Institution Biocruces Bizkaia Health Research Institute. 2020-2022

Previous positions
Post-doctoral contract. ERA-NET NEURON. Institution: Achucarro Basque Center for Neuroscience. Spain: 01/2019-05/2020
Pre-doctoral researcher. Jesus de Gangoiti Foundation Institution: Achucarro Basque Center for Neuroscience. Spain. 2017-2018
Pre-doctoral researcher. Institution: Achucarro Basque Center for Neuroscience. Spain. 2014-2017

Education
PhD in Neuroscience. University of the Basque Country (EHU/UPV). 2018. International Mention, Outstanding-Cum Laude and proposed to the UPV/EHU Extraordinary Doctoral Prize
Master in Neuroscience. EHU/UPV. 2012.
Bachellor Degree in Biology. EHU/UPV.2011.

Publications
9 scientific peer-reviewed articles in international journals being first author or first co-author in 5 of them; 8 of them in Q1 journals; a total of 330 cites (267 since 2017); h-index: 5 (5 since 2017) and i10-index: 4 (4 since 2017).

Congresses

4 invited or selected talks in national/international meetings: Federación Española de Enfermedades Raras (Baecelona 2018), Red Glial Española (Alicante 2017; Granada 2015); and in the international Lessons from Development to Adult Neurogenesis Symposium (Fayence-France 2016). I have also presented more than 30 posters in national and international meetings.

I also have gotten several grants to attend scientific meetings such as the Keystone Symposia Future of Science Fund (Colorado, USA. 2017) and SENC (Alicante, 2017; Lleida, 2021).

International/National stays
-3 months in the Katholieke Universiteit Leuven (Belgium) in 2018.
-Shorter-time stays (1 week) for collaborations in Friedrich-Alexander Universität (Erlangen, Germany) in 2015; the Neurocentre Magendie (Bourdeaux, France) in 2016 and in 2018; and University of Málaga-IBIMA in 2019.

Research projects
Participation as postdoctoral researcher
-Estudio de la conectividad funcional de las Neuronas GABAérgicas en un modelo de ratón de Síndrome de Dravet. Spanish Federation for Rare Diseases. PI: Paolo Bonifazi. Sept 2021-Feb 2023.
-Induction of Reactive Neural Stem Cells by Traumatic Brain Injury in the Adult Hippocampus (REACT NSCs). ERA-NET NEURON. Call Ref.# PCIN-2016-128. PI: JMl Encinas. 2016- 2019.

Participation as pre-doctoral researcher
 -Mechanisms and Blockage of the induction of Reactive Neural Stem Cells in the Epileptic Hippocampus. Ref.# SAF-2015-70866-R. PI: JM Encinas. 2016-2019
-Impact of Neuroinflammation and Gliosis on Brain Synapses and Circuits in a Model of Dravet Syndrome. Spanish Federation for Rare Diseases. PI: JM Encinas. 2018
-Exhaustion of Neural Stem Cells and Neurogenesis by Neuronal Hyperexcitation in the adult Hippocampus. Ref.# SAF2012-40085. P.I: JM Encinas. 2012-2015.
-Mechanisms of the induction of Reactive neural stem cells in mesial temporal lobe epilepsy mouse model. Ref.# S-PC12UN014 SAIOTEK. P.I: JM Encinas. 2012-2013

Dissemination and Divulgation
-Participation as invited speaker in the   International Day of Women and Girls in Science- 11 de Febrero   in 2020 and 2019. Participation as invited speaker in the   Pint of Science   2016.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Biomedicina**
Nombre:	GUZMAN GUZMAN, MAURICIO
Referencia:	RYC2021-032169-I
Correo Electrónico:	mauricioguzman88@gmail.com
Título:	Mucosal immunology mechanisms involved in dry eye disease (DED) and inflammatory bowel disease (IBD).

Resumen de la Memoria:

I am a Ph.D. researcher in the field of immunology who studies mucosal immunology and the cellular and molecular mechanisms involved in dry eye disease (DED) and inflammatory bowel disease (IBD).

During my predoctoral stage, I developed 2 lines of research on ocular surface and mucosal immunity. First, I found an important role of NF-kB pathway, which initiates the breakdown of immune tolerance of the conjunctival mucosa and triggers the development of eye diseases such as allergic conjunctivitis (Guzman et al, IOVS 2014) or dry eye (Guzman et al, CEI 2016 and Guzman et al, EER 2016). The mechanism involves an increasing pathogenic dendritic and effector T cell and decreasing regulatory T cells, and this effect can be prevented by topical NF-kB inhibitors. Second, although the two eyeballs are known to be immunologically interdependent and have been reported for the cornea and retina, I showed for the first time that the mucosal sites of the ocular surface (conjunctiva) are linked functionally and involve the participation of sensory nerve terminals (Guzman et al, Mucosal Immunology 2018). The mechanism links components of the nervous system with the immune system. After damage the ocular surface of an eye, the nerve terminals are activated, specifically the TRPV1 receptors, and send signals to the central nervous system. Somehow, these signals reach the contralateral healthy eye and trigger the release of Substance P, a pro-inflammatory neurotransmitter. Therefore, the homeostasis of the healthy eye is also interrupted, and the mucosa immune tolerance is disrupted. Then, I used a novel murine model, with a new variable: the hyperosmolar tear film. I observed that hyperosmolarity triggers a neuroimmune alteration (TRPV1 activation and Substance P release), increasing inflammation which could be useful to explore new therapeutic approaches for the pathophysiology of DED (Guzman et al, Immunology 2020).

During my time as a postdoctoral researcher in the USA, I made 3 main scientific contributions in the field of mucosal immunology and IBD. First, we developed a high-dimensional cytometry method (mass and spectral cytometry) for the description and analysis of both murine IBD models and human samples (biopsies from IBD patients). In the paper published in 2020 (Tyler et al, J Crohn s Colitis 2020) we described a novel technique to deep immunophenotyping of distinct healthy colonic segments and demonstrated for the first time that mass cytometry has great potential for this. Then, I was in charge of a project focused on antibody-secreting B cells (IgA (immunoglobulin A) Plasma Cells) in the lamina propria of the small intestine and colon in the context of mucosal immunology and IBD. IgA is the most important in the digestive system and of all mucosal sites since it allows maintaining a homeostatic balance with the commensal microbiota. We found a critical dependence of B cells/ASC on a4b7/MAdCAM-1 interactions for intestinal recruitment, IgA production, and maintenance of a homeostatic microbiota. (Tyler et al, Mucosal Immunology 2021). And finally, I described a novel subset of IgA Plasma Cells that express the integrin aE(CD103)b7 and contact/intercalate within intestinal epithelial cells (IEC) that allows increasing the efficiency of IgA transcytosis into the intestinal lumen (Guzman et al, Mucosal Immunology 2021).

Resumen del Currículum Vitae:

I am an immunologist with strong expertise in the mucosal immunology field. Between 2014 and 2019 I have worked focusing on several mucosal immunology mechanisms and diseases of the eye, such as allergic conjunctivitis, dry eye, neuroinflammation of the ocular surface and neutrophil-mediated inflammation. Since July 2019, I have been investigating the immunological mechanisms of B cells for antibody production, migration, homing and localization in the intestine and their role in the control of the intestinal microbiota, involved during inflammatory bowel disease (IBD).

After finishing my undergraduate studies in the University of Misiones (Argentina), in 2014 I started my Ph.D. program at the National Academy of Medicine of Buenos Aires and at the University of Buenos Aires, Argentina, with Dr. Jeremias Galletti as my mentor. I obtained a Ph.D. scholarship that supported my salary during the 4 years of doctoral studies, awarded by the National Scientific and Technical Research Council (CONICET Argentina) to conduct the project Disruption of ocular surface mucosal immune tolerance drives allergic conjunctivitis and dry eye disease . As a Ph.D. student, I published 4 scientific articles as the first author on the most prestigious peer-reviewed journals in the field of ophthalmology and immunology and have received important prizes and distinctions in national and international congresses. In September 2018 I obtained my Ph.D. and a postdoctoral fellowship awarded by CONICET, which supported me during the first steps as a postdoctoral researcher. As a result, I published one article as the first author, thus ending my stage of research on the ocular surface. The novelty of the work showed an important impact from several research groups. The five papers together have received more than 120 citations.

In July 2019 I moved to San Diego, CA, USA to follow up my postdoctoral training and to work alongside Dr. Jesus Rivera-Nieves, a major player in the world of IBD at UCSD, School of Medicine. As a postdoctoral researcher, I have been in charge of the project "The role of integrins for the recruitment and localization of B cells in inflammatory bowel disease (IBD)". During the 3 years of stay in the USA I have published 3 scientific articles. One of these was published on the Journal of Crohn s and Colitis, very specific journal in the IBD field and the others two, in the journal Mucosal Immunology, one as a first author.

In brief, during my short scientific career (4 years as a Ph.D. student and 4 years as a postdoctoral researcher) I have published several scientific articles that support my work capacity, ability to work with different groups, scientific experience, and knowledge. The list includes 11 papers in peer-reviewed journals, all in the first quartile in the area of ophthalmology, IBD or immunology. I have 6 papers as a first author, with two in the journal Mucosal Immunology, top journal in the field. My work has been cited 215 times according to Google Scholar or 175 times according to Scopus.

In February 2022 I will join the Andrea Cerutti s Lab (B cell Biology) in the Institut Hospital del Mar d Investigacions Mèdiques in Barcelona, Spain. His research about regulation of B-cell activation and antibody production fit perfectly with my knowledge of mucosal immunology and intestinal B cells.

Área Temática: **Biomedicina**
Nombre: GONZALEZ MENENDEZ, PEDRO
Referencia: RYC2021-033856-I
Correo Electrónico: pedrogonzalezmenendez88@gmail.com
Título: Importancia de la disponibilidad de nutrientes en la actividad mitocondrial

Resumen de la Memoria:

Comencé en la investigación biomédica en el año 2010 en la Universidad de Oviedo. En la misma universidad realicé mi tesis doctoral en el grupo liderado por la doctora Rosa M Sainz durante los años 2012-2017. Después de una primera experiencia postdoctoral en el Instituto Universitario de Oncología del Principado de Asturias, me uní al equipo de la doctora Naomi Taylor en el Instituto de Genética Molecular de Montpellier en el año 2018. Durante estos años me he especializado en metabolismo, endocrinología y señalización redox. Tengo publicado un total de 18 publicaciones, 15 artículos y tres revisiones. En seis de ellas participo como primer autor y en una como autor de correspondencia. El alto impacto de mi investigación se ve en la publicación en su mayoría dentro del Q1 o D1 de su respectiva categoría, en un índice h de 11 y en un total de 465 citas.

En mi tesis doctoral, describí por primera vez la presencia y funcionalidad del transportador de glucosa dependiente de insulina GLUT4. De hecho, los niveles circulantes de insulina tienen un impacto en la actividad de GLUT4 en el tejido tumoral, así como están directamente relacionados con la progresión tumoral. Por otra parte, también relacioné el metabolismo de la glucosa con la respuesta antioxidante. Por un parte, describimos como la privación de glucosa activa la señalización del receptor de andrógenos, que promueve un aumento de los niveles del trasportador GLUT1 y de la respuesta antioxidante. Además, también relacionamos los niveles de GLUT1 con la actividad de la proteína antioxidante SOD2 en las células dependientes de andrógenos. Durante mi estancia postdoctoral, consolidé mi experiencia en metabolismo y además aporté mis conocimientos en señalización redox al nuevo grupo. Primero, explicamos como las últimas etapas de la eritropoyesis se ven afectadas manteniendo la actividad mitocondrial o el estrés oxidativo, generando eritroblastos anómalos. Como segundo proyecto, nos enfocamos en valorar la importancia de la arginina en la diferenciación de las células madre hematopoyéticas a la línea eritroide. En particular, la generación de la poliamina espermidina es un requerimiento absoluto para mantener la actividad mitocondrial en las primeras etapas de la eritropoyesis.

Estas dos excelentes etapas de mi carrera científica apoyan mi independencia y liderazgo en mi investigación. Debido a ello continuaré mi línea de investigación con la valorización de la importancia de los nutrientes para mantener la actividad mitocondrial. En particular, se describió recientemente que el lactato es utilizado por distintas células tumorales para activar la actividad mitocondrial. También se ha descrito como el lactato es importante para otras células no tumorales como células del sistema inmune. Sin embargo, la influencia de la respuesta estrogénica o androgénica en el consumo de lactato nunca ha sido valorada. Por lo tanto, mi objetivo futuro será profundizar cómo las hormonas sexuales regulan el consumo y metabolismo del lactato en condiciones tanto fisiológicas como patológicas.

Resumen del Currículum Vitae:

Mi primera inmersión en la investigación biomédica fue en el año 2010 durante la licenciatura en Bioquímica gracias a la obtención de una beca de colaboración financiada por el Gobierno de España en el área de Inmunología de la Universidad de Oviedo. Gracias a esta ayuda publiqué mi primer artículo como primer autor. En 2011, obtuve una beca de excelencia Ad futurum para el máster de Biomedicina y Oncología molecular de la Universidad de Oviedo. En ese momento inicié mi investigación en el grupo liderado por la Dra. Rosa Sainz, donde realicé mi tesis doctoral hasta el año 2017 financiado por el programa FPU del Gobierno de España. El proyecto que lideré estuvo enfocado a entender el papel de los transportadores de glucosa durante la progresión tumoral en la próstata, siendo la primera inmersión del grupo en metabolismo. Concluí este período con la publicación de tres artículos y una revisión bibliográfica como primer autor en revistas de alto índice de impacto. Este trabajo fue seleccionado para su presentación en distintos congresos, y la tesis fue reconocida con el premio extraordinario de doctorado de la Universidad de Oviedo. Durante este período, también contribuí en 7 artículos y 2 revisiones, participé en actividades de divulgación y docencia y fui supervisor de un proyecto final de grado.

Como parte de mi formación predoctoral, en 2015 tuve la oportunidad de realizar una estancia en el grupo de la Dra. Naomi Taylor en el Instituto de Genética Molecular de Montpellier (CNRS) financiada por la Asociación Europea de Investigación en Cáncer. En 2018, me integré en su equipo como investigador postdoctoral gracias al programa Clarín-COFUND EU (Principado de Asturias). En este este período, me especialicé en la regulación metabólica de la eritropoyesis (proyecto financiado por el programa NIH PO1). Además de reforzar mi experiencia en metabolismo, he podido ganar conocimiento en técnicas especializadas de caracterización metabólica. He sido también responsable de la formación de técnicos y estudiantes, y como consecuencia de mi experiencia previa introduje al equipo en la investigación de la señalización redox. Este productivo período será finalizado con dos publicaciones como primer autor (una ya publicada como autor de correspondencia) y la colaboración en otros 3 artículos. También tuve la oportunidad de presentar mi trabajo en conferencias internacionales y participar en el comité organizador del primer seminario para estudiantes predoctorales e investigadores postdoctorales del consorcio Labex GR-Ex de Francia. Actualmente, soy editor invitado para un especial de la revista Antioxidants y superviso una tesis doctoral en la Universidad de Oviedo.

En resumen, completé mi formación introduciendo nuevas áreas de estudio en los distintos laboratorios y publiqué en todos los periodos incrementando la calidad de mis publicaciones. Además, he formado a otros investigadores y participé en distintas actividades de comunicación y divulgación científica. Todo esto apoya mi papel como líder de mi investigación.

Área Temática: **Biomedicina**
Nombre: PRIETO FERNANDEZ, ENDIKA
Referencia: RYC2021-031213-I
Correo Electrónico: endikaprietofernandez@gmail.com
Título: Early identification and prevention of T/CAR-T cell exhaustion to improve next generation immuno-oncology

Resumen de la Memoria:

During my undergraduate studies I developed a strong interest in applied genetics. In 2017, I defended my PhD thesis in forensic genetics, which was awarded with the Extraordinary Prize and led to first-authored publications with high visibility in the field. After that, I naturally evolved into biomedical research and during this transition I accumulated expertise in different and complementary fields of research, such as molecular biology, applied genetics, biomarker discovery, cancer biology and immunology. Over the years, I have experienced an exponential improvement in my scientific-technical skills, which has resulted in a significant scientific production, including publications as corresponding author, participations in national and international conferences (oral presentations), international short stays (The Crick, UK) and collaborations with the clinic and private partners. I have also participated in academic activities, training of new students and outreach activities. Currently, I am a productive Juan de la Cierva Fellow in the path to independence and this call (<5 years since PhD defense) is an outstanding opportunity to pursue my own line of research. Recently, I have submitted my first grant as principal investigator (Projectos TED 2021, Ministerio de Ciencia e Innovacion, Gobierno de España). The aims of my research have clear translational and innovation-oriented perspectives and are focused on the development of strategies for the early identification and prevention of T/CAR-T cell exhaustion, especially oriented towards the improvement of next-generation immuno-oncology. Successful completion of these aims will allow me to further innovate and consolidate my position as an emerging junior principal investigator, harness these strategies for therapeutic potential and explore combinatorial approaches to prevent T/CAR-T cell exhaustion to improve cancer immunotherapy.

Resumen del Currículum Vitae:

In mid-2019, I joined CIC bioGUNE as postdoctoral researcher. Currently, I am a productive Juan de la Cierva Fellow in the path to independence. Recently, I have submitted my first grant as principal investigator (Projectos TED 2021). The aims of my research have clear translational and innovation-oriented perspectives and are focused on the development of strategies for the early identification and prevention of T/CAR-T cell exhaustion, especially oriented towards the improvement of next-generation immuno-oncology.

During my undergraduate studies I developed a strong interest in applied genetics. I defended my PhD thesis in forensic genetics in 2017 at the University of the Basque Country (UPV/EHU), supervised by Prof. Marian M. de Pancorbo. I developed a genetic tool, based on X-chromosome markers, to identify individuals and improve the calculation of kinship in complex cases. My thesis was awarded with the Extraordinary Prize and led to first-authored publications with high visibility in the field, as well as participations in international congresses (poster).

In 2017, I joined Prof. Africa García-Orad's lab at UPV/EHU for a postdoctoral stay, where I naturally evolved into biomedical research. This stay was an inflection point in my career. I have experienced an exponential improvement in my scientific-technical skills, which has resulted in a significant scientific production, including publications as corresponding author, participations in national and international conferences (oral presentations), international mobility (The Crick, UK) and collaborations with the clinic and private partners. The main field of research was the study of biomarkers in liquid biopsy for the diagnosis and prognosis of central nervous system pathologies and non-Hodgkin lymphomas. Our results were influential in the scientific community studying therapeutic responses against lymphomas taking advantage of liquid biopsy. During this time, I developed a particular interest in translational medicine, especially focused on projects aimed at improving the quality of life and survival of cancer patients.

In 2019, I joined Prof. Asis Palazon s lab (CIC bioGUNE), where I am applying my knowledge in genetics & epigenetics to study immune responses during cancer development and treatment, with a focus on cancer immunotherapy. As a response to the global spread of the novel coronavirus, I also performed actions to study the mechanism of infection of SARS-CoV-2 under hypoxia, a main characteristic of COVID-19 patients, and collaborated in the field of COVID-19 diagnostics. My research has resulted in several publications as first author and participations, as guest lecturer, in national conferences (SEBBM and RedHypox). I have obtained competitive funding to cover my contract (Juan de la Cierva) and, after the first year, my evaluation has been Excellent.

I have demonstrated a genuine ability to adapt and rapidly progress in different fields of research. This call is an outstanding opportunity to integrate all my expertise into a fully independent and multidisciplinary research line with clear implications for the digitalization and improvement of next-generation immuno-oncology. I feel that if I am granted I will be in a good position for launching a fully independent laboratory and consolidate my position as an emerging junior principal investigator.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	LOZANO OJALVO, DANIEL
Referencia:	RYC2021-032363-I
Correo Electrónico:	daniel.lozano@csic.es
Título:	Enzymatic hydrolysates for the elimination of antigen-specific T cells and the treatment of food allergies

Resumen de la Memoria:

Food allergy is a major health problem in the urbanized world, with an increasing prevalence (6.5% of the general population) and a significant impact on the quality of life of the affected subjects and their families. Despite the large number of individuals suffering from food allergies, there is no clinically accepted and established treatment for the cure of this disease. This circumstance drives the demand to investigate newer and safer strategies for the treatment of food allergies. One of the most promising alternatives is the use of enzymatically hydrolyzed allergens for their use as therapeutical agents in oral immunotherapy (OIT) treatments. Hydrolysates of food allergens show a reduced IgE binding capacity, which will improve the number and severity of adverse reactions observed during the experimental OIT approaches that use intact allergens. In addition, immunomodulating peptides contained in these hydrolysates could generate the induction of the oral tolerance to food allergens in sensitized individuals and prevent this disease. The generation of hypoallergenic hydrolysates that contain immunomodulating peptides is within the framework where my lines of research fall.

Since January 1st 2022, I have returned to Spain and I currently enjoy a postdoctoral contract in the Food Allergy group at CIAL (Madrid, CSIC). My research is focused on three main fields. Firstly, the development of peptide-based strategies for prevention and treatment of food allergies as well as the elucidation of the immune mechanisms that underlie desensitization and induction of oral tolerance. Secondly, the identification of the role played by the allergen-specific Th2 cells in the development, maintenance, and resolution of food allergies. Finally, the implementation of diagnostic and prognostic systems based on these T cells. I aim to combine my expertise in these areas in order to establish the mechanisms involved in the resolution of IgE-mediated and non-mediated food allergies by using immunomodulating peptides that can drive the elimination of pathogenic allergen-specific Th2 effector cells.

Resumen del Currículum Vitae:

My research is focused on three major areas: i) the elucidation of the role played by the allergen-specific T cells in the development, maintenance, and resolution of food allergies, ii) the implementation of diagnostic and prognostic systems based on these T cells, and iii) the development of peptide-based strategies for the treatment of allergies and the induction of oral tolerance to food proteins.

As a junior scientist, I have achieved remarkable national and international challenges (both European and American) and my research has resulted in 50 scientific publications in high impact factor journals and book chapters, 58 participations in congresses, and 7 invited conferences/lectures/plenary sessions. Currently, I serve as a reviewer of 10 journals and I am co-editor of a special issue on the journal Foods (MPDI). I am referee of the Agencia Estatal de Investigación (MICINN), Agencia Andaluza del Conocimiento (Junta de Andalucía), and 3 certifying entities (ACIE, EQA, DNV-GL). I have participated in 17 national and international competitive projects and 5 contracts with private companies. My scientific contribution has significantly improved the current existing knowledge in the field of food allergy and opened new approaches and strategies for the treatment of this disease, mainly focused on egg allergy (PhD at CIAL and beyond), non-IgE-mediated allergies (postdoctoral contract at INRA, France), peanut allergy (postdoctoral fellowship at Mount Sinai Hospital, USA), and non-IgE-mediated cow's milk allergy (as PI of my own project at Mount Sinai Hospital, USA).

My international leadership started at the COST Action ImpARAS (FA1402), which led a joint COST-EFSA project on in vitro strategies for the assessment of allergenicity of novel foods. I have established European collaborations with TNO (The Netherlands, Dr. van Bilsen), TEAGASC (Ireland, Dr. Hayes), Utrecht University (The Netherlands, Dr. Willemsen), and ISPA-CNR (Italy, Dr. Bavaro). Currently, as part of my international recognized expertise in spectral flow cytometry and I serve as a member of the scientific advisory board of the Flow Cytometry Core at Mount Sinai. In addition, I applied my expertise in antigen-specific T cells to study SARS-CoV-2-specific T cells during COVID-19 pandemic that have consolidated a remarkable collaboration with Dr. Ochando (ISCIII) and Dr. Guccione (Mount Sinai). Moreover, in the field of food allergies, I have established strong collaborations with Drs Lafaille and Dunkin (Mount Sinai) as well as with Dr. Ma (Zunyi Medical University, China).

In 2019, I obtained my first project as PI for the study of the role of allergen-specific T cells in cow's milk allergy. As part of my returning plan to Spain as an independent scientist, I have applied in the last call, as a PI, for a   Knowledge Generation Project   of the Spanish   Plan Estatal de Investigación Científica y Técnica y de Innovación 2021-2023   (MICINN).

Finally, I have participated in social dissemination of my scientific research and my recent contributions about vaccination against SARS-CoV-2 have changed the   Estrategia de vacunación frente a COVID19 en España   designed by the Ministerio de Sanidad, Consumo y Bienestar Social. In addition, I hace been directly involved in the training of several students and I am currently supervising a PhD thesis.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	PRAZ , CORALINE
Referencia:	RYC2021-033112-I
Correo Electrónico:	coralinepraz@gmail.com
Título:	Non-Host resistance as a strategy for breeding durable resistance in wheat

Resumen de la Memoria:

I am deeply interested in understanding the mechanisms underlying plant disease resistance, plant genetics and plant breeding. During all the stages of my career I have deepen into this knowledge with the vision of providing new tools to design sustainable control strategies against diseases.

After a Bachelor and a Master in agricultural Sciences at the ETH Zürich, I joined the University of Zürich for my PhD. I investigated plant-pathogen interactions in the cereal-powdery mildew system focusing on the pathogen side of the interaction. I studied the genetic, molecular components underlying plant resistance and the evolution of pathogens to overcome plant resistance. I identified avirulence factors (Praz et al., 2017), established an annotation pipeline for the identification of effector genes (Müller et al., 2019) and developed expertise in transcriptomics and genomics that I apply to different pathosystems (Praz et al., 2018, Sucher et al., 2018, Yang et al., 2019, Poretti et al., 2019). In the following postdoc at the University of Zürich, I decided to have a more integrated understanding of plant-pathogen interactions and investigated the molecular components underlying plant resistance in wheat. I have been involved in the identification of resistance genes (Sánchez-Martín et al., 2021) and I studied the evolution of resistance genes in cereals in a large collaborative project (Rabanus-Wallace et al., 2021). Having acquired experience on plant resistance in cereals, I got interested in investigating disease tolerance in a perennial crop. With this goal, I joined the University of Reims Champagne Ardennes (France) to study the genetic architecture underlying grapevine tolerance to dieback disease and the evolutionary history of Botryosphariaceae, one of the causal agents of dieback disease. After this period, I decided to go a step further and established my own research line. I got a PostDoc.Mobility grant from the Swiss National Science Foundation and joined the CBGP (Madrid, Spain) where I am leading a project studying the role of avirulence factors and resistance genes in non-host resistance.

My achievements as an independent researcher are illustrated by my obtained patent, the 16 published manuscripts (four as first author, H-index of 12, 584 citations) and by my success in being awarded with different research grants.

Resumen del Currículum Vitae:

I am an agronomist with expertise in the molecular understanding of plant-pathogen interactions and in evolutionary aspects of host adaptation and specialization of pathogens. I developed my interest in plant disease resistance, genetics and breeding during my agronomy studies at ETH Zürich. In my PhD and in the following Postdoctoral stages at the University of Zürich and at the University of Reims, I have been working on diseases of cereals and grapevine. I acquired in-depth knowledge about the mechanisms underlying the resistance of plants to very damaging pathogens of crops, as well as about the evolution of effector and resistance genes and host-pathogen co-evolutionary arm-race. My final goal is to develop and design novel sustainable and durable control methods against diseases of crops.

Nonhost resistance which is considered to be broad-spectrum and durable is still largely unknown. Therefore, I decided to broaden my focus from interactions between adapted pathogens and their respective hosts to the study of mechanisms underlying host adaptation and host specialization. To do so, I was granted with a PostDoc.Mobility fellowship from the Swiss National Science Foundation that allows me to currently lead my own research project as Principal Investigator. Since July 2021, I have been leading the research project aiming to investigate the molecular mechanisms underlying host adaptation and host specialization. My vision is that deciphering the molecular components involved in specialization of pathogens to infect a particular host and elucidating the response of wheat to non-adapted pathogen species will help gaining understanding of the molecular mechanisms governing non-host resistance. This project will lead to the identification of genetic loci mediating non-host resistance in wheat that could directly be integrated in breeding programs. The final goal is to acquire a comprehensive and easily transferable understanding of the molecular mechanisms governing non-host resistance, contributing to design breeding strategies to obtain broad-spectrum resistant crops.

In addition to the projects I have led, my contribution to collaborative research in the different labs was significant by providing bioinformatics expertise in genetic association studies, transcriptomics analyses and gene annotations. I also contributed to a large collaborative effort involving more than 60 researchers from 12 different countries to generate and analyse a chromosome-scale assembly of rye. I taught various lectures, organised practical courses and co-supervised 2 PhD, one visiting scientist and one Bachelor student. My work resulted in 16 publications in international scientific journals. 13 of them are open access and I am the first author of four of them, and in a patent that has been registered to both the European Union and the United States patent offices. I have presented my results in at least 4 international conferences such as EUCARPIA and PAG, and in 7 national and local events dedicated to a broad audience highlighting its relevance in the field of plant-pathogen interactions and at multiple stakeholder levels.

Altogether, my independent research career is demonstrated by my publication record, my capacity to obtain grants as Principal Investigator and to supervise students and my extended network of worldwide collaborator.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	BARRANCO CASCALES, ISABEL
Referencia:	RYC2021-034546-I
Correo Electrónico:	isabel.barranco@um.es
Título:	Exploring boar semen to identify biomarkers for male reproductive performance

Resumen de la Memoria:

The Candidate began her scientific career in 2011 and the main research line has been focused on pig seminal plasma (SP). The research conducted in the framework of 10 competitive projects (being the principal investigator in two national and one international) has allowed for the identification of seminal molecules with biomarker capacity for the outcome of sperm preservation and fertility of boars included in Artificial Insemination (AI) programs. In addition, research has also provided a better understanding of the role of SP in both sperm physiology and the female reproductive tract environment for healthy embryo development. The Applicant has also investigated in other research topics of pig semen, including (1) sperm cryopreservation, for improving sperm freezability and fertility, and (2) new insights into the role of sperm molecules in the functional performance of porcine spermatozoa, mainly to uncover biomarkers of AI-boars fertility and for providing a better understanding of the underlying mechanisms of fertilization process. Recently, according to the state-of-art, the Candidate has focused part of her research activity on exploring seminal extracellular vesicles, aimed to perform an in-depth characterization of them and to evaluate their potential involvement on reproductive processes, such as in vitro embryo development. The research outputs (51 articles in JCR/SCI-indexed journals (41 in Q1-journals and 28 as first/senior author), one edited eBook and 53 contributions to international conferences) have been the results of her experiences and collaborations upon the different laboratories where she has worked/visited along her scientific career: University of Murcia, Spain (as PhD student (FPU grant) and postdoctoral researcher), University of Linkoping, Sweden (as PhD student (3 months) and postdoctoral researcher (10 months)), Institut National de la Recherche Agronomique, France (as PhD student (2 months), University of Girona, Spain (as Juan de la Cierva-Formación Fellow) and University of Bologna, Italy (as Marie Skłodowska-Curie Fellow).

Resumen del Currículum Vitae:

I graduated with a Doctor in Veterinary Medicine from the University of Murcia (UM) in 2011 (first in class). In 2012, I embarked on an MSc in Diagnosis of Reproductive Technology and Veterinary Medicine at UM. In 2013, I was granted with a competitive PhD fellowship (Spanish Government; FPU) at the research group "Animal Reproduction" of UM, supervised by Prof. Jordi Roca. Upon completing my PhD (September 2017, Excellent Cum Laude, International mention, and Extraordinary Award), I was awarded with a Postdoctoral Fellowship (Spanish Government; Juan de la Cierva-formación) with Dr. Marc Yeste at the University of Girona. I was also granted with a research Fellowship (Spanish Government; Jose Castillejo) for a short-term stay at the University of Linköping (LiU, Sweden). Overall, I did a total of 5 research stays abroad: at the Department of Clinical and Experimental Medicine of LiU (Sweden [predoctoral: 3 months; postdoctoral: 2+2+6 months]) and at the Department of the Physiology of Reproduction and Behavior of INRA (Nouzilly, France [predoctoral: 2 months]). Thus, I spent 15 months abroad without including my current 2-year research position (European Commission; Marie Curie Individual fellowship) at the University of Bologna (Italy, from March 1st, 2021) with Prof. Diego Bucci. I have participated in 10 competitive national and international research projects (Principal Investigator in 3; accumulating more than 250.000), and in 13 research contracts with national and international companies.

The main contributions of my scientific career are reflected in 91 publications in JCR/SCI journals with a h-index of 16: 51 articles (Q1: 41; Q2: 9; plus 3 submitted) in SCI/JCR-journals (33 with foreign authors), in relevant signature positions (28 as first/senior author and 6 as second or second-to-last author: 26 in Q1), 39 abstracts published in SCI/JCR-journals, 1 book chapter, 1 Editorial article as last author (Q1) and 1 edited eBook. I attended two international conferences as invited (plenary) speaker and I am author of 53 contributions to international conferences (11 oral communications). I am an Editorial Board Member of Frontiers in Endocrinology and Frontiers in Physiology, a Guest Editor of three peer-reviewed international SCI/JCR-journals, and I serve ad hoc reviewer for more than 15 SCI/JCR-journals (mostly in Q1). I am director of a scientific international society (Association for Applied Animal Andrology) and member of others (ESDAR; AERA; GEIVEX; ISEV). I have been awarded with the National Research Award 2018 for the Best Thesis in Life and Health Sciences (Spanish Royal Academy of Doctors), National Research Award Coris Gruart 2018 (Zaragoza University) and II Prize for the Best Thesis in Health Sciences (Robles Chillida Foundation). I have participated in several outreach activities (European Science Week 2021, European Science Night 2021) and as Member of evaluation panel for 2 PhD Dissertations.

I have been teaching for 6 academic years at different universities, with up to 375 h of magistral lectures and practical classes. I have supervised 7 Final Degree Projects, 3 Final MSc Thesis and 1 Thesis (ongoing). I was habilitated as Assistant Lecturer and Tenure-Track Lecturer by the Spanish Government (ANECA) and as Tenured Associate Professor by Generalitat Catalunya (AQU).

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	GRAMAZIO , PIETRO
Referencia:	RYC2021-031999-I
Correo Electrónico:	piegra@upv.es
Título:	Next-generation genetic improvement coupled with new plant breeding techniques for developing climate-ready Solanaceae cultivars and high value-added crops

Resumen de la Memoria:

I am a plant breeder and biotechnologist who combines conventional and cutting-end strategies and tools for an integrative Solanaceae breeding and genetic engineering approach. My research career started in 2011 at Universitat Politécnica de Valéncia (UPV) in the lab of Prof. Jaime Prohens with a three-year competitive grant Santiago Grisolía where I completed an MSc. in Plant Breeding (2013). Subsequently, in the same lab, I pursued a PhD. in Biotechnology (2018) thanks to a competitive predoctoral grant (FPI-UPV-2013), which was followed by being awarded a first competitive postdoctoral grant (PAID-10-18). Shortly after, I obtained the prestigious Japan Society for the Promotion of Science (JSPS) fellowship and joined the lab of Prof. Hiroshi Ezura at the University of Tsukuba, Japan (2019-2021). Finally, in May 2021 I moved to the lab of Dr. Diego Orzáez at the Institute of Molecular and Cellular Biology of Plants (IBMCP) thanks to a Juan de la Cierva-Formación Fellowship.

My extensive research experience has been focused on several complementary research lines, being deeply interested in exploiting the huge potential of crop wild relatives (CWR) for morphoagronomic, fruit quality and climate change-related traits by a massive introgression breeding approach, generating a multitude of advanced introgression materials with a wide spectrum of CWRs. Combining genomics and bioinformatics, I have developed genetic and genomic tools to assist the introgression breeding processes and foster breeding programs. I have also developed biparental and multiparental interspecific experimental populations for the dissection of genetic traits and to release prebreeding materials ready to be incorporated in breeding pipelines. At present, I am using different genome editing strategies to: i) validate the function of candidate genes and causative variations identified in QTLs and GWAS studies using the genetic tools and experimental population I developed, ii) improve fruit quality traits and their nutraceutical values modifying the pattern and accumulation of high-value compounds, and iii) enhance the plant chassis to booster the potential of plants as biofactories platforms for molecular farming.

The large diversity of the R&D projects and contracts I was actively involved with national and international collaborators, the different techniques and analyses I have performed and mastered, the different species I have investigated and all the skills I have developed through the research, teaching and mentoring experience, allow me to tailor and design integrative research and development strategies and gain a holistic overview, prerequisites for a consolidated independent researcher.

Resumen del Currículum Vitae:

Pietro Gramazio is a postdoctoral researcher at IBMCP since May 2021 with a Juan de la Cierva-Formación fellowship. During his MSc in Plant Breeding (2013) and PhD in Biotechnology (May 2018) at UPV, pursued thanks to the Santiago Grisolía from GVA and predoctoral (FPI-UPV-2013) from UPV competitive grants, respectively, he was deeply involved in pioneering projects for the development of eggplant introgression breeding materials and genetic and genomic tools in several neglected Solanaceae crops. After that, he obtained his first competitive postdoctoral grant from UPV and shortly after he was awarded the highly competitive prestigious JSPS grant (2019-2021) joining the University of Tsukuba (UT) where he performed genome editing in tomato and melon designing alternative and challenging CRISPR approaches on gene promoter regions. Subsequently, he moved to IBMCP performing synthetic biology-inspired genome editing strategies by using multiple new plant breeding techniques to convert fast-growing model plants into biofactories for molecular farming. In addition, in recent years he has started a new line on genomics and gene editing of Cannabis for biomedical applications.

His intense scientific activity and collaborative spirit, including joint works with a large number of national and international researchers, has translated into a highly productive publication record, having co-authored so far 54 articles in JCR journals, of which 39 papers are in Q1 (18 in D1) and 26 with international research groups outside Spain. He has been the first author of 13 of them, six as second and seven as the last author. Moreover, he has been the corresponding author in 10 of them. His publications cumulate a rapidly increasing number of citations (>1750 in Scholar, 460 in 2021) resulting in a current h-index of 24. He is also the author of 5 dissemination and transfer publications, 5 book chapters and 110 communications in top scientific conferences, being member of the scientific committee of the ISHS 1st ECPGHS conference, acting twice as chair of a session and being invited speaker at the 15th Solanaceae Conference. He has performed two main international stays: one (3 months) at the Virginia Tech University (USA) with Prof. Aureliano Bombarely and another one (25 months) at the UT (Japan) with Prof. Hiroshi Ezura. He has been involved in eleven R&D projects funded through competitive calls (three of them EU projects, G2P-SOL, BRESOV and NEWCOTIANA) and in six R&D contracts (two of them with the international organization Global Crop Diversity Trust). In one R&D contract with the company MyFlora DNA, he is acting as Co-PI and also as a scientific advisor of the company. He is serving on the Editorial Board of three JCR journals (Frontiers in Plant Science, Agriculture, and Genes) where he also acted as Guest editor in five Research Topics, and he is a frequent external reviewer for top scientific journals. He has supervised two PhD thesis on breeding and biotechnology presented in 2020 (on eggplant) and 2021 (on Cannabis), plus two ongoing and four master theses, plus four ongoing. Aside from his research and supervision activity, he also has an important teaching activity, with over 400 hours of lectures to official bachelor and master s degree courses across 12 subjects. Since 27/01/2022 he is accredited as Profesor Titular de Universidad

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	TAMAGNO , SANTIAGO
Referencia:	RYC2021-032713-I
Correo Electrónico:	S.TAMAGNO@HOTMAIL.COM
Título:	Crop ecophysiology and sustainable agriculture

Resumen de la Memoria:

Agronomist (2013; University of Rosario, Argentina) with over ten years of experience in academia, MS in Plant Breeding (2015; University of Rosario, Argentina), PhD in Agronomy (Kansas State University, US) and currently Postdoctoral scholar at University of California, Davis (US). Main research interests include the study of physiological basis involved in plant growth and nutrient dynamics that are determinant in grain yield formation and grain nutritional composition in different crops. I have built a career studying how these processes interact in the context of current agricultural systems and their implications to achieve greater resource-use efficiency in grain production. I integrate crop ecophysiology and agronomic management to meet more sustainable crop production systems while reducing off-farm environmental impacts.

I have conducted and started a research line in flint maize varieties in Argentina for four years. My publications on the topic described and quantified plant-level physiological attributes responsible for abiotic stress tolerance and grain quality (grain hardness, protein concentration, and composition). Conducted multi-locations trials, collaborated with the private sector (milling and trading companies), and organized symposiums to disseminate results. Outcomes from this research had implications for the Argentinean trading markets and other actors of the agri-food chain.

My PhD dissertation explored different aspects of soybean crop physiology related to nitrogen nutrition, emphasizing biological nitrogen fixation and its impact on seed yield and composition. I first-authored five manuscripts from my PhD dissertation chapters, published in high-impact factor journals (IF > 5). I carried out experiments in field and greenhouse setups, gain laboratory training in the ureide methodology to quantify nitrogen fixation in soybeans. I elaborated novel hypotheses about the energetic cost of nitrogen fixation and its influence on seed yield and seed components. In 2019, during my visit to Adelaide (Australia) as Visiting Research Scientist at SARDI, I elaborated a manuscript with experimental data from my PhD on the effects of historical yield improvement in seed quality and biomass partitioning in modern varieties. The same year I spent one month as Visiting Scientist at Corteva Agriscience (Iowa, US), working on a manuscript describing the dynamics of the accumulation of fatty acids in seeds.

At UC Davis, I have integrated these research lines to develop a better scientific understanding of nitrogen balance as an agronomic and environmental indicator in sustainable agriculture. Despite growing interest in this indicator, important questions remain on how broad the relationship between nitrogen balance and nitrogen losses is and other assumptions underlying its calculation. I am conducting this line of research and have already published an article using a global dataset to report the relationship between nitrogen balance and nitrate leaching and wrote a grant for a two-year project.

Resumen del Currículum Vitae:

With over ten years of experience, I contributed to my field with 14 peer-reviewed publications (8 as a corresponding/first author; +200 citations) on diverse species and reviewed manuscripts for nine journals. I have presented my results in local and international conferences, extension meetings and seminars, and received numerous prestigious awards. I have established a solid network of collaborators and published with co-authors from Argentina, Brazil, Australia, Europe, and the United States (US).

I started my career as a researcher in 2013 during my MS in Plant Breeding (2-year program) in Argentina. I learned plant sampling protocols, data analysis, and scientific writing. I coordinated all the field activities, presented research reports to collaborators and wrote scientific articles. My experiments comprised +200 plots every year with intense plant measurements. I was in charge of coordinating the activities of technicians, interns, and +20 rotating students. At this point, mentoring activities included assisting rotating students with their final reports discussing the objectives of my research, methodologies, and conclusions from preliminary results.

I published three papers from my MS in different recognized journals as the senior author in two of them. In 2015, I was invited by Dr. Ciampitti at Kansas State Univ. (US). Based on my expertise, his goals for my stay were to mentor and motivate students on scientific writing, paper discussions, and data analysis while helping in field activities.

I was the senior/corresponding author in elaborating a scientific article on soybean nutrient dynamics and stoichiometry. The article was published in Field Crops Research and it is currently my top cited paper (61 citations). I conducted indoor experiments in greenhouse setups and supervised MS students. In 2016, I received the Monsanto STEM Fellowship (US $50,000) to start my PhD in soybeans.

By 2017, I had authored four articles, established collaborations within the US and mentored graduate students in statistics and research skills. My first project was to coordinate the data collection from a network of +30 soybean trials in 12 states in the US. I supervised two MS students in writing their first manuscript by discussing objectives, data analysis, and writing. I worked with international visiting scholars, Dr. Ambrosini and Dr. de Borja Reis were supervised by me in the elaboration of manuscripts.

In 2019, I traveled to Adelaide (Australia) for a research stay of two months at SARDI. I wrote a manuscript for my PhD dissertation as the first corresponding author in this short stay. In Australia, I traveled to the University of Queensland (Brisbane) to meet with researchers in my area and expand my network, attended the 19th Australian Agronomy Conference, and was an invited speaker on the SARDI Visiting Speaker Seminar.

In my current position at UC Davis, which I consider a double-mobility transition from a geographical and intellectual point of view, I am expanding my expertise to a new field of research. Here, I led my first project to explore the relationship between N balance and nitrate losses from farms. This project yielded two articles as first/corresponding author and another one under review. I am leading the preparation of two more manuscripts and wrote a grant with my advisor for a two-year funded project.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	PIÑEIRO NEVADO, JUAN
Referencia:	RYC2021-033454-I
Correo Electrónico:	j.pineiron@gmail.com
Título:	Understanding the role of root-microbe interactions to cope with global change in forest and agricultural ecosystems

Resumen de la Memoria:

I am a researcher aiming at understanding biogeochemical processes driving soil carbon storage and nutrient cycling in forests. I have focused my studies on root-soil-microbial interactions, which were the core of my PhD thesis at Western Sydney University and my postdoctoral work at West Virginia University (WVU). During my PhD I centred my research on disentangle how root physiological adaptations to elevated CO_2 concentrations influence the activity of soil microorganisms and their potential feedback on plant nutrition and soil carbon storage. Soon after graduating I joined WVU where I expanded my PhD research topic by investigating the role of mycorrhizal association as modulator of microbial responses to chronic nitrogen fertilization in forests. Because of my work as postdoctoral researcher at WVU, I masters cutting-edge molecular techniques (e.g. shotgun genomics and Quantitative Stable Isotope Probing) that enables the identification of active microbial taxa and permits to explore the quantitative significance of individual taxa on biogeochemical cycles. Further, due to my extensive international experience, I am part of one international sampling network aiming to consolidate the information gathered from single experiments.

I am mentoring a PhD thesis and I have mentored 2 Masters thesis at University of Cádiz and 1 student at WVU as part of the Research Apprenticeship Program.

My research make use of a wide range of field skills (samplings of plant species, estimates of biomass, production and activity of roots, CO_2 fluxes at organ and ecosystem level, litter decomposition) and laboratory techniques (nutrient analysis, isotope analysis, molecular techniques such as quantitative PCR, enzymatic activities, phospholipid analysis). I also specialized on the management and analysis of complex data sets, including data on composition, activity and diversity of soil fungal and bacterial communities from massive sequencing analysis.

Resumen del Currículum Vitae:

I integrate a wide range of experimental and methodological approaches to investigate the effects of global change drivers and management practices on biogeochemical processes in forests, as well as the capacity of these ecosystems to provide key services such as carbon storage and soil fertility.

The results of my research include 16 publications included in the Scientific Citation Index, including first author papers in highly-reputed journals like Journal of Ecology and Functional Ecology, and coauthored papers in leading journals like Nature, The ISME Journal and Ecological Monographs. My articles have been cited 284 times and my h-index is 7 (based on Scopus, 04/02/2022). Fourteen of my publications are in journals of the first quartile. Currently, I have three scientific manuscripts under review or in revision, all of them as the first author.

After less than 3 years from the completion of my PhD, I have worked on 3 research institutions from different countries. I have presented my work in 6 conferences (5 of them international) and collaborated in publications with researchers from 8 different institutions. I have also given seminars in 2 international workshops hosted by universities (i.e. Northeast Normal university and University of California Irvine) and participated in research projects in another 2 institutions (University of New Mexico, Northern Arizona University).

I have spent a significant amount of time and effort learning, developing and mastering cutting-edge methodological and analytical tools. I have an outstanding statistical background along with a deep knowledge of the major tools used for such purposes (i.e. bioinformatics and R statistical platform). I am proficient with a wide range of laboratory protocols. In particular, I master molecular and isotopic analyses, which are at the vanguard of soils sciences and microbial ecology.

I have demonstrated my capacity to manage my own resources and lead my own research initiatives. I have participated in five projects funded by competitive calls, in two of which I was the Principal Investigator (Western Sydney University). My PhD program also included a research budget of 3,000 Australian dollars. I also managed a budget of up to 50,000 US dollars as part of my fellowship at West Virginia University in United States.

Currently, I am supervising a doctoral thesis in University of Cádiz. I have supervised two Master's theses in University of Cádiz, as well as a research apprentice in United States. This is testament to my ability to effectively coordinate my own research group.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	SANCHEZ GOMEZ, JOSE MARA
Referencia:	RYC2021-033574-I
Correo Electrónico:	jm.sanchez@inia.es
Título:	Mechanisms underlying embryonic losses associated with the period of conceptus elongation in cattle

Resumen de la Memoria:

My long-term research goal is to fully elucidate the mechanisms regulating conceptus survival, growth and differentiation necessary to ensure successful establishment and maintenance of pregnancy in mammals.

Despite being at an early career stage (~3 years post PhD), I have a strong academic and research profile that has been cultivated since graduating in veterinary medicine (University of Cordoba-UCO, Spain, 2004). Following 6 years-experience in practice focussed on animal reproduction, I completed a Masters in Biotechnology of Reproduction (University of Murcia, Spain, 2013) working on a project focussed on endangered breed conservation. During the Masters, I obtained an Erasmus grant to work on a project at the Institute of Farm Animal Genetics (Germany) where I developed a device for deep intrauterine artificial insemination in cattle. In 2014, I moved back to UCO where I reported an improvement in fertility in dairy cattle after the administration of hCG on Day 2 post-insemination. I then undertook a PhD (2015-2018) at University College Dublin-UCD (Ireland) supervised by Prof. Pat Lonergan. In parallel, I undertook a 4-year residency program in Biotechnology of Reproduction under the auspices of the prestigious European College of Animal Reproduction. After my PhD, I completed one year as Postdoc at UCD and currently I hold a Postdoctoral Fellowship (CAM-Talent Atraction) at CSIC-INIA (Spain). During my career, my work has comfortably straddled the bridge between basic and applied research, revolving around the understanding of early embryonic losses and the use of assisted reproductive technologies to improve the efficiency and sustainability of cattle production. Of note, I developed a conceptus-endometrial explant co-cultured system model for understanding factors regulating embryonic survival/loss during the preimplantation period which has proven to be very robust and has been adopted by many other groups. Using this model, I demonstrated that the endometrium responds differently to age-matched long (good quality) and short (poor quality) conceptuses in an interferon tau-dependent and independent manner, which may be critical for embryo survival.

By virtue of being embedded in an international interdisciplinary training program and collaborating on many projects during my career to date, I have acquired a high level of knowledge in my research area, developed teaching and mentoring skills, gained expertise in state-of-the-art techniques, built and maintained a robust network, cultivated collaborations with industry, and developed skills to acquire funding, to manage projects and to disseminate scientific research to wide audiences (37 (+2 submitted) peer-reviewed papers, 52 (+4 submitted) abstracts, 5 dissemination articles, multiple workshops/seminars).

Resumen del Currículum Vitae:

Despite being at an early career stage, I have already gained considerable experience, leadership and accomplished significant achievements. I have been the recipient of 3 major scholarships, which funded my Bachelor and PhD degrees and my subsequent return to Spain. Having spent my career in several countries (Ireland, Spain, Germany and UK) and established a strong collaborative network, evidenced by joint publications, I have experienced first-hand the tremendous opportunities for doing world-class research with leading researchers in the area of cattle fertility. My research focuses on understanding the regulation of embryo development and embryo-maternal communication to ensure successful establishment and maintenance of pregnancy.

Key achievements in the generation of knowledge: My proactive attitude has led to the publication of a large volume of articles (37+2 submitted) in the leading international journals in my area and 1 book chapter. Note, I occupy a major position in the author list in the majority (first, second, or corresponding in 77% of the publications), reflecting my major contribution to the hypothesis generation, execution and reporting of the studies.

Key achievements in the development of individuals: due to my expertise in a variety ARTs, OMICs technologies, in vivo and in vitro models, I have taught and mentored undergraduate and postgraduate students and technicians in several institutions in Ireland and Spain. I also deliver several invited lectures each year in two Masters programmes in Reproductive Biotechnology. I have co-supervised 4 undergraduate and 2 Masters thesis to completion and I am currently co-supervising 3 PhD students.

Key achievements supporting the research community: I am a member of several international societies (e.g. SSR, IETS, AETE). I serve as ad-hoc reviewer for many leading journals and act as Expert project reviewer for the National Science Centre Poland and the Spanish National Research Agency. I have also been a member of the assessment committee for 3 Master students. I am a member of the organizing committee of the 11th International Ruminant Reproduction Symposium (2023), a major event in this area held every 4 years.

Key achievements supporting broader society and the economy: I have been actively involved in knowledge transfer to veterinarians, farmers and society. I participate as invited speaker in several hand-on courses designed to offer veterinarians update training in different ARTs. I have been speaker and organiser of several seminars for farmers. I have also participated in two TV shows explaining how to carry out a Breeding Soundness Evaluation in bulls. I have written 5 dissemination articles for farmers and practitioners both in Spanish and English. These activities have played a central role in the dissemination of research findings to end users and primary producers in the agri-food sector to current reproductive management strategies used there. I have significant collaboration with industry in Ireland and Spain (e.g. CEVA and COVAP). I organise and collaborate in different events aiming to highlight the results of our research (e.g. Lyons Open Day, INIA Research Week).

As summarized above, I have a strong research-academic profile, which I want to further develop to consolidate my career and be a competitive candidate for a permanent research position.

Área Temática: **Ciencias agrarias y agroalimentarias**
Nombre: ARCHIDONA YUSTE, ANTONIO JESUS
Referencia: RYC2021-031108-I
Correo Electrónico: antonioj.archidona@juntadeandalucia.es
Título: Question-driven research in biodiversity of plant-parasitic nematodes as a fundamental research for further application in sustainable and integrated management of agricultural systems.

Resumen de la Memoria:

A. Archidona-Yuste holds a Ph.D. in Agricultural Engineering from the University of Cordoba and is a contracted Doctor Research Staff (PAIDI 2020) at the Andalusian Institute of Agricultural and Fisheries Research and Training (IFAPA), where is a member of the Plant Protection Department with special focus on Agricultural Nematology. Notably, there are several points that describe the outstanding quality of the scientific career of the candidate in terms of scientific knowledge transfer and international competitiveness: competitive grants such as Professional Training of Researchers (FPI) and Humboldt Research Fellowship of Postdoctoral Researchers, competition contract such as the Selection of Doctoral Research Staff (PAIDI) obtaining the first position in the IFAPA, scientific awards such as the Extraordinary Doctoral Thesis Prize of the University of Cordoba and the First Prize for the Best Poster in the XV International Congress of the Mediterranean Phytopathological Union, IP of a one competitive research project, IP of a one research project with a private agricultural company, participation in national and international research projects being responsible for some WPS, teaching experience (i.e. honorary collaborator professor), supervisor of bachelor and MSc degree projects as well as technicians. This background provides and demonstrates him enough skills to be a stable young researcher of international renown and to obtain stable and long-term contracts to continue the research in the future and contribute to making Spanish Agriculture Research more competitive within the Nematology area.

The scientific career of A. Archidona Yuste has been developed in the field of Plant Protection, with a special focus on Agricultural Nematology, both in the diagnosis and control of plant diseases caused by PPNs in diverse crops of relevance in Spanish Agriculture and on how these organisms interact with plants and other soil microorganisms to design an effective integrated and sustainable management in agricultural systems. In addition, and of special interest are the research lines developed in the field of Soil Ecology and Conservation of Soil Biodiversity. All this constitutes the main research line carried out, leading the line focused in question-driven research in biodiversity of PPNs in multiple ecosystems, especially in agricultural systems, as fundamental research for further application in sustainable and integrated management of agricultural systems. This requires addressing a series of issues that have formed part of the following lines that he has led during his scientific career: i) Integrative diagnosis of plant-parasitic nematodes (including descriptions of new species); ii) Molecular diversity and genome sequencing of plant-parasitic nematodes and endosymbionts; iii) Deterministic processes driving the diversity of plant-parasitic nematodes in agricultural systems; iv) Spatio-temporal, community assembly patterns and climate change effect on the diversity of soil nematodes; and v)Variation of nematode diversity as driving agents of ecosystem multifunctionality in agroecosystems.

Resumen del Currículum Vitae:

A. Archidona-Yuste holds a Ph.D. in Agricultural Engineering from the University of Cordoba (UCO) and is a contracted Doctor Research Staff (PAIDI 2020) at IFAPA, where is a member of Plant Protection Department, with a special focus on Agricultural Nematology. The applicant spent three research stays in internationally recognized centers. He completed the Ph.D. at IAS (CSIC) with the award of an FPI grant. In addition, he got an internationally competitive research project "Humboldt Research Fellowship for Postdoctoral Researchers" (84.080,00), and a project with a private company (UPL Iberica S.L., 10.309,20). Currently, the applicant holds a competitive contract from the Selection of Doctoral Research Staff (PAIDI), where he obtained the first position in the IFAPA. Two awards: Extraordinary Doctoral Thesis Prize of UCO and the First Prize for the Best Poster in the XV International Congress of the MPU. More details: https://cvn.fecyt.es/0000-0003-4446-0642

General quality indicators:
a) Scientific and technical contributions.
58 publications (50 SCI-JCR, 21 Q1, 6 D1) and 1 book chapter, being the first or corresponding author in 18 (36%). h = 13 (535 citations); 16 participations in international (3 invited speaker) and 12 national conferences. 7 technical dissemination publications and direct scientific dissemination on media. He has published in journals with a higher impact factor (D1, Q1) such as Journal of Applied Ecology, Molecular Ecology, Agriculture, Ecosystems & Environment, Frontiers in Plant Science, Zoological Journal of the Linnean Society.

b) Mobility and Internationalization.
Two competitive international research stays during the pre-doctoral phase including the UC-Davis (USA) and UFZ (Germany) for 6 months each. A competitive international postdoctoral stay at UFZ and iDiv in Germany for 24 months was awarded by Humboldt Research Fellowship for Postdoctoral Researchers. Invited speaker in 3 international conferences (one in plenary season). He has also appreciated the collaborations with more than 100 experienced international scientific researchers. Currently, he collaborates in international research projects where he is responsible for WPS.

c) Leadership
The applicant is currently leading the research line focused in question-driven research in the biodiversity of plant-parasitic nematodes in multiple ecosystems, especially in agricultural systems. He has been IP and participated in a total of 14 competitive international and national projects, being responsible for some WPS. He is IP of a scientific project with a private company. Due to the extension of the last and current contracts, he cannot participate in Spanish calls for research projects. He has led as first and or the corresponding author in 18 manuscripts. He is co-director of a bachelor and MSc final projects and supervisor of technicians. He is an honorary collaborator professor at UCO. The leadership capacity of the applicant is also observed in the direction of research and publication outside the center of origin.

d) Other curricular merits.
More than 500 annual activities of nematological diagnosis for agricultural companies which provide funding research contact with the real problems of agriculture. More than 1500 sequences were provided in GenBank. Member of scientific societies (SEF, AEET, ESN).

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	COLLADO GONZALEZ, MARIA DEL MAR
Referencia:	RYC2021-034184-I
Correo Electrónico:	mdmcg1@um.es
Título:	Toward applications of biopolymer-based nanocarriers in living systems

Resumen de la Memoria:

In her Ph.D., the applicant was introduced to the field of nanotechnology, namely to the synthesis and characterization of drug delivery systems based on biopolymers, such as chitosan. In her postdoctoral research activity, she acquired a wide experience in the synthesis of different types of drug delivery systems such as nanocomposites, oil-in-water nanocapsules or liposomes, in which she involved the use of chitosan. The main research interests of the applicant lie in the development of drug delivery systems with biomedical application. This includes the identification of non-toxic biomaterials that can be used for the development of different nanosystems, such as biopolymers. One of the main drawbacks of biopolymeric nanosystems is their instability at physiological conditions. The applicant has made relevant contributions to the stabilisation of drug delivery system, such as citrate-gold nanoparticles, by using chitosan. She has proven that the interaction between different species leads to nanosystems with different properties, including their stability. Also, the candidate has worked on the analysis of the mucoadhesion and mucopenetration of the nanosystems as well as their interactions with the mucosa that cover all the mucous epithelia. The applicant has developed a biomaterial composed of crosslinked mucins (results not published yet, as this research is in the patent filing stage) that are the most abundant glycoproteins in the mucosal surfaces and that could be of potential use in the analysis of the mucoadhesion and mucopenetration of drug delivery systems. Indeed, the biomaterial prepared could serve as a scaffold for the protection, treatment and therapy of mucosal surfaces. The third current research line of the candidate is the application of drug delivery systems in biological systems since the responses to the nanosystems in biological systems cannot be entirely foreseen due to many other emergent properties. In this field, the applicant has recreated in vitro different scenarios such as the interaction between chitosan-based nanocapsules and saliva and the insulin release after in vitro simulated digestion process. The applicant has also designed chitosan-microRNA nanocomplexes for the glioblastoma treatment.

The applicant has been awarded a Marie Sklodowska-Curie fellowship, one of the most competitive call within the Horizon 2020- Research and Innovation Framework Programme. This project allows the applicant to continue with the experimental research that she started during her first postdoctoral stay at the UoL. It aims to evaluate a biomimetic mucus gel (BMG) for its use as mucosal nanovaccine and mucosal restoration for farmed fish. In addition, through a joint experimental and computational approach, rationalizing the design of chitosan-based nanodevices to load in BMG to apply on both healthy and disrupted mucosal surfaces. This Project involves the interaction with the University of Leeds (UK), the University of Rio Grande do Sul (Brazil), the University of Zaragoza (Spain) and the Catholic University of Murcia (UCAM, Spain).

Resumen del Currículum Vitae:

The applicant has a multidisciplinary background and experience in leading investigations. She had a degree in Biology (2011) from the University of Murcia (UM) (Spain). Her first research work was developed in the Microbiology Department and then she got a Master in Molecular Biology and Biotechnology at UM and a Ph.D. in the Department of Physical Chemistry (UM). As part of her Ph.D., the candidate performed a short stay in the Faculty of Pharmacy (University of Coimbra, Portugal). Moreover, she has worked in the Department of Physical Medicine (UM) as a researcher. In 2018, the candidate was awarded a post-doctoral fellowship within a competitive peer-reviewed call (Seneca Foundation of Murcia Region, CARM, Spain) and she moved to Leeds (UK) and joined the Biopolymers research group at the School of Food Science and Nutrition from the University of Leeds (UoL). UoL is acclaimed world-wide for the quality of its teaching and research and is ranked 92nd in the QS World University Rankings 2022. In that position, the applicant joined the group of Prof. Francisco M Goycoolea (h-Index of 40), who is an expert on chitin and chitosan. In 2020, the applicant obtained a competitive three-year postdoctoral research contract in Analytical Biochemistry in the Colloids group of Prof. Alan Mackie (h-Index of 61) in the School of Food Science and Nutrition from UoL. Prof. Alan Mackie is an expert in colloids and mucins and mucosal interactions. In 2021, the applicant was awarded a Marie Sklodowska-Curie Individual Fellowship and joined the Inmunobiology for Aquaculture research group under the supervision of Prof. María Ángeles Esteban (h-Index of 62). Prof. María Ángeles Esteban is an expert in fish immunology in the field of aquaculture and in fish mucus. In 2021, the applicant was awarded a Juan de la Cierva Incorporación fellowship, although she declined the grant due to the above mentioned and overlapped award of the Marie Sklodowska-Curie Fellowship.

Indeed, the applicant has demonstrated the capacity to move to new research fields and to develop a high-quality research. As proof of her experience, she is author of 34 publications in peer-reviewed journals (20 of them in the first quartile, 6 of which in the first decile; 14 of them as first author, 3 of them as corresponding author) and a book chapter. The applicant has contributed to 45 works presented in scientific congresses, of which 22 were nuclear to her research line. Namely, as a result of her research line, it has been presented and defended 3 posters and 5 oral communications (four of them by the applicant) in national scientific congresses and 12 posters and 2 oral communications (one of them by the applicant) in international scientific congresses.

The applicant has also delivered more than 100 h of lectures at the UM and UoL and co-supervised 16 Bachelor and Master students (UM and UoL). The applicant has obtained the Profesor Contratado Doctor certificate by the ANECA (Spanish Agency). She is referee of some indexed Journals (such as Carbohydrate Polymers, among others).

The candidate has participated in several scientific divulgation activities, such as being a member of the editorial committee of EUBACTERIA, a university journal for scientific divulgation from 2011, and the European Researchers Night 2021, among other divulgation activities.

Área Temática: Ciencias agrarias y agroalimentarias
Nombre: MARTINEZ SANCHO, ELISABET
Referencia: RYC2021-035078-I
Correo Electrónico: eli.martnez@gmail.com
Título: Spatiotemporal patterns of forest vulnerability: drivers and implications

Resumen de la Memoria:

My interest in forest ecosystems started during my BSc in Biology at the Universitat Autònoma de Barcelona UAB (Spain) in 2009. Afterward, during my MSc in Biodiversity at the Universitat de Barcelona UB (Spain) in 2011, I applied dendrochronological techniques, which were the basis for my future research. I graduated of my PhD in Dec-2017 at the Technische Universität München TUM (Germany) with the highest mark (Summa cum laude). As a PhD student, I received the Laura Bassi award from TUM. I currently work as a researcher at the Swiss Federal Institute for Forest, Snow and Landscape Research WSL (Switzerland).

I am a forest ecologist interested in i) assessing how trees cope with the impact of short- and long-term climate change effects by means of physiological or hydraulic adjustments and/or evolutionary processes, and ii) understanding how these adjustments affect overall tree growth performance and their feedback on terrestrial cycles. To do so, I applied multidisciplinary approaches combining forest ecology, dendrochronology, quantitative genetics and spatial modelling aiming at upscaling from cellular processes to species distributions and forest composition.

Although the early stage of my scientific career (4-year PhD and 3-year 2-month postdoc), I achieved 22 publications (two more in an advanced stage of revisions, one submitted and one book chapter) in international peer-reviewed journals (8 first-author, 2 last-author, 11 without PhD supervisor), 21 of them Q1 journals. I have presented 5 oral presentations and 7 posters, and 3 invited talks.

This large variety of disciplines and research interests are the direct consequence of my high degree of self-motivation, my large interdisciplinary, institutional and international mobility (since my MSc studies 7 research institutions from 6 countries) and my extended network of collaborators. Overall, my research trajectory demonstrates my capacity to successfully complete diverse projects, undertake and take new initiatives and ideas forward, and acquire cutting-edge experimental skills as well as my strong international background crucial for my excellent network of collaborators. Among my future research goals, I want to combine spatial modeling with tree-ring derived information (wood anatomy, stable isotopes, ring width) and evolutionary processes (local adaptation and phenotypic plasticity) to not only fill gaps in our current understanding of tree functioning under ongoing climate change but also to providing managers and policymakers with appropriate tools to soundly design the structure and composition of future forests, dissolving the line between forestry and plant ecology.

Resumen del Currículum Vitae:

My interest in forest ecosystems started during my BSc in Biology at the Universitat Autònoma de Barcelona UAB (Spain) in 2009. Afterward, during my MSc in Biodiversity at the Universitat de Barcelona UB (Spain) in 2011, I applied dendrochronological techniques, which were the basis for my future research. I graduated of my PhD in Dec-2017 at the Technische Universität München TUM (Germany) with the highest mark (Summa cum laude). Since 2019, I work as a postdoctoral researcher at the Swiss Federal Institute for Forest, Snow and Landscape Research WSL (Switzerland). I have obtained one project as the main PI (60kCHF) and 2 projects as a co-PI (311kCHF). I have also participated in 2 European projects (Horizon 2020) and I am a member of a European consortium that has recently submitted a proposal in the Horizon Europe framework.

Although the early stage of my scientific career (4-year PhD and 3-year 2-month postdoc), I achieved 22 publications (two more in an advanced stage of revisions, one submitted and one book chapter) in international peer-reviewed journals (8 first-author, 2 last-author, 11 without PhD supervisor), 21 of them Q1 journals. I have presented 5 oral presentations and 7 posters, and 3 invited talks.

I have been awarded with 3 fellowships/awards: ARGO scholarships from Ministerio de Educación, Cultura y Deporte (Spain), Laura Bassi award of the Technische Universität München (Germany) for outstanding women in science, and Juan de la Cierva Formación 2018 (Spain), 1st ranked in the Agricultural Sciences. However, I declined the Juan de la Cierva fellowship.

Due to my international mobility, I have worked/visited 7 research institutions from 6 countries. I am currently an associate editor of the journal Dendrochronologia (IF: 2.697, Q1 Forestry) and I acted as a reviewer for nine more journals. In 2021, I acted as a convener of the scientific session: Interdisciplinary Tree-Ring Research at the European Geoscience Union meeting (EGU). At the educational level, I have co-supervised an MSc thesis at TUM and I am currently co-supervising an MSc thesis at the ETH Zurich (Switzerland). I co-organized the 31st edition of the European Dendroecological Fieldweek (Switzerland), which is an important full educational experience for young researchers who want to be initiated in dendrochronology. Finally, I also want to highlight that I am a committed member of the academic community. Since 2021, I am the current early-career scientist Representative of the Biogeosciences division of the EGU and I am the co-leader of the peer-mentoring group for female postdocs at WSL (Switzerland).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	ALDEA MALLO, JORGE
Referencia:	RYC2021-033031-I
Correo Electrónico:	jorgealdea@gmail.com
Título:	Forest Growth Dynamics and Sustainable Forest Management

Resumen de la Memoria:

My main research line is based in the field of "Forest Growth Dynamics and Sustainable Forest Management , which aims to improve scientific knowledge of growth dynamics of forest systems in the context of global change and provide science-based sustainable silvicultural guidelines for practical application in forestry. Within the main line of my research, three aims can be distinguished, which follow the progression of my research career:

1. Integrating forest production and other ecosystem services into forest management and the broader bio-economy. I participated in several multidisciplinary and international research projects at public and private companies. I have contributed to technology and knowledge transfer by publishing several peer-reviewed papers and book chapters on bio-economy and non-timber forest products.

2. Providing scientific knowledge on growth dynamics and supporting silvicultural decisions for the management of mixed stands. During my PhD and two international post-doc positions, I joined several national and international research projects (one financed by the EU) focused on this objective. I significantly contributed to the outstanding increase of knowledge on the topic with numerous publications and an extensive international collaboration network.

3. Assessing the risk of damage and forest vulnerability under different biotic and abiotic disturbances exacerbated by climate change. I lead two research projects, three projects based on the technology and knowledge transfer, and I was co-IP of two other research projects for this objective. My contributions include different methods of risk assessment, creating a module in forest management software and looking for smart forestry solutions to face forest damage from abiotic (drought and wind) and biotic (diseases) factors caused by climate change.

So far in my career I have supervised one PhD and three master s students, and have taught in bachelor s- and master s-level forestry courses.

Resumen del Currículum Vitae:

I have a professional background as a technical and researcher assistant at public and private companies within several inter-sectorial teams (mycology and forest bioeconomy) from before my doctoral period. For my PhD, I studied tree growth dynamics and silvicultural treatments in Mediterranean mixed forests. This work developed forest management practices with important implications in the face of ongoing climate change. My first post-doctoral position was in the Ecology group at the Southern Swedish Forest Research Centre (SLU), focused on the silviculture and growth dynamics of mixed forests as a tool for forest climate change adaptation. I did a second post-doc in the Silvicultural group of the same department to assess the long-term impacts of increased species mixture on the diversity and bioeconomy of boreal forests. As result of my research activity, I have published 22 papers (6 as first author) in multidisciplinary peer-reviewed journals (SCI). According to WoS, I have an h-index of 12 and 348 total citations (excluding self-citations). I have participated in 19 national and international research projects, being a leader in 5 of them (44,390 total granted) and a co-applicant in 2 others (230,900 total granted). With my multidisciplinary scientific profile, broad contact networks, and own experiences of mobility, I have significantly contributed to the recent growth of knowledge on Forest Growth Dynamics and Sustainable Forest Management.

I have participated in numerous national and international congresses, with 36 contributions (18 as first author), including in the Cost-Action FP1206 about European mixed forests. I co-organized a IUFRO international congress about the resilience and management of mixed forests in 2020, although it was ultimately cancelled due to the pandemic. I have collaborated on 4 scientific and technical books, authoring 15 chapters (6 as main author). It is noteworthy that my collaboration in several projects involved open science and innovation. I am leader of a high-priority research project of the Forest Damage Center at SLU which is developing a software module for a forest decision support system to evaluate the effect of wind disturbance under climate change in Sweden. I have also led two projects in collaboration with Skogforsk (the Forestry Research Institute of Sweden) consisting of beech provenance trials in Sweden. My earlier work and pre-PhD project collaborations gave me multidisciplinary experience in technological development activities, such us services and technical assistance for industry, private and public institutions.

I currently teach in two courses (each 15 ECTs) in the EUROFORESTER international master¿s programme and one course in the Forest and Landscape - Bachelor of Science (15 ECTs) at the Southern Swedish Forest Research Centre (SLU). I have completed six pedagogical courses for teaching in higher education, from critical thinking to e-learning methodologies. In recent years, I supervised 2 Master theses on forest growth dynamics at the SLU. One of them has continued to a PhD, a process where I clearly contributed to his career development. I am currently co-supervisor of one PhD student and one master s student. My contributions to research evaluation include being an examiner for two PhD defences and a peer reviewer for multiple SCI-indexed journals.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	CONDE RODRIGUEZ, DANIEL
Referencia:	RYC2021-031730-I
Correo Electrónico:	d.conderodriguez@ufl.edu
Título:	Molecular mechanisms of the coordination of forest trees growth and development with the environment

Resumen de la Memoria:

I obtained a degree in Forestry in 2008, studying the benefits forests and woody crops provide to society. Thanks to the experience accumulated during this time, and to the close relationship with researchers, I developed a growing motivation for exploring the genetic mechanisms that regulate growth and the adaptation to the environment in trees.
Motivated to begin a scientific career, in 2011, I obtained my M.Sc. degree.

During my final master's thesis, I joined Dr. Isabel Allona's group at UPM, where I assessed the influence of epigenetic regulation during the growth-dormancy periods in poplar trees. These results served as the starting point of my Ph.D. dissertation, where I identified genes that regulate annual cycles of growth-dormancy by modifying the DNA methylation levels. The application of different advanced techniques during my Ph.D. research would not have been possible without collaborating with internationally renowned researchers that routinely use these approaches, in whose laboratories I made several stays to carry out these techniques.

In 2017, I joined Dr. Matias Kirst's group, at the University of Florida. I first joined a project focused on identifying regulatory genes of wood development and found a novel gene that controls wood vessel element size and a master regulator of lignin formation. In late 2017, the US Department of Energy awarded Kirst's group a grant to engineer bioenergy crops to fix nitrogen. While Kirst's group was the project leader, it also involved several high-profile scientists from the Florida Museum of Natural History and the University of Wisconsin. As clear proof of my leadership, I was assigned as project coordinator. I have dedicated much of my time to the success of the NitFix project. Advances in this field allowed us to generate a USA patent about the methods required for stimulating spontaneous nodule formation in non-legume plants. We also published several papers that contributed to understanding the molecular control of nitrogen fixation.

During this period, I continued pursuing my primary research interest, the molecular basis of tree development. I developed a strategy to generate multiple-gene mutants in poplar to have a straightforward tool to characterize gene function in trees. I also designed a protocol to apply single-cell transcriptomics in poplar trees.

Altogether, I have published thirteen articles, six as first and two as last author, two book chapters, and generated a USA patent. Two other articles as the first author are currently under review. I have developed several research proposals as a co-investigator. I have supervised the work of a postdoctoral researcher and a master's student and trained and supervised two lab technicians.

In January 2022, I joined the CBGP with a María Zambrano 3-years grant, "Contratos atracción de Talento Internacional". I aim to explore the molecular mechanisms of the coordination of plant development with the environment, to understand how these mechanisms cope with abiotic stresses such as high temperature and drought, generating strategies to solve problems concerning agroforest crop yield in the context of climate change.

Resumen del Currículum Vitae:

In 2011, I obtained my M.Sc. degree in Advanced Forestry Research at the UPM. During my final master's thesis and Ph.D. dissertation, I joined Dr. Isabel Allona's group, where I assessed the influence of epigenetic regulation during the growth-dormancy transition in poplar trees. In 2017 I obtained the title of Doctor Cum Laude by the UPM, directed by Dr. Allona and Dr. González-Melendi. Application of advanced techniques was possible by collaborating with internationally renowned researchers, such as Dr. Stéphane Maury at the University of Orleans, where I did two stays of three and one month respectively, and Dr. Matias Kirst at the University of Florida (UF). These collaborations resulted in two publications. From 2012 to 2014, I worked on the international project "TREEFORJOULES", which led to my first international experience as a researcher, at Dr. Grima-Pettenati's laboratory at the University of Toulouse, for one month.

In 2017 I joined Dr. Matias Kirst's lab at the UF. We found a novel gene that controls wood vessel element size and a master regulator of lignin formation. In late 2017, the US Department of Energy awarded Kirst's group a $7.3 million grant to engineer bioenergy crops capable of fixing nitrogen. I gained leadership experience as the project coordinator, which involved scientists from several groups. We generated a USA patent and published several papers that contributed to understanding nitrogen fixation mechanisms.

During this time, I supervised a researcher's work in his postdoctoral stage. I was assigned as the senior author on the resulting publications. One of our images obtained by confocal microscopy was used as the cover image of the Plant Physiology journal in January 2022.

I also pursued my primary research interest, the molecular basis of tree development and environmental influence. We developed a system to generate multiple-gene mutants in poplar. I also designed a protocol to apply single-cell transcriptomics in poplar. I determined the cell type-specific transcriptome of the poplar vegetative shoot apex and established the first comparison between the annual model species Arabidopsis and woody perennial plants. This manuscript was submitted to the journal Development.

Altogether, I have published thirteen articles, six as first and two as last author, two book chapters, and generated a USA patent. Two other articles as the first author are under review. I have developed several research proposals as a co-investigator. I have supervised the work of a postdoctoral researcher and a master's student and trained and supervised two lab technicians.

In 2022 I joined the CBGP with a María Zambrano grant for attracting international talent. I aim to apply multi-omics approaches to dissect the molecular mechanisms of the coordination of plant development with the environment to generate strategies to solve problems concerning agroforest crops, such as the abiotic stresses in the context of climate change. I participate as a reviewer in several scientific journals. I belong to the panel of experts of the State Research Agency to evaluate projects. I actively participate in scientific dissemination events. I have attended national and international conferences every year to present advances in the research and have lectured for a total of 71 hours.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	ALVAREZ LOPEZ, VANESSA
Referencia:	RYC2021-033370-I
Correo Electrónico:	vanecandelos@gmail.com
Título:	Towards a better understanding of the role of soil bacterial communities in sustainable productive systems

Resumen de la Memoria:

I studied Biology at the University of Santiago de Compostela (USC) from 2005 to 2010. In 2008 I was awarded with a JAE-Intro Grant from the CSIC. During the academic year 2009-2010 I was awarded with a grant from the Ministry of Science and Innovation to collaborate in joint research projects. During the period 2010-2011 I realised a master s degree (MSc) at the University of Granada, and I completed my M. Sc. Dissertation in collaboration with Prof. Juan Luis Ramos and Dr. Ana Segura of the Dept. of Environmental Microbiology and Biodegradation of the Estación Experimental del Zaidín (EEZ-CSIC).

In 2010 I was awarded with a PhD grant by the Spanish Ministry of Science and Innovation for the realisation of doctoral studies under the supervision of Dr. Petra Kidd and Dr. Ángeles Prieto Fernández. My PhD studies (2010-1016) focused on the field of Soil Chemistry, Microbiology and Plant Ecophysiology. I studied plant-associated bacterial communities and their potential application in phytoremediation techniques. I gained extensive experience in plant and soil microbiology, and I have participated in the establishment of two phytoremediation field trials evaluating the use of woody crops, high-biomass annuals and hyperaccumulating plant species for their metal accumulation and biomass production in mine-soils. I carried out two short-term research stages (2012 and 2013) in the Rhizosphere Group of the University of Natural Resources in Vienna (Austria), under the supervision of Prof. Walter Wenzel and Dr. Markus Puschenreiter. During these periods I have evaluated soil Ni biogeochemistry in the rhizosphere of the Ni-hyperaccumulator. During the year 2013 I realised a short stage student exchange as part of a collaboration between the IIAG and IUNG institutions during the EU FP7 Greenland project.

After finishing my PhD studies, I worked at the Université de Franche-Comté (France) under the supervision of Prof. M Chalot as postdoctoral researcher within a mobility scientific program funded by the Conseil Regional de Bourgogne Franche-Comté. During this period, I was involved in the study of the microbial communities associated to plant species which are sporadically growing at a metal contaminated site.

In June 2019, with the objective of creating a multidisciplinary career and under the funding of the Juan de la Cierva-Formación Call, I joined to the department of Crop Production in the EPS of Lugo (USC) under the supervision of R. Mosquera-Losada. My objectives were to gain a new vision of the soil-plant relationships in productive systems and offer a new perspective to the team about the role soil microbial diversity in agronomy.

My main research line is plant-microbe-soil interaction and their role in the optimisation of sustainable agronomic practices. I moved from a land remediation perspective of degraded soils (during my PhD and first years of PostDoc 2010-2019) to a conservative and sustainable perspective of agricultural systems by means of Agroforestry (2019 present). During my Postdoc career I gained in independence and leadership. My short- and medium-term plans, are to consolidate the soil microbiology study as a useful indicator for the evaluation of the sustainability of different productive systems. I will pay special attention to the study of the NW of the Iberian Peninsula where the primary sector is vital in the economy.

Resumen del Currículum Vitae:

My common research line across years was to study the importance of plant-soil-microbe interactions in agronomic systems. The change with time was to move from a more small-scale field experiences during my PhD to large-scale and/or already established field experiences.

As result of my research experience, I have a total of 20 scientific publications: 13 JCR scientific papers; 2 book chapters and 5 Full conference Proceedings. I have participated in more than 10 International Conferences with more than 10 Oral presentations.

My PhD was funding by the public competitive Spanish call FPI (MICINN). I realised short-term research stages in Granada, Vienna (Austria) and Pulawy (Poland) funded by the MICINN and European GREENLAND EC project. In 2016, after my PhD dissertation I got a postdoctoral position at the University of Franche-Comté (France), funded by a French competitive public call.

I realised short-term research stages in Granada, Vienna (Austria) and Pulawy (Poland) and a long stay in Montbeliard (France) as Postdoc. During my whole career I participated in more than 10 International Conferences, and I have been actively involved in the writing, development and monitoring of European funded projects: FP7 EC Greenland, Phyochem and Proliphyt (French Government), LIFE-Agromine, Euraknoss, Eureka, Open2Preserve, Undertress (EC) and I am currently involved in Go-Grass (EC), LIFE-VAIA and LIFE-SILFORE. As indicative of my internationalisation, I have a total of 20 scientific publications in collaboration with more than 10 international institutions.

Since my integration in the team of Prof. Rosa Mosquera-Losada and Prof. Antonio Rigueiro in the EPS in Lugo in 2019 I have gained experience in terms of stakeholder engagement. During this time, I worked in close collaboration with farmers and several other associations to foster the exchange knowledge between scientists and practitioners

I have participated in several Dissemination events such as European Researchers' Night in 2015 and 2020 and in different dissemination events for schools funded by the CSIC in 2012, 2013 and 2015. In 2020 I become a member of the Student Association Agromar created in the Campus Terra (Lugo), which joins young researchers for the dissemination of the work carried out at this campus.

During 2019 and 2020 I worked within the Agrupación Estratégica BioReDes, which arises to develop an interdisciplinary R&D activity for the primary sector of Galicia. In 2021 I joined as Collaborator Researcher to IBADER (Biodiversity Institute Agricultural Diversity and Rural Development).

I have supervised a Master Student Thesis during my Postdoc stay in France and I am currently co-supervising a thesis dissertation in the USC. As part of my integration in the USC I teached within the Doctorate Program: Agriculture and Forestry Research with 60 teaching hours.

I have participated as reviewer in 15 articles, and I am currently Guest Editor from the special issue Protection of Biodiversity of Agricultural Soils in Agronomy Journal and How can SUITMAs Contribute to Sustainable Food Production? in Frontiers in Sustainable Food Systems.

I participated, in 2021, as external evaluator for Seneca foundation within the FPI program.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	ROMAN RIVAS, LAURA
Referencia:	RYC2021-032926-I
Correo Electrónico:	lauraromanrivas@gmail.com
Título:	Understanding structure-function-digestion relationships of plant food biopolymers

Resumen de la Memoria:

I earned my PhD in Food Engineering at the University of Valladolid (Spain) in September 2018. Afterwards, I joined as a Postdoctoral Researcher the School of Engineering at the University of Guelph in Canada (18th position in Shanghai Ranking for Food Science and Technology), where I developed my research in carbohydrate biochemistry and sustainable food processing for 29 months.

As an example, I have worked to elucidate the fine molecular structure of starch and the basic principles and mechanisms that give rise to its digestion properties. In this regard, I was the first to unveil the internal chain length distribution of novel starch sources and proposed the first ever structure-function model of retrograded amylopectins consisting of double helix lateral aggregation as a function of phosphorylation and chain length at the building block level. Polysaccharides are one the most heterogeneous and structurally complex family of biomacromolecules. Thus, I had to implement and develop cross-disciplinary analytical tools for depicting their molecular structure using selective carbohydrate-active enzymes, multidimensional chromatography, light scattering and mass spectrometry.

My scientific training at cutting-edge and international-recognized research institutions (IATA-CSIC, Purdue, Guelph and Aarhus Universities) allowed me to acquire unique knowledge in the mechanistic understanding and characterization of the molecular structure of complex carbohydrates, including their molecular weight and hydrodynamics, the unit and internal chain length distribution of starch and the monomer composition and linkage analysis of heteropolymers (i.e., pectin). I have also implemented enzymatic assays to evaluate the digestion kinetics of glycemic carbohydrates and microscopic, calorimetric and thermo-rheological techniques to unveil the molecular reassociations responsible for the mechanical properties and aging of carbohydrate-rich foods. I have demonstrated expertise in creating plant-based ingredients and foods using twin-screw extrusion, a green and cost-effective technology. Thus, my research spans the areas of plant biopolymer structure, carbohydrate digestion, hydrothermal processing using high shear extrusion, and functional plant-based food design.

From April 2021, I am at the Food Science department at Aarhus University (Denmark), conducting a postdoctoral project fully funded by the Novo Nordisk Foundation. My current research efforts center on physicochemical studies of protein-starch interactions in complex biopolymer matrices. This work lies at the interface between molecular structures and physical chemistry of biomaterials, with the overall goal to understand the conformational and supramolecular mechanisms responsible for the interactions between these plant biopolymers during food processing. Furthermore, the funds I obtained from the L'Oréal-UNESCO award also extend the reach of my program to the digestive behavior of the created food structures, and, thus, to demonstrate the significance of the structure in the nutritional outcomes.

As a whole, my main interest lies in the relation between structure and function of polysaccharides, including their digestion and phase behavior in mixes with plant proteins and the elucidation of their complex structure. The goal, learn utilize plant food materials at their full potential.

Resumen del Currículum Vitae:

Doctorate in Food Engineering from University of Valladolid (2018) and current postdoctoral researcher at the Department of Food Science at Aarhus University (Denmark). My current Postdoctoral position is funded by a 3-years fellowship from the Novo Nordisk Foundation to investigate multiscale interactions of starch-protein systems on biopolymer food matrices. During my PhD, I performed several research stays in different centers, namely at the Institute of Agrochemistry and Food Technology (IATA-CSIC, 1.5 months), the Singapore Institute of Technology (1 week) and the Whistler Center for Carbohydrate Research/Purdue University (USA, 7 months). These stays established the basis of my future collaborations. I also received the Extraordinary Doctorate award for my PhD thesis. After my PhD defense (November 2018), I joined the University of Guelph (Canada) as a postdoctoral researcher, position supported by the Natural Sciences and Engineering Research Council of Canada (NSERC). During this first Postdoc (29 months), I gained insights about starch fundamentals, one of the largest and most abundant biopolymers in biomass, and screw extrusion, a process-intensifying technology that is key in the future of more sustainable food production. I also acquired scientific maturity, independent thinking and management skills, and reinforced my collaboration network all over the world.

At Aarhus University (10 months to date), I am the principal investigator of 2 competitive grants (337.243), funded by the Novo Nordisk Foundation (NNF20OC0064423) and L'Oréal foundation-UNESCO. In 2021, I received the prestigious For Women in Science award, selected as one of the three most talented young female researchers in natural sciences in Denmark. I have also participated as a researcher in 4 competitive projects (1 international, 2 national and 1 regional co-financed by FEDER funds) and 5 contracts with industry partners, including the multinational group Bonduelle.

I have published 40 articles in SCI-indexed scientific journals (H-index=16), 80% in the first quartile and 45% in the first decile, 23 as first or corresponding author and 10 as second author. 19 of these SCI articles were part of international collaborations with other research institutes and universities. I have authored 2 invited book chapters published by international editorials (Springer and Elsevier), and have 37 contributions in national and international conferences including 4 as invited speaker in international conferences and 12 oral communications. To date, I have co-supervised four master thesis, one bachelor thesis and four visiting PhD and master students from different parts of the world (Spain, Canada, Argentina, China, Mexico, Denmark, Tunisia).

I serve as scientific grant reviewer for The Good Food Institute, book proposal reviewer for CRC press/Taylor and Francis and article reviewer for 7 high-impact SCI journals in the Food Science and Technology area (Food & Function, Carbohydrate Polymers, LWT, Food Chemistry, etc). I am a member of the International Cereals and Grains Association and of the Aarhus Innovative CiFood Center. I have participated as a member of the organizing

committee of one national congress and I am committee member of the Master´s Degree of Food Quality, Development and Innovation from the University of Valladolid from 2015.

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	PERES RUBIO, CAMILA
Referencia:	RYC2021-034764-I
Correo Electrónico:	camila.peres@uab.cat
Título:	Advances in biomarkers of redox status: development of new assays and applications to evaluate health

and welfare

Resumen de la Memoria:

I was born in Brazil and Graduated in Veterinary Medicine in the Faculty of Veterinary Medicine of Ourinhos, in 2010. In 2013 I obtained a Master s degree in Animal Clinical Pathology at the Faculty of Veterinary Medicine of São Paulo State University (UNESP). In November 2014 I came to Spain to do my PhD studies in Veterinary Sciences at the Interlab (Interdisciplinary Laboratory of Clinical Analysis) research group of the University of Murcia (UMU), under the supervision of Prof. Dr José Joaquin Ceron. The PhD studies were focused on the development and application of assays for the measurement of biomarkers of antioxidant status in the serum of dogs. I finished them in November 2018 with an International Mention and the highest qualification. In addition, this PhD obtained the award of the Best thesis presented in Health Sciences by the Robles Chillida Foundation (2019), and the Extraordinary Theses Award of the University of Murcia (2021).

From 2019 to October 2020, I obtained a Postdoctoral Researcher Position as a Scientific Responsible of the Transference Service of the group Interlab-UMU in which I promoted the transfer of our research results to private companies and also progressed in the research activity, by opening a new line about biomarkers of oxidative stress in other species and other sample types such as saliva.

In 2020 I went back to Brazil (October 2020 March 2021) with a Postdoctoral Grant from Brazil Government to lead and develop the research project Thiol-disulphide homeostasis in serum of sheep: analytical validation of an automatic assay and potential use to evaluate animal health at the Faculty of Veterinary Medicine of São Paulo State University (UNESP).

Then in April 2021, I returned to Spain to assume my current postdoctoral position with a grant Juan de la Cierva - Formación , yielded by the Spanish Government through the programme of the Ministry of Economy and Competitiveness. In this programme, I opened a new line to study the applications of biomarkers of redox status to evaluate welfare in animals with Dr Xavier Manteca at the Department of Animal and Food Science of the Autonomous University of Barcelona (UAB).

Overall, this research has led to the publication of a total of 43 SCI papers (9 in collaboration with foreign research groups), 2 book chapters and 15 congress communications. In addition, it allowed me to be a co-author of a patent and a scientific algorithm registered in the University of Murcia and receive two awards for my PhD.

Resumen del Currículum Vitae:

I was born in Brazil and obtained my Degree in Veterinary Medicine at the Veterinary School of Ourinhos University. Then, I did a Master in Laboratory Sciences at the São Paulo State University (UNESP). In 2014, I came to Spain to do my PhD studies for 4 years (funded by a competitive grant from the Brazilian Government) at the research group Interlab-UMU (Laboratory Interdisciplinar of Clinical Analysis) of Murcia University, resulting in a Thesis with International Mention that obtained two Awards.

After the Thesis, I had a Postdoctoral Researcher Position as a Scientific Responsible of the Transference Service of the group Interlab-UMU, from 2019 to October 2020. Then, I got a competitive Postdoctoral grant of 6 months (October 2020-March 2021) to lead the research project Thiol-disulphide homeostasis in serum of sheep: analytical validation of an automatic assay and potential use to evaluate animal health at the São Paulo State University (UNESP).

In 2021 I was awarded a Juan de la Cierva Formación (FJC2019-042475-I) which is currently in progress at the Department of Animal and Food Science of Autonomous University of Barcelona (April 2021- March 2023). In this position, I have opened a new line about the application of biomarkers of redox status to evaluate welfare and stress.

Regarding my international activities, I spent the 4 years of my PhD studies and almost two years in a Postdoctoral position in a research centre (University of Murcia) out of my country and place of my Graduate studies. During this period, I made additional stays in Italy (6 months with an Erasmus+ program) and in Israel (COST project). I have also worked with different foreign research groups which resulted in 9 scientific (SCI) papers. As well, during this period I was a member of two European Cooperation in Science and Technology projects and collaborated in a European Union 2020 Programme project.

I have published a total of 43 SCI papers, being 31 of these in the Q1 of their area of publication, 18 in the first position of authorship, 4 as the last author, and 2 of them as the corresponding author. In addition, I have published 2 book chapters for international editorials and contributed to 15 international congress. I also have one patent and one registered formula based on the assays that I had developed.

I obtained the Extraordinary Thesis Award of the University of Murcia and the Robles Chillida award for the best PhD thesis in Health Sciences at the University of Murcia. In addition, my research group obtained The award of the best group in the transfer of results of the University of Murcia during the years 2019 and 2020 in which I was responsible for the section of transference.

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Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	NAVAS GONZALEZ, FRANCISCO JAVIER
Referencia:	RYC2021-031008-I
Correo Electrónico:	fjng87@hotmail.com
Título:	Breeding and Conservation of Endangered and/or Autochtonous Animal Populations

Resumen de la Memoria:

Veterinarian/zootechnician with quantitative genetics, biostatistics and phenogenomics background. Main research line entitled "Breeding and Conservation of Endangered and/or Autochthonous Animal Populations studies genetic diversity in animal populations to ensure their sustainability via characterization (genetic, zoometric, reproductive, functional, environmental, productive and sociocultural) and protective structures development (studbook, breeder associations, conservation programmes). Then, this line studies strategies to improve breeding programmes efficiency and ensure animal populations societal circular profitable relationship.

Joined Genetics Department (2006) as a graduate assistant (2006-2008) during my veterinary degree (2005-2010). From 2010-2022, joined AGR218 group (UCO) as a hired post-graduate assistant (4 grants) (177 h teacher training/220 h veterinary/biology assistant professor (UCO).

MSc degree in Zootechnics and Sustainable Management (UCO/UHU, 2011-2012) focusing on animal genetic diversity (specially donkey populations). Regionally/internationally awarded PhD in Natural Resources and Sustainable Management (UCO/UAB (Spain)/UCDavis (USA), 2019) presented first world donkey breeding scheme (cum laude, 11 peer reviewed papers (WOS, Q1/Q2/Q3), 4 invited talks, 1 workshop, 8 posters, 2 oral communications, 4 informative papers and 2 books).

Career developed across 5 countries (Spain, Ecuador, Argentina, Portugal and USA) via 8 invited keynotes/workshop, 6 stays (2014-2020) and a postdoc contract (2021-2024) in R&D international centers accounting 15 months (predoctoral) and 26 months (postdoctoral) (UCO, ESPOCH, UNNE, INIAVP, UCDavis and IFAPA). CONBIAND and RBI (secretariat) societies member (FAO, 2010-2022). WDBP coordinator joining 47 countries (REDIRIS, 2011-2022).

Directed 7 final degree (UCO) and 1 master degree project (UCO/UCLM) with 4 peer reviewed papers (WOS Q1) and 11 international conference contributions. After my Phd, I directed 2 international Phds (2020-2021) with 17 peer reviewed papers (WOS D1/Q1/Q2) and 14 international conference contributions and acted as an external Phd examiner (UAB 2021). Currently direct 6 Phds (with UNIBA (Italy)/UCDavis (USA)/UENF (Brazil) with 9 peer reviewed papers (WOS D1/Q1/Q2) and 17 international conference contributions (2019-2022).

WOS relevant positions in 8 D1, 36 Q1, 12 Q2 and 5 Q3 papers (39 open access). 369 citations (10 h-index, 2016-2021). Attended 5 national/28 international conferences (2010-2022) (36 oral communications, 8 keynotes/invited talks, 54 posters). Participated as international symposium organization committee (UCO, 2020).

Lead researcher in autonomic competitive FEDER R&D project (47,111.11 , 2022) and researcher in 4 R&D competitive projects (159,500 , FEDER/Ministry of Science/INIA, 2010-2022) and 16 R&D non-competitive contracts (325,430.6 , 2017-2022) for breed revalorization strategies. Contributed to research dissemination as Archivos de Zootecnia Editor-in-chief (Scopus, Q4), Animals reviewer panel and Guest editor (WOS Q1, 2020), reviewing 106 papers for 14 journals (WOS, Q1/Q2) (2016-2022). International/national informative teaching (79h, Spain, Ecuador and USA) and media interventions in documentaries, radio, press and TV (2013-2021). Private University Professor, Assistant Professor, and Lecturer ANECA accreditation (2020).

Resumen del Currículum Vitae:

Veterinary Sciences Degree (UCO, 2005-2010). Graduate Teaching Assistant, Genetics Department (UCO, 2006-2008). Joined UCO PAIDI AGR218 research group as a Post-Graduate Teaching Assistant (UCO, 2010-2022). MSc degree in Zootechnics and Sustainable Management (UCO/UHU, 2011-2012). 4 competitive grants by Junta de Andalucía, Spanish Ministry of Education and Santander bank (2011-2014). PhD Thesis in Natural Resources and Sustainable Management (UCO, 2019). Phd international mention (3 months stay, INIAVP, Portugal, 2014), 2019 Early Scientist Career Award by Journal of Veterinary Behavior (WOS Q1) and 2018/2019 Extraordinary Phd Award (UCO, 2020). Phd results (11 peer reviewed publications (WOS, Q1/Q2/Q3) with UAB (Spain) and UCDavis (USA), 4 invited talks, 1 workshop, 8 posters, 2 oral communications, 4 informative papers and 2 books (international). Stay in ESPOCH (Ecuador, predoctoral, 6 months) and 2 stays in UNNE (Argentina, predoctoral, 6 months). Teacher training for 177 h (2008-2020). Assistant professor in veterinary (UCO) and biology degrees (UCO) for 220 h (2010-2022). Got private University Professor, Assistant Professor, and Lecturer ANECA accreditations in 2020.

Postdoctoral career (2019-2022) developed in 4 R&D centers (UCO, EPOSCH, INIAVP and IFAPA). 6 month stay in ESPOCH (Ecuador), 8 month stay in INIAVP (Portugal). Granted a postdoc PAIDI2020 competitive contract in IFAPA (2020-2024). Already completed stay/contract first year.

External Phd examiner in UAB (2021). Directed 2 international mention Phds (2020-2021) with 17 peer reviewed publications (WOS D1/Q1/Q2) and 14 international conference contributions, 7 final degree projects (UCO) and 1 master degree project (UCO/UCLM) with 4 peer reviewed papers (WOS Q1) and 11 international conference contributions. Currently supervising 6 Phds (with UNIBA (Italy), UCDavis (USA) and UENF (Brazil) with 9 peer reviewed publications (WOS D1/Q1/Q2) and 17 international conference contributions (2019-2022).

Informative Teaching experience for 79 h in Spain, Ecuador and USA. CONBIAND and RBI (secretariat) Scientific societies membership (2010 and 2018, respectively, FAO members). WDBP network Coordinator (REDIRIS, 47 countries, since 2011).

Lead researcher in an autonomic competitive FEDER R&D project (47,111.11 , 2022). Research team member in 4 competitive FEDER, Ministry of Science and INIA funded projects (159,500 , 2010-2022) and 16 R&D non-competitive contracts (325,430.6 , 2017-2022).

In summary, I am first, last or corresponding author in 8 first decile (WOS D1), 36 first quartile (WOS Q1), 12 second quartile (WOS Q2) and 5 third quartile (WOS Q3) publications (39 were open access). Reached a 10 h-index and was cited 369 times (2016-2021).

Presented results from my research at 33 conferences (5 national/28 international). 35 oral communications, 8 keynotes/invited talks and 54 posters (2010-2022). International Symposium Organization Committee (UCO, 2020).

Archivos de Zootecnia Editor-in-chief (Scopus, Q4) (2016-2022), Animals reviewer panel (WOS, Q1) and reviewed 106 papers for 14 peer reviewed journals (WOS, Q1/Q2) (2016-2022). Guest editor in Animals (WOS Q1, 2020).

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Iternational/national media interventions in documentaries, radio, newspapers and TV (New York Times, El Libro Rojo, Backyard Green films, LaSexta, Diario Córdoba, Diario de Menorca, CanalSur) (2013-2021).

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Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	MONTERO GARCIA, LIDIA
Referencia:	RYC2021-033148-I
Correo Electrónico:	lidia.montero@uni-due.de
Título:	The important role of advanced analytical techniques in food bioactivity and quality

Resumen de la Memoria:

During my Ph.D., I have developed great experience and skills in the field of Food Science and Food analysis, which have been enhanced and extended in my postdoctoral appointments. I have focused my whole research career on the development of analytical methods that answer important socio-economic problems related to food quality and food bioactivity. To achieve this objective, I have applied advanced analytical techniques like chromatography and mass spectrometry, comprehensive two-dimensional liquid chromatography (LCxLC), and ion mobility (LC-IM-MS). Therefore, I have acquired a broad knowledge about different analytical techniques and data treatment software that give me unique tools to improve and carry out projects and research in Food Science. In fact, my work in LCxLC was a pioneer in the field since this technique requires very specific skills and instrumentations and it is a very novel technique. This allowed me to generate important knowledge about the use of LCxLC in food analysis and to produce relevant results for food quality and food bioactivity applications, which have been recognized by national and international chromatographic societies. The result of my skills acquired during my research career shows my ability to solve analytical challenges with complex and advanced analytical techniques. My main research lines, where I have shown a high competence, are:

- Food quality. My contribution in this discipline is related to the fight against counterfeiting food practices and food fraud. My analytical background has been a key piece in the development of analytical methods optimized to characterize the chemical profile of samples with important socio-economic impact and to find potential metabolite markers that can be used to avoid adulteration and misleading food practices. For instance, I developed an LCxLC method for the authentication of a high-quality product granted with a PDO by the UE, namely the PDO   licorice from Calabria . Besides, I have optimized other LCxLC and LC-IM-MS methods for the characterization and differentiation of different food products.

- Food bioactivity. My main goal and contribution to food bioactivity has been the development of green extraction techniques to obtain pure fractions of bioactive compounds present in food and their chemical characterization as well as the evaluation of their in-vitro activity. This strategy, which I have carried out in several works, meets the requirements of new trends in novel and functional foods. There is a need to correlate the potential bioactivities of food with the specific food ingredient or families of ingredients responsible for those bioactivities. I developed advanced analytical methods to provide the maximum separation power of the bioactive food fractions, for example, to correlate the anti-carcinogenic activity against colon cancer cells of brown algae with specific phenolic compounds named phlorotannins.

Whit this background, I am in a privileged position to carry out and lead research projects that combine both, the fight against food fraud and the production of the chemical characterization needed knowledge in food bioactivity. With this aim in mind, my objective is to gain funding from European Union and national funding programs that allow me to carry out my research projects providing excellent quality research in Food Science.

Resumen del Currículum Vitae:

I finished my PhD studies at the University Autónoma de Madrid (UAM) in 2017 obtaining the maximum grade (cum laude) and the PhD Extraordinary Award from the Faculty of Sciences. During my PhD, I obtained two fellowships granted by the UAM and by the University of Reggio Calabria (Italy). Thanks to these fellowships, I developed my PhD work between the Foodomics laboratory in Madrid (Spain), the Department of Pharmacy of the University of Salerno (Italy), and the Department of Agriculture of the University of Reggio Calabria (Italy). My research lines are focused on the development of advanced analytical methods for food analysis, devoted to the evaluation of food quality and food bioactivity of different food-related products using multidimensional liquid chromatography coupled to mass spectrometry (2DLC-MS), a novel chromatographic technique that become my work in pioneer research in the food field. The relevance of my work was recognized by national and international conferences, with the first award for the best oral communication from the Spanish Society of Chromatography and Related Techniques (2015) and with a finalist position of the Csaba Horváth Young Scientist Award from the HPLC International conference (San Francisco, USA, 2016).

My postdoctoral period consists of 4 years of international experience in world-class recognized entities, where I have enhanced my food analytical skills and I have also extended my experience to other analytical areas such as petrolomics, metabolomics, and lipidomics. My first postdoctoral position was in a European Commission (EC) project. After that, I was selected to participate as the main researcher of a Third-party contract project between TOTAL Energies (France) and the Applied Analytical Chemistry Department of UDE (Germany). Currently, I am researcher in a Federal Ministry of Education and Research of Germany (BMBF) project in Germany. Moreover, I participate as an external consultor in the International University of Valencia (VIU).

I count with 25 published articles indexed in JCR, 16 of them in Q1 journals, 6 of them ranked in the first decile of the scientific areas of Analytical Chemistry and Food Science. I appear in a privileged position of authorship in 92% of these works (first/second author in 21 papers, last/corresponding author in 2). I am also author of 4 book chapters published in top international editorials. I have collaborated with 56 co-authors from different entities and countries. These publications have received 815 citations (h-index: 17 (Scopus)) with 194 citations in 2021. Besides, I have presented the results of these works in 39 national and international conferences, 30 of them in oral communication format, including 5 invited international lecturers. I have contributed actively to 5 research projects. Besides, I have been invited as guest researcher in 2 international projects. To date, I have supervised 5 Bachelor, 8 Master Practical, and 5 Master Thesis, and I have participated as an international reviewer of 2 PhD Thesis, and as 2 Ph.D. and 5 Master s Theses evaluation committee member. Besides, I am involved in teaching activities since 2018 at the UDE and since 2019 at the VIU. In December 2021 I have submitted a proposal for a German Research Foundation project as PI which includes the supervision of 2 PhD students and a budget of 350.000 EUR.

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	MARTINEZ ALVARO, MARINA
Referencia:	RYC2021-032618-I
Correo Electrónico:	marinamartinezalvaro@gmail.com
Título:	Integración de -ómicas en animales de granja

Resumen de la Memoria:

Early in my career, I worked extensively in quantitative genetics and population genetics and contributed significantly to two different selection experiments in rabbits for traits important to livestock production: resilience on reproductive traits and intramuscular fat deposition. On the latter experiment I did my PhD, focused on unravelling the genetics of fat deposition in muscle, taking great advantage of the very practical experimental design in which divergently selected lines were bred under the same conditions. In a very productive PhD (awarded the Extraordinary Thesis Prize of UPV), I published 7 papers as first author, presented my work in 8 national and 10 international conferences where I was awarded twice, spent 4 months abroad in Udine (Italy), co-supervised 2 Master's theses and taught 60 hours of genetics and meat quality in Undergraduate and Master's courses. After my PhD, I expanded my research area to other omics, mainly genomics and metagenomics, and moved to Scotland Rural College (SRUC) in Edinburgh. At SRUC, I was introduced to microbiology, and multivariate and compositional data analysis techniques to identify rumen microbial biomarkers for efficiency and environmental traits in cattle. Subsequently, I worked for a year in UPV, where I applied the acquired knowledge to the rabbit lines and found that selection for intramuscular fat showed a correlated response in the functional microbiome. I also developed an innovative transformation of compositional data that facilitates metagenomics (and other omics data) analysis in practice. Back at SRUC, I proposed the idea of microbiome-driven breeding, i.e., performing genomic selection on the microbiome to increase genetic progress on traits of interest that are sometimes very costly to measure (e.g., methane emissions) by using a new source of genetic variation: host genetic effects on the microbiome. As part of a project in collaboration with Genus PLC, in which I am a co-investigator, I am exploring the best selection criteria based on the microbiome to increase response to selection for feed efficiency, environmental and meat quality traits, and their integration into current beef breeding programs

Resumen del Currículum Vitae:

Tras graduarme en el Máster de Mejora Genética Animal impartido por Universitat Autònoma de Barcelona y la UPV (2011-2013, calificación Cum Laude), realicé mi trabajo fin de máster (TFM) sobre un experimento de selección genética por sensibilidad ambiental en conejo (artículo D1, Q1 (JCR), 29 citas Scopus). Realicé mi tesis doctoral (2013-2017) en el Departamento de Ciencia Animal de la UPV (beca FPI-BES-2012-052655) desarrollando un experimento de selección por grasa intramuscular en conejo que permite un estudio exhaustivo de la genética de la obesidad; evaluado con calificación Cum Laude, Mención Internacional y Premio Extraordinario de Tesis por la UPV. Lideré la selección de animales y participé activamente en el diseño experimental de los estudios enmarcados mi tesis, proponiendo yo misma uno de ellos relacionado con el metabolismo hepático de las líneas; y además realicé una estancia pre-doctoral de 4 meses (ayuda de movilidad EEBB-C-14-00543) en la Universidad de Udine desarrollando técnicas de análisis sensorial de carne. Mi tesis dio lugar a 6 artículos publicados en revistas internacionales indexadas en Q1 y 1 más en Q3, en los 7 firmando como primera autora. Además, las líneas experimentales creadas dieron lugar a estudios posteriores sobre integración de ómicas asociadas a la obesidad, en los cuales he seguido colaborando. Tras finalizar mi contrato FPI fui contratada durante 3 meses como técnico superior de investigación por la UPV para finalizar los artículos de mi tesis. En 2017 obtuve una ayuda-contrato postdoctoral de la Generalitat Valencia (APOST/2017/060) de dos años (2017-2019), incluyendo una estancia de un año en Edimburgo (2017-2018), en el Scotland`s Rural College (SRUC), y un año en la UPV (2018-2019). En SRUC me especialicé en técnicas de análisis de datos metagenómicos en vacuno aplicado a caracteres medioambientales (reducción de emisiones de metano) y eficiencia alimentaria, y publiqué un artículo en Front. of Microbiol. (Q1) como primera autora. En la UPV apliqué el conocimiento adquirido al estudio metagenómico de las líneas de conejo de mi tesis (artículo publicado en Comm. Biol. Q1 como primera autora), y además desarrollé una técnica de análisis de datos composicionales (e.g. datos metagenómicos y metabolómicos) en colaboración con el Prof. Greenacre (UAB) y el Prof. Blasco (UPV) (trabajo publicado en Front. of Micorbiology Q1). En Junio de 2019 renuncié al final de mi ayuda APOSTD2017/060 para incorporarme de nuevo al SRUC bajo un contrato de investigación de 3 años (2019-2022) enmarcado en el proyecto BB/S006567/1 financiado por el Biotechnology and Biological Sciences Research Council y la empresa GENUS PLC, del que soy Co-Investigadora. Al poco tiempo obtuve la beca Juan de la Cierva-formación (FJC2018-035730-8) a la cual renuncié para poder continuar desarrollando mi trabajo en SRUC. Aquí investigo el papel de la genética del hospedador desarrollando la idea de la selección genómica por microbioma (microbiome-driven breeding), el cual puede acelerar la respuesta genética en caracteres productivos. He escrito 3 artículos sobre microbiome-driven breeding en metano, calidad de carne, y crecimiento en vacuno como primera autora (bajo revisión en revistas Q1), y estoy preparando 3 más. He colaborado en un artículo de revisión en colaboración con grupos relevantes en el campo de la microbiología (Norwegian University of Life Sciences, Ben-Gurion University of the Negev) publicado en Q1 y estoy colabor

Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	MUÑOZ PRIETO, ALBERTO
Referencia:	RYC2021-033660-I
Correo Electrónico:	albertomup@gmail.com
Título:	Advances in the knowledge and practical application of biomarkers of health and welfare using highly sensitive techniques in the context of One-Health

Resumen de la Memoria:

I started my PhD studies at the Veterinary School of the University of Murcia (Spain) participating in the research project "Biomarkers of Animal health and welfare of the Seneca Foundation of Murcia Region being my PhD a part of this project. I finished them with International Mention and the "cum laude" qualification. During my PhD studies, I made two 3-months international stays in Italy and Croatia leading to one publication in each group. I have participated in the COST project Network for evaluation of One Health (NEOH) where I coordinate a group of 24 researchers from 11 countries to study obesity risk factors in humans and dogs that lead to a multidisciplinary publication in the journal Scientific Reports (IF 2018= 4.01, Q1). The most interesting findings of my PhD were the development of new tools to evaluate and monitor obesity in dogs, that were transferred and used by two private companies in their experimental trials. In this line, I was a member of the research group that obtained the award of the best group in the transfer of results of the UMU in 2016, 2018, and 2019, being considered as Group of Excellence of the Murcia Region.

After my Ph.D. studies, I obtained a two-year Postdoctoral researcher position where I opened a new research line about metabolomics and proteomics for the evaluation of endocrine diseases in dogs that produced 3 publications (DOI: ﻿10.1016/j.rvsc.2021.06.011; ﻿10.1016/j.rvsc.2021.01.023 and ﻿0.3390/ani11092501). I also collaborate with other research groups in Europe, from Denmark, Poland, and Lithuania which resulted in three more publications in which I am the first author of them (10.1016/j.rvsc.2021.06.011, (10.1016/j.rvsc.2021.01.023, and 10.3390/ani11092501). In addition, I kept my collaboration with Interlab-UMU that resulted in an intellectual property registration of an algorithm integrated by various biomarkers to evaluate stress and welfare in pigs.

Overall, I have published a total of 22 research papers, being 18 of these in the Q1 of their area of publication, and being in 12 in the first position of authorship, two in the second position, and two in the last position. I have also published two book chapters.

Currently, I have a Postdoctoral grant from the University of Murcia (call: Margarita Salas) where I opened a new line of work based on the detection of new biomarkers of health and welfare in pigs by proteomics and metabolomics. I tutorized the Final Grade Research work of 2 undergraduate students and I am directing as an external supervisor from Croatia the thesis of two PhD students in their first year of PhD studies at Murcia University. They have gained competitive grants of Researches Formation from Murcia Region and both have already one paper published.

Resumen del Currículum Vitae:

During my Pre-graduate period, I was awarded a Collaboration grant from the Ministry of Education and Culture and I produced a research work that was awarded a prize granted by the Royal Academic of Veterinary Sciences of Spain.

In 2014, I was granted to do the PhD studies at the Veterinary School of the University of Murcia (Spain) funded by a competitive pre-doctoral grant from the University of Murcia that I finished with a cum laude PhD with International Mention. I performed two short-term international stays in which I published two articles. I also have participated in the COST project Network for evaluation of One Health (NEOH) that leads a multidisciplinary collaboration with 24 international researchers to study obesity risk factors in humans and dogs. Other interesting findings of my PhD were the development of new assays to evaluate and monitor biomarkers for obesity in dogs which were transferred and used by two private companies in their experimental trials.

I obtained a Postdoctoral researcher position (years 2020 and 2021) in the Faculty of Veterinary Medicine of Zagreb (Croatia) where I opened a new research line about metabolomics and proteomics for the evaluation of endocrine diseases in dogs that produced three publications. I participated in two research projects and the COST action CA19105 LipidNET as a committee member in the representation of Croatia.

Currently, I gained a Postdoctoral grant from the University of Murcia where I opened a new line of work based on the detection of new biomarkers of health and welfare in pigs.

Overall, I have published a total of 22 research papers, being 18 of these in the Q1 of their area of publication, and being in 12 in the first position of authorship, two in the second position, and two in the last position. I have also published two book chapters and I have a registered formula.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	GARRE PEREZ, ALBERTO
Referencia:	RYC2021-034612-I
Correo Electrónico:	garre.alberto@gmail.com
Título:	Advancing Microbial Risk Assessment through novel mathematical methods and software applications

Resumen de la Memoria:

I am a researcher in the field of Microbial Risk Assessment of food products with the potential to become a research leader in the field. I received my PhD from the Technical University of Cartagena (UPCT) with cum laude qualification; a thesis that merited an International Mention, an Extraordinary Award (Premio Extraordinario) by the University and a national Prize to the Best PhD Thesis in Food Microbiology of 2018 by the Spanish Society of Microbiology (SEM). My research is framed within Quantitative Microbial Risk Assessment (QMRA) of food products, a field strongly multidisciplinar. This is reflected in my research approach, that can be divided into three topics: (1) definition of novel models for microbial inactivation, (2) development of novel methodologies to improve the description of variability in QMRA, and (3) software development to facilitate the application of predictive modeling in QMRA.

My work has been published in 36 articles since 2017 (230 citations, h-index of 9), 91.4% of them in Q1. My research has also had an impact outside academia. I have participated as an external expert in Scientific Opinions by the Spanish Food Safety Authority (AESAN) and in a Network of Excellence to develop the structure to perform QMRA in Spain. I implemented an online tool in collaboration with AESAN that can be used to verify shelf life studies national recommendations (e.g. EU regulation EC 2073/2005).

The merits included in my CV also show the high level of internationalization of my research career. Since 2019, I have been a postdoctoral researcher at the Laboratory of Food Microbiology of Wageningen University, one of the best Universities in the world. I have been the PI of my postdoctoral project, which was funded through an Individual Fellowship through the Marie Sklowdowska-Curie action. My scientific career has international recognition: I have given invited talks in many reference conferences, I have received several awards, and I participate as Guest Editor or Editorial Board Member of reference journals in the field.

My CV also shows my leadership skills, demonstrated through the ability to obtain funds to support my scientific career, as well as by supervision of PhD, MSc and BSc thesis students.

Therefore, the Ramon y Cajal programme would be the perfect stepping stone in my path towards becoming an R3 Established Researcher in the field.

Resumen del Currículum Vitae:

I am a researcher in the field of Quantitative Microbial Risk Assessment with the potential to become a research leader in the field. I obtained my PhD from the Technical University of Cartagena (UPCT) with cum laude qualification, receiving an International Mention, an Extraordinary Prize by UPCT and a National Award by the Spanish Society of Microbiology (SEM). I am now a postdoctoral researcher at the Laboratory of Food Microbiology of Wageningen University as PI of a research project funded through a Marie Sklodowska-Curie Individual Fellowship and a postdoctoral fellowship by the Seneca Foundation. Recently, I received a Maria Zambrano Fellowship to continue my research activities at UPCT.

My main research focus is the improvement of the methodologies used for Microbial Risk Assessment of foods. I apply a multidisciplinary approach (combining mathematical modeling, stochastic modeling and software development), which has been translated into food safety recommendations. Since 2017, I have published 36 scientific articles, 91.4% of them in Q1, receiving 230 citations (h-index of 9). I have collaborated with some of the main researchers in the field, having published with several members from the Scientific Panel on Biological Hazards of EFSA and with some of the most relevant scientists in the field.

I have participated in several projects that have results in practical improvements of the food chain. I am the developer and maintainer of BIOQURA, a web application that facilitates the application of food safety recommendations. It includes the calculation method recommended by the Spanish Food Safety Authority for post mortem quality control of birds and lagomorphs, based on an opinion by the Scientific Committee where I participated. I was also responsible for knowledge transfer projects, where we applied Microbial Risk Assessment of food industries, and I participated in the elaboration of a guide for the implementation of microbial risk assessment by the Pan American Health Organization. I have also participated in diverse knowledge dissemination activities.

My scientific career already counts with international recognition. I have been an invited speaker to several international congresses, and I will be the Keynote Speaker of the ICPFM12 congress in Japan. I have presented >30 congress communications, receiving several presentation awards.

I also participate in international journals. I am Guest Editor for the 2022 Food Microbiology section of Current Opinion in Food Science (IF 6.031; 13/144) and I am part of the Editorial Board of the International Journal of Food Microbiology (IF 5.28; 25/144).

I also have notable leadership potential. I have published 16 articles as a first author, I have been awarded several postdoctoral fellowships (Fundación Seneca, Marie Curie Individual Fellowship, Maria Zambrano), and have been PI of several projects. I have also directed a PhD thesis and am currently supervising a second one . Between my time in Cartagena and Wageningen, I have supervised >20 BSc and MSc thesis students.

Considering these achievements, the Ramon y Cajal programme would be the perfect stepping stone in my road towards becoming an R3 Established Researcher in the field.

Área Temática: Ciencias agrarias y agroalimentarias
Nombre: SANDOVAL INSAUSTI, HELENA
Referencia: RYC2021-033857-I
Correo Electrónico: helenagabar@gmail.com
Título: Epidemiología Nutricional y Ambiental aplicada a las Enfermedades Crónicas

Resumen de la Memoria:

I am a Doctor of Medicine, MD (Universidad de Navarra, 2013) with a Master of Public Health, MPH (Escuela Nacional de Sanidad, 2015). I am a specialist in Preventive Medicine and Public Health (via MIR, 2018) with a 6-month pre-doctoral stay at Harvard School of Public Health. I am a Doctor of Epidemiology and Public Health, PhD, (Universidad Autónoma de Madrid, 2019). I have a solid background in nutritional epidemiology (7 years experience). For the last 2 years and a half, I was appointed as a postdoctoral research fellow, Department of Nutrition, Harvard T.H. Chan School of Public Health (Boston, Massachusetts). During that period, I conjugated my nutritional epidemiology experience with an ongoing environmental epidemiology career.

I have contributed significantly to the largest, longest-running Spain and U.S. based cohort studies into the risk factors for major chronic diseases bringing 26 publications in high-impact peer-reviewed journals, 70% them with an IF in the first decile of their area.

I am also a collaborator researcher in national projects found by Instituto de Salud Carlos III and International ones funded by National Institutes of Health (NIH).

I have received 6 awards including one of best article in Epidemiology of the year by the Sociedad Española de Epidemiología and best PhD dissertation in Epidemiology and Public Health by Universidad Autonóma de Madrid; I was also awarded with two grants, one of them by the Fundación Ramón Areces to pursue 2 years of postdoctoral fellow at Harvard T.H. Chan School of Public Health.

I also developed my career as supervisor, mentor, and teacher. I lectured in the Medicine, Nutrition, and Nursing Degrees and, at postgraduate level, in the Master s Degree: Quantitative Methods in Epidemiology at the Universidad Autónoma de Madrid. I am the director of one PhD student and, I co-directed 2 Master s degree students and an undergrad student. Finally, I have 3 computational programs on diet registered in the intellectual property.

Resumen del Currículum Vitae:

In 2013, I became a Doctor of Medicine, MD (Universidad de Navarra), obtaining 5 Distinctions and 20 Merits. From 2014-2018, I was a Medical Resident in Preventive Medicine and Public Health (Hospital Universitario de la Princesa). In the 2014-2015 academic year, I completed the Master of Public Health, MPH (Escuela Nacional de Sanidad). The same year, I passed the Certificate in Advanced English issued by the University of Cambridge (C1 level).

During my residency, I had a 6-month visiting scientist fellow with Professor Jorge E. Chavarro at the Department of Nutrition, Harvard T.H. Chan School of Public Health. I also had a 1-year rotation at the Infection Control Area, a 3-month rotation at the Healthcare Quality Area, and a 4-month rotation at the Admission and Documentation Service, all of them in the Hospital Universitario de la Princesa; as well as a 3-month rotation at the Chronic Disease Area in the Centro Nacional de Epidemiología, and a 3-month rotation at the Environmental Health Area in the Ministerio de Sanidad, Servicios Sociales e Igualdad. In 2018, my residency finished with a score of 3/3. I was awarded with the Premio Fin de Residencia en Áreas Centrales de la Comunidad de Madrid from the Ilustre Colegio Oficial de Médicos de Madrid.

I defended several oral presentations and posters at national and international conferences, obtaining 3 more awards. I has also been a moderator and a member of the Scientific Committee.

I lectured in the Medicine, Nutrition, and Nursing Degrees and in the Master s Degree: Quantitative Methods in Epidemiology at the Universidad Autónoma de Madrid. I am the director of 1 PhD student, I co-directed 2 Master s degree students, and an undergrad student.

I have contributed to the largest, longest-running Spain and US based cohort studies into the risk factors for major chronic diseases bringing 26 publications in high-impact peer-reviewed journals, 70% them with an IF in the first decile of their area. The first of the articles won the XXXIV Award of the Sociedad Española de Epidemiología for the Best Article in Epidemiology published in 2016.

I am also a collaborator researcher in national projects funded by Instituto de Salud Carlos III and International ones funded by National Institutes of Health (NIH). Furthermore, I have 3 computational programs on diet registered in the intellectual property.

In 2019, I obtained my doctorate degree, with a cum laude distinction, including an international mention, in Epidemiology and Public Health, PhD. Afterwards, In June 2019, I was awarded with the grant: "XXXI Convocatoria para ampliación de estudios en el extranjero en Ciencias de la Vida y de la Materia de la Fundación Ramón Areces". In October 2019, I started working as a postdoctoral fellow at the Department of Nutrition, Harvard T.H. Chan School of Public Health. In May 2021, I was awarded with the best PhD Dissertation in Epidemiology and Public Health from the Universidad Autónoma de Madrid.

Starting October 2021, I was appointed as a postdoctoral fellow in the same Department with a salary coming 100% from NIH funded grants until June 2022.

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Área Temática:	**Ciencias agrarias y agroalimentarias**
Nombre:	JIMENEZ CARVELO, ANA MARIA
Referencia:	RYC2021-031993-I
Correo Electrónico:	amariajc@ugr.es
Título:	Application of data mining methods for food quality and authenticity assessment

Resumen de la Memoria:

I am an internationally recognized chemometrician/data Scientist specialises in the food quality and food authentication field. My endeavours have been focused on the quality assurance and in the assessment of the authenticity of food, in particular foodstuffs rich in fats such as olive oil by using data mining algorithms. My research aims at i) improving and developing innovative fast-analytical methods to quality control of food as well as to minimize the use of solvents using the fingerprinting methodology; (ii) exploring the application of data mining algorithms on data obtained by advanced analytical techniques in order to assess the authenticity of food products without the need to identify any specific compound. In this way, the time and cost of analysis is significantly reduced being also possible to quickly check whether a food is genuine or not.

To carry out my doctorate I obtained an approved contract from the University of Granada (UGR) (similar to FPI). During my Ph.D. thesis I conducted novel research on the development of fast-analytical methods together to conventional and advanced data mining algorithms to the evaluation of the quality and authenticity of olive oil. After Ph.D. completion (2018) with 'Cum Laude', I was awarded a 'Bridging contract' of the UGR. This grant allowed me to a one-year postdoc research to further advance the development of multivariate analytical methods in the field of food chemistry. In November 2020 I was granted with the annual prize for the best Doctoral Thesis: "XXXVIII Doctoral Thesis Award 'San Alberto Magno' 2020" conferred by "Ilustre Colegio Oficial de Químicos del Sur de España" (Spain). In 2021, I was awarded a two-year competitive grant ('Further Training Abroad') of the UGR to carry out a research project at the Wageningen University (WUR) in The Netherlands, which is the most prestigious institution in the field of food in Europe. At the end of 2021 I was again awarded a competitive postdoctoral three-year fellowship by the Regional Government of Andalusia (ref: DOC-0021), which currently allows me to continue working on the research project of WUR together with Prof. Saskia van Ruth who is internationally renowned food scientist.

During the 7 years of (inter)national scientific experience, I have acquired priceless laboratory, knowledge transfer (3 BSc, 8 MSc students supervised, all of them completed with outstanding), and management skills. Currently, I am advisor to 2 Ph.D. students (one of them funded by a FPU grant). I have established an extensive research network, and have generated highly cited scientific contributions (H-index of 11, resulting from 33 peer-reviewed publications (94% in Q1 journals, first author in 17 and corresponding in 18), and 6 book chapters). In parallel, I has participated and collaborated as a researcher in 1 competitive publicly-funded national project and in 10 research contracts with public bodies and other private entities related to the quality and food authenticity. Currently, I collaborate as a researcher in 1 European COST ACTION (SensorFINT; ref: CA19145) and 2 competitive publicly-funded regional projects (OlivERSAL-GC; ref: P20_00607; SENSOPILOT; ref: B-AGR-648-UGR20).

Resumen del Currículum Vitae:

Ph.D. in Chemistry with international mention (defended in October 2018); my Ph.D Thesis, entitled 'Analytical study of the transesterified fraction of the olive oil. Application in problems of olive oil authentication', obtained the OUTSTANDING qualification with a "cum laude". In November 2020 I was granted with the best Doctoral Thesis award: "XXXVIII Doctoral Thesis Award 'San Alberto Magno 2020" conferred by "The Official Association of Chemists of the South of Spain" (Spain). Currently, I am postdoctoral fellow at the University of Granada (Spain) thanks to the award of a post-doctoral fellowship from the Regional Government of Andalusia.

My research is focused on the application of chemometric tools for the chemical authentication of food, using the fingerprinting methodology applying chromatographic (GC and LC) and spectrometric (IR, Raman) techniques. This is the main research line of the research group to which I belong and in which I have played an important role by developing new multivariate analytical methods of classification and quantification in the food quality area. All this conferred to me a high scientific and technique level, which places it on the border of current knowledge in this field. I have completed 4 pre-doctoral and 2 postdoc research stays in national and international research centres (from which a total of 10 scientific publications have resulted being corresponding author in 70%): the Wageningen University (The Netherlands), University of Almeria (Spain), "Institute for Global Food Security" Queen's University (Northern Ireland, UK), 'University Institute of Pesticides and Water' of the Universitat Jaume I of Castellón (Spain), "Rovira i Virgili" University of Tarragona (Spain) and the National University of Rosario (Argentina). In parallel I have participated and collaborated as a researcher in 1 competitive public-funding Spanish research project and in 10 research contracts with public bodies and other private entities related to the quality and food authenticity. Currently, I collaborating as a researcher in 1 European COST ACTION (SensorFINT; ref: CA19145) and 2 competitive public-funding regional projects (OlivERSAL-GC; ref: P20_00607; SENSOPILOT; ref: B-AGR-648-UGR20). My leadership skills are reflected in the supervision of 3 BSc and 8 MSc students that completed with outstanding, and currently, I am advisor to 2 Ph.D. students (one of them with FPU grant, FPU20/04711) whose theses are focused on the use of chemometric tools in the food field. I am a permanent member of the editorial board of the journal FOODS of the MPDI publishing, regular reviewer of international JCR journal and I have been guess editor of two special issues in FOODS journal (Q1, food science & technology). The results of my research work can be summarized in: 33 JCR scientific-technical publications, 6 book chapter, 9 dissemination papers, and 40 contributions to national (15) and international scientific conferences (25), of which 12 have been oral presentations. In addition, I am accredited as Associate Professor and Assistant Professor by the Spanish National Agency for Quality Assessment (ANECA).

Área Temática:	Ciencias agrarias y agroalimentarias
Nombre:	CADIZ GURREA, M LUZ
Referencia:	RYC2021-032119-I
Correo Electrónico:	mariluzcadizgurrea@gmail.com
Título:	Sustainable and comprehensive strategies for revalorizing agri-food waste with high added value by circular

bioeconomy

Resumen de la Memoria:

After graduating in Biology, I carried out a master in quality and environmental management (2009) and worked in Area de Gestión Sur de Granada Hospital de Motril (2008-2011) with a research grant from FIBAO. In addition to quality and environmental management activities, I participated in different projects about Gripe A, colon cancer, respiratory failure or staphylococcus infection.

In 2011, I did a Biotechnology Master at University of Granada. After that, I got a research contract for a project (2013-2014) about antioxidant capacity and HPLC-MS characterization of different fruits and vegetables from Andalusia. Then, I was awarded with a competitive predoctoral grant (FPI) funded by Junta de Andalucía. During this period (2014-2018), I worked in the Department of Analytical Chemistry (University of Granada) and in the Technology Centre for Functional Food Research and Development with Dr. Antonio Segura. In 2018, my PhD Thesis was awarded with the highest qualification score and the PhD Extraordinary Award by the University of Granada. During my PhD, I performed two international stays (6 months) with Dra. Legeai-Mallet at INSERM Institute Imagine (Paris, France) for testing the potential of different compounds from cocoa in achondroplasia. In addition, I did a national stay (3 months) in the University Rovira i Virgili (Reus) with Dr. Jorge Joven for studying the effect of compounds from cocoa and lemon verbena on energy metabolism in animals.

My career was focused on understanding the role of phytochemicals from natural sources, mainly agri-food waste, in human health applying multidisciplinary approaches to extract them from the raw matter with green technologies, to characterize them quali- and quantitatively by robust platforms, to evaluate their potential against different disorders related to oxidative stress, chronic inflammation and aging, and to develop innovative strategies for incorporating them in high added value products.

From 2018 to 2019, I continued working in the University of Granada thanks to a postdoctoral grant founded by Junta de Andalucía. During this stage, I did other stay in the University Rovira i Virgili and I started to work in revalorizing strategies against climate change. In 2019, I was awarded with an international postdoctoral grant and I moved to Porto (Portugal) at REQUIMTE/LAQV with Dra. Francisca Rodrigues and Dra. Cristina Delerue-Matos. There, my work was focused on the revalorization of different by-products such as chestnut shells, kiwifruit leaves and olive leaves for developing nutraceuticals and cosmeceuticals. Based on this work, I participated in the COP25. In 2019, I was also awarded with the postdoctoral fellowship Sara Borrell (rejected it to continue in Portugal)

Since the start of my career, I have published 53 JCR articles, most of them as relevant author and in Q1 journals, and 12 book chapters. In 2020, I got a contract as Profesora Sustituta Interina at University of Granada and, in 2021, I was awarded with the postdoctoral fellowship Incorporación de Jóvenes Doctores Junta de Andalucía . I did an international stay at University of Chile studying the potential of agrifood by-products with Dr. Mario Aranda. Moreover, I have been accredited as Profesor Contratado Doctor, , I have already supervised 8 TFM, 2 TFG and, currently, 3 PhD, 4 TFM and 2 TFG ongoing.

Resumen del Currículum Vitae:

María de la Luz Cádiz obtained the degree in Biology at the University of Granada (UGR). She has 3 masters in different fields such as quality and environmental management (2009), biotechnology (2011) and dermopharmacy and cosmetic formulation (2022). She also obtained her International Chemistry PhD in 2018 at UGR with the highest distinction and the PhD Extraordinary Award. Her Doctoral Thesis was focused on the obtainment of bioactive compounds from natural sources under a competitive grant (FPI). In addition, she carried out her research collaborating with national (UGR, University of Rovira I Virigili, UCLM, UMH) and international (Institute Imagine, France) groups. After that, she has focused on the development of different strategies for revalorizing food waste by circular bioeconomy approaches collaborating with national and international groups (University of Porto and Chile) and companies in the agri-food industry. She was awarded with 4 postdoctoral grants.

High scientific productivity: 53 JCR journal articles (15 D1, 20 Q1, 18 Q2); 15 (1st author), 8 (2sd author) and 12 (corresponding author). 12 book chapters (2 Springer, 8 Elsevier), 32 international, 13 national conferences and 7 plenary invitation talks. Total cites (Scopus): 787; (GS): 1555. h-index (Scopus): 16; (GS): 22. i10 (GS): 32. Fruitful International collaborations in 24 publications with institutions from Portugal (REQUIMTE/LAQV), France (Inserm, Institute Imagine), Turkey (Selcuk University), Iran (University of Kashan and of Zabol), Peru (Universidad San Ignacio de Loyola), Sweden (Chalmers University of Technology), Germany (University of Göttingen) and Tunisia (University of Sfax). Intersectorial relationships with companies such as Grupo La Caña, Natac, Herbafor, Frumaco, Montosa, etc. Fluent communication in two languages (Spanish -native-, English -B2-), and ability in French and Portuguese. Multidisciplinary spirit, bringing together biology, biotechnology and analytical chemistry, as demonstrated by training and subsequent collaborations and stays with hospitals (AGS of Granada, Spain, Hospital Necker, France and Hospital San Joan, Reus, Spain) and Research Centers (CIDAF), and companies. Awards: PhD extraordinary award from UGR, 1st Prize Best Poster communication at IMEKOFOODS, Best Poster communication at Desgranando Ciencia, finalist at I Agroalimentary Innovation competition and at Famelab 2019.

Maturity and leadership, including experience in management (5 years of PhD-student representative at the CRD-University of Granada), fundraising (pre- and post-doctoral projects) and supervision (3 PhD, 12 Master and 4 Graduate students and 3 international students). President and Founder of Young Investigator Conferences (http://jornadasjiffi.ugr.es/) and Organizer of 1 Workshop. Teaching experience from 2015 with 46.6 ETCS at University of Granada. Temporary Lecturer, Assistant Lecturer and Private University ANECA accreditations. Committed to scientific communication, including participation in TV/radio programmes (e.g., 2100: Onda Cero and ConCiencia at Canal Sur), Scenio community and communication competitions (Famelab, 3MT). Participation in national communication events (scientific fairs, European Researcher s Night, Pint of Science, 11F or Desgranando Ciencia) and co-founder of Rajando Ciencia (podcast of scientific communication).

Resumen de la Memoria:

My methodological and theoretical research as well as a considerable portion of my applied and collaborative work addresses the grapevine physiology under abiotic or biotic modulators. Between 2012 and 2018, I was carrying out my research activity in the Department of Plant Biology (University of Navarra, UN), first, as an intern student with a Collaboration Scholarship (MEC), and as a Master and PhD student with funding from the UN (2013, 2014) and the Ministry of Education, Culture and Sport (FPU14/00530, 2015-2018). During this period, I collaborated in two national (BFU2011-26989 and AGL2014 -56075-C2-1-R) and an international (INNOVINE) projects and did a 3-month research stay at the Institut des Sciences de la Vigne et du Vin in Bordeaux (France). In 2018 I defended my thesis obtaining the maximum qualification, the mention of international doctorate and the 2018/2019 Extraordinary Doctorate Award. With my PhD, I made a strong contribution to plant science research field through being the first author of large body of original research (9 scientific papers in JRC indexed journals, a divulgation article, 13 communications in conferences and 2 book chapters).

In 2019, I started working for the UC Davis (USA) participating in various projects related to the sustainability of viticulture in hot climates and adaptation to climate change meaning the opportunity for translating the findings of my pre-doctoral experience under control conditions to real field conditions. Moreover, I set up new experimental approaches for studying the implications of different irrigation managements and AMF inoculation on different soil health indicators or crop management for decreasing the greenhouse gas emissions in collaboration with the private industry (Nextwatts). All this work accounted for 8 (7 as first author) scientific publications, 9 presentations at congresses, including 2 invited talks, and 4 sessions in courses for winegrowers.

In 2021, I was included as a Juan de la Cierva Training researcher in the Dr. Santesteban¿s group of the Public University of Navarra, where I participate on different activities focused on vineyard management based on abiotic conditions, grapevine physiology, and the biodiversity for improving vineyard profitability under future constraints. Additionally, I strengthen my commitment to the professional development of my career and try to do my best as a mentor for others. Thus, I co-direct with Dr. L. Gonzaga Santesteban the PhD thesis of Diana Marin and three Degree¿s final works related to the berry and wine chemistry. Finally, I am in charge of part of a study that aimed to understand how the application of different biostimulants can regulate the expression of the phenyl propanoid synthesis pathway genes in berries; and I am the scientific coordinator of activities within the new projects such as new experiments that aim to understand the implications of the plant material/rootstock and inoculated with arbuscular mycorrhizal fungi under well irrigated and water stress conditions.

My previous background is a sign of my leadership, networking and organizing skills and receiving a 5-year contract will allow me to develop my scientific career in a deeper sense. I could advance in the knowledge of the mycorrhizal symbiosis and other land management s alternatives for a more sustainable agriculture in the future.

Resumen del Currículum Vitae:

My trajectory as a scientist started as an intern with the MEC collaboration fellowship in 2012. After completing my Master, I developed my PhD thesis under the supervision of Drs. Goicoechea and Antolin in the University of Navarra (UN), obtaining the Extraordinary Doctorate award. My PhD about mycorrhizal grapevines in climate changes scenarios allowed me to acquire a sound background for a broad range of methodologies (metabolomics, gas exchange measurements, cell culture, classical biochemical methods) and a research stay at the Institut des Sciences de la Vigne et du Vin in Bordeaux.

My postdoctoral experience started with a contract at the UC Davis, the reference institution for viticulture in the USA with Dr. Kurtural in 2019. There, I was in charge of experiments on vineyard adaptation to global warming and designed and performed novel study on microbiome and soil health and greenhouse gas sequestration. In this period, I could apply my background on plant physiology and metabolites to field studies, being the lab manager for 1.5 years. I got a Juan de la Cierva Formación contract, to work at the Agronomy Department in the Public University of Navarra (UPNA) in Dr. Santesteban¿s team. In this institution, I participated in running projects and contracts, but I have also set new research lines, such as the use of biostimulants on phenylpropanoid biosynthetic genes and berry phenolics or the mycorrhizal symbiosis of scion/rootstock combinations, included as a specific task in an upcoming project.

The main scientific-technical achievements start with my PhD, where under greenhouse conditions, we studied the mycorrhizal symbiosis and the intra-variety genetic diversity of Tempranillo cv. as a climate change adaptation tools. This work led to 9 JCR articles that I published as first author with >150 citations to date. In Davis, I demonstrated the potentiality of soil health and management studies for sustainability of warm viticultural areas in 8 JCR articles (7 as first author) since 2020. The scientific-technical achievements in my current position are still to come, but the preliminary results foreseen promising applications.

I am also focus on innovation, dissemination and collaboration with the industry. Thus, I presented my work on scientific conferences (15 in my PhD, +10 since then, 3 invited talks), 4 courses to growers in California and with an increasingly intensified work with growers, nurseries and wineries through private contracts and projects to increase vineyard environmental and economic sustainability.

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Regarding lecturing and training of young scientists, as a pre-doctoral student, I gave practical lessons in Plant Physiology and Biotechnology, co-supervised the activity of undergraduate students and was a member of the Excellence Program Evaluation Committee, obtaining the positive evaluation of the ANECA for Contratada Doctora. In Davis, I supervised 5 Master students while at UPNA, I have lectured in both Degree and Master modules in viticulture, I am directing three end-degree works and I co-direct the PhD thesis of Diana Marin which will be presented in 2022. I have been nominated as a member of the evaluation committee for F.J. Abad PhD thesis this month. Concerning editorial and organizing activity, I have reviewed +10 times for JCR journals and I am a Topic Editor in Plants J since Dec 20. I am also member of the Organizing committee of the IV Jornadas del Grupo de Viticultura de la SECH.

Área Temática:	**Ciencias de la educación**
Nombre:	RAYA GONZALEZ, JAVIER
Referencia:	RYC2021-031072-I
Correo Electrónico:	rayagonzalezjavier@gmail.com
Título:	Optimización del rendimiento físico y prevención de lesiones en deportes de equipo

Resumen de la Memoria:

En 2017 inicié mi carrera postdoctoral en la Universidad Isabel I de Burgos (España), donde combiné la docencia y la gestión académica con la labor investigadora. Este periodo de casi 5 años me ha permitido adquirir competencias fundamentales para desarrollar una óptima carrera investigadora, ya que desde el inicio he tenido que asumir tareas de mentoría y liderazgo debido a que era una universidad nueva donde la investigación no estaba consolidada. Esto ha supuesto mucho esfuerzo y trabajo, pero también una gran satisfacción personal, que me ha permitido aumentar progresivamente mi producción científica, así como mi internacionalización y mi capacidad de liderazgo, hasta convertirme en un investigador experto, autónomo e internacionalizado en el tema del rendimiento deportivo y la prevención de lesiones en los deportes de equipo.

Durante mi periodo post-doctoral he consolidado la línea de investigación desarrollada durante mi tesis doctoral. En general, mi investigación está orientada hacia el entrenamiento deportivo en deportes de equipo. En este sentido, mi línea de investigación específica se divide en dos partes: 1) la optimización del rendimiento físico de los deportistas, mediante la evaluación de la condición física y la monitorización del entrenamiento y la competición, y la aplicación de programas de entrenamiento de fuerza para mejorar el rendimiento físico; y 2) la prevención de lesiones mediante el análisis epidemiológico del deporte, el análisis de los factores de riesgo que predisponen al deportista a sufrir una lesión y la aplicación de programas de entrenamiento de fuerza para reducir el riesgo de lesión.

Mis planes de futuro van encaminados a profundizar en el conocimiento de los dispositivos Flywheel en el entrenamiento de los deportistas de deportes colectivos, principalmente para conocer la dosis mínima de entrenamiento que produce mejoras sin interferir con el entrenamiento habitual de cada modalidad deportiva. Además, y debido a la escasez detectada de este tipo de investigación en la literatura deportiva, mi objetivo principal es aplicar programas de entrenamiento de fuerza basados en dispositivos Flywheel para analizar su efecto a largo plazo en la prevención de lesiones, principalmente en deportistas previamente identificados con alto riesgo de sufrir una lesión. Para ello, me gustaría realizar una estancia internacional con el Dr. Marco Beato (Universidad de Suffolk, Reino Unido), quien forma parte de mi red internacional, debido a su experiencia en el tema.

Durante mi carrera investigadora he publicado 92 artículos en revistas científicas y tres libros. Adicionalmente, he dirigido y supervisado varios proyectos de investigación nacionales e internacionales, y actualmente dirijo dos tesis doctorales. Esto me ha permitido desarrollar y liderar una red interdisciplinaria con miembros nacionales e internacionales, la cual está enfocada en optimizar el rendimiento físico y prevenir lesiones en atletas de deportes de equipo.

Resumen del Currículum Vitae:

Me doctoré en Ciencias del Deporte en 2017 (UPO), e inicié mi carrera post-doctoral en la Universidad Isabel I (Docente e Investigador). Este periodo de 5 años me ha permitido progresar y mejorar mis habilidades de investigación, dando lugar a una producción de gran impacto para las Ciencias del Deporte.

He publicado 92 artículos científicos: 62 de ellos en revistas JCR y los 30 restantes en diversas bases de datos. Respecto a los artículos de JCR, en 42 firmo en posiciones relevantes. 32 de los artículos de JCR se publican en revistas Q1 y 12 en revistas Q2. Mi índice H es de 13 en Google Scholar (542 citas) y de 9 en WOS (191 citas). Además, he escrito 3 libros en colaboración con otros coautores, 8 capítulos de libros (en editoriales SCI impact factor) y tengo más de 25 contribuciones a congresos internacionales. Esta producción científica ha facilitado la realización de un gran número de colaboraciones internacionales, la mayoría de ellas lideradas por mí. También he participado en más de 5 congresos internacionales y he realizado una estancia en la Universidad de Córdoba. He obtenido financiación para apoyar mis actividades de investigación mediante proyectos de investigación financiados por mi propia universidad, proyectos de investigación en convocatorias públicas y privadas y contratos de investigación (artículo 83). Todo este trabajo me ha permitido adquirir competencias muy importantes para una relevante carrera científica, como la responsabilidad y el liderazgo.

En cuanto a las actividades tecnológicas y de innovación, recientemente se han aceptado dos trabajos científicos en el registro general de la propiedad intelectual en España, además de un contrato de investigación con la empresa Deporte Numantino. Divulgo activamente los resultados de mi investigación al público general a través de TV, blogs y redes sociales. Además, he sido ponente invitado en varias conferencias y cursos científico-técnicos.

He contribuido a la formación de jóvenes investigadores a través de 2 tesis doctorales que se encuentran en proceso (ambas tienen 2 y 3 publicaciones JCR asociadas [Q1 y Q2], respectivamente). Además, he dirigido 4 trabajos fin de máster y 16 trabajos fin de grado. He participado activamente en la constitución del reconocido grupo de investigación "Grupo de Investigación Actividad Física y Deporte", siendo responsable de la línea de investigación "Entrenamiento deportivo en Ciencias de la Actividad Física y el Deporte". Esto me ha facilitado la creación de una red internacional, que estoy liderando. Además, soy editor en varias revistas del JCR y he actuado como revisor en más de 50 ocasiones para 15 revistas científicas internacionales indexadas en el catálogo JCR. Además, he participado en 3 proyectos de investigación nacionales e internacionales financiados por instituciones públicas (investigador principal en 1 de ellos), 6 financiados por instituciones privadas (investigador principal en 1 de ellos) y 5 de mi universidad (investigador principal en 1 de ellos).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Estoy acreditado por la ANECA como   Profesor Contratado Doctor   y cuento con 6 años de experiencia docente en asignaturas relacionadas con mi línea de investigación. Además, soy coordinador académico en el grado de ciencias del deporte desde 2017. He visitado varios laboratorios y he ganado dos premios a la 2ª mejor comunicación en congresos internacionales.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Ciencias de la educación
Nombre: SALA , ANNA
Referencia: RYC2021-033782-I
Correo Electrónico: annasb4@blanquerna.url.edu
Título: Researcher education and gender equality

Resumen de la Memoria:

My research trajectory shows a versatile profile as an early career researcher with extensive international experience and a strong commitment to high-quality research and knowledge transfer. In 2014, I graduated from the Interuniversity Master s degree in Psychology of Education with an honour s degree and obtained the most competitive doctoral scholarship (FPU, Spanish Government) to do my doctoral thesis under the supervision of prof. Montserrat Castelló. I graduated Cum Laude in May 2018 and received the International PhD recognition and the Extraordinary Award of URL 2018.

During my trajectory, I have developed two lines of research: early career researchers (ECRs) education and, more recently, gender-based violence (GBV). My thesis contributed to the understanding of the role of writing in doctoral experiences and provided new methods to analyse writing processes and career trajectories, which were implemented in three successive projects funded by the Spanish Government and the European Commission and published in high-ranked scientific journals. I also obtained funding to explore researchers experience during the Covid-19 pandemic and PhD graduates trajectories outside academia and I am currently co-supervising two doctoral researchers.

Regarding gender equality and GBV, in 2019 I joined the WWP as a data analyst. This European Network provides training and research support to GBV programs and I have been responsible for the assessment of 20+ intervention programs and contributed to two European projects on cyberviolence and program evaluation. I also joined a project on GBV at schools funded by the European Union. My work has contributed to understanding success factors in intervention programs for violent men and providing education professionals with resources to cope with GBV.

Since 2014, my active participation in international projects and research networks allowed me to do short stays at Antwerp University, University of Helsinki, Dartmouth College and Oxford University, and publish with 20+ researchers from all around the world in high-quality journals (JCR Q1 and Q2), on many occasions as lead author. Results have also been widely disseminated at international conferences and, more importantly, in open access resources and free training for many Spanish and European universities.

Resumen del Currículum Vitae:

Scientific contributions: my work has significantly contributed to understanding the experiences, problems and research conditions of early career researchers (ECRs) in Spain (where there was virtually no research on the topic) and other European countries, conducting, for instance, the first study ever to explore the factors that promote doctoral dropout in Spain with over 1,000 participants [9]. The article shed light on structural problems of doctoral education and received attention from researchers around the world (Google Scholar: 142 citations, Altimetric: 23). My work has also contributed to diversifying research methods: I designed an instrument to explore ECRs professional networks [10], a novel method to analyse key-stroke logging data [3], and effective cross-national collaboration processes [2], among others. I led many of these studies and recently obtained two competitive projects as PI to continue working with my own funding. In 2019 I started in a new line of research to fight against a highly relevant social issue, gender equality. My participation in a project led by U. of Tampere and in the European Network for Work With Perpetrators has resulted in several publications and communications that provide new clues on how to cope with gender-based violence (GBV) in schools and perpetrator programmes. All outputs have been published and disseminated in highly prestigious international journals and conferences in education, psychology and writing (5 JCR-Q1 + 3 SJR-Q1).

Transfer of knowledge: both lines of research deal with some of the most pressing social challenges as repeatedly highlighted by international institutions: science with and for society and gender equality. My focus has always been to contribute to practice through research. The projects in which I have been involved, including my thesis, resulted in training resources and policy guidelines. I designed and taught multiple courses and seminars for ECRs on research writing; I co-designed a pioneer training platform and social network for ECRs (http://www.researchers-like-me.com); and co-organised a dissemination event attended by more than 400 ECR from 53 countries. I also co-designed and taught the course for secondary school teachers on how to cope with GBV (https://projects.tuni.fi/erasegbv/training-programme/).

Training of junior researchers: I had the chance to contribute to the development of many junior researchers at URL, where since 2019 I lead a research writing course and workshops on research methods. I have also been invited to other Spanish and European universities to give workshops on research writing. I am currently co-supervising two doctoral thesis on ECRs development.

Internationalisation: I have actively participated in several international projects and collaborated with researchers from different disciplinary backgrounds from Canada, the UK, USA, Finland, Belgium and Estonia. During my doctorate I obtained funding to visit Antwerp U. (2016), Helsinki U. (2017) and Dartmouth Colleague (2017) and visited Oxford University (2018) to work on a cross-national project [publications 2 & 6]. In 2014, I was appointed Junior Coordinator of the EARLI s Special Interest Group on Researcher Education and Careers, and during six years I contributed to this group of researchers from Europe and other continents working on researcher education.

Área Temática:	Ciencias de la educación
Nombre:	CARLOS VIVAS, JORGE
Referencia:	RYC2021-033579-I
Correo Electrónico:	jorge.carlosvivas@gmail.com
Título:	Alfabetización física en escolares y adolescentes

Resumen de la Memoria:

Mi trayectoria profesional ha pivotado entorno a una experiencia profesional heterogénea y enriquecedora y una formación multidisciplinar y compacta, centrada principalmente en dos áreas: la promoción de la salud a través de la actividad física y el entrenamiento deportivo. Actualmente, desarrollo mi labor como Profesor Sustituto en la Facultad de Formación del Profesorado de la Universidad de Extremadura.

Licenciado en Ciencias del Deporte en 2013 por la Universidad de Extremadura, continué mi formación de postgrado, cursando Máster en Alto Rendimiento Deportivo y Máster Universitario de Formación del Profesorado de Educación Secundaria. A partir de entonces, comencé mis estudios de Doctorado. Al inicio de esta etapa y mientras desarrollaba una estancia de 3 meses, obtuve un contrato predoctoral en la Universidad Católica de Murcia; lo que me permitió, durante 3 años, colaborar en numerosos proyectos y contratos de investigación, mientras realizaba mi tesis doctoral en la línea de investigación Entrenamiento deportivo y optimización de rendimiento en fútbol . Etapa que culminó con la defensa de tesis en 2019, obteniendo la calificación de Sobresaliente Cum Laude.

Posteriormente, me ofrecieron la oportunidad de volver a la Universidad de Extremadura en calidad de Personal Científico Investigador para trabajar en dos líneas de investigación en las que sigo centrando mi trabajo actual: Alfabetización física en escolares y adolescentes y Actividad física como tratamiento complementario en poblaciones especiales. En el marco de la primera de estas líneas, dirigí mi primera Tesis Doctoral Observatorio de obesidad, condición física y alfabetización física en Educación Primaria, Secundaria y Bachillerato , que fue defendida el pasado año.

Actualmente, desarrollo mi labor profesional como Profesor Sustituto en la Facultad de Formación del Profesorado de la Universidad de Extremadura y centro mi trabajo en 4 líneas de investigación principales: 1) Alfabetización física en escolares y adolescentes; 2) Conocimiento del contenido pedagógico en Educación Física; 3) Actividad Física, salud y calidad de vida en diferentes poblaciones con y sin patologías y 4) Entrenamiento deportivo y control de la carga para la optimización del rendimiento. En concreto, en la actualidad centro mis esfuerzos en el desarrollo y búsqueda de nuevo conocimiento en las dos primeras líneas de investigación dentro de las citadas anteriormente; así como a la búsqueda de figuras de mayor responsabilidad en el ámbito universitario y de la investigación con el objetivo de liderar un grupo de trabajo y obtener mi primer proyecto de investigación como Investigador Principal, en un futuro próximo; lo que sin duda me permitiría seguir contribuyendo al campo científico, en dos ámbitos (Alfabetización física en escolares y adolescentes y Conocimiento del contenido pedagógico en Educación Física) donde a mi entender y en considerando los antecedentes y estado de la cuestión, queda mucho por descubrir.

Resumen del Currículum Vitae:

Titulación Académica:
        Doctor en Ciencias del Deporte.
        Máster Universitario de Formación del Profesorado en Educación Secundaria (especialidad Educación Física).
        Máster Título Propio en Alto Rendimiento Deportivo (COE-UCAM).
        Licenciatura en Ciencias de la Actividad Física y el Deporte.

Posición actual:
        Figura: Profesor Sustituto
        Dedicación: Tiempo Completo
        Área: Expresión Corporal
        Departamento: Didáctica de la Expresión Musical, Plástica y Corporal Fecha de incorporación: 28 de septiembre de 2021.

Experiencia investigadora:
        Autor de más de 80 publicaciones científicas. Destacar las más de 60 publicaciones en revistas indexadas en el Journal Citation Report (JCR); más de la mitad de ellas en revistas posicionadas en los dos primeros cuartiles de su categoría y cuatro capítulos de libros publicados en la Editorial Wanceulen, situada en el segundo tramo de SPI.
        Miembro del Equipo Investigador de más de una decena de Proyectos y Contratos de Investigación obtenidos tanto en convocatorias competitivas como con empresas privadas.
        Más de 30 contribuciones en Congresos Nacionales e Internacionales, incluyendo 1 Ponencia Invitada.
        Director de una tesis Doctoral y de más de una veintena de trabajos y proyectos final de máster y grado, incluyendo alumnos nacionales e internacionales.
        Revisor y Editor de revistas JCR.
        Miembro del Tribunal Evaluador en varios trabajos final de máster y grado.
        Miembro del Comité Científico y Organizador en numerosos congresos y jornadas de investigación, ocupando las figuras de Presidente y Secretario en alguno de estos.
        Inventor de dos modelos de utilidad.
        Índice H:
  - SCOPUS: 9
  - WOS: 9
  - Google Scholar: 12

Líneas de investigación:

Alfabetización física en escolares de Educación Primaria

Conocimiento del contenido pedagógico en Educación Física

Actividad Física, salud y calidad de vida en diferentes poblaciones con y sin patologías.

Entrenamiento deportivo y control de la carga para la mejora del rendimiento.

Estancias en Universidades:

Universidad Católica San Antonio de Murcia: 3 meses.

Premios, Menciones y Distinciones:

Premio a la Excelencia en la Trayectoria Investigadora, Modalidad de Jóvenes Investigadores, por el Campo Social y Jurídico por la Universidad de Extremadura concedido durante el Acto de Santo Tomás de Aquino celebrado el 10/01/2022 en Badajoz, Extremadura, España.

Diploma la mejor Comunicación Póster del Tercer Simposio P4Work - Trabajo & Dolor, organizado por la Universidad San Jorge el 22/10/2021 en Zaragoza, Aragón, España.

Premio a la mejor Comunicación Oral del III Congreso Internacional de Prevención de Lesiones Deportivas organizado por la Federación Española de Medicina del Deporte (FEMEDE) y la Universidad Católica San Antonio de Murcia celebrado el 12/03/2016 en Guadalupe, Murcia, España.

Enlaces webs:

ORCID: https://orcid.org/0000-0002-6377-9950

SCOPUS: https://www.scopus.com/authid/detail.uri?authorId=57193858622

PUBLONS: https://publons.com/researcher/2206830/jorge-carlos-vivas/

RESEARCHGATE: https://www.researchgate.net/profile/Jorge-Carlos-Vivas

Área Temática:	Ciencias de la educación
Nombre:	CARBALLO DELGADO, RAFAEL
Referencia:	RYC2021-032768-I
Correo Electrónico:	rcarballodelgado@gmail.com
Título:	Inclusión educativa de los estudiantes universitarios con discapacidad

Resumen de la Memoria:

Desde el año 2014, la investigación del solicitante se centra en la línea de la Educación Inclusiva en la Enseñanza Superior. De manera más específica, se identifican las siguientes temáticas:

1. Análisis de las experiencias de los estudiantes españoles con discapacidad y de los elementos facilitadores y obstáculos identificados por estos durante suss estudios universitarios, así como los factores determinantes para su éxito académico.
2. Formación de profesorado universitario en educación inclusiva, con el objetivo de capacitar a los docentes para ofrecer una respuesta educativa y social adecuada a los estudiantes con discapacidad.
3. Diseño Universal de Aprendizaje como enfoque educativo para la flexibilización de la enseñanza universitaria para todas las personas.
4. Estudio de la pedagogía inclusiva desde la perspectiva de profesores universitarios excelentes.

El solicitante se incorporó al Equipo de Investigación B.U.D.A. (Barreras, Universidad, Discapacidad, Ayudas) de la Universidad de Sevilla, dirigido por la Dra. Anabel Moriña Díez, directora también de la tesis doctoral. Además, desde el año 2019 forma parte del Grupo de Investigación I.D.E.A. (Innovación, Desarrollo, Evaluación y Asesoramiento) de la misma universidad, dirigido por el Dr. Carlos Marcelo García.

En el año 2018, el solicitante defendió su tesis doctoral con mención internacional titulada "Una escalera hacia la inclusión educativa en la universidad: desarrollo y evaluación de un programa de formación para el profesorado", obteniendo la calificación de Sobresaliente Cum Laude y, más tarde, el premio de doctorado a la mejor tesis en el área de Educación del curso 2017/18.

Durante el año 2017 realizó una estancia de investigación en la Universidade do Algarve (Portugal), colaborando con investigadoras pertenecientes al servicio de apoyo a la discapacidad de dicha universidad.

Desde el inicio de la trayectoria investigadora, el solicitante ha participado en un total de cinco proyectos de investigación financiados por organismos públicos:

- Historias de éxito universitario de graduados con discapacidad: un análisis ecológico de factores personales y contextuales (PID2020-112761RB-I00). 2021-2025. Plan Estatal 2017-2020 Retos-Proyectos I+D+i.
- Prácticas docentes inclusivas con tecnologías emergentes (m-learning): diseño, desarrollo y evaluación de un programa de formación para profesorado universitario (US-1381423). 2021-2022. Proyectos I+D+i FEDER Andalucía 2014-2020.
- Pedagogía inclusiva en la universidad: narrativas del profesorado (EDU2013-46303-R). 2017-2020. Plan Estatal 2013-2016 Retos-Proyectos I+D+i.
- Caminando hacia la inclusión social y educativa en la universidad: diseño, desarrollo y evaluación de un programa de formación para el profesorado (EDU2013-46303-R). 2014-2017. Plan Estatal 2013-2016 Retos-Proyectos I+D+i.
- Análisis de las aulas universitarias andaluzas desde la perspectiva de estudiantes con discapacidad (P11-SEJ-7255). 2013-2016. Proyectos de Excelencia de la Junta de Andalucía.

Todos los proyectos se centran en el objetivo de mejorar la experiencia universitaria de los estudiantes con discapacidad, analizando diferentes etapas y procesos intervinieres: análisis de barreras y ayudas; formación del profesorado; experiencias de buenos docentes; factores de éxito académico; y uso de tecnologías inclusivas.

Resumen del Currículum Vitae:

La formación del solicitante comienza con una Licenciatura en Pedagogía en la Universidad de Sevilla (2008-2013); continúa con un Máster en Psicología del Trabajo por la Universidad Complutense de Madrid (2013-2014); y con un Doctorado Internacional en Educación por la Universidad de Sevilla (2015-2018).

El solicitante trabaja desde el año 2018 en la Universidad Internacional de La Rioja a tiempo completo. Cuenta con acreditación a PCD y PUP por ANECA. Además, imparte formación al profesorado de la Universidad de Sevilla en temas relacionados con la educación inclusiva y el Diseño Universal de Aprendizaje.

Actualmente cuenta con once artículos publicados en revistas de impacto. De todos ellos, nueve están publicados en las siguientes revistas JCR:
- European Journal of special needs education. 2022 (Q2).
- International journal of inclusive education. 2022 (Q2).
- International journal of inclusive education. 2021 (Q2).
- Disability & Society. 2021 (Q1).
- Arts and humanities in higher education. 2021 (Q3).
- Health and social care in the community. 2021 (Q1).
- Innovation-The European journal of social science research. 2020 (Q3).
- Sage Open. 2020 (Q4).

- Evaluation and program planning. 2017 (Q2).

Otros dos se encuentran publicados en revistas SCOPUS:
- Educação e sociedade. 2020 (Q2).
- Psicología escolar e educacional (Q4).

Cuenta con un libro publicado como único autor:
- La formación del profesorado universitario: una perspectiva a través de la oferta formativa y los responsables de la formación. EAE. 2016.

Además, destacan cuatro capítulos de libro en editoriales de los primeros puestos del ranking SPI:
- Flipped-Classroom o aula invertida: cómo dar la vuelta a la clase. En A. Moriña (Ed.), Enseñando con metodologías inclusivas en la universidad. De la teoría a la práctica. Narcea. 2021.
- Educación inclusiva en la universidad: el papel del profesorado. En C. Márquez (Ed.), ¿Avanzamos hacia universidades más inclusivas? De la retórica a los hechos. Dykinson. 2019.
- Diseño Universal de Aprendizaje: buenas prácticas para la inclusión. En A. Moriña (Ed.), Formación del profesorado para una educación inclusiva en la universidad. Síntesis. 2018.
- Necesidades y ajustes razonables en la discapacidad física y orgánica. En A. Moriña (Ed.), Formación del profesorado para una educación inclusiva en la universidad. Síntesis. 2018.

El solicitante ha participado en más de 30 contribuciones a congresos científicos internacionales, con ponencias invitadas y comunicaciones. Como ejemplo, varias contribuciones en el congreso ECER.

Ha participado en cinco proyectos de investigación obtenidos en convocatorias competitivas (descritos en el apartado anterior de esta solicitud).

Por otro lado, participa como revisor científico en diferentes revistas internacionales de alto impacto: Health education research; Innovation-The European journal of social science research; International journal of educational research; educational research review; Health & social care in the community; International Journal of Inclusive Education.

Actualmente, co-dirige una tesis doctoral de una estudiante con Beca FPU (Ayudas para la Formación de Profesorado Universitario, 2022-2025), dentro del Programa de Doctorado en Educación de la Universidad de Sevilla.

Área Temática:	**Ciencias físicas**
Nombre:	ANDERS , FRIEDRICH
Referencia:	RYC2021-031683-I
Correo Electrónico:	fidibus@streber24.de
Título:	Deciphering the detailed structure and formation history of our Galaxy

Resumen de la Memoria:

My research is dedicated to deciphering the detailed structure and formation history of our Galaxy. My main scientific contributions concern the chemo-kinematics of the Galactic disc, the computation of precise and accurate stellar astrophysical parameters (in particular ages), and the Milky Way s open-cluster census with Gaia. I have a broad expertise from observational methods and machine learning to analytical models and high-performance computing.

I am a leading expert in the field of Galactic archaeology, with a special focus on Gaia and spectroscopic stellar surveys.

I have led two big-data analysis efforts combining the Gaia data releases DR2 and EDR3 with multi-wavelength photometric surveys, leading to the production of the widely used StarHorse catalogues. In Anders et al. (2019, cited 147 times) I computed stellar parameters and distances for more than 200 million stars by combining Gaia with other photometric surveys, doubling the number of Gaia sources with astrophysical parameters with respect to the catalogue published as part of Gaia DR2. The data revealed the presence of the Galactic bar directly in the stellar density distribution. The catalogue has been used by >1000 astronomers and the outreach video produced for the ESA press release has been viewed more than 10,000 times. The recent follow-up paper (Anders et al. 2022) extends the StarHorse Gaia catalogue to fainter stars using Gaia EDR3, resulting in more than 360 million stars reaching regions even beyond the Galactic bar and in other Local Group galaxies.

 I also contribute to the ongoing revolution of the open cluster census enabled by Gaia. In Cantat-Gaudin & Anders (2020, 75 citations) I used Gaia DR2 data to demonstrate that most high-latitude open clusters in the literature do not exist. Subsequently, in Cantat-Gaudin, Anders et al. (2020, 94 citations) we determined homogeneous cluster membership probabilities and astrophysical parameters for all ~2000 clusters confirmed by Gaia at that time. Recently I also led a pilot study (Anders et al. 2021) linking the Gaia OC census to the evolution of the Galactic disc: the bias-corrected cluster age distribution allowed me to infer of the recent cluster formation rate as well as the cluster destruction time-scales. Finally, I play an active role in my group's fruitful search for new open clusters using machine-learning algorithms in a big-data environment.

For many years I have been part of the large international projects SDSS/APOGEE and RAVE (working with researchers from over 50 institutions). Within APOGEE I led the CoRoT-APOGEE collaboration, an observational campaign to determine precise asteroseismic ages for red-giant stars in the Milky Way disc, leading to the first reliable measurement of the age dependence of the Milky Way s radial abundance gradient using field stars (Anders et al. 2017, 95 citations). I also wrote the first Galactic archaeology paper using APOGEE data (Anders et al. 2014, 158 citations). In the paper I measured the radial metallicity gradient of the disc as a function of distance from the Galactic plane and confirmed the short scale length of the Galactic thick disc.
Currently I am very active in 4MOST and the Gaia Validation team, and the science exploitation of various stellar surveys.

Resumen del Currículum Vitae:

I am a leading expert in the field of Galactic archaeology, with a special focus on Gaia and spectroscopic stellar surveys.
During the past 8 years I signed 8 refereed first-author and 6 second-author publications (summing >800 citations). In total I am an author of 66 refereed publications (>5000 refereed citations; h-index 36). I have given more than 20 oral contributions (4 invited) in international conferences.

I am part of the large international collaborations SDSS/APOGEE, RAVE, WEAVE, 4MOST, and the Gaia Data Processing and Analysis Consortium (working with researchers from over 100 institutions).

From 2019-2021 I was PI of a Marie Sklodowska-Curie Fellowship. I am currently holding a Juan de la Cierva Fellowship dedicated to the exploitation of Gaia and ground-based spectroscopic stellar surveys.

I am a highly engaged mentor for astronomy students, seeking also for ways to diminish the gender gap in astronomy. In the past 2.5 years I have supervised 9 undergraduate (2 MSc, 7 TFG) theses. Last not least, I am a friendly human being that believes in the collective intelligence of the community (in particular the astronomical community).

Área Temática:	**Ciencias físicas**
Nombre:	ALEJO ALONSO, AARON JOSE
Referencia:	RYC2021-032654-I
Correo Electrónico:	aaron.alejo.alonso@gmail.com
Título:	Particle acceleration using ultra-intense lasers

Resumen de la Memoria:

I am a junior researcher working on experimental laser-plasma physics, particularly the acceleration of particles using ultraintense lasers, as well as the development of technologies and applications that take advantage of their unique properties. Currently, I combine a position as visiting researcher at the University of Oxford, with a Junior Researcher Fellowship at the Galician Institute of High Energy Physics (IGFAE, USC).

Throughout my career, I have worked on different aspects of the laser-plasma interaction. I carried out my PhD studies [2013-2017] at Queen s University Belfast under the supervision of Prof. Borghesi, where I worked on novel ion acceleration mechanisms, and the generation of laser-based neutron sources. A series of successful experiments at international facilities put our group at the forefront of the field, having obtained directional neutron beams with fluxes in excess of 2E9n/sr, as well as performing the first reported experiments on production of epithermal neutron beams, a major development that could compensate the limited number of facilities offering this type of beams.

As a postdoctoral researcher at QUB [2017-2019], I worked on studies of neutral electron-positron plasmas (EPP), a unique state of matter of interest for their relationship to astrophysical phenomena. We performed the first reported observation of magnetic field generation when an EPP propagated through a background plasma, results that attracted significant interest from the general public. Furthermore, I led seminal studies on simulation and experimental characterisation of laser-driven positron beams, which showed that beams with high-flux, low-emittance, and ultra-short duration could be generated, with potential to be further accelerated in secondary, laser-driven stages. The appealing properties of these beams allow for their use in applications, particularly in the context of material characterisation, resulting in a collaboration with industrial partners (Rolls Royce Plc.).

In 2019 I joined the University of Oxford, where I work on novel electron acceleration mechanisms, and in particular I took the leading role in the guiding of ultra-intense lasers, ensuring electron acceleration can be sustained through extended propagation distances. This work led to the development of a new, all-optical approach to optical guiding, consisting of the generation of plasma-based optical fibres, which can also operate at much higher rates than existing solutions, and allow for the production of compact, multi-GeV, electron accelerating stages that can be deployed in series for sequential post-acceleration.

In 2021, after being awarded a MSCA-laCaixa Junior Leaders fellowship, I joined the IGFAE as a Junior Researcher, while retaining a visiting researcher position at the University of Oxford. My current line of research consists of the optimisation of a laser-driven ion source for biomedical applications, in which by means of machine-learning techniques and a novel target design we work on boosting the ion fluxes produced from a 50TW laser, hosted by the USC. Further to this, I continue to work on diagnostic and targetry developments alongside my own research group, currently formed by a PhD student and several master and undergraduate students, as well as maintaining the already established collaborations with international groups.

Resumen del Currículum Vitae:

Since 2021, I am a junior researcher at the Galician Institute of High Energy Physics (IGFAE), where I am the PI of a prestigious MSCA-laCaixa Junior Leaders fellowship, as well as being a lecturer in the MSci in Physics and the undergraduate Physics courses. In addition to my position at IGFAE, I am a visiting researcher at the University of Oxford.

I have authored 44 peer-reviewed publications, including top-of-the-field journals (2 PRL, 2 NJP, 3 APL, 3 SciRep). Of those publications, I am the first-author in 10, second-author in 9, and corresponding author in 3. As of Feb. 2022, these publications amount for 609 citations, and an h-index of 14. Despite the ongoing collaboration, 22 of those publications are without contribution from the PhD supervisor. I also have extensive experience in presenting these results at international conferences, with 4 invited talks, 7 contributed talks, and 7 poster presentations, one of which resulted as the winner of the poster competition. I have also been invited to lecture in seminars at international centres.

My career has focussed on the study of the laser-plasma interaction, and particularly on the acceleration of particles using ultra-intense lasers. experiments take place at international laser facilities, with access granted through competitive calls. I have participated in 25 experimental campaigns, of which 10 were directly planned and led by myself. Overall, the funding received for these experiments amounts for >£1.5M. These campaigns have allowed me to establish collaborations with >40 international groups, as well as leading to joining international scientific collaborations (e.g. EuPRAXIA, PWASC).

Some major results include production of bright neutron beams and moderation [NJP (2016), APL (2017)], acceleration of ions of relevance for Inertial Confinement Fusion [PRL (2018)], laboratory astrophysics studies of electron positron plasmas [PRL (2017)], or new methods for guiding high-power lasers [PRE (2021)]. In addition to these basic-science results, I am interested in applications, having established collaborations with different industrial partners. The relevance of the research is highlighted by several of the publications appearing as Editor s suggestion, as well as one of them becoming a Highlight of 2016. Furthermore, significant attention from media and general public has been received by these results [e.g. BBC News, Daily Mail].

Currently, as a junior researcher, I am building my own group, which currently comprises a PhD student and 2 undergraduate students. Previous supervising experience includes 2 PhD students, 5 MSci students, and 2 UG students. Further to the MSCA-laCaixa Junior Leaders budget [305k], I have secured additional funding for our research from sources such as USC [58k] and Xunta de Galicia as part of GENP [244k]. I am also a researcher

on a major EPSRC grant with Prof. Hooker as PI [£1.5M], and secured funding for simulations at the UK largest supercomputer [£133k], on top of the additional funding for experimental campaigns [>£1.5M overall].

Throughout my career, I have combined the scientific research with my interest in outreach activities, which include organisation of talks to high school students, hands-on experiments for general public and visits to faculty, or exhibits at museum for Science Weeks and International Year of Light. Funding was secured for these activities through local governments and the Optical Society of America.

Área Temática: **Ciencias físicas**
Nombre: ROMPINEVE SORBELLO , FABRIZIO
Referencia: RYC2021-031105-I
Correo Electrónico: fabrizio.rompineve@cern.ch
Título: Unravelling fundamental physics with cosmology and gravitational waves

Resumen de la Memoria:

The overarching theme of my research career is the proposal and investigation of novel scenarios of physics beyond the Standard Model (SM), with a focus on their observable implications for cosmological and gravitational wave (GW) observations.

I have been tackling this research aim by focusing mostly on scalar fields in the early Universe. My research tools include broad knowledge of new physics scenarios, model building skills and numerical abilities to look for evidence of those scenarios in cosmological and gravitational wave datasets.

Among my most important research achievements to date: I have investigated the problem of super-planckian field displacements in the realization of cosmological inflation in String Theory, in particular in the context of Axion Monodromy Inflation (AMI), where I performed one of the first concrete calculations of the backreaction of heavy moduli fields on the inflaton trajectory; I presented the first concrete model to evade the so-called Weak Gravity Conjecture, and I proposed a generalization of the latter which applies to the domain walls which characterize AMI.
I have then proposed novel ways to probe the existence and dynamics of light (pseudo)scalar fields (such as the QCD axion) in the post-inflationary Universe: in particular, a new mechanism to form primordial black holes from the collapse of topological defects of the QCD axion (published on Physical Review Letter); an impactful study of cosmological implications (among them, a stochastic background of GWs) of a so-called supercooling phase which can arise in an important class of solutions to the electroweak hierarchy problem (cited 57 times since 2019); I investigated the formation and evolution of bound states of axion fields held together by self-interactions in the early Universe (oscillons). I have provided important contributions to the understanding of whether light scalars can explain current discrepancies in the measurements of cosmological parameters, with three publications in 2020 and 2021 having been cited already more than 100 times in total, one of them being a very recent Letter on Phys. Rev. D. I have proposed that the LIGO interferometer can potentially probe the properties of the Peccei-Quinn phase transition associated with the QCD axion, being sensitive to its potential stochastic background of GWs (40 citations since 2020).

My independent research plan focuses on new physics sectors which interact with the SM only very weakly, possibly only gravitationally (dark sectors). Given that such sectors would most likely escape detection at collider and laboratory searches, the extraction of their observable signatures for current and future cosmological and GW observations is of crucial importance, as is the search for such signatures in the datasets themselves. These are the broad goals of my research plan.

Thanks to my particularly international (I have done research work in six research institutions in four different countries since 2013) career, I have built a very strong network of collaborators in Europe and in the USA. In recent years, I have also co-supervised and mentored several undergraduate and graduate students and I am thus confident that I can fruitfully include students in my research program.

Resumen del Currículum Vitae:

I am a theoretical particle physicist with a broad background in quantum field theory, string theory and their applications to cosmology. I have very recently joined the Theory group at CERN as Fellow. Before joining CERN, I developed my research expertise as a postdoctoral researcher in two world-renowned research institutions in the fields of particle physics and cosmology: Tufts University in the USA (2019-2021), where I worked with Prof. Mark Hertzberg; IFAE Barcelona (2017-2019), where I collaborated with Dr. Oriol Pujolàs and Prof. Àlex Pomarol.

I was a doctoral student at the University of Heidelberg (DE) (2013-2017), under the supervision of Prof. Arthur Hebecker. During my PhD studies, I was awarded a travel grant from the University of Heidelberg, which I used to visit Prof. Matthew Kleban at New York University in the USA, for five months in 2016.

I am the author of 19 peer-reviewed research articles, 1 published proceeding and 1 research preprint. My research work has collected (inspirehep.net) more than 800 citations to date. In particular, I have authored three 100+ articles and three 50+ articles. My h-index is 15.

I published my first research article as single author just after the end of my MSc studies at EPF, Lausanne, where I was supervised by Prof. Riccardo Rattazzi. During my doctoral studies I achieved important results in the realization of the mechanism of cosmological inflation in String Theory (three of my publications have been cited more than 300 times in total since 2015). My thesis was awarded the "Otto Haxel" prize (third prize) for the best physics PhD thesis between the universities of Goettingen, Karlsruhe and Heidelberg.
As a postdoc I made important progress in the cosmology of light (pseudo)scalar (axions) fields after inflation, including a PRL article, two 50+ citations articles on implications of scalar fields for cosmological and GW observations and an influential proposal that the LIGO interferometer can probe the QCD axion scenario.

I have extensive experience in teaching, mentoring and supervising students. In particular, I have supervised an undergraduate thesis (Sasha Leonhardt 2015, Heidelberg), co-supervised two more undergraduate students on specific articles/summer programs (Mark Gonzalez, Lia Lubit, Tufts 2019-2021), co-supervised four PhD students on research articles (Jan Ollé, 2018-2019, IFAE, Julian Rey, 2019, IFT Madrid, Neil Shah and Itamar Allali 2020-2021,

Tufts). I have taught undergraduate and graduate exercise classes for eight courses. I have delivered several lectures to undergraduate students at Tufts University.

I have delivered 15 invited seminar talks at research institutions in Europe and in the US, and 15 conference and workshop talks. I am an organizer of the weekly cosmology seminars at CERN and of the EuCAPT Symposium 2022. I am a member of the LISA Consortium.

I am a referee for the two of the most prestigious journals in particle theory and cosmology, JHEP and JCAP. I received a favorable report for "Lector" positions by AQU Catalunya.

I was awarded several scholarships during my BSc (I was also in the Excellence Program at Rome Sapienza University) and M.Sc.studies (I also won the "Prix SHS" at EPFL for philosophy of science). I was awarded a prestigious PhD scholarship from the DAAD (German Academic Exchange Service) (2014-2015).

Área Temática:	Ciencias físicas
Nombre:	DEL PINO ALEMAN, TANAUSU
Referencia:	RYC2021-034006-I
Correo Electrónico:	tanausu@iac.es
Título:	Magnetic field diagnostic from spectral line polarization

Resumen de la Memoria:

The magnetic field is a key ingredient in the physics of the atmospheres of stars like the Sun, responsible for its activity, which is at the origin of the spectacular coronal mass ejections, with so many implications for our technology on Earth. It is also responsible for the heating of the outer atmosphere. In fact, most of the open big questions in Solar Physics concern the magnetic field. Only spectro-polarimetry allows us to measure magnetic field strengths and topologies. My research career is about the study of the Sun s magnetic field both via the development of numerical codes for the modeling and the inversion of spectro-polarimetric data. In my work (24 refereed papers, 7 as first author, 14 as second author, one invited review) I made important contributions to the field of solar spectro-polarimetry.

I did my PhD in the Solar Physics group at the Instituto de Astrofísica de Canarias in Spain, focused on the theory and numerical modeling of the polarized spectrum emerging from optically thick plasmas such as that of stellar atmospheres. After defending my thesis in 2015, I moved for a two-year postdoc at NCAR-HAO under the Advanced Study Program. During this postdoc I developed, in collaboration with Dr. Roberto Casini, the first and still unique numerical code able to solve the polarized radiative transfer problem with partial frequency redistribution and a general magnetic field, allowing to wide open the window to chromospheric and transition region magnetism. This numerical code has allowed some breakthrough contributions in the field of solar spectro-polarimetry for which I was awarded with the Early Career Researcher ESPD Prize by the European Solar Physics Division in 2018.

I am now an advanced postdoc fellow, a six-year position, in the European Research Council funded POLMAG Advance Grant project at the Instituto de Astrofísica de Canarias, where I have continued working in the development of new and unique techniques and numerical codes for both the forward modeling and inversion of spectral line polarization.

While in this position I have also started supervising two PhD theses and teaching polarization in spectral lines in the Master in Astrophysics at the Universidad de La Laguna in Tenerife, Spain.

Resumen del Currículum Vitae:

My scientific profile comprises Spectro-polarimetry and Solar Physics, focused on the development of numerical codes for the modeling and the inversion of spectro-polarimetric data. I have made important contributions to our understanding of the formation of the polarization of several feature-rich atomic lines in the Sun and their potential for magnetic field diagnostics.

I got my PhD in Astrophysics at the IAC in Spain. During my thesis I developed a polarized radiative transfer (RT) code for arbitrary multi-level atomic models that considered the magnetic field in a quite general regime. It was applied to the study of some poorly understood solar spectral lines explaining, for the first time, their physical origin. I then moved for a two-year postdoc at NCAR-HAO under the Advanced Study Program, where I continued my research and developed the first (still unique) code to solve the polarized RT problem accounting for the relevant physics to model the polarization of strong chromospheric lines. This code has allowed some breakthrough contributions to the field of solar spectro-polarimetry for which I was awarded the Early Career Researcher Prize by the European Solar Physics Division in 2018.

I am now an advanced postdoctoral researcher in the Advanced-ERC grant POLMAG project at the IAC, a six years position, where I have continued working in magnetic diagnostic with solar spectral lines involved in the development of new and unique numerical codes for both the forward modeling and inversion of spectral line polarization.

The theoretical and numerical research carried out by myself and collaborators has motivated the development of the CLASP missions, three suborbital rocket experiments launched by NASA. I have participated in the last two as a member of the research team. My work has been key for the interpretation of these unprecedented data.

I have been invited to participate in the research team of some international projects, Polstar and CMEx, two proposed NASA MIDEX and SMEX, respectively, space telescopes. I am also co-PI of the MUSOL instrument, a polarimetric unit for the Solar-SONG telescope, awarded with 140 000 .

I maintain several international collaborations: Dr. J. Stepán from the Astronomical Institute ASCR in Czech Republic; Dr. L. Belluzzi from IRSOL in Switzerland, and several scientists at NCAR-HAO in USA, where I have been awarded the Robert MacQueen Fellowship funded with 3 500 $/year.

I have a total of 35 publications: 24 in first quartile refereed papers and 4 white papers. From the refereed papers, 7 are as first author, 14 as second author, and 13 have three or less authors. I have been invited to write, with Prof. J. Trujillo Bueno, a review for the Annual Review of Astronomy and Astrophysics (impact factor 30.1), to be published in August 2022. I have given 9 oral contributions and 3 invited talks in national (1) and international (2) meetings. I have been invited to give one seminar at NCAR-HAO.

Since 2018, I have been teaching in the Máster de Astrofísica at the Universidad de La Laguna (1.5 ETC credits). I supervise two theses. The thesis of Mr. David Afonso Delgado is co-supervised by Prof. J. Trujillo Bueno (started in Feb. 2019). The thesis of Mr. Andrés Vicente Arévalo, co-supervised by Dr. M.J. Martínez González and Dr. J. Stepán (started in Dec. 2020).

Área Temática:	Ciencias físicas
Nombre:	ALLAN STEWART, JOHNSON
Referencia:	RYC2021-032392-I
Correo Electrónico:	allan.johnson@icfo.eu
Título:	Ultrafast Coherence and Control in Quantum Materials

Resumen de la Memoria:

My research focuses on using light to understand and control quantum systems at their natural length and time scales, applying ultrafast spectroscopy and nanoscale imaging to uncover the fundamental dynamics that govern the properties of complex materials. I use a mixture of laboratory and facility based experiments along with numerical simulations to achieve these goals. I am particularly interested in using light to control the properties of matter, generating new transient non-linear effects for applications in science and technology, and to create new phases in quantum materials.

Some of my research achievements include the development of the highest energy soft X-ray attosecond pulses in the water window region from a tabletop source, the first measurement of absolute stereochemistry (chirality) of gas phase molecules, and the development of a lensless X-ray spectromicroscopy technique compatible with ultrafast laser excitation and strong magnetic fields. I am now interested in the active control of quantum materials, having performed measurements of quantum control over the light-induced phase transition in VO2 and the generation of light-induced metastable conducting states in the manganites. By combining coherent control over transient phases with nanoscale time-resolved imaging I aim to controllably generate novel metastable states in quantum materials, leading to new types of designer materials.

Resumen del Currículum Vitae:

I am a physicist specializing in understanding and controlling complex systems at their fundamental length and time scales. My research has spanned quantum optics, imaging science and photoelectron spectroscopy, but is especially focused on ultrafast optical and X-ray science. I have worked in seven laboratories across four countries, publishing 30 scientific papers in journals such as Science, Science Advances, Nature Photonics, Nature Communications, Physical Review X and Physical Review Letters, among others. My results have been cited over 1000 times, and I have been awarded several grants and fellowships totaling almost 800,000 in funding. I have presented my results at numerous international conferences, including three invited talks. My work has been recognized with several prizes for scientific talks and for academic achievement, a selection of which are highlighted in my CVA.

I obtained my PhD from Imperial College London in July 2017, where I held a Marie Curie Early Stage Researcher fellowship. I then joined the Ultrafast Dynamics of Quantum Solids group ICFO in Barcelona as a PROBIST fellow in 2017, before taking over day-to-day management of the research team in March 2020. As of December 2021, I am now head of this laboratory and hold a Junior Leader La Caixa fellowship. Before beginning my PhD I also had the opportunity to work in a variety of research laboratories, including at the National Research Council of Canada, the University of Ottawa (Canada), and at the University of Frankfurt (Germany).

My research uses a wide variety of lab-based and facility-based techniques including ultrafast spectroscopy, X-ray diffraction and spectroscopy, and coherent scattering imaging. I have lead international teams on experiments at synchrotrons and X-ray free electron lasers including SACLA in Japan and PAL XFEL in Korea, and been a team member at many more. Performing experiments at facilities all over the world and working at institutes in Canada, Germany, the UK and Spain has led me to build a broad base of international collaborators. I have also chaired an international student conference (QuICC 2014), and supervised two PhD and numerous masters students.

Among my contributions to research, I would stress the first measurement of the absolute configuration (chirality) of gas phase molecules using photoion spectroscopy, the development of new regime for soft X-ray attosecond pulse generation, the development of new techniques for optical-X-ray synchronization at free electron lasers, and new quantum information measurement techniques.

Recently I have led the construction of a full laboratory for ultrafast spectroscopy of quantum materials and used it to show that the prototypical ultrafast phase transition in VO2 does not host a previously claimed intermediate non-equilibrium state, and that phase transitions in the manganites are dominated by disorder. Additionally, I have made significant progress in imaging quantum materials via X-ray holography and Coherent Diffractive Imaging, extended this technique to a full spectro-microscopy technique for the first time and performing the first time and space resolved measurements of a phase transition at the nanometer and femtosecond length and time scales.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Ciencias físicas**
Nombre:	CHOBANOVA , VERONIKA GEORGIEVA
Referencia:	RYC2021-031287-I
Correo Electrónico:	veronikachobanova@gmail.com
Título:	Search for physics beyond the Standard Model at LHCb

Resumen de la Memoria:

I am an internationally recognised leader in experimental particle physicist. I am currently among the three shortlisted candidates, out of initial 54, for LHCb Physics Coordinator, one of the highest positions of responsibility within the experiment. I have also convened LHCb s physics working group B decays to charmonia (B2CC) and the flavour tagging group.

My research is centred around searches for effects beyond the Standard Model (BSM) in decays of mesons containing b and/or s quarks. During my doctorate, I led two analyses of Belle experiment data, B->omega K and B0->psi(2S) pi0 obtaining the world s best results.

After the PhD, I joined LHCb as a postdoctoral researcher at IGFAE/USC. Only less than two years later, I was appointed convener of B2CC s CP tools and techniques subgroup where I developed advanced analysis tools for the flagship measurement of the CP-violating phase phi_s in Bs0->J/psi K+K-. Only a year later, I stepped up as B2CC convener and ever since coordinate the collaboration effort in Bs0->J/psi K+K-. I am currently convening the LHCb Flavour tagging group which produces inputs central to the performance of some of LHCb s main analyses such as Bs0->J/psi K+K-. I coordinate the preparations for Run 3 and develop novel advanced algorithms based on deep neural networks.

I contributed to a pioneering effort in rare kaon decays such as KS0->pi0 mu mu and KS0->mu mu which showed that LHCb can excel at important measurements it was not initially designed for. I have also collaborated with theorists in phenomenology, which has resulted in four publications, among which studies of b->sll transitions and supersymmetry. Furthermore, I contribute to studies of the performance of the LHCb Upgrade trigger, to studies of a fast simulation algorithm, and to a novel method to determine the momentum scale of a detector. I am a member the Heavy Flavour Averaging Group (HFLAV), an international body that averages experimental results.

I have presented at high-profile international conferences such as ICHEP, EPS, FPCP and CKM. I have organized FPCP 2020, a Rare N Strange decay workshop and convened WG4 at the CKM 2021 workshop. I am a reviewer at the high-impact journals EPJC and PLB. I review funding applications worth hundreds of thousands AUD for the Australian Research Council.

I am the official supervisor of two PhD students and a day-to-day supervisor of two others, of two Master students and a Bachelor student. I have given lectures and practical courses to undergraduate students and have an extensive track record in outreach. I have attracted both personal and large-scale funding, worth over half a million euros in total, such as a Juan de la Cierva-incorporation grant (ranked 1st among the particle physicists and 3rd overall), a DECRA award by the Australian research council, a Spanish project by the Ministry of Economy of which I was co-PI, funding by Xunta de Galicia for FPCP 2020 and a Europa Investigación grant.

My plan is to consolidate my research as a leader within the LHCb experiment and in particular in the phi_s measurement and the area of flavour tagging, and to extend LHCb s research activities in the domain of indirect searches for Dark Matter. I will actively pursue funding to support this research also in the future.

Resumen del Currículum Vitae:

I am an internationally recognised leader in experimental particle physicist with multiple positions of responsibility within the LHCb experiment. I am currently among the three shortlisted candidates, out of 54, for Physics Coordinator, one of the highest positions of responsibility within LHCb. I have also convened LHCb's physics working group B decays to charmonia (B2CC) and the flavour tagging group.

Since the beginning of my career, my research has been centred around searches for effects beyond the Standard Model (BSM) in decays of mesons containing b and/or s quarks. During my doctorate at the Max Planck Institute for Physics, Munich, I led two analyses of Belle experiment data, the measurement of the charge-parity(CP)-violating parameters in B->omega K decays and the search for B0->psi(2S)pi0. The novel methods I employed in these studies led to the world s best results.

After the PhD, I joined LHCb as a postdoctoral researcher at IGFAE/USC. Only less than two years later, I was appointed convener of B2CC s CP tools and techniques subgroup, where I developed advanced GPU-based analysis tools. Only a year later, I stepped up as B2CC convener to coordinate the effort in data analyses such as Bs0->J/psiKK. Ever since I direct an analysis team of 20 researchers and am a contact author of the major publication from 2019 [EPJ C 79 (2019) 706] in which I obtained the world s best results.

I am currently convening the LHCb Flavour tagging group. The flavour tagging is an experimental method whose performance is of crucial importance for some of LHCb s main analyses. I coordinate the effort to maximise the performance in the challenging conditions of LHC s Run 3, which will start in 2022. I also develop novel advanced algorithms based on deep neural networks, which show a great potential to increase the performance and to significantly increase the sensitivity of CP-violating variables sensitive to BSM physics and give us a better chance for major discoveries in the upcoming years.

My research at LHCb includes pioneering measurements of very rare kaon decays such as KS0->pi0mumu and KS0->mumu which showed that LHCb can excel in domains it was not initially designed for. I have also collaborated with theorists in phenomenology, which has resulted in four publications. Furthermore, I contribute to studies of the performance of the LHCb Run 3 trigger in rare strange decays, to studies of a fast simulation algorithm developed at IGFAE, and to a novel method to determine the momentum scale of a detector. I am a member of the Heavy Flavour Averaging Group (HFLAV), an international body that averages experimental results.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

I have presented at high-profile international conferences such as ICHEP, EPS, FPCP and CKM. I organized FPCP 2020 (200 participants), and a Rare N Strange decay workshop (20 participants) and convened sessions at the 2021 CKM workshop (250 participants). I am a reviewer at the high-impact journals EPJC and PLB. I review funding applications worth hundreds of thousand AUD for the Australian Research Council.

I am the official supervisor of two PhD students and a day-to-day supervisor of two others, of two Master students and a Bachelor student. I have given lectures and practical courses to undergraduate students. I have an extensive track record in outreach and attracted funding worth over half a million EUR.

Área Temática: Ciencias físicas
Nombre: BERNAL MERA, JOSE LUIS
Referencia: RYC2021-033191-I
Correo Electrónico: bernal.mera.jl@gmail.com
Título: Sharpening our view of the Universe through Line-Intensity Mapping and the tensions in Lambda-Cold Dark Matter

Resumen de la Memoria:

My research focuses on cosmology, addressing the phenomenological nature of the standard cosmological model   the nature of the dark matter and dark energy, the physics of the primordial Universe, etc.   and the existing tensions between experiments, from the interface between theoretical and observational cosmology. In particular, I seek novel ways to exploit cosmological observation to optimize their information return and ensure it yields robust conclusions, as well as deriving observational consequences of fundamental physics unknowns to develop new science cases for existing and forthcoming experiments.

My work has led theoretical research in the quest for the model that can provide a cosmological explanation to the Hubble constant tension, as well as providing fresh perspective to this topic and obtained independent measurements of related quantities, as the age of the Universe. I have significantly contributed to the development of line-intensity mapping as a robust observational probe, working on the modeling of its measurements and proposing several science cases, spanning from the extension of the cosmic distance ladder to higher redshifts to searches of exotic radiative decays from decaying dark matter or decaying neutrinos. I also have confirmed the robustness of the measurements of the baryon acoustic oscillations against deviations from the standard cosmological model and derived methodologies to estimate a priori potential biases in the results due to inaccurate approximations and to combine different measurements under conservative assumptions, no matter the level of discrepancy between them.

Therefore, while my work focuses on line-intensity mapping and the study of the Hubble constant tension and potential cosmological solutions, I have cultivated a very versatile expertise that allows me to explore the synergies between different fields in cosmology and astrophysics.

Resumen del Currículum Vitae:

I obtained my PhD from Universidad de Barcelona in 2019, with thesis entitled "Cosmology on the edge of Lambda-Cold Dark Matter". Before, I had obtained my master in Theoretical Physics and my Degree in Physics from Universidad Autonoma de Madrid. Currently, I am a Davis Postdoctoral Fellow at Johns Hopkins University, since October 2019.

I have communicated this work both written   29 refereed publications (13 first-authored) and another two submitted for a total of more than 1300 citations and h-index of 16   and verbally   more than 30 invited seminars and contributed talks. I am member of the SKA Cosmology and Gravitational Waves working groups (I led the cosmological forecast for the radio-continuum surveys included in the red book: Cosmology with Phase 1 of the Square Kilometre Array Red Book 2018: Technical specifications and performance forecasts), and member of the ASKAP Cosmology group; I am also participating in the first stages of the AtLAST collaboration, leading the proposal for a LIM survey, and I have been member of DESI (I participated in the development of DESI s blinding policy and the actual strategy to be applied during the analysis, published as   Blind observers of the sky).

I have mentored 3 PhD candidates   Gabriela Sato-Polito (2 publications and 1 submitted article with her) and Hector Afonso Cruz at JHU, and Katie Short (1 publication with her) at ICCUB   and 1 master student. In addition, I have been teaching assistant at the University of Barcelona (UB) in Astronomy (spring 2017) and Ordinary Differential Equations and Vectorial Calculus (spring 2017, spring 2018) courses.

I have refereed submitted manuscripts in several scientific journals, including ApJ, JCAP, A&A, PDU, EPJC, Universe and IJMPD; in addition, I have been external reviewer for NASA s FINESST programs in 2020 and 2021. Currently, at my department, I am the postdoc representative in the   Joint JHU/STScI Colloquium Committee , the organizer of the   Particle Theory Seminars , and the founder and coordinator of the   Physics and Astronomy Postdocs and Research Scientists   association. During my PhD, I founded and coordinated the   PhD & Science   meetings at the ICCUB, and was a LOC member for the   Venice Cosmology Workshop 2018: The Island . I also have engaged in outreach activities, including: an invited talk at the Sabadell Astronomy Group (At what speed does the Universe expands? , 2018), participating in a round table for the Dark Matter Day in 2018 at UB, a poster exhibition about cosmology, gravity and black holes (Unravelling the dark Universe , 2017), an invited talk for Physics bachelor students at the UB (Walk on the Dark Side , 2016) and participation in short courses and demonstrations for High School students at the UB (Physics Experiments , 2016-2018;   Physis , 2016).

My research has been recognized with the following awards: the Second Prize of the XXV   Claustre de Doctors   of the UB (2021), Doctoral Extraordinary Prize at the UB (class 2018-2019), Spanish Astronomy Society Thesis Prize to the best Doctoral Thesis in A&A (2020), Allan C. and Dorothy H. Davis Postdoctoral Fellowship at JHU (2019), and the declined David Schramm Fellowship at Fermilab (2021), CITA Postdoctoral Fellowship (2021) and National Fellowship (2018) and the Newton-Kavli Junior Fellowship at the University of Cambridge.

Área Temática:	Ciencias físicas
Nombre:	MANZANO PAULE, GONZALO
Referencia:	RYC2021-031121-I
Correo Electrónico:	gmanzano@ucm.es
Título:	Quantum thermodynamics: information, fluctuations and complexity

Resumen de la Memoria:

Thermodynamics is one of the oldest theories in physics. Developed during the XIX century to describe macroscopic engines such as the steam engine, it established the fundamental principles dictating energy interconversion processes. After surviving two major scientific revolutions, it has been applied to a number of different fields, from biochemistry to engineering. In the last decades thermodynamics have been extended to small (microscopic or nanoscopic) scales, where fluctuations play a major role pushing systems out of equilibrium, and where genuine quantum effects cannot be neglected anymore. My line of research has been mainly focused within this context, aiming to establish bridges between quantum information and nonequilibrium thermodynamics.

In my career I elaborated on concepts and tools from the theory of open quantum systems (describing the behavior of quantum systems in contact with a surrounding environment), and from the framework of stochastic thermodynamics (describing the thermodynamic properties of classical microscopic systems) to develop the emerging field of quantum thermodynamics and their applications. Quantum thermodynamics is an interdisciplinary and growing field that places at the intersection of quantum information, many-body physics, non-equilibrium statistical physics and nanoscience. It aims to the energetic and thermodynamic costs of quantum operations, and investigate possible enhancements tiggered by genuine quantum effects. Quantum thermodynamics is nowadays becoming an important pillar for quantum technologies and has attracted special attention in Europe, where the COST Action MP1209 (2013-2017) contributed to the development of a powerful research community that has produced many of the breakthroughs in the field in the past years and performed the first pioneering experiments.

My contributions to the field have been developed during my PhD at Universidad Complutense de Madrid (with stays at IFISC and University of Bristol) and during my 4 years of postdoctoral experience in top-level research institutions such as ICTP (Trieste) and IQOQI Vienna (Austria) where I collaborated with world-leading research groups in quantum science. I studied different aspects of quantum synchronization in open quantum systems and their relation to quantum correlations. I performed a robust characterization and interpretation of irreversibility, entropy production and their fluctuations, in monitored quantum systems for arbitrary environments. Apart from developing new concepts and methods to differentiate quantum and classical thermodynamic behavior, I applied them to analyze the performance of quantum thermal machines performing useful tasks such as refrigeration or work extraction, with a special focus on the role of quantum and collective effects. I also combined concepts from stochastic processes theory and information thermodynamics to introduce a new concept of Maxwell s demon based on gambling and test it in an experimental nanoelectronic platform. I studied the thermodynamic impact of quantum measurements in work extraction, establishing quantitative links between work and correlations, and discovered a new set of thermosqueezing effects that are in close analogy to thermoelectric ones, with promising applications in quantum technologies.

Resumen del Currículum Vitae:

From my master studies I have been interested in research (JAE-Intro) and during my PhD at UCM (FPI) I have deepened my knowledge in complementary aspects of quantum physics, complex systems and thermodynamics, with stays at IFISC and at University of Bristol (UK), under the supervision of Juan M.R. Parrondo, Roberta Zambrini and Sandu Popescu, respectively. My thesis dissertation, Thermodynamics and Synchronization in Open Quantum Systems, was qualified with the highest mark, and I had the honor to be awarded with the international Springer Thesis Prize, which allowed the publication of my dissertation as a book in 2018. I was also awarded the EPJ Poster Prize at the conference Crossroads in Complex Systems, 5-8 June 2017, Mallorca.

After finishing my PhD (July 2017), I did a short Postdoc at IFISC leading a project on optimal work extraction and then I moved to ICTP Trieste (Italy), where I have worked from April 2018 until August 2020 as a Postdoctoral researcher with Rosario Fazio on quantum and stochastic thermodynamics, supported by a fellowship from Scuola Normale Superiore di Pisa (Italy). During summer 2020 I have been awarded the highly competitive ESQ Postdoc Fellowship funded by H2020 Marie Skłodowska-Curie program and organized by the Austrian Academy of Science (ÖAW). I joined the Institute for Quantum Optics and Quantum Information (IQOQI) Vienna and worked with Caslav Brukner on fundamental aspects of irreversibility and the arrow of time at the quantum level, until I moved back to IFISC (May 2021) with a Juan de la Cierva Incorporación.

I am author of more than 20 JRC articles and 1 book. I received a total amount of 581 citations from 406 articles (915), with an average rate of 112 (176) cites/year during my postdoctoral period (2018-2021) and my h-index is 12 (14) following Web of Science (Google Scholar). I presented the results of my research in more than 20 conferences (3 invited talks, 8 contributed talks). I had the opportunity to collaborate with international researchers from more than 20 leading research institutions in the world, some of which I was invited to visit. I participated in the working group of 8 research projects (including 1 European project) and I recently presented my own project as unique PI in the last call of the Spanish national plan Generación de Conocimiento 2021.

My research has been highlighted in different international science media such as Physics FOCUS and Quanta Magazine, and local media like Il Piccolo and Diario de Mallorca. I have also written a popular science article for the journal Investiación y Ciencia (Spanish edition of Scientific American).

I contributed in mentoring PhD students during their stays at Trieste, following ICTP s mission of promoting science in developing countries and I currently mentor M. Ferri and J. A. Almanza at IFISC. I participated in the jury of K. Hammam thesis defense at Université Mohammed V Rabat on 25

November 2021. I teached 1,2 ECTS credits to undergraduate students at UCM (2015-16) and 4,2 ECTS credits at Universitat de les Illes Balears (2021-22). I currently teach in the Master in Complex Systems at IFISC. I was involved in the COST Network MP1209 Thermodynamics in the quantum regime (2013-2017). I review papers for several top research journals in physics and I attended various soft-skills training courses from ÖAW Mentoring Program (2020-2021).

Área Temática: Ciencias físicas
Nombre: TORRES BOBADILLA, WILLIAM JAVIER
Referencia: RYC2021-031314-I
Correo Electrónico: wjtorresbo@gmail.com
Título: Formal and phenomenological applications of scattering amplitudes

Resumen de la Memoria:

My research interests are focused on elucidating the intriguing mathematical properties of scattering amplitudes that allow for an efficient and systematic computation of physical observables, in the context of classical and quantum field theories. Within my research career, I profited from perturbation theory, in which the ultimate goal is the development of novel techniques to bootstrap theoretical predictions to the highest accuracy. In this respect, I started to study mathematical properties of tree-level scattering amplitudes to, then, extend this knowledge to the computation of multi-loop quantities. Since multi-loop Feynman integral feature a multitude of singularities, I developed a regularisation scheme to treat regularised (or internal) particles in strictly four space-time dimensions. Likewise, on the computational side, I benefitted from insights of algebraic geometry, where the treatment of Feynman integrands instead of integrals was exploited. This procedure allowed me to perform one- and two-loop analytic calculations of absent (and non-trivial) scattering amplitudes.

On top of performing analytic calculations, I am involved in developing a complete numerical framework to calculate theoretical predictions through the loop-tree duality, which I recently reformulated and automated at multi-loop level. Within this formalism, I introduced an integrand representation of multi-loop Feynman integrals that only manifests physical singularities, referred to as causal representation. I provided a conjecture at all-loop orders that later on was proven by following geometrical properties of the convex polytope.

Lastly, I have witnessed how different technologies developed for the calculation of physical observables in high-energy physics can be employed in the computation of classical observables. This is indeed the case of post-Newtonian corrections to the Newton potential from an effective field theory approach to general relativity, where the knowledge in the calculation of scattering amplitudes is exploited. In view of my automated techniques, I provided for the first time the fifth post-Newtonian correction to the Newton potential.

Resumen del Currículum Vitae:

My main research interests have been focused on the numerical and analytic calculation of scattering amplitudes, in the context of classical and quantum field theories. This subject is motivated by the lively interaction between formal mathematical insights and the direct phenomenological application for the efficient calculation of physical observables. Within my research activity, I am keen in elaborating novel techniques that bootstrap theoretical predictions in either classical or quantum applications.

In my research trajectory, I have published 21 peer-reviewed papers in well recognised journals in high-energy physics; 2 pre-print papers (submitted to arXiv) that currently are under review; 13 contributions (proceedings) to scientific conferences. The complete list of contributions can be found in https://inspirehep.net/literature?q=a%20W.J.Torres.Bobadilla.1.
My total number of my citations is: 715 (INSPIRE), 736 (Google Scholar), 345 (Scopus);
h-index: 17 (INSPIRE), 16 (Google Scholar), 11 (Scopus); i10-index: 19 (Google Scholar).

In order to speed up the various calculations of scattering amplitudes in classical and in quantum field theories I have developed several automated software s (e.g., Aida, Lotty, LoopTran, TwistorsW) in different programming languages. The main motivation is to have control, when needed, on numerical and analytic computations. Likewise, allowing the scientific community to profit from automated frameworks.

In my postdoctoral studies, I have supervised two master theses. The first one of J. Jurado (from Universitat de València) that led to the publication of a peer-review paper (JHEP 12 (2017) 122), and second one of G. Dondi (from Università degli Studi di Padova). Additionally, I have been in charge of four internship students (from Universitat de València and Ludwig-Maximilians-Universität München), where their main activities corresponded to enhance the knowledge learnt at lectures to the application of cutting-edge problems in classical and in quantum field theory. In the research groups I was member of, I was in charge of organising the weekly Journal club.

Due to my expertise in the subject of scattering amplitudes, I have been in charge of different reviewing activities. From 2020, I am participating as peer reviewer of the scientific journals Computer Physics Communications (CPC), and European Journal of Physics C (EPJC). In the same way, from 2017 2021, I was part of the Management Committee of the COST action PARTICLEFACE, as representative of Spain. Likewise, every year I have participated in outreach activities prepared by my local institutions, including talks for general audience.

Regarding the organisation of scientific meetings, I have involved in the Local Organising Committee of four topical workshops. In particular, as an outcome of the topical workshop Paving the way to alternative NNLO strategies , I led the preparation of a scientific report that summarised the state-of-the-art in theoretical predictions in high-energy physics. This report has been published as a peer-paper (Eur. Phys. J. C 81 (2021) 250), where I was the corresponding author.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Ciencias físicas
Nombre: MARTIN DOMENECH, RAFAEL
Referencia: RYC2021-033611-I
Correo Electrónico: rafamd86@gmail.com
Título: Chemical and physical processes in the interstellar medium and their connection to the origin of life

Resumen de la Memoria:

The origin of life on our planet relies on a rich prebiotic chemistry, potentially triggered by the exogenous delivery of complex organic molecules (COMs) whose origin can be traced back to the interstellar medium (ISM). Therefore, understanding the origin of the chemical complexity in the ISM is key to understand the origin of life on Earth and, potentially, other planets.

My research career encompasses my PhD at the Centro de Astrobiologia (Spain), an internship at the Institute d Astrophysique Spatial (France), and my fellowship at the Center for Astropysics (United States of America), where I currently act as a research associate. In addition, a large fraction of my research involves collaborations with international researchers from Europe, America and Asia.

My formation is characterized by a multidisciplinary approach to the field of astrochemistry, and includes experimental simulations of solid-phase processes related to the formation of COMs in interstellar ice mantles and their subsequent desorption to the gas phase, as well as radio-telescope observations of COMs and other molecules with prebiotic interest in the gas-phase of star-forming regions.

My main research is focused on pivotal chemical and physical processes that contribute to the chemical complexity in the ISM, and their connection to the origin of life. Some of the highlighted contributions to my research field are:
-        The experimental evidence that the CO-rich layer in interstellar ice mantles should be considered as a significant contributor to the formation of COMs in the ISM, despite having been only marginally addressed thus far.
-        The report, for the first time, of experimental differences in the evolution of the measured photodesorption yield with the irradiation time depending on the underlying photodesorption mechanism.
-        The first experimental measurements of the thermal desorption of realistic pre-cometary ice analogs that represented a benchmark for the analysis of the data collected by the mass spectrometers on board the ESA-Rosetta cometary mission
-        The first detection of the prebiotic species CH3NCO around a solar-type protostar using observational data obtained as PI of a successful ALMA proposal that included international collaborators from Italy, Germany, and the United Kingdom.
-        The detection of the fourth Class I source harboring complex organic chemistry, whose analysis suggested a continuity in the chemical composition of protostars during their early evolution.

In the near future, I am interested in extending my research to the interstellar chemistry of S- and P-bearing species, that constitute an important missing piece of the puzzle of the origin of life.

Resumen del Currículum Vitae:

My career has been developed in three institutions: the Centro de Astrobiologia (CAB) in Spain, where I completed my PhD Thesis, funded by a FPI grant awarded by the Spanish MINECO (BES-2012-056303); an internship at the Institute d Astrophysique Spatial (IAS) in France, funded by a Ayuda Para Estancia Breve grant awarded by the Spanish MINECO (EEBB-I-2015-10333); and the Center for Astropysics (CfA, Harvard University) in the United States of America, where I currently act as a Research Associate.

My research addresses the physico-chemical processes in the interstellar medium (ISM) and their connection to the origin of life with a multidisciplinary approach, encompassing:
1) Experimental simulations of the formation and evolution of complex organic molecules (COMs, that could have contributed to the prebiotic chemistry on Earth) in interstellar ice mantles.
2) Detection of COMs in star-forming regions by means of radio-telescope observations.

During my career, I have collaborated with researchers from Spain, France, Germany, Italy, USA, and Taiwan, and I am currently a member of the GEMS Large Program team, formed by 34 scientists from 7 countries.
I have published 26 peer-reviewed articles (11 as a first author) and one book chapter, with over 490 citations in the Web of Science, and an H-index of 13. I also have 16 contributions in international conferences and workshops.

During my PhD thesis I acquired a proficient knowledge on the use of ultra-high-vacuum (UHV) equipment and two analytical techniques: Fourier Transform Infrared (FTIR) spectroscopy and Quadrupole Mass Spectrometry.
The thesis included cutting edge research in the field of ice photodesorption, required to explain the presence of COMs in the gas phase of the coldest regions in the ISM. I provided new insights on the different photodesorption mechanisms in play, and reported the first measurements of the photo-chemical desorption mechanism. The thesis also included experimental results on the thermal processing of realistic ice analogs, that represented a benchmark for the analysis of measurements performed by the ESA-Rosetta cometary mission on comet 67P.
In addition, I was PI of two successful observational proposals (ESO   PROPOSAL ID: 092.C-0030 and ALMA   PROPOSAL CODE: 2013.1.00352.S), that revealed the presence of CH3NCO (a molecule of prebiotic interest) for the first time around a solar-type protostar.
Finally, I was doctorated with Cum Laude and International mentions by the Universidad Complutense de Madrid in May 2017.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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During my current postdoctoral fellowship at the CfA, I have expanded my experimental expertise working with two UHV experimental setups, one of them including an in-house tunable laser system. The results have revealed that the energetic processing of the apolar ice layer can also contribute to the COM chemistry of the ISM. In addition, I have made use of my group ALMA observational data that has revealed the presence of COMs around four low-mass protostars.

My expertise has allowed me to participate as a lecturer in an international school offered by the UIMP in 2014. I have also been invited to give a review talk at the ACO Conference held in Torino (2021). I have been a co-supervisor of a Harvard PRISE summer research project, and I will participate as a reviewer in the NASA s APRA Program 2022 Review Panel.

Área Temática:	Ciencias físicas
Nombre:	ALETA CASAS, ALBERTO
Referencia:	RYC2021-033226-I
Correo Electrónico:	albertoaleta@gmail.com
Título:	Data-driven complex systems

Resumen de la Memoria:

During my career as a researcher, I have focused on three areas of complex systems: networks, epidemic spreading and collective behavior the incorporation of new data being the common denominator to all of them. Despite the diversity of my works, I classify my research into two branches, the main one devoted to data-driven mathematical epidemiology and a secondary one on studying human social dynamics. All this activity has resulted in 19 research papers published in peer-reviewed journals, with over 1120 citations (Google Scholar), in collaboration with 45 colleges from 11 different countries.

Throughout my career, I have participated actively in many aspects of research: I have presented my work at 20 conferences in 11 different countries; reviewed 68 papers for 27 scientific journals (Publons); collaborated in the organization of 3 conferences; and visited 6 institutions in 5 different countries. Besides, to facilitate science outreach, I have actively participated at the Pint of Science (2017, 2018 and 2019) and European Researchers Night (2020) festivals. My work has been covered by several national and international media outlets, and I have been invited 3 times to the TV and 4 times to the radio to talk about my research. I have also participated in one radio-documentary for the national Swedish radio and one documentary for Aragon TV.

I have also devoted an important part of my career to teaching. During my PhD I collaborated as a lecturer on Computational Physics at the University of Zaragoza in 2018 and 2019. Since 2021, besides my postdoc position in Italy, I am adjunct professor on Programming for data science at the Open University of Catalonia, both in the bachelor and the master s degree on Data Science. Lastly, I have also supervised three students (one final degree project, one master s thesis and one PhD thesis) and I am currently supervising another three students (one final degree project, one master s thesis and one PhD thesis).

Resumen del Currículum Vitae:

I hold a bachelor's degree in Physics (2014), a master's degree in Physics and Physical Technologies (2015) and a PhD in Physics (2019, obtaining the Extraordinary PhD Award, suma cum laude distinction and international mention) from the University of Zaragoza. In January 2020 I moved to Italy to join the area of Mathematical Foundations of Complex Systems at the Institute for Scientific Interchange in Turin as a Postdoctoral Associate.

During my PhD thesis, I focused on three areas of complex systems: networks, epidemic spreading and collective behavior the incorporation of new data being the common denominator to all of them. Then, during my postdoc period, I applied my knowledge on epidemic spreading to tackle the COVID-19 pandemic. All this activity has resulted in 19 research papers published in peer-reviewed journals, with over 1120 citations (Google Scholar), in collaboration with 45 colleges from 11 different countries.

My work can be divided into two research lines, epidemic spreading and collective behavior, with networks and data science being the keystones behind both of them. On the first one, I would like to highlight my work Modeling the impact of testing, contact tracing and household quarantine on second waves of COVID-19 , which I lead. First, the mathematical model is based on the work that I carried out during my first visit to Northeastern University and my review on multilayer networks. Second, we worked with the GPS position collected from several thousand devices, which required important technical skills on data analysis. Lastly, to execute such a complex and data-heavy model, I had to apply advanced coding techniques which I acquired both during my PhD and as a lecturer on applied programming.

My second research line, unfortunately, has lagged behind the main one during the COVID-19 pandemic. Nonetheless, I would like to highlight my work The dynamics of collective social behavior in a crowd controlled game which was very well received by the community. I presented this work in the Pint of Science festival of 2019, I obtained the runner-up junior researcher presentation award in NetSci-X 2020, Tokyo, and participated on a radio-documentary in the national Swedish radio.

I have presented my work at 20 conferences in 11 different countries; reviewed 68 papers for 27 scientific journals; collaborated in the organization of 3 conferences; and visited 6 institutions in 5 different countries. Besides, to facilitate science outreach, I have actively participated at the Pint of Science and European Researchers Night festivals. My work has been covered by several national and international media outlets, and I have been invited 3 times to the TV and 4 times to the radio to talk about my research. I have also participated in one radio-documentary for the national Swedish radio and one documentary for Aragon TV.

During my PhD I collaborated as a lecturer on Computational Physics at the University of Zaragoza. Since 2021, I am also an adjunct professor on Programming for Data Science at the Open University of Catalonia, both in the bachelor and the master s degree on Data Science. Lastly, I have also supervised three students (one final degree project, one master s thesis and one PhD thesis), and I am currently supervising another three students (one final degree project, one master s thesis and one PhD thesis).

Área Temática:	Ciencias físicas
Nombre:	KERSZBERG , DANIEL
Referencia:	RYC2021-032552-I
Correo Electrónico:	dkerszberg@ifae.es
Título:	Probing fundamental physics with Cherenkov telescopes and contributions to the construction of the next generation of telescopes

Resumen de la Memoria:

I completed my PhD in high energy physics in 2017 at LPNHE in Paris as a member of the H.E.S.S. collaboration. Using detailed simulations, I studied the cosmic ray induced atmospheric showers and characterized the direct Cherenkov emission from cosmic ray electrons and positrons in the telescopes in order to achieve a better discrimination among them. In addition, I developed a novel analysis for diffuse emissions which led me to perform the first measurement of the energy spectrum of cosmic ray electrons and positrons between 250 GeV and 20 TeV.

In 2018 I started my post-doctorate at IFAE and joined the MAGIC and CTA collaborations.

As MAGIC convener of the   Astroparticles & Fundamental physics   working group (since 2019) I coordinate and supervise the research of a group of about 100 scientists. In addition, I personally lead the search for dark matter using three different strategies, namely: the observation of dwarf galaxies with MAGIC; the combination of observations of dwarf galaxies by Fermi-LAT, HAWC, H.E.S.S., MAGIC and VERITAS; and the search for gamma rays spectral lines in the direction of the Galactic Centre with MAGIC. Moreover, I am main author of a search for Lorentz Invariance violation (LIV) effects in the data of the gamma ray-burst GRB 190114C observed in 2019 by MAGIC, a work for which I was awarded the Florian Goebel Prize of the MAGIC collaboration, and of a joint LIV search using data from MAGIC, H.E.S.S. and VERITAS.

In CTA I have been one of the leaders of the commissioning of the camera of the LST1 telescope, inaugurated in October 2018 in La Palma. I focused on the camera integration, and I developed and tested the camera control software and the camera calibration procedure. Moreover, I am leading the IFAE taskforce for the analysis of the first LST1 scientific data. All this has led me to be appointed   LST1 Camera Operation   responsible (since December 2020) and member of the   LST Physics Committee   (since its creation in September 2021). Since November 2021 I am in charge of the validation of the three cameras for the LSTs 2, 3 and 4.

The results of these studies are published, accepted or close to submission in international journals such as Physical Review Letters, The Astrophysical Journal, and Physics of the Dark Universe. My contributions and leading role in these projects were also acknowledged by oral presentations to major international conferences on behalf of the collaborations that I am a member of. Such conferences include the International Cosmic Ray Conference (ICRC), TeV Particle Astrophysics (TeVPA), and the International Conference on Topics in Astroparticle and Underground Physics (TAUP) among others.

Resumen del Currículum Vitae:

I completed my PhD in high energy physics in 2017 at LPNHE in Paris as a member of the H.E.S.S. collaboration. Using detailed simulations, I studied the cosmic ray induced atmospheric showers and characterized the direct Cherenkov emission from cosmic ray electrons and positrons in the telescopes in order to achieve a better discrimination among them. In addition, I developed a novel analysis for diffuse emissions which led me to perform the first measurement of the energy spectrum of cosmic ray electrons and positrons between 250 GeV and 20 TeV.

In 2018 I joined the MAGIC and CTA collaborations thanks to a PROBIST COFUND grant of the European Union's Horizon 2020 Research and Innovation Programme (Marie Sklodowska-Curie grant No. 754510), hosted at IFAE.

As MAGIC convener of the   Astroparticles & Fundamental physics   working group (since 2019) I coordinate and supervise the research of a group of about 100 scientists. In addition, I personally lead the search for dark matter using three different strategies, namely: the observation of dwarf galaxies with MAGIC; the combination of observations of dwarf galaxies by Fermi-LAT, HAWC, H.E.S.S., MAGIC and VERITAS; and the search for gamma rays spectral lines in the direction of the Galactic Centre with MAGIC. Moreover, I am main author of a search for Lorentz Invariance violation (LIV) effects in the data of the gamma ray-burst GRB 190114C observed in 2019 by MAGIC, a work for which I was awarded the Florian Goebel Prize of the MAGIC collaboration, and of a joint LIV search using data from MAGIC, H.E.S.S. and VERITAS.

In CTA I have been one of the leaders of the commissioning of the camera of the LST-1 telescope, inaugurated in October 2018 in La Palma (Canary Islands). I focused on the camera integration, and I developed and tested the camera control software and the camera calibration procedure. Moreover, I am leading the IFAE taskforce for the analysis of the first LST-1 scientific data. All this has led me to be appointed   LST-1 Camera Operation   responsible (since December 2020) and member of the   LST Physics Committee   (since its creation in September 2021). Since November 2021 I am in charge of the validation of the three cameras for the LSTs 2, 3 and 4.

I am regularly involved in outreach activities related to my research. In addition, I supervised the work of a master student intern (2018), a doctoral stay of a PhD student (2021) and I co-supervise a PhD student (since September 2019) on multi-messenger observations and data analyses with MAGIC and LST-1. Since 2018, I have been teaching one lecture of the   Master of Multidisciplinary Research in Experimental Sciences   and a two-week project to build a cosmic ray muon detector.

Área Temática:	**Ciencias físicas**
Nombre:	SANCHEZ AGUADO, DAVID
Referencia:	RYC2021-032609-I
Correo Electrónico:	davidsaguado@gmail.com
Título:	A Chemical View of the Origin and Evolution of the Milky Way

Resumen de la Memoria:

I am an astrophysicist specialising in Galactic Archeology and Nuclear Astrophysics with extensive experience in stellar spectroscopy, elemental abundances, and large astronomical surveys. I have developed three main research lines: a) The First Stars and the Primordial Nucleosynthesis, b) The Chemistry of the Milky Way, and c) The Astrophysical Place of the Rapid Neutron-capture Process. I am currently interested in theoretical simulations of dwarf galaxy formation and evolution.

I started my research career in 2012 at the European Space Agency within the ESAC Trainee Project analyzing the variability of OH/IR stars. Then, in 2014 I was awarded the Excellence Severo-Ochoa pre-doctoral fellowship and joined the Instituto de Astrofísica de Canarias studying the oldest stars with Carlos Allende Prieto. After defending my Ph.D. thesis in 2018 I started my first postdoctoral position at the University of Cambridge supported by the Leverhulme Trust. Together with Vasily Belokurov, I studied the chemo-dynamical properties of the Milky Way combining high-resolution spectroscopy with Gaia astrometry and kinematics. More recently, I moved to the University of Florence with a fellowship funded by an ERC grant, where I am working together with Stefania Salvadori in cosmological simulations of the Local Group.

I have published 55 refereed papers all of them indexed in the 1o quartile (Q1) of the Journal Citation Reports (JCR) in the area of Astronomy and Astrophysics - I am the main author of 9 of them. I have also published a letter in Nature as a third author and 6 more letters in the Astrophysical Journal, four of them as first author and the other two as a second author. My publications have received a total of 2724 citations and at the time of writing, I have an H-index of 22 according to the ADS. I am currently participating in several international collaborations in the field of Galactic Archeology namely WEAVE, Pristine, or DESI, where I led multiple key topics, including technical preparation of operations, observations, analysis codes, quality assurance, and the exploitation of scientific results.

Resumen del Currículum Vitae:

I launched my career as a researcher at the European Space Agency, where I completed a 10-month full-time fellowship as a Graduate Researcher. I studied the variability of Mira stars, and I had my first exposure to the common astronomer s toolkit such as IDL, UNIX, and VO tools. After completing my Master s Degree in General Relativity and Cosmology, I started a position as a Ph.D. fellow at the Instituto de Astrofísica de Canarias, where I conducted research in the field of Stellar Archaeology under the supervision of Prof. Carlos Allende and Dr. Jonay González.

My thesis was focused on the search and understanding of the first stars formed in our Galaxy. This research goal is ambitious, both from the theoretical and the observational standpoints. The oldest stars, the bona fide fossil records of the Galaxy are those with relatively few metals in their composition, the so-called metal-poor stars. During my Ph.D. thesis, using OSIRIS at GTC I have discovered two of them, J0815+4729, an extremely carbon enhanced hyper metal-poor dwarf star with detected atomic oxygen at [Fe/H]=-5.5, and J0023+0307, a mega metal-poor dwarf star with [Fe/H]<-6.1. The latest presented a lithium abundance that questioned the primordial lithium production derived from the cosmological observations with WMAP and suggests new physics beyond the standard model may be required.

During the realisation of my thesis, I gained deep expertise in stellar spectroscopy, atmospheric modeling, synthesis coding, and advanced analysis tools such as FERRE or MOOG. In addition, I also spent 3 months as a Visiting Fellow at the University of Texas, Austin, working on the HETDEX collaboration with Prof. Karl Gebhardt and Prof. Matthew Shetrone. Due to the outstanding results of my Ph.D. thesis, I received the 2018 award for the best science Ph.D. thesis at the Universidad de La Laguna.

In 2018 I started a Research Associate 3-year position at the Institute of Astronomy of the University of Cambridge to work within the Galactic Dynamics group led by Prof. Vasily Belokurov and Prof. Wyn Evans. It has been an unbeatable opportunity to combine my expertise in spectroscopy with the revolutionary outcome the Gaia mission has supposed for the MW dynamics community. I'm leading from my current position this research line focused on the chemical analysis of MW substructures (i.e., Gaia Sausage/Enceladus, Sequoia, Splash) discovered thanks to exquisite Gaia kinematics and astrometry. Some important results such as the chance to trace the galactic evolution and the star formation history in the S2 stream or the confirmation of high r-process enrichment of the major merger that happened to the Milky Way (Gaia Sausage) due to high levels of Eu detected with UVES instrument at VLT.

In July 2021, I joined the University of Florence with a 3-year postdoctoral position funded by the ERC and the NEFERTITI group led by Stefania Salvadori. Florence is offering the opportunity to get involved with a more theoretical framework. I am leading two new projects that require an innovative combination of high- resolution observations and theoretical predictions from cosmological simulations. The first aims to find the descendants of

elusive supermassive stars that ended their lives in PISN events. Secondly, employing my developed methodology to derive elemental abundances from WEAVE low-resolution spectroscopy data, I will study the role of carbon in dwarf galaxy formation and evolution.

Área Temática:	Ciencias físicas
Nombre:	MARTIN ALHAMBRA, ALVARO
Referencia:	RYC2021-031610-I
Correo Electrónico:	alvaro.m.alhambra@gmail.com
Título:	Quantum information at equilibrium and non-equilibrium

Resumen de la Memoria:

I am a theoretical physicist working on the theory of quantum information, computation, and its intersection with many body physics. I study how information-theoretic tools and ideas can help us describe the many-body physics of quantum systems. My focus lies on their statistical, non-equilibrium and thermal properties, and on finding mathematical frameworks that help us understand and often circumvent their inherent complexity.

I did my PhD in the group of Prof. Oppenheim at University College London. I worked on the quantum information approach to quantum thermodynamics, a very popular approach pioneered there. During my PhD, my main contribution was the unification of this approach with frameworks of quantum thermodynamics involving non-equilibrium fluctuations of work and states. This was a well-received work, published in PRX and presented as an invited talk in the APS Meeting of 2016 and as a plenary talk in QIP 2017. Together with my other PhD work on this subject (some of it only with junior colleagues), it led to a very competitive postdoctoral position at Perimeter Institute in Canada.

This was a position with complete independence, where I worked with other students and postdocs without senior support. I continued work on quantum thermodynamics, from which we found the first direct application of the resource-theoretic framework in the form of cooling algorithms. This project was selected for a contributed talk at QIP 2019. I also worked on quantum reference frames, with which we showed how to circumvent a well-known no-go theorem in quantum error correction. This work has potential applications in quantum computing, and was selected as part of a plenary talk in QIP 2020.

Most of my focus during the postdoc, however, was in the mathematical and informational aspects of quantum many-body physics. I published work in PRL (x3) on the thermodynamics of many body systems and quantum fields, as well as on quantum equilibration and thermalization. I also led the first information-theoretic study on the phenomenon of   quantum many-body scars . The most important contribution during this time has been the mathematical derivation of a new thermal area law for quantum systems, which is the first generic improvement since the subject appeared in 2008. This discovery has also led to the formulation of a new numerical tensor network algorithm for thermal states, which is currently the only one with a provable quasi-linear performance. This was published in PRX, and for a contributed talk at QIP 2021.

In the last one and a half years I have continued this line work at the Max Planck Institute for Quantum Optics. I have continued working at the intersection of quantum many-body systems, and classical and quantum simulation methods. My latest best results include new stronger thermal area laws (now in Quantum), and new tensor network algorithms for local thermal properties and dynamics (now in PRX Quantum). On top of that, I have established new lines of work with external collaborators on quantum dynamics and entanglement in many-body models, having published two other preprints on this subject in the past year. Moreover, I have contributed to an international collaboration on quantum thermometry where we derived ultimate bonds on the performance of general schemes, now in PRX Quantum.

Resumen del Currículum Vitae:

I am currently a postdoctoral researcher and Humboldt fellow at the theory division of the Max Planck Institute for Quantum Optics, led by Prof. Cirac. I did my high school studies in the public education system of Madrid (obtaining both Premio Extraodinario and Beca de Excelencia). I then completed my undergraduate and master studies at the University of Oxford, where I obtained a First Class degree every year. My final mark was 83%, with 90% in the final year project, which put me in the top 10% of the students.

During this time, I participated in an international research project on quantum optics through an internship at the Institute for Quantum Computation in Waterloo, Canada. I then secured a fully funded PhD position at University College London, in one of the leading groups of quantum information and quantum thermodynamics. In only 3 years of PhD I established myself as a researcher with well-recognized publications. This led to a highly competitive postdoctoral position at Perimeter Institute.

There, I continued to do cutting-edge work, and developed independent lines of research without direct supervision, which now includes a wide network of international collaborations. In August 2020, I moved to the Max Planck Institute, after which I was awarded a Humboldt Fellowship.

I have 19 peer reviewed publications, and 3 more under review, adding to over 3 per year since the start of my PhD in 2014, with an average number of co-authors of 3.3. This includes high impact journals such as PRL (x3), PRX (x3) and PRX Quantum (x2). According to Google Scholar, I have 535 citations and an h-index of 13. My work has been presented at major international conferences (QIP x5 including two plenary talks, TQC and Quantum Thermodynamics and others), including work in collaboration with other junior scientists only.

I was an invited lecturer at the 2021   Summer School on Quantum Thermodynamics   organized by ETH Zurich, where I taught a short course on the thermodynamics of quantum many-body systems. I have also recently been invited to give a talk on those same topics at the Quantum Thermodynamics conference 2022. I also authored an expert News&Views article on Nature Physics on recent work at the intersection of quantum computation and symmetry, upon invitation from the editors.

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I have already co-supervised the PhD project of a student from McMaster University (now in his last year of PhD), of a Summer Student at Perimeter Institute (now PhD in U. Maryland), and a Master student at Max Planck (now PhD at U. Cambridge). I currently supervise two other Master students at Max Planck.

The focus of my work lies at the interface of quantum information with many body physics, in particular regarding non-equilibrium thermodynamics and statistical physics. I explore what the technical tools and ideas from quantum information can teach us about the thermodynamic and statistical behavior of quantum systems, and equivalently, how can this understanding help foster the fields of quantum information and computation. My results include the current best on tensor network representations and area laws for thermal states, the current best heat-bath algorithmic cooling protocols, and numerous mathematically rigorous results on different topics on non-equilibrium physics (such as quantum scars, correlation functions, quantum fields and equilibration).

Área Temática:	Ciencias físicas
Nombre:	WITTE , SAM
Referencia:	RYC2021-030893-I
Correo Electrónico:	s.j.witte@uva.nl
Título:	Neutron Star Magnetospheres as Axion Laboratories

Resumen de la Memoria:

The fundamental nature of dark matter is one of the most pressing questions in physics today. For decades, many in the community have assumed that the resolution to the dark matter problem would be found at the electroweak scale. After years of operation of the Large Hadron Collider and a highly developed search program for WIMPs (weakly interacting massive particles), nothing has been detected; the absence of new physics at high energies has reinvigorated a broader search for the fundamental nature of dark matter, particularly at the low energy frontier. My research thus far has been roughly focused on understanding novel astrophysical and cosmological signatures that can arise from dark matter and feebly interacting particles. In recent years, I have been working to establish dedicated lines of research into the behavior of ultralight dark matter candidates in the extreme astrophysical environments found near compact objects such as neutron stars and black holes. Moving forward I intend to direct a majority of my attention toward understanding electromagnetic signatures arising from axion physics deep in the magnetospheres of neutron stars, which has emerged in the last three years as one of the most promising indirect probes of axions (and arguably the only indirect probe capable of observing the parameter space for which the QCD axion can account for dark matter).

The magnetospheres of neutron stars offer a promising laboratory of axion physics because they host enormous magnetic fields and a dilute plasma; in these environments, the axion-photon mixing can be resonantly enhanced, inducing efficient transitions between these particles. There are at least three distinct phenomenon arising in this context which are yet to be fully understood. First, axion dark matter falling onto the neutron stars can generate narrow spectral lines roughly centered about the axion mass. This field has undergone significant progress in the last few years, but many open questions remain, including: how axions and photons mix in 3D inhomogeneous plasmas, the effect induced by charged particle production in the magnetosphere, computing transient encounters between axion miniclusters (and axion stars) and neutron stars, etc. An alternative way to probe axions is using what is known as vacuum gap collapse, which describes the plasma instability and charged particle production in localized regions of the magnetosphere. This process is capable of sourcing an enormous flux of axions that may either convert to radio photons during the escape, or be contained to isolated bound states around the neutron stars. The implications of this process are not yet understood, but initial calculations show that strong signatures may arise. Finally, there is an area which has gone entirely unexplored   this is the possibility that the electric field induced by bound state axions modifies the electrodynamics of the magnetosphere itself. Preliminary estimates have shown that the axion number densities required may be achievable in certain contexts. Should this be the case, the motion and properties of charges in the magnetosphere will be fundamentally altered, which will invariably have implications for the radio signal observed from neutron stars. Collectively, these three processes represent novel and innovative ways to search for axion physics.

Resumen del Currículum Vitae:

I obtained my Ph.D from University of California Los Angeles (UCLA) in 2017, where I studied various aspects of WIMP dark matter under the supervision of Graciela Gelmini. I spent the following three years working as a postdoc at IFIC (University of Valencia), the first two being funded by the Elusives Marie Curie ITN, and the final year by a Juan de la Cierva Formación fellowship (a contract which I terminated early in order to accept my current position). Since October of 2020, I have been a postdoc in the GRAPPA (GRavitation and AstroParticle Physics Amsterdam) institute in the University of Amsterdam. My research in recent years has evolved far away from the initial focus during my Ph.D., and is now primarily centered on novel astrophysical and cosmological probes of ultralight dark matter candidates (and other feebly interacting beyond the Standard Model particles).

My scientific career has resulted in the publication of more than 30 articles, all of which have been published in high-quality journals, accumulating around 850 citations (notably, none of these papers contain more than seven authors, with a majority containing around three). These works include a diverse and high-quality list of international collaborators working at major institutes across the United States and Europe. I have been invited to present this work at 13 international conferences and workshops, and more than 22 institute seminars & colloquia. I have also had the fortunate opportunity to participate in a number of extended research stays at major institutes, including: Fermi National Accelerator Laboratory (FermiLab; 6+2 months, funded partially by an independent research award and partially from the Elusives ITN), SISSA (2 months), and Lawerence Berkeley National Laboratory (LBNL; 1 month), and most recently the Origins Cluster in Munich (2 months; this will include extended time at the Max Planck institute for Particle Physics and the Technical University of Munich).

During my postdoctoral years, I have played a fundamental role in generating, guiding, and implementing innovative research directions. I have also established important cross-field collaborations, which have proven crucial for pursuing lines of investigation. Importantly, my role in recent years has increasingly transitioned to that of a mentor for students and young postdocs. I have had the privilege of taking on the role of an official co-supervisor for a masters student and multiple Ph.D. students, and have been one of the primary mentors for many students and postdocs on individual projects   this is a skill which will undoubtedly serve indispensable moving forward. At the level of teaching, I gained significant experience working as teaching assistant (TA) during my Ph.D., which involved running problem sessions and laboratories, holding office hours, grading exams, and the occasional lecture; during my 3rd year of teaching, I was awarded   TA of the Year   from the UCLA physics department.

At an institutional level I have established and organized weekly journal clubs and seminars at multiple institutes, served as referee for an array of top-level academic journals (including PRL, PRD, JCAP, ApJ, PLB, etc), and participated in various forms of outreach to encourage young students to become excited about science, and more generally, physics.

Área Temática: Ciencias físicas
Nombre: CAMISASSA , MARIA EUGENIA
Referencia: RYC2021-032721-I
Correo Electrónico: camisassam@gmail.com
Título: White dwarf stars: Physical processes and applications

Resumen de la Memoria:

White dwarf stars are the most common end-point of stellar evolution. These old compact objects have a wide field of applications. To cite some examples, they are considered precise cosmochronometers and a powerful tool to investigate non-conventional energy sources, the properties of our Galaxy and the stellar evolution theory. The advent of large-scale automated surveys and the new generation of high quality ground and space telescopes are providing us with an extraordinary amount of information on the white dwarf population of our Galaxy. Nevertheless, from the theoretical point of view, large upgrades are needed to be at the high standards demanded by the updates in the observational field. The research line that I have successfully consolidate during my career is precisely aimed at filling this theoretical gap, by providing a new generation of accurate white dwarf evolutionary models that take into account all the relevant physical processes and sources and sinks of energy. Moreover, I have contributed to the development of accurate statistical techniques to model the white dwarf population in our Galaxy. My most recent research focusses on the study of ultra-massive white dwarfs, objects of particular astrophysical interest. In particular, I am currently working on elucidating the core-chemical composition and the "cooling anomaly" of ultra-massive white dwarfs. In adition, I am studying the origin of their magnetic fields, improving the treatment of crystallization, and incorporating for the first time the effects of general relativity to their modeling. Such a high detail in the numerical modeling of white dwarfs will have a large impact not only in our understanding of white dwarfs but also on how our Galaxy and stars evolve and which are their fundamental properties. For achieving this ambitious goal I am using the combined wealth of information that surveys (e.g. Gaia, SDSS, and the forthcomming 4MOST) provide, together with a detailed theoretical modeling of the white dwarf population.

Resumen del Currículum Vitae:

I am a Research Associate at the University of Colorado, USA in the Applied Mathematics Department and a Teaching Instructor. The main focus of my research has been the theoretical modeling of different physical processes occurring in stars, including convective mixing, diffusion processes and phase transitions, and how these processes impact on the stellar evolution. I graduated with honors in Astronomy from the National University of La Plata (Argentina), with a MSc thesis on white dwarf evolution. I completed my PhD degree in 2019, holding a fellowship funded by the CONICET at the National University of La Plata, as a member of La Plata Stellar Evolution and Pulsation Research Group. My PhD thesis White dwarfs stars: physical processes and applications'' was supervised by Prof. L. Althaus. The results of my PhD work were published in four refereed first-author papers, and several co-authored publications. During my PhD, I was awarded with a travel grant by the Asociación Iberoamericana de Posgrado (AUIP) to pursue research activities as an exchange student at the Universitat Politècnica de Catalunya-BarcelonaTech (UPC), Spain. Between 2019-2020, I was awarded with a Postdoctoral Fellowship by CONICET at the University of La Plata, where I led several projects that we published in refereed journals. In 2020, I joined the UPC as a postdoctoral researcher and I collaborated to several projects, combining my theoretical evolutionary models, with the theoretical and observational expertise of the host group.

Additionally, I have contributed to projects that had a large observational component, and I was part of successful observational proposals for the European Southern Observatory, 4MOST, Gemini, among others. As an example, in collaboration with researchers at the University of Warwick, United Kingdom, I modeled an ultra-massive white dwarf that is likely a merger remnant, leading to a publication in Nature Astronomy. I have a wide network of international collaborations with European countries (United Kingdom, Spain, Germany), and overseas (Argentina, USA, Canada, Japan, Chile).

I have authored 30 articles; totaling 270 citations with an H-index of 10. Among these articles, 17 articles were published in Q1 refereed journals (MNRAS, ApJ, A&A, Nature), of which I am the first author of 6. I have served as a referee for prestigious journals, such as Nature and I have attended several international conferences since 2014, taking part as a contributor and invited speaker. I have given invited colloquia at the Online - Meetings on Evolved Stars and Systems (O-MESS), the UPC (Spain), the University of Warwick (UK), and the National University of San Juan (Argentina). I have supervised a MSc thesis, and I was a teaching assistant at the University of La Plata for more than 5 yeas. I am currently a Teaching Instructor for Calculus classes at the University of Colorado, Boulder, USA. Finally, I have been involved in public outreach activities and I have delivered interviews with the media.

Área Temática:	**Ciencias físicas**
Nombre:	GONZALEZ MONTORO, ANDREA
Referencia:	RYC2021-031744-I
Correo Electrónico:	andreita_5_92@hotmail.com
Título:	Detectors for molecular imaging

Resumen de la Memoria:

The main line of investigation of Andrea Gonzalez-Montoro is the development and implementation of new imaging devices and techniques to efficiently image radiation emissions. In particular, the candidate has focused her research on the development of high performance Positron Emission Tomography (PET) detector blocks based on silicon photomultipliers (SiPMs) coupled to monolithic or semi-monolithic (slabs) scintillation crystals.

Her research goals include the design of gamma-ray detectors, but also its transfer to the industry in the form of fully-operative PET systems with performance beyond current state-of-the-art (SOA) instrumentation. To successfully complete these goals, the candidate worked on different fields. Regarding the candidate s professional trajectory, it started at the Detectors for Molecular Imaging Laboratory (DMIL) at the Institute for Instrumentation in Molecular Imaging (i3M), join center between the CSIC and the UPV, (pre-doctoral and doctoral stages) and continued at the molecular imaging laboratory (MIIL) at Stanford University (post-doctoral stage). The candidate investigated the different aspects to be considered when designing a detector block. She has gone into the details of the physics underlying PET imaging, scintillation crystals types and treatments, readout electronics and data acquisition architecture, design and experimental validation of the detectors performance including 3D positioning and timing resolution.

The candidate has already made significant contribution to the field. She participated while at i3M in the development of PET systems that have been successfully validated and transferred to the clinics such as her contribution on the MINDView project, developed under a FP7 European that aimed to design a brain PET insert. The system was installed and tested with patients at the Technical University of Munich (TUM) in 2018. She also collaborated in the design of a second brain system, the so-called CareMiBrain, currently commercialized by the Spanish company Oncovision. These systems are the first brain dedicated systems based on monolithic crystals successfully transferred to the clinics. In addition to this breakthrough scanners, she collaborated with the largest hospital in Valencia, La Fe in the design of a prostate PET scanner.

At Stanford, she studied the implementation of time-of-flight (TOF) technology into 3D positioning sensitive detectors, which are intended to be the building blocks for a whole-body PET/CT and a brain PET/MRI that will be installed at Stanford Hospital.

Regarding the preclinical field, she contributed in the design and implementation of the Albira system, which is commercialized by the multinational Bruker, and with the University of Virginia in a project funded by the National Institute of Health (NIH) to develop an edge-less small animal PET scanner to be used simultaneously with up to 9.4T MRI scanner.

The candidate is first author of 9 peer reviewed articles including 1 review and co-author of 17 more peer reviewed articles. Her current h-index is 11. She is co-author of 1 chapter books and 1 patent and has participated in more than 100 contributions to conferences, including 26 conference proceedings. She has already concluded the supervision of 1 master thesis and is currently co-directing a PhD thesis in the field of instrumentation in nuclear medicine.

Resumen del Currículum Vitae:

The academic career of Andrea Gonzalez-Montoro has been developed in the fields of nuclear physics and medical imaging. Andrea has been working on improving the instrumentation associated to Positron Emission Tomography (PET) detectors based on thick scintillators and silicon photomultipliers (SiPMs).

The candidate developed her master and PhD thesis at the Institute for Instrumentation in Molecular Imaging (i3M), joint center between the Consejo Superior de Investigaciones Científicas (CSIC) and the Polytechnic University of Valencia (UPV) (2014-2019) and her postdoctoral research at Stanford University (USA). Andrea combines her PhD and Postdoctoral knowledge to develop novel high precession 3D-positioning TOF-PET detectors.

During the PhD, she studied the physics underlying PET imaging, developed algorithms for an accurate 3D positioning of the 511 keV photons within the detectors, which is required to mitigate undesired parallax errors and obtain homogeneous spatial resolution across the entire field of view (FOV) of the system.

She worked in the design and assembly of two brain PET scanners, namely: the MRI compatible MINDView (FP7) installed in Munich; and the stand-alone CareMiBrain (H2020) commercialized by the Spanish company Oncovision. Moreover, she participated in a national project aiming to develop of a prostate specific PET scanner that was installed in the hospital La Fe in Valencia. Andrea also worked in molecular imaging instrumentation in the pre-clinical field, such as in the development of the small-animal PET Albira which is currently distributed by the multinational Bruker.

In March 2019, she joined Stanford University as a Postdoctoral Research Fellow. Her research focused on the design of high efficiency 3D position sensitive time-of-flight (TOF)-PET detectors for their implementation in novel brain dedicated PET scanner and a whole-body PET/CT. Incorporating TOF information boosts reconstructed image signal-to-noise ratio (SNR), which has a similar effect as enhancing PET system sensitivity. Additionally, she investigated the use of Cherenkov radiation to enhance the timing resolution of PET detectors based on BGO scintillators which may allow to produce affordable but still high-efficiency scanners.

Andrea was awarded with a postdoc grant (APOSTD) from the Valencian government, allowing her to keep working at Stanford University. In October 2021 she joined i3M to finish her APOSTD project and used the developed technology in the implementation of a long axial total-body PET scanner. Andrea has been also awarded with the 2020 IEEE/NPSS Ronald J. Jaszczak Graduate Award which recognizes outstanding early career researchers who have the potential to transform the field of medical imaging, and more recently with the 2021 Premio Fundación Real Academia de Ciencias de

España al Joven Talento Femenino . Summarizing, Andrea has published 26 articles in leading peer-review journals, 26 conference proceedings and one patent. She has supervised one master thesis, two physics intern students, and is currently co-directing a PhD thesis.

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Área Temática:	Ciencias físicas
Nombre:	DOMENECH FUERTES, GUILLEM
Referencia:	RYC2021-030866-I
Correo Electrónico:	domenechguillem@icloud.com
Título:	Probing the primordial universe with gravitational waves

Resumen de la Memoria:

The search for the gravitational wave background is achieving more and more precision. With immense discovery potential, gravitational waves may come from the beginnings of our universe, when energies were beyond any current technological capability. Notably, gravitational waves induced by primordial fluctuations, the existence of which is demonstrated by the cosmic microwave background, are a guaranteed signal. And they are one of the most promising cosmic messengers, together with gravitational waves from phase transitions and cosmic strings, of periods in the early universe yet to be probed by direct observation.

While we directly observed the universe with electromagnetic waves since roughly the time of neutrino decoupling, we may be able to observe much earlier with gravitational waves, as they travel barely scattered through the universe. This also means that, prior to neutrino decoupling, the theory of the early universe is either currently unknown or needs further confirmation. Thus, we must be agnostic about extrapolations of the standard cosmological model when deriving theoretical predictions. My papers are crucial steps in this direction.

Induced gravitational waves are also the counterpart of black hole formation in the early universe and have the potential to rule out or confirm any primordial black hole explanation of several current observations. My new formulation and predictions will be used to test and constraint various models of the early universe. Even in the absence of a cosmic gravitational wave background, induced gravitational waves will provide significant constraints on models of the early universe. With tentative evidence of a nHz gravitational wave background and several active and planned gravitational wave detectors, gravitational wave cosmology may flourish in the next two decades.

In less than five years after obtaining the PhD, I am established as one of the leading experts in early universe cosmology, especially in probing the early universe with induced gravitational waves. I achieved new analytical advances with a single author paper, which led to several key contributions afterwards, and I was invited to write the first extensive review on the topic, regarded as a key reference in the field. My track record shows the originality and independence of a leading young researcher. I have a high international visibility, with many invited oral contributions, and a large international scientific network. I started and led various small collaborations in Europe, Asia, and America. I have published 32 articles in top international journals, I have a h-index of 17 and over 800 total citations.

I am currently the principal investigator of a generous European postdoctoral grant in Italy. I engaged in several formation, management, and outreach activities and I hold important scientific responsibilities. I am an expert evaluator for a competitive European postdoctoral grant and a member of the Einstein Telescope collaboration. I was co-coordinator of two master courses, organizer of seminars and I gave talks at high schools and at the European Researcher s Night. I mentored one master student and I am helping to supervise three PhD and two undergraduate students.

Resumen del Currículum Vitae:

I am a Marie-Curie Fellini Fellow at INFN Padova, working on gravity and cosmology. My research is at the forefront of induced gravitational waves and primordial black holes as a probe of the physics of the early universe. I have 32 published articles in top international journals with a h-index of 17 and over 800 citations.

Scientific achievements: I am one of the leading experts in gravitational waves from the early universe, specifically on gravitational waves induced by primordial fluctuations. My works became key contributions to the field. In a single author paper, I laid out for the first time the basic analytical formulas that are necessary to derive robust predictions of the induced gravitational wave spectrum for general expansion histories of the universe. This same paper is the base of my new, independent, and fruitful research line. These works culminated in the first extensive, invited, review on induced gravitational waves.

Scientific responsibilities: I am the principal investigator of the project Gravitational Wave Precision Cosmology, supported by the European Union and INFN, for three years. I am a member of the Einstein Telescope, and I am involved in the LISA group in Padova. I am also a topic editor for the journal Universe, and I have refereed over 30 articles for international journals such as JCAP, PRD, PLB, EPJC and MNRAS letters. In Heidelberg, I was the seminar organizer of the cosmology group for two years.

International collaborations and leadership: I have a large international scientific network, with strong connections in Europe, UK, USA, Peru and east Asia. I have started and led small collaborations, e.g., at JHU, Harvard, IAP in Paris, Barcelona university, ITP in Beijing and IPMU in Tokyo. In my research, I was the leading researcher.

Dissemination and contributions to society: I presented my works in over 30 international seminars and conferences, most notably in the past two years I was invited to talk in 10 seminars and 3 conferences around the globe. I upload all my works at the green open access repository arXiv. In my personal webpage, I provide a description my research and useful links. I have also given two outreach talks about my research at high schools in Barcelona, one at the National University in Lima, Peru, and one at the European Researcher s Night of 2021.

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Training of young investigators: I have been co-coordinator of two master courses at Heidelberg University, General Relativity and Cosmology, with over 100 students per course. I prepared the exercises and exam as well as the grading and coordinating the tutorials and tutors. I have successfully supervised a master student, providing a clear research direction, with clear ideas and results. This student got a full PhD scholarship and is continuing the research line we developed together. I am also helping to supervise three PhD students, one at Padova, Italy, and two in Hefei, China, and two undergraduate students in Lima, Peru.

Scientific activities and evaluation: I am a member of the panel of independent international experts for the Paris Region Fellowship Programme, a competitive European postdoctoral fellowship, and I evaluated two projects and researchers. I also take part in the European Consortium for Astroparticle Theory, and I contributed to the early universe section of the EUCAPT white paper.

Área Temática:	**Ciencias físicas**
Nombre:	CASAMIQUELA FLORIACH, LAIA
Referencia:	RYC2021-033762-I
Correo Electrónico:	laiacafl6@gmail.com
Título:	Unraveling the history of the assembly and evolution of the Milky Way

Resumen de la Memoria:

My research activities fall within the themes of stellar and galactic physics. My studies are centred on the analysis of the spectra of the stars of our Galaxy, to obtain stellar parameters and detailed chemical abundances. My expertise is characterised by a solid experience in the observation and analysis of photometric and spectroscopic data for Galactic archaeology studies.

The research during my thesis and postdocs produced as a result the largest high-resolution spectroscopic results of Galactic open clusters analysed in a homogeneous way. Thanks to the quality and precision of this analysis I was able to obtain unprecedented results in a variety of lines of research including: the distribution of chemical abundances in the Galaxy, the level of chemical homogeneity in co-natal stars and of its tidal associated structures, the relations between the age and the ratios of abundance, and the possibility of distinguishing the chemical signature of different star formation relics. All these scientific outcomes help us to understand, build, validate and calibrate the models of the formation and evolution of our Galaxy, and at the same time study stellar evolution and nucleosynthesis theories.

I am currently leading a team to advance towards the determination of stellar ages in a massive automated way, coupling spatial and ground-based data. This will allow us to do in-depth studies of the evolution of the different stellar populations present in the Milky Way and unravel the building blocks of our Galaxy.

I have taken structural responsibilities inside international collaborations with large Spanish implication such as Gaia-DPAC, WEAVE and the Gaia Benchmark Stars, implying the leadership within several internal working groups.

Resumen del Currículum Vitae:

During my research, I have gained multiple skills, expertise and leadership experience, which will allow me to reach a successful research career:

- I have an expertise in the spectroscopic analysis of stars of several spectral types. As part of my postdocs, I developed a pipeline to obtain high precision chemical abundances: differential abundances. This technique allows to evaluate subtle differences in the chemical composition of stars, which has lead to unprecendented results. The outcomes of this pipeline have become a reference in the field of chemical analysis. I have shared this pipeline with several collaborators, in particular a master and a PhD student from Chile, where I had the opportunity to collaborate during one of my stays. They already published two papers out of these results with myself as a coauthor.

- I have made numerous requests for observation time with different telescopes leading to the acceptance of 14 programs as Principal Investigator, equivalent to > 400 hours of observation, in Spanish telescopes, but also those located abroad including France, Chile and Hawaii. The recurrent requesting of observing time is an essential skill for observational astronomers, and requires responsibility and leadership of a team.

Aside my great involvement in the obtention and accurate analysis of own observations, I have gained an expertise in the exploitation of large survey data. This includes data from Gaia, Gaia-ESO survey, APOGEE and GALAH. This is also part of my duties in DPAC (with two resulting technical notes), and this work also gave as a result a recently accepted paper with a large scale assessment of the metallicity scales and uncertainties of large spectroscopic surveys.

- I have had the opportunity to work in very different teams and laboratories. This network includes people with different and complementary expertise with respect to my own (e.g. Galactic dynamics modelers, stellar evolution experts) which favours the appropriate development of my career and widens my scientific perspectives. I also have an experience of working inside big international collaborations (Gaia-DPAC, Gaia-ESO, Gaia Benchmark stars, WEAVE, 4MOST), where I have taken responsibility positions to perform the needed tasks for the correct development of each scientific objectives (target selection, scientific validation, construction of pipelines).

- I have an experience in teaching: 126 hours of the bachelor degree pf physics during my PhD, and I have also supervised four master students during my postdocs. I have co-supervised a PhD student (Y.Tarricq) which successfully defended the thesis in Dec2021. My particular contribution in this thesis has been the formulation and guidance of the student through a particular line of research (membership and morphology analysis of clusters), essential for the development of the investigation. This thesis has given as outcome 2 referred papers (co-authored by myself), and two conference contributions.

- I have a very active and committed contribution to outreach activities including conferences to the general public, educational classes in schools, and specific projects to encourage scientific-technological vocations among young people. I am co-author of an outreach book published in 2013, and I am leading the writing of another educational book of general astronomy to be published during 2022.

Área Temática:	Ciencias físicas
Nombre:	BUSIELLO , DANIEL MARIA
Referencia:	RYC2021-034060-I
Correo Electrónico:	daniel.busiello@epfl.ch
Título:	Dissipative phenomena and information processing in complex systems

Resumen de la Memoria:

At the beginning of my career, I studied reaction-diffusion systems. I found novel classes of spatial patterns controlled by the interplay between different diffusion processes. Since these systems usually operate out-of-equilibrium, I developed a theoretical framework to characterize energy dissipation in an unambiguous way, showing that formulas usually employed are only approximate expressions resulting from a coarse-graining procedure. I also found analytical solutions to fundamental problems, such as the role of time scales and irreversible transitions. My expertise in this field culminated in two prominent studies, where theoretical results target potential applications. First, I proposed and led a project on designing artificial molecular motors that mimic biological ones in the world-leader group at the University of Maryland, College Park. In the second one, at OIST (Japan), I found an optimal method to estimate entropy production from measures of non-equilibrium currents, inspiring several subsequent papers. Then, I leveraged developed modeling tools to investigate emergent dissipative phenomena in biochemical reaction networks. I derived how chemical states can be selected through a dissipation-driven mechanism. This poses a serious question on how life has originated at its dawn, highlighting that equilibrium theoretical chemistry is very often not the correct framework to employ. This work stimulated a paradigm-changing paper in the field of theoretical chemistry which proposes a solution to the furanose conundrum, based on thermodynamic arguments, and rooted in the first experimental characterization of D-ribose isomerization. I also led the theoretical part of a very promising pilot publication on reversible pH-jumps in photoacids. I built a model to describe non-equilibrium features of photoacids that will be the gold standard for future works to develop photo-electrochemical devices operating at the desired rate. As a follow-up, I theoretically predicted the intriguing possibility to design light-switchable chemical buffers. The idea of connecting biochemical emergent responses to thermodynamic features is now fueling, in my studies, the ambitious idea of designing energy-controllable enzyme-powered nanomotors. Recently, I also focused on how complex systems encode information about their ever-changing environments. Pursuing this aim, I designed and led as a Principal Investigator a field-opening project on disentangling information about the environment from internal interactions by leveraging tools of information theory, culminated in a very promising publication awarded a viewpoint in Physics (APS magazine), where the broad impact, from neural networks to ecological communities, the novelty of the approach, and the potentialities for future data-driven applications have been highlighted.

The two major challenges I aim at facing in my future research activity concern the understanding of how energy consumption modifies emergent macroscopic behaviors, and how it is possible to exploit dissipation to gain information about external environments. I will start from molecular descriptions to highlight the link between effective models and energy-consuming underlying processes. Information theory itself is an emergent language. My future position as a PKS Fellow will give me the opportunity to pursue my research ideas.

Resumen del Currículum Vitae:

I started my studies investigating emerging features of dynamical systems. During my Ph.D. at the University of Padua, I decided to explore the thermodynamics of these systems, aiming at characterizing their dissipative properties. These studies provided me with good expertise in Statistical Physics and Stochastic Thermodynamics and resulted in several publications. To deepen my knowledge, I visited the group of Prof. C. Jarzynski at the University of Maryland, College Park, a world leader in these fields. My visit culminated in a publication on mimicking molecular motors with artificial ones. Then, I successfully finished my Ph.D. with the supervision of Prof. A. Maritan, obtaining the highest honor for my thesis work (Ph.D. cum laude). I started my Postdoc at the University of Padua, as a natural continuation of my Ph.D. studies. Here, I focused on fundamental problems in stochastic thermodynamics, laying the foundations for my future career. During this period, I was invited by Prof. S. Pigolotti at OIST, Japan, to carry on a project I proposed on stochastic currents.

After 7 months, I left Padua to start my position as a Postdoctoral Fellow at EPFL in the Lab of Statistical Biophysics, headed by Prof. P. De Los Rios. Here, I decided to invest my theoretical skills to tackle biophysical problems. In particular, I focused on chemical and biochemical reaction networks, starting with the idea that life has originated as an inevitable consequence of thermodynamics. This idea led to theoretical work and its experimental verification, in collaboration with Prof. F. Piazza at the University of Orleans and an experimental group at the University of Orleans. This study appeared in Nature Communications and has been selected as Editors Highlight. My developed skills in chemical modeling gave birth to a very promising, and still active, collaboration with Dr. C. Pezzato and his experimental group at EPFL. I built a model to characterize and predict non-equilibrium features and the efficiency of photoacids. This collaboration produced two prominent works so far, one in Chemical Science, awarded a Research Highlight in Nature Reviews Chemistry, and the other in Angewandte Chemie, selected as Hot Paper. The ambition is to design photo-electrochemical devices operating at the desired rate. During my postdoc, I opened and reinforced several collaborations in Italy (S. Suweis, F. Piazza), Switzerland (F. Stellacci, F. Scheffold, P. Arosio), France (A. Barducci), Canada (D. Gupta), and Japan (S. Pigolotti). I had the opportunity to supervise two Master's student projects and some Ph.D. projects, gaining mentoring and leading abilities. Now I am co-supervising the entire work of a Ph.D. student. I was also a Teaching Assistant of two courses at EPFL, gaining teaching experience. I aim at improving these skills in the future. As a PI, I led a field-opening project on information theory applied to complex systems. I independently designed the work and supervised a Ph.D. student. It has been published in Physical Review Letters, selected as Editors Suggestion, and awarded a Viewpoint in Physics (APS magazine).

My career as an Independent Researcher received an important boost since I was awarded the PKS Fellowship, starting from June 2022, to carry on two projects I proposed.

Área Temática:	Ciencias físicas
Nombre:	GIULIANI , SAMUEL ANDREA
Referencia:	RYC2021-031880-I
Correo Electrónico:	sam.and.giuliani@gmail.com
Título:	r-process nucleosynthesis from quantified nuclear physics inputs

Resumen de la Memoria:

María Zambrano Fellow at the Universidad Autónoma de Madrid (Spain), my main research lines are nuclear structure calculations and the stellar nucleosynthesis of heavy elements in the rapid neutron-capture process (r-process).

About half of the chemical elements heavier than iron found in nature are produced in a specific astrophysical nucleosynthesis process: the rapid neutron capture process (r-process). In this process the built up of heavier nuclei is driven by the competition between neutron captures and beta decays. This paves a nucleosynthesis path in the nuclear chart which proceeds close to the neutron drip line, eventually reaching the region where nuclei become unstable against fission and split into lighter fragments.

An accurate description of the r-process nucleosynthesis represents one of the biggest challenges in nuclear physics since it involves the knowledge of nuclear masses, half-lives, reaction rates and fission properties of several thousand exotic nuclei. As the majority of these nuclei cannot be produced in current experimental facilities due to their extremely short half-lives, nuclear models become essential to properly address the quest for the origin of the heaviest elements of the Universe.

Along my research career I had the rare opportunity to work in all the theoretical nuclear aspects involved with r-process nucleosynthesis calculations. I started my research with my MSc at the Universidad Autónoma de Madrid (Spain) by studying nuclear structure properties of heavy nuclei using the Density Functional Theory (DFT). Particularly, I worked in the microscopic description of the fission process, performing one of the first DFT studies showing the impact of pairing correlations in spontaneous fission lifetimes.

During my PhD at the Technische Universität Darmstadt (Germany) I developed a deep knowledge on global nuclear structure and reaction rates calculations. I estimated the fission properties and masses of r-process nuclei within the DFT formalism and used those nuclear inputs to compute reaction cross sections and stellar rates. As a result, I computed the world s first reaction rates based on a microscopic description of fission inertias. This led to a new stage in my career, where I performed r-process nucleosynthesis simulations based on my own microscopic nuclear input, addressing the role of fission in the production of translead nuclei.

Later, throughout my postdoc at Michigan State University (USA) I was involved in the application of Bayesian techniques to global nuclear structure calculations. I participated in the development of Gaussian Processes emulators to predict with quantified uncertainties the limits of nuclear stability towards the proton and neutron drip-lines. I supervised a PhD student in the calculation of the fission fragments of $294Og$, the heaviest element produced in laboratory, which we predicted to decay through an exotic fission mode known as cluster emission. This result indicated that new physics may emerge in the superheavy region of the nuclear chart.

In January 2021 I have been awarded a Caritro Fellowship at ECT* institute in Trento (Italy). Using the Bayesian Model Averaging technique, I collaborated with experimentalists in the analysis of the emergence of the deformed double-shell closure in $80Zr$, highlighting the challenges posed by this nucleus to nuclear theory.

Resumen del Currículum Vitae:

A) Professional appointments
A1) Jan 2022: Research Fellow, Universidad Autónoma de Madrid, Madrid (ES).
A2) Jan 2021: Research Fellow, European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*), Trento (IT).
A3) Nov 2020: Visiting Researcher, University of Surrey, Guildford (UK).
A4) Oct 2017: Research Associate, National Superconducting Cyclotron Laboratory and Michigan State University, East Lansing (MI, USA).

 B) Education
B1) Jul 2017: PhD in Theoretical Nuclear Astrophysics, Technische Universität Darmstadt, Darmstadt (DE).
B2) Oct 2013: MSc in Nuclear Physics, Universidad Autónoma de Madrid, Madrid (ES).
B3) Sept 2012: Licenciatura en Ciencias Físicas, Universidad Complutense de Madrid, Madrid (ES).

 C) Publications
According to Web of Science (WoS, via Publons, February 6/02/2022), I have 19 publications (including two review articles) for a total of 324 citations and a corresponding H-index of 9 (according to Google Scholar 477 citations and H-index 11). My list of publications includes 1 Rev. Mod. Phys., 1 Nat. Phys., 1 Phys. Lett. B, 1 Astrophys. J., 10 Phys. Rev. C (1 of which as Rapid Communication), and 1 J. Phys. G..

 D) Talks & Seminars
D1) 12 invited seminars in universities and experimental facilities.
D2) 12 invited talks and 17 regular talks in international conferences and workshops.

E) Grants & Awards

E1) Jan 2022: María Zambrano grant for the requalification of the Spanish university system, Universidad Autónoma de Madrid (Spain), 147.500 . Acted as PI.

E2) Jan 2022: María Zambrano grant for the requalification of the Spanish university system, Universidad de Barcelona (Spain), 98.300 (awarded, not taken).

E3) Jan 2021: Bando Post-Doc 2020 per Giovani Ricercatori: Microscopic nuclear structure calculations and the nucleosynthesis of heavy elements in the r-process (RN 2020.0259, Jan 2021 Dec 2022), Fondazione Caritro (Italy), 50.000 . Acted as PI.

E4) Stewardship Science Academic Alliance grant: Theoretical description of the fission process (DE-NA0003885, 2018 2021), National Nuclear Security Administration (USA), 600.000$. PI: W. Nazarewicz. Acted as researcher.

E5) Verbundforschungsprojekt Nuclear physics input for r-process simulations (NUSTAR.DA 06DA7047I, Jan 2012 Jun 2015), Bundesministerium für Bilding und Forschung (Germany). PI: G. Martinez Pinedo. Acted as researcher.

E6) Feb 2014, May 2015: HGS-HIRe Doctoral scholarship & Abroad Grant, Helmholtz Graduate School for Hadron and Ion Research (Germany), 4.285 . Acted as PI.

E7) Ayudas para Inicio de Estudios en Programas de Posgrado (Nov 2012 Oct 2013), Universidad Autónoma de Madrid (Spain), 4.800 . Acted as PI.

F) Advises

I co-advised 1 PhD thesis and I am currently co-supervising 2 PhD students.

G) Scientific Responsibilities

G1) Organizer of the workshop Remnants of neutron-star mergers - Connecting hydrodynamics models to nuclear, neutrino, and kilonova physics to be held in Darmstadt (Germany) in Oct 2022.

G2) Member of the working group assessing future research opportunities at the upgraded Legnaro Nuclear National Laboratory (IT).

G3) Since May 2019: Referee for Phys. Rev. Lett.; Phys. Rev. C; Eur. Phys. J. A.

H) Teaching

Teaching assistant at the Techinsche Universität Darmstadt (DE) and lecturer in summer schools at the NSCL laboratory (MI, USA).

Área Temática:	Ciencias físicas
Nombre:	COTI ZELATI , FRANCESCO
Referencia:	RYC2021-030888-I
Correo Electrónico:	cotizelati@ice.csic.es
Título:	Emission phenomena of isolated and accreting neutron stars

Resumen de la Memoria:

I have devoted the last years of my research to investigate the emission phenomena associated mainly with two distinct classes of neutron stars: weakly magnetized neutron stars accreting matter from a companion star and strongly magnetized isolated neutron stars. I have also devoted part of my research to study high-energy emission properties of rotation-powered pulsars.

Weakly magnetized neutron stars: I have been studying the interplay between mass accretion and ejection phenomena in transitional millisecond pulsars (tMSPs), a rare class of weakly magnetized neutron stars in binary systems that spin hundreds of times per second and swing between different emission regimes depending on the mass transfer rate from their companion star. These studies resulted in publications at the fore-front of astrophysics and have provided critical insights into our understanding of mass accretion and ejection phenomena at work in extreme astrophysical contexts. In the past years, I have initiated successful searches for new tMSPs through systematic multiband observing campaigns using a novel approach, discovering 2 strong tMSP candidates (only 6 candidates have been identified so far). These discoveries have shown that many tMSPs might be hiding behind unidentified sources of the gamma-ray sky and have increased our knowledge on the phenomenological properties of tMSPs and related systems. My search for tMSP candidates resulted in the serendipitous discovery of 2 peculiar accreting white dwarfs in binary systems. More recently, my collaborators and I reported the first detection of coherent pulsations at optical and ultraviolet wavelengths from a MSP in an X-ray binary system during an accretion phase.

Strongly magnetized isolated neutron stars: I have been working on emission phenomena connected to "magnetars", isolated neutron stars whose X-ray emission is believed to be powered by the instability and dissipation of their exceptionally large magnetic field. Some magnetars undergo unpredictably large and rapid enhancements in the persistent X-ray flux, which then declines on a timescale ranging from a few weeks to years. I performed the first comprehensive study of these "outbursts", and released a publicly available online catalogue. My research has shown that magnetars can hop among distinct persistent states that are likely connected to outbursts, and that their persistent emission can be almost entirely powered by processes taking place in the magnetosphere of the magnetar. These findings are providing new insights into the physical mechanisms at work in these sources. Other relevant work on magnetars includes: the discovery of traces of magnetar-like activity from different types of neutron stars, proving that magnetar-like activity has a larger spread among the neutron star population than previously thought; the discovery of the sixth radio-loud magnetar known so far, which is one of the youngest neutron stars in the Galaxy and has properties bridging those of rotationally and magnetically powered pulsars, and of 2 new magnetars in outburst.

Rotation-powered pulsars: I have completed the 1st systematic study of the X-ray spectral properties of X-ray and gamma-ray pulsars to test a theoretical emission model developed by researchers at ICE against the data, and constrain the mechanism of particle acceleration in the magnetosphere of pulsars.

Resumen del Currículum Vitae:

I am a Juan de la Cierva Incorporacion fellow at ICE since May 2021. My research aims at understanding the physical mechanisms powering the emission of neutron stars using observations spanning the whole electromagnetic spectrum and different data analysis techniques. I obtained the Bachelor in Physics (cum laude) in 2011 and the Master in Astrophysics and Space Physics (cum laude) in 2013, both at the University of Milano-Bicocca. In November 2013 I moved to University of Insubria to start the PhD in Physics and Astrophysics. I obtained the PhD in March 2017 (summa cum laude) with a dissertation entitled "Observing neutron stars at the magnetic extremes". I moved to ICE in March 2017, where I held a postdoctoral position in the group "Multi-messenger Approach to Astro-particle Physics" until December 2018 and then a Juan de la Cierva Formación fellowship until April 2021.

My scientific career includes 47 papers, all but two published in high-impact (Q1) international peer-reviewed journals (including Nature Astronomy). I am 1st author of 14 papers, 2nd author of 6 papers, 3rd author of 7 papers. Based on the NASA's ADS, as of end-January 2022 these papers have accrued 830 citations (335 for 1st-author papers). My h-index is 19. The results presented in 3 1st-author papers and other papers I have co-authored have been featured in news releases by several websites and in press releases in science magazines. I have given invited review talks at 7 conferences, invited talks at 6 conferences and contributed talks at 10 conferences; I have been a local organizer of 3 international conferences; I have been the Principal Investigator of 18 successful proposals and co-Investigator of more than 60 successful proposals on observations of compact objects at all wavelengths using space-borne and ground-based telescopes; I have co-designed the Magnetar Outburst Online Catalogue, a state of the art of the phenomenology of strongly magnetized neutron stars.

At ICE I am the postdoc representative, the chair of seminars held at the institute and a regular lecturer for the Master courses in Astrophysics at Autonomous University of Barcelona since the academic year 2017/2018. I have mentored the PhD student Mr. Rota from the University of Salerno (graduated with the highest honours and now a PhD student at University of Salerno) and I am currently mentoring the PhD student Mr. Ibrahim.

I am an active member of working groups related to the eXTP, Athena+ and XIPE next-generation high-energy missions. I am a member of 3 international collaborations: the Extended Westerlund One Chandra Survey project, the ISSI-Bern team on "The disk-magnetosphere interaction

around transitional millisecond pulsars" and the ISSI-Beijing team on "Understanding and unifying the gamma rays emitting scenarios in high mass and low mass X-ray binaries".

I am a member at large of the Italian Time Allocation Committee for TNG and REM since December 2020 and of the Spanish Time Allocation Committee of the Canarian Observatories since November 2020. I have served on the review panel for proposals submitted to the AstroSAT Observing Cycle A11 Program (in April 2021) and to the NASA-NICER Guest Observer Cycle 2 Program (January 2019). I am regular referee for the peer-reviewed international journals: ApJ, A&A, MNRAS, PASP, JHEAp, RAA, the Journal of Theoretical and Applied Physics.

Área Temática:	**Ciencias físicas**
Nombre:	PEREZ LIVA, MAILYN
Referencia:	RYC2021-032739-I
Correo Electrónico:	mailynpl@gmail.com
Título:	Nuevas metodologías de imagen para medicina de precisión

Resumen de la Memoria:

My research career has been focused on the field of inverse statistical methods for biomedical applications and, in particular, in the processing, analysis and exploitation of biomedical images and data. Currently, the general objective of my work is the development of tools for the automatic analysis of biomedical images, the acceleration of reconstruction processes by parallel programming, the improvement of image quality by inverse mathematical methods and simulations of physical processes. These approaches are used to develop innovative methods for the estimation of new clinically relevant imaging parameters, to identify new biomarkers and to better understand pathophysiological mechanisms, allowing for improved diagnosis and treatment planning.

My contributions to this field have evolved from the pure simulation of physical processes to their extension to the field of imaging, and can be divided in four main aspects:
- Advanced simulation of physical processes and solution of inverse biomedical problems.
- Reconstruction methods for ultrasound computed tomography and Positron Emission Tomography.
- Conception of new hybrid imaging technologies
- Application of hybrid imaging to the field of cardiology and oncology.

Therefore, my career has grown from the technical aspects that involve simulations, inverse problems, hardware and software development to the application of this technology for diagnostic imaging in the field of cardiology and oncology.

Resumen del Currículum Vitae:

I obtained a PhD in Physics at the Complutense University of Madrid (UCM), Spain, in June 2017 under a FPU grant. During my thesis (European PhD, Cum Laude), I worked in the development of a new multimodal imaging technology for early breast cancer detection. This work was developed on the frame of the TOPUS project (C. Madrid S2013/MIT-3024, 666.770), Positron emission tomography and UltraSound , during which the first ultrasonic tomograph of Spain was developed also combining a PET coupling. The technology developed for the acoustic component is currently in the final phase of development for evaluation in patients at the QuirónSalud University Hospital (Madrid).

Posteriorly, I obtained a post-doctoral position at the Institute of Cardiovascular Research in Paris (PARCC), where I worked on the project PETRUS (Positron Emission Tomography Registered UltraSonography), which merges PET and Ultrafast Ultrasound imaging. As part of PETRUS, I was able conceive and build new tools for imaging processing, data acquisition, instrumentation and to propose applications that have offered a new vision in the field of oncology and cardiology. In 2019, I was awarded a grant from the Institut du Cancer de Paris in the program Cancer Research for Personalized Medicine CARPEM for my contributions to the field of Imaging of Paraganglioma cancer with PERTUS (equivalent to 57,300). Recently, we have obtained fundings for the extension of PETRUS from the preclinical to the clinical field.

In February of 2021 I incorporated to the Group of Nuclear Physics (GFN) of UCM under a Juan de la Cierva-Investigación grant. During this period, I have expanded my research to the field of analysis of multidimensional data using Machine Learning and radiomic approaches. I have also obtained an individual fellowships from the Marie Sklodowska-Curie Actions 2021 (160,932.48), with the project OCTOPUS: Oncological Concurrent Tomographic Optoacoustics, Pet and UltraSonography to be developed at the GFN.

The results of my scientific work have provided me with 1 patent pending, 25 publications in indexed journals, including 11 as lead author, 5 book chapters, 10 oral presentations at national and international congresses. I am regularly invited to review papers for high ranked journals in medical physics and participate as reviewer for several research funding agencies.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: Ciencias físicas
Nombre: REDI , FEDERICO LEO
Referencia: RYC2021-031404-I
Correo Electrónico: fredi@cern.ch
Título: Searching for HNLs at the LHC

Resumen de la Memoria:

The Standard Model (SM) of Particle Physics is a very powerful theory that can describe what matter is made of and how it behaves. A profound aspect that arises from all other LHC searches and beyond is that nothing else has been found. In fact, collisions have failed to reveal, so far, any elementary particles beyond the one predicted by the SM. This means no sign of supersymmetry, extra dimensions, leptoquarks, and any new kinds of scalar bosons.

This is a problem since we know that, despite all of its success, the SM has some major flaws and cannot describe dark energy or dark matter; which is something that makes up 95 % of the universe. It is only by finding New Particles that are not predicted by the SM, and cannot fit inside it, that a new, better, theory can be discovered. This invigorates the need for broadening the experimental effort in the quest for New Physics and exploring ranges of interaction strengths and masses different from those already covered by the LHC, which is precisely what the funding of this project will do.

Since almost all the frameworks for New Physics predict the existence of long-lived particles it is possible that the LHC has been producing New Particles all along, but that they are escaping our detectors. The proposed project will enable a world-leading search for such particles. The project will focus on data collected at the LHC, a particle accelerator that pushes protons or ions to near the speed of light. The project will become one of the key scientific output of a scientific Collaboration of around 1000 people, the LHCb Collaboration. The dissemination and exploitation of the results will therefore be conducted in a work pipeline perfected by CERN and LHCb researchers over many years. The proposed project will allow the proponent to completely independently analyse the new LHCb dataset searching for possible New Particles in which a long-lived neutral signal will be detected. The impact of a discovery of New Particles not predicted by the SM would be nothing short of revolutionary, not just for Particle Physics but also for cosmology and astrophysics.

It is currently unknown which generation of leptons New Particles can interact with. Nevertheless, the third generation, called tau lepton, appears particularly interesting, both theoretically and experimentally. Working with tau leptons is challenging due to their nature but this project will exploit new opportunities given by a combination of techniques and competences provided by the proponent and the LHCb detector upgrade. Firstly, the proponent is an expert both in New Physics searches and in working with the tau leptons. The project details how the combination of these competences opens up a new window in exploring uncharted territory in the quest for New Physics. Secondly, the LHCb detector is currently being upgraded to be able to collect collisions with a five times higher rate than in the previous data taking period. The detector will allow analysts to fully exploit the datasets in a complete new setup starting in 2022, therefore perfectly fitting within the timescale of this proposal. The knowledge that the proponent has acquired working for many years at LHCb will allow such an ambitious project to unfold in a short period of time, therefore maximising the scientific output.

Resumen del Currículum Vitae:

Main scientific-technical achievements:
o   Publications: I have been the author of more than 400 publications, with more than 13 000 citations and a h-index index of 54 (all metrics are for published, excluding self-citation). Specifically, I have played a role in some of the most important papers published by the LHCb and SHiP collaborations. Starting from the   Measurement of the ratio of branching fractions RD* (Phys. Rev. Lett. 115 (2015) no.11, 111803) where I worked on all the aspects related to the simulation. I have worked on the simulation also for the SHiP experiment where I was a leading contributor to 5 publications. I have also contributed to the work related to the studies of long-lived particles with papers both of LHCb and outside the collaboration.
o   Leading roles: My important role in the community has been demonstrated by my managerial roles that I have acquired over time: e.g. LHCb convenor of the   QCD, Electroweak, and Exotica   working group. This is a managerial role that answers directly to the head of the physics of the experiment. I was also elected as coordinator of the LHCb offline Data Processing & Analysis. I am responsible for central pre-selection of all physics analysis of the collaboration. Also outside the LHCb collaboration my role has growth over the years, and today I am LHC wide co-convenor of the   long-lived particles working group . Finally it was during my years as Co-liaison, within the LHCb collaboration, of the Particle Identification software group that the collaboration published the important   Observation of the rare B0 s → μ+μ− decay from the combined analysis of CMS and LHCb data .
o   Conferences: I have participated as an (invited) speaker in international conferences since the start of my career and as of today I have given more than 20 talks and seminars. I have also helped convening and organising multiples international conferences/workshops.

Training of young and management of scientific activity:
o   Training: I have supervised multiple PhD students. I have supervised multiple final year theses for students which have been hired as PhD in prestigious universities around Europe.
o   Editorial: Since 2021 I am a reviewer for Experimental Physics I: Accelerator Based High- Energy Physics ;   The European Physical Journal C (JIF = 3.560); published by EDP Sciences, Società Italiana di Fisica and Springer Berlin Heidelberg. Since 2021, I am also a review editor for   High-Energy and Astroparticle physics ;   frontiers in Physics   (JIF = 4.590); published by Frontiers Media. I am also responsible for institutional reviews of LHCb papers.
o   Membership of committee: I am one of the young scientist representatives at the Swiss Institute of Particle Physics. I sit in the IPPOG International Masterclass steering board committee since 2015.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Scientific awards et al.:   I won a Beatriu de Pinós programme fellowship in 2021 with a research program on direct search for beyond the SM physics. In 2021 I have also won the Italian National Scientific Qualification (ASN) as an Associate Professor, a very competitive selection of young researchers deemed experienced enough to be tenured.

Área Temática:	Ciencias físicas
Nombre:	MILLAN VIDAL, ANA PAULA
Referencia:	RYC2021-031241-I
Correo Electrónico:	apmv.exe@gmail.com
Título:	Unveiling the link between brain structure and function through temporal and higher-order networks

Resumen de la Memoria:

My research interests regard the modelling and characterization of the interplay between network structure and dynamics in neuroscience, with a focus in closing the gap between novel studies of generalized network structures and brain function. This constitutes an intrinsically interdisciplinary research, combining aspects from computational and statistical physics with network science and neuroscience. Consequently, I have worked to establish strong collaborations with researchers in different fields and performed 4 long research visits.

As a PhD student I opened a new research line at the Statistical Physics Group of U. Granada with my supervisor Prof. J. Torres. I introduced a co-evolving network model of the brain to show that form and function coupling is fundamental for brain network development.

In my second research line, and in collaboration with Prof. G. Bianconi, I considered the role of network geometry on synchronization dynamics, and proved the emergence of complex spatio-temporal synchronization regimes on small-world networks with underlying geometry. As a postdoctoral researcher I took this framework further and derived a mathematically consistent higher-order Kuramoto model describing the dynamics of higher-order topological signals based on the higher-order Laplacian. These works illustrate the interplay between higher-order structure and dynamics, and have triggered a plethora of studies by other groups.

A main research line in my career has focussed on the spectral dimension of complex networks, where I found that a) the spectral dimension recovers relevant geometrical and topological information of the network and b) it is the relevant network dimension describing synchronization and emergent critical phenomena. This signifies the spectral dimension as a fundamental property linking network structure and dynamics.

Finally, during my postdoctoral position at a university hospital (AUMC), I have joined my expertise in network modelling with neurophysiogical and neurosurgical teams to develop a computational model of seizure propagation and epilepsy surgery based on brain networks and epidemic spreading models. This position has provided me with a richer, multi-perspective understanding of the clinical aspects of neuroscience, and direct knowledge integrating clinical data with mathematical modelling.

Resumen del Currículum Vitae:

In 2014 I obtained my degree in Physics (Licenciatura) at U. of Granada (UGR) with the Extraordinary End of Degree prize. I performed 2 research internships at UGR with Prof J Torres (temporal networks) and a summer internship with Prof C Mirasso (IFISC-CISC, anticipated synchronization). I cursed the Fisymat (Physics and Mathematics) master by UGR and UCLM in 2014/2015, with speciality in Biophysics, and I obtained an "Obra Social la Caixa" grant for the the PhD.

My PhD Thesis (16/09/19, Cum Laude and International mentions), titled Study of dynamical complex neural networks and their application to brain development and emergent synchronization phenomena (supervisor: Prof J Torres), was a multidisciplinary study applying statistical physics to computational neuroscience. I derived a computational framework to study brain development based on form and function coupling (3 publications).

I have created a strong network of collaborators with different expertise. During my PhD I undertook 2 research visits to strengthen my theoretical and experimental skills, respectively. In the first one (3 publications) with Prof G Bianconi (Queen Mary U of London), I characterized the role of network geometry in synchronization phenomena in complex networks. The second research visit took place at the Bazhenov Lab (computational neuroscience group, U. California-San Diego), where I worked on a computational model of the locust olfactory system (one publication in preparation).

After my PhD I undertook 2 postdoctoral research visits (Theoretical Physics Inst. of Heidelberg U. (10-11/2019) with Prof. T Enss and Dr. N Defenu, and at the dep. of Complex Networks of the Central European U., with Prof. F Battiston (03/2020)) during which I studied diffusive processes and universality mechanisms on complex networks (2 publications).

From January 2020 I work as a postdoctoral researcher at the Dep. of Clinical Neurophysiology of Amsterdam U. Medical Center (AUMC) with Prof CJ Stam, Prof A Hillebrand and Dr van Straaten in the application of epidemic spreading models and network science to epilepsy research.

Within this project I collaborate with Prof P van Mieghem (TU Delft), expert in spreading phenomena, and AUMC neurosurgeons. I have published 11 (8 Q1) papers in WOS indexed journals (9 as 1sr author) as Nature Communications or PRL, with another 2 under review (1 as first author and another as part of a large collaboration with researchers at SISSA, Italy), and I have collaborated in 1 book chapter (to be published in 2022).

I have presented the results of my research in 23 international presentations, including 5 invited talks, and I have an h-index of 7 (i-10=6, Google Scholar). I have given a total of 25h of university teaching (Biochemistry degree, UGR, and Neuroscience master, Vrij Universty of Amsterdam), I have co-supervised two undergraduate and two master theses, and I currently supervise one PhD research visit (Ms. L DiGaetano). I have participated in scientific outreach activities (European Research Night (2016,2019), CERNs travelling exposition (2014)) and I have created an outreach website hosting and animation short for epilepsy patients and the general public.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	Ciencias físicas
Nombre:	RAMOS DEL RIO, TOMAS ANDRES
Referencia:	RYC2021-032473-I
Correo Electrónico:	t.ramos.delrio@gmail.com
Título:	Photon-based Quantum Technologies

Resumen de la Memoria:

In 2011, I finished my master thesis at the University of Concepción, Chile, from where I published 3 papers on fundamental aspects of the momentum of light in material media. Subsequently, I was awarded a prestigious Chilean scholarship to do a PhD with Prof. P. Zoller at the University of Innsbruck, Austria. During this period (2011-2016), I made original contributions to a broad range of topics related to quantum technologies and opened the research line of chiral quantum optics . I participated in international projects and conferences and published my results in high-impact journals such as 2 first-author PRL and PRAs with editors suggestions (one with 199 citations).

During the last 5 years, I have been postdoc at CSIC in Madrid, where I have developed an increasingly independent research line on photon-based quantum technologies (funded by two Juan de la Cierva and one Marie Curie fellowship). I have done original contributions in quantum non-linear optics, topological quantum photonics, and tomographic methods for characterizing quantum emitters in nanophotonic environments and superconducting quantum computers. On these topics, I have published on high-impact journals such as PRL and PRX, and I have worked in collaboration with J.J. García-Ripoll, D. Porras, and A. González-Tudela (CSIC), as well as with the experimental groups of P. Lodahl (Copenhagen), O. Buisson (Grenoble) and R. Gross (Munich). I have also co-supervised three PhD students: Ming Li, Luciano Pereira, and G. Peñas. I lead the projects of the first two of them, and we have recently written preprints where I contribute as the last author.

I currently focus my research line on quantum technologies in three specific directions: (1) Consolidate my work on quantum nonlinear optics to describe complex many-body quantum emitters such as quantum simulators. (2) Explore the physics of driven-dissipative photonic lattices, including their topological properties and amplification aspects. (3) Design and implement protocols for benchmarking and improving the measurements in real quantum computers.

Resumen del Currículum Vitae:

I am a theoretical physicist expert in quantum optics, who has done original contributions in a broad range of topics related to photon-based quantum technologies, ranging from fundamental aspects of quantum light-matter interactions to the development of practical techniques to characterize quantum systems experimentally.

I obtained the MSc in Physics in 2011 at the University of Concepción, Chile, and then the PhD in 2016 at the University of Innsbruck, Austria, and under the supervision of Prof. Peter Zoller. My PhD thesis opened the research line of chiral quantum optics . During the last 5 years, I have been postdoc at CSIC in Madrid, where I have established collaborations with J.J. García-Ripoll, D. Porras, and A. González-Tudela. I have developed an increasingly independent research line, which has been funded by two Juan de la Cierva and one Marie Curie fellowship.

My main research objective is to develop new tools to characterize and improve existing quantum hardware for quantum technologies, as well as to look for groundbreaking applications in quantum information processing. I have contributed in this way to a large variety of quantum technology platforms such as cavity QED with optomechanical systems, realizations of chiral quantum networks with nanophotonic waveguides, cold atoms, and trapped ions, as well as tomographic protocols to characterize nonlinear photon correlations in noisy nanophotonic environments or to benchmark the quantum measurements in superconducting circuits. I have also developed the quantum optics framework to describe chiral light-matter interactions, non-Markovian dynamics with engineered baths, and the quantum noise in photonic lattices working as topological amplifiers. Although my work is theoretical, it is strongly connected to the development of state-of-the-art experiments. For instance, with the group of P. Lodahl (Copenhagen) we have recently applied one of our protocols to characterize the two-photon scattering matrix of a quantum dot in a photonic crystal waveguide, or with the group of O. Buisson (Grenoble), we have demonstrated a new architecture for quantum non-demolition measurements of a superconducting qubit.

The research work carried out during my 10-year career has been published in 20 papers (15 peer-reviewed Q1 journals and 5 preprints), which have been done in collaboration with 25 international collaborators. I am the first author of 9 papers, where 3 of them are PRL. In addition, I am the second author of 6 papers, where 3 of them are experimental collaborations in which I have contributed as the first theoretical author, and they have been published in journals such as PRX and PRL. From the 5 preprints, 2 of them are currently under referral in PRL, 1 in PRX, and another in Nature Physics. Moreover, 5 of my publications have been highlighted as editors suggestions. In total, my work has attracted 746 citations with an h-index 10. I have presented my work in 26 international conferences (3 invited) and 17 seminars in research groups.

Regarding training activities, I have co-supervised the work of 3 PhD students: Ming Li (Normal University of Beijing), G. Peñas (UCM), and Luciano Pereira (UAM). In addition, I have created the outreach activity the power of light , and I serve as a referee for PRL, PRA, New J. Phys, J. of Phys. B, and for the Argentinian Science Agency.

Área Temática:	Ciencias matemáticas
Nombre:	TORRES DE LIZAUR, FRANCISCO JAVIER
Referencia:	RYC2021-034872-I
Correo Electrónico:	ftorreslizaur@gmail.com
Título:	New geometrical and analytical methods in PDEs

Resumen de la Memoria:

I have specialized in developing new techniques, at the crossroads of analysis, differential geometry and dynamical systems, to study properties of solutions to PDEs arising in mathematical physics.

I did my PhD in Mathematics at ICMAT-Universidad Autónoma de Madrid, under the advise of Daniel Peralta-Salas, financed by the ERC Starting Grant 335079-INVARIANT. The main problems I solved during my thesis were a conjecture by Arnold and Khesin on topological hydrodynamics, and Kelvin s knotted vortex conjecture in compact spaces. I also worked on the analysis of the Seiberg-Witten equations and its application to the study of invariant measures of vector fields, and on nodal sets of the Dirac operator. My PhD dissertation was awarded Premio Extraordinario .

I complemented my graduate studies with stays at Harvard University, supervised by Clifford Taubes, and Stony-Brook University, visiting Dennis Sullivan. I held postdoctoral fellowships at the Max Planck Institute for Mathematics, and then at the University of Toronto, supervised by Boris Khesin.

During my postdoctoral years, my work concentrated on hydrodynamics, and on problems concerning the properties of the eigenfunctions of the Laplacian on compact Riemannian manifolds. I developed a method for embedding any finite-dimensional dynamics into the Euler equation, which was recently published in Inventiones mathematicae.

Resumen del Currículum Vitae:

Entre mis contribuciones científicas destacaría:

- el desarrollo de la técnica de embebimiento de dinámicas, con la que di la primera demostración matemática de la existencia de conjuntos invariantes caóticos en el espacio de fases de las ecuaciones de Euler de los fluidos ideales. Este trabajo, publicado en Inventiones mathematicae, mejora sustancialmente trabajos previos del matemático T. Tao, y fue descrito por los revisores del artículo como one of the strongest result in topological hydrodynamics of the last years . También menciono mi teorema de realización para conjuntos nodales de espinores de Dirac (arXiv:1712.10310), que desarrollé durante mi tesis.

-mi trabajo en colaboración con Ángel David Martínez en la symmetry conjecture propuesta por A. Logunov, que versa sobre el comportamiento de las autofunciones del laplaciano. Nuestros primeros resultados ya han sido publicados en Rev. Mat. Iberoamericana: demostramos que esta conjetura es cierta en el toro en dimensión dos, y construimos un contraejemplo en dimensión superior.

-en colaboración con Daniel Peralta-Salas y Alberto Enciso: la resolución en toros y esferas de la conjetura de Kelvin sobre tubos de vorticidad anudados, mediante la técnica de la localización inversa (publicada en Annales Scientifiques de l'E.N.S), y la resolución de la conjetura de Arnold-Khesin sobre la unicidad de la helicidad (publicada en PNAS).

-con Daniel Peralta-Salas y Ana Rechtman: la caracterización puramente topológica de campos vectoriales eulerizables (publicado en Ergodic Theory and Dynamical Systems).

Además de estas colaboraciones, actualmente mantengo una activa colaboración con Theodore Drivas en Stony Brook, en diversos problemas de la mecánica de fluidos.

He impartido numerosos seminarios, tanto en España como en el extranjero (Berlín, Ratisbona, Colonia, Bonn, Bochum, Yale, CUNY Graduate Center, Moscú, Venecia, Sevilla, Madrid). Destacaría el haber sido invitado a impartir el coloquio del Departamento de Matemáticas de Stony Brook y a presentar mi trabajo en una conferencia en el Institute for Advanced Study de Princeton.

Durante el semestre de invierno de 2021 fui responsable de dos grupos de una asignatura de Cálculo Diferencial (MAT136) en la Universidad de Toronto, así como responsable del diseño de las clases online y de la preparación de las diapositivas para todos los profesores de la asignatura (un total de 6 profesores).

Durante los meses de Julio y Agosto de 2021 fui supervisor junto a mi colaborador Ángel David Martínez de un proyecto del Fields Institute Undergraduate Summer Research Program : cuatro estudiantes de grado seleccionados entre solicitantes de todo el mundo realizaron un trabajo de introducción a la investigación bajo nuestra supervisión, basado en nuestro trabajo en la symmetry conjecture . El resultado fue excelente y actualmente estos alumnos ultiman dos artículos científicos.

He sido Becario de investigación científica en la Residencia de Estudiantes de Madrid del 2014 al 2017. En este papel he diseñado y participado en varios proyectos de divulgación para el Ayuntamiento de Madrid, como un taller de literatura y matemáticas de 6 horas de duración y una mesa redonda en la Noche Europea de los Investigadores

Área Temática:	Ciencias matemáticas
Nombre:	POYATO SANCHEZ, JESUS DAVID
Referencia:	RYC2021-031132-I
Correo Electrónico:	jd.poyato@gmail.com
Título:	Non-linear and non-local PDEs arising in Physics and Biology: theory and applications

Resumen de la Memoria:

My research concerns the mathematical analysis of a wide class of nonlinear Partial Differential Equations (EDP) arising in Biology and Physics. These are often hyperbolic integro-differential equations with singular terms combining complicated nonlinear and nonlocal effects, which are both analytically and computationally challenging. My main goal is to analyze these systems, develop suitable novel mathematical tools to understand the interplay of the nonlinear and nonlocal properties, and capture the underlying physical and biological phenomena. Along my scientific carrier I have been involved in a variety of questions, classified according to the following four research axes, and which shall be detailed later on

A. PDEs of Collective Dynamics: Cucker-Smale and Kuramoto models, Mean-field/hydrodynamic limits; Singular interactions; Measure solutions beyond blow-up; Wasserstein stability estimates; Emergent dynamics.

B. PDEs of Evolutionary Dynamics: Fisher infinitesimal model; Long-time ergodicity properties; Growth-fragmentation equation; Selection-mutation dynamics; Contraction of ancestral linages process.

C. PDEs of Fluid Mechanics: Euler equation; Beltrami fields; Complex linked and knotted vortex structures.

D. Mathematical Modeling in Developmental Biology: Cytoneme-mediated propagation of morphogens in Drosophila melanogaster.

A prominent characteristic of my research is its thematic variety, encompassing theoretical questions about stability, well-posedness, convergence to equilibrium and scaling limits in nonlinear integro-differential equations describing multiple phenomena of bio-physical systems. The techniques developed cover a wide range of tools in nonlinear PDEs, ranging from singular integrals, optimal transport, Filippov solutions, relative entropy methods, Markov processes, or large deviations, some of them inspired in original methods in Fluid Mechanics and Statistical Physics.

These lines have been carried out together with a wide team of international collaborators in high-level research centers at Granada (J. Soler), Seoul (S.-Y. Ha, J. Kim, J. Park), Lyon (V. Calvez, T. Lepoutre), ICMAT-Madrid (A. Enciso), Penn State (P.-E. Jabin), Maryland (J. Morales), Warsaw (J. Peszek), Turin (N. Bellomo), Ferrara (L. Pareschi), CBMSO-Madrid (I. Guerrero), etc.

This has led to 11 papers, consisting of 7 publications in the highest-level journals of my area, plus 4 preprints submitted for publication (see CVA). As indicators of scientific excellence, I remark that these works address a number of cutting-edge questions proposed in the research plan of European, national and regional competitive research projects. Most publications exceed 70 pages, both in collaboration with the international teams above and as unique author. The international impact is clear in light of the number of citations (more than 206 in Google Scholar), many of them by prestigious researchers like J.A. Carrillo, P. Degond, A. Figalli, A. Kiselev, J.J.L. Velázquez or E. Tadmor. This research has also been presented in numerous international conferences (18 invited talks in Spain, France, USA, etc).

My long-term goal is to be the head of a group of international standing that specializes in the mathematical analysis of nonlinear PDEs originated in Physics and Biology with a strong implications in real-life problems.

Resumen del Currículum Vitae:

I graduated in Mathematics in 2014 at U. Granada (UGR) and obtained three prizes: nacional fin de carrera (MECD), extraordinario fin de carrera (UGR) and UGR-Caja Rural de Granada. Later, I did a MsC in Physics and Mathematics at UGR and benefited from two grants: beca de colaboración (MECD) and beca de iniciación a la investigación (UGR). I defended my PhD thesis in 2019 at the Applied Mathematics department of UGR, supervised by Juan Soler, funded by a Spanish FPU grant (MECD), and honoring the highest rate sobresaliente cum laude, and the international PhD mention

My research focuses on Applied Mathematics. I have a number of works in theoretical analysis and mathematical modeling of PDEs arising in Physics and Biology, which address cutting-edge questions at the interface of Mathematical Analysis and Applied Mathematics: Collective Dynamics, Kinetic Theory, asymptotic regimes, convergence to equilibrium, Fluid Mechanics, Biomathematics, etc.

During my PhD, I established collaborations with international researchers from Seoul (S.-Y. Ha, J. Kim, J. Park), Turin (N. Bellomo), Ferrara (L. Pareschi), ICMAT-Madrid (A. Enciso), CBMSO-Madrid (I. Guerrero). I also did a 6-month research stay at U. Maryland, funded by Ayudas de movilidad para estancias breves (MECD). During that period, I initiated collaborations with the members of the center (P.-E. Jabin, J. Morales and J. Peszek), and I visited Rice U. (Houston) and UPenn (Philadelphia)

Since November 2019, I am postdoct at U. Claude Bernard Lyon 1 (UCBL), funded by the ERC StG MESOPROBIO (until 2020), and ERC CoG WACONDY (since 2021), I I work on an innovative research line whose goal is to unravel the long-time behavior of some integro-differential equations from quantitative genetics. After declining a Margarita Salas fellowship at UGR in 2021, I will be Profesor Ayudante Doctor at UAM from Septembrer 2022

I have authored 11 works with more than 206 citations in Google Scholar, many of them by the most prestigious researchers in my field. 7 papers have already been accepted in high-level Q1-JCR journals (see CVA)

- Ann. I. H. Poincare-AN (1.850)
- Comm. Math. Phys. (2.239)
- J. Eur. Math. Soc. (2.197)
- Math. Mod. Meth. Appl. Sci. (3.817)
- Phys. Life Rev. (13.84)

where 6 of them are D1, and 2 are Highly Cited Papers. I also have 4 preprints submitted in

- Ann. of Math.
- J. Math. Pures Appl.
- Nat. Commun.
- J. Differ. Equ.

I have a number of works in progress with several experts in my field like V. Calvez, T. Lepoutre (Lyon), J. Peszek (Warsaw), P. Gabriel (Versailles) or J. Kim (Korea), and I serve as referee in high-level journals like

- Discrete Contin. Dyn. Syst. Ser. A
- J. Nonlinear Sci.
- Kinet. Relat. Models
- Math. Models Methods Appl. Sci.
- Physica D
- SIAM J. Math. Anal.
- Nonlinearity

I have co-organized the international BIOMAT summer schools at the UGR since 2016. I have considerable teaching experience (217,5 hours in BsC/MsC, plus 77,5 further hours currently). At UGR I taught at the BsC degrees in Mathematics, Engineering of Construction, ADE and Laws. Currently I teach at the MsC program in Physics and Mathematics, where I conduct a course of introduction to research in biomathematics for graduate students. At UCBL, I teach (in French) at the BsC degree in Mathematics

I am qualified as Profesor Ayudante Doctor (Spain) and Maître de Conférénces (France)

Área Temática: Ciencias matemáticas
Nombre: RODRIGUEZ PEREIRA, JESSICA
Referencia: RYC2021-032589-I
Correo Electrónico: jrodriguezpereira@gmail.com
Título: Operation Research: Location, Routing and Network Design Optimization

Resumen de la Memoria:

I am a postdoctoral researcher at the Universitat Pompeu Fabra Economics and Business Department, with the main interest in the field of Operations Research. Particularly, I am interested in providing quantitative tools to the decision makers, for the identification of the best choices, in order to solve real life problems on the areas of transportation, humanitarian logistics, health and social care, supply chain management and operations management. Most of my research is framed in the discrete optimization, and it is based on the study and identification of particular properties and characteristics of the studied problems. The aim is to formulate new mathematical models and to develop efficient algorithms that take advantage of those properties, to obtain efficient and useful tools for decision makers.

Resumen del Currículum Vitae:

I am a civil engineer specialized in transport and urban services from Universitat Politècnica de Catalunya (UPC), where I have also completed my PhD in Statistics and Operation Research in January 2018. I developed my doctoral studies in Statistics and Operations Research under the supervision of the Professor Elena Fernández (UPC) and Professor Gilbert Laporte (HEC Montréal). The research conducted focused on the study of various problems of location and design of routes for arcs, resulting in several presentations at conferences and the publication of three articles in indexed journals indexed. One of these articles, Exactly Solution of Several Families of Location Arc Routing Problems , has been awarded with the SOLA Student Best Paper Award by the INFORMS Society on Location Analysis (SOLA) in 2019. The entire thesis has received one of the extraordinary doctoral awards of the 2017-2018 promotion in the field of science awarded by the UPC. As a result of the knowledge acquired with the thesis, I was invited to participate in the second edition of the book Location Science through the chapter "Location-routing and location arc routing".

Between 2018 and 2019, I enjoyed a postdoctoral fellowship at HEC Montréal in Canada, working in the field of humanitarian logistics in location and routing problems, network design and
distribution of costs applied to real life cases. During this period resulting in new publications. I have also participated in the research group on the collaboration project HEC Montreal - Caribbean Disaster and Emergency Management Agency .

From 2020 I enjoy a postdoctoral contract at Pompeu Fabra University, where I continue my work as a researcher in the areas of transportation and logistics, location and network design, humanitarian logistics, health and social care and rural development. During this period, I have been selected by the YoungWomen4OR initiative as one of the twelve best emerging young researchers in the field of operational research at European level, in the framework of the WISDOM Forum in 2020.

During my doctoral and postdoctoral fellowships, I have participated in teaching and advising activities. In particular, I have been involved with the subjects: Integer and Combinatorial Optimization, Discrete Network Models, Models and Operational Research Methods, Vehicle Routing, Operations Management and Quantitative Methods for Business, and co-supervised three master's thesis.

(Google Scholar: h-index=5 | 98 citations | i10-index=2.)

Área Temática:	**Ciencias matemáticas**
Nombre:	CUMPLIDO CABELLO, MARIA
Referencia:	RYC2021-032540-I
Correo Electrónico:	mariacumplidocabello@gmail.com
Título:	Braid groups, Artin groups and generalizations

Resumen de la Memoria:

My research focuses in braid theory and generalizations. Braids are very versatile mathematical objects: they can be defined dynamically, to study the movement or particles in a plane that never collide or fluid mixtures; topologically, to study sets of disjoint paths (strands) that connect a family of points; and algebraically, as finitely presented groups with homogeneous relations that are easy to express. Each of these definitions leads to different generalizations, namely, configuration spaces in surfaces, mapping class groups and Artin groups. Thus, braid groups appear in many (pure and applied) mathematical contexts.

In the last few decades, the algebraic side of braids and, in general Artin groups, have been of great interest for group theorists, but also for cryptographers. Artin groups have a quite simple presentation. However, classic problems on these groups ---like the word problem or the conjugacy problem--- are still open. This raises questions about the solvability of these problems and the complexity of algorithms that could solve them. That is, are these objects potential tools to construct security protocols? There have been some approaches to this matter but we certainly need to better understand the computational and algorithmic properties of Artin group to give a good answer to the previous question. So far, my works deal with open problems in Artin groups and other braid group generalizations by using a wide range of resources that I learn working with different researchers in my working periods in Spain, France and UK: algebra, geometric group theory, low-dimensional topology and symbolic computation. Among these works, my most relevant contributions are the ones that address questions on parabolic subgroups of Artin groups.

Resumen del Currículum Vitae:

My research was awarded with the Vicent Caselles Research prize by the RSME and Fundación BBVA in 2020, and with the second prize for the best doctoral thesis of the University of Rennes in Mathematics, Sciences and Technology of Information and Communication, granted by Fondation Rennes 1 in 2018. I have (co)authored 11 research papers (9 published in JCR journals and 2 in peer review process). Three of them on my own and the rest of them with researchers of important universities in France, Spain, Mexico, UK and Australia. I have been invited to speak at 11 conferences and 30 seminars. In addition, I have contributed to other 17 conferences with different communications and posters. I have organized one workshop and one special session of an international conference and been in the scientific committee of one international conference. I have also been referee of 3 international journals. I have belonged to 3 Spanish research projects and one research group. I have the accreditation to be hired as Contratada Doctora in Spain and as Maître de Conference in France. I fluently speak Spanish, French, Italian and English.

I am also engaged in supporting women in STEM and women rights. In this matter I have participated in 7 activities concerning women and Mathematics, most of them addressed to teenagers. I have also belonged to a Social Science project of University of Granada about   Women rights in the Internet era , organised a conference on the subject and wrote a chapter of a book about how the algorithms of social networks can affect the feminist debate. I have also done some community outreach activities as talks and blog posts.

Área Temática: Ciencias matemáticas
Nombre: CAO , MINGMING
Referencia: RYC2021-032600-I
Correo Electrónico: mingming.cao@icmat.es
Título: Harmonic Analysis, PDE, and Geometric Measure Theory

Resumen de la Memoria:

This project lies between the interface of three areas: Harmonic Analysis, Partial Differential Equations, and Geometric Measure theory. It seeks deep results motivated by elliptic/parabolic PDE using techniques from Harmonic Analysis and Geometric Measure Theory. In some problems we will consider real elliptic/parabolic PDE in very rough domains studying the Dirichlet problem, its relation with the good properties of the elliptic/parabolic measure, and their interplay with the geometrical features of the domain and its boundary. Some other problems will be for elliptic/parabolic systems with constants complex coefficients and will make use of the boundary layer potentials method or the Poisson kernel approach. In other problems, we will treat variable complex coefficients and degenerate rough elliptic/parabolic operators, and we will study boundedness properties of the associated operators and some function spaces naturally associated with them.

This project is built upon results obtained by the applicant in these three areas. In last several years, the applicant investigated the theory of weighted norm inequalities and Rubio de Francia extrapolation, which enables us to establish the boundedness of operators on general function spaces, and then the well-posedness of the Dirichlet boundary value problem for elliptic systems with boundary data in various spaces. Recently, the applicant has extended the Rubio de Francia extrapolation to the multilinear compact operators. On the other hand, the applicant studied the relationship between the geometry of a domain and absolute continuity properties of its harmonic measure, which is closely linked to the solvability of elliptic PDE on rough domains. Some criterions are presented to characterize the absolute continuity of elliptic measure with respect to the surface measure or another elliptic measure. One can also obtain some qualitative analogs and perturbation results.

Resumen del Currículum Vitae:

Mingming Cao got his PhD in mathematics at Beijing Normal University in June 2018. His PhD thesis was advised by Prof. Qingying Xue and mainly investigated the multilinear CalderónZygmund theory and the weighted norm inequalities. After that, as a postdoctoral researcher, Cao was temporarily employed at Sun Yat-sen University from September 2018 to March 2019. Under the supervision of Prof. Lixin Yan, Cao began to study the boundedness of Fourier integral operators and applications to PDEs. Moreover, Cao joined in the research team, which was led by Prof. Lixin Yan and focused on Fourier analysis associated with elliptic operators. Since April 2019, as a postdoctoral researcher supervised by Prof. Jose Maria Martell, Cao has been contracting with the ICMAT under the Severo-Ochoa postdoctoral program and then Juan de la CiervaFormacion 2018.

Having obtained some fundamental results in multilinear theory of Harmonic Analysis, Cao investigated the theory of the Rubio de Francia extrapolation in the general Banach function spaces and the multilinear setting, which can be used to study some significant topics in the interface between Harmonic Analysis, Partial Differential Equations and Geometric Measure Theory. In the last two years, working with Jose Maria Martell, Cao has moved from the classical Harmonic Analysis to the PDE and its connection with Geometric Measure Theory. In these fields, Harmonic Analysis plays a fundamental role where either the domains and/or the coefficients of PDE are rough. Some remarkable results have been established by studying the connection among the harmonic measure, the regularity of boundary and the solvability of elliptic equations on rough domains.

Cao has 19 publications and 8 preprints. Among these papers, some prestigious journals can be found such as Trans. Amer. Math. Soc., J. Funct. Anal., Rev. Mat. Iberoam., J. Fourier Anal. Appl., J. Geom. Anal., Forum Math. and so on. The excellent works enabled Cao to be awarded National Doctoral Scholarship (2016), Excellent Academic Scholarship (2017), Excellent Graduate Scholarship (2017), and Excellent PhD Dissertation (2019).

After graduation, Cao obtained three grants: China Postdoctoral Science Foundation (2018M643280), Severo Ochoa Postdoctor Program 2018 (ICMAT), and Juan de la CiervaFormacion 2018 (FJC2018-038526-I). Moreover, Cao participated in the projects: (1) PID2019-107914GB-I00, 2019-2022; (2) 20205CEX001, 02/2020-03/2021; (3) CEX2019-000904-S, 2020-2023; (4) NSFC11871101, 2019-2022; (5) NSFC11471041, 2014-2018.

Cao attended international academic conferences and gave talks for many times, for examples, Astala Lab AGAPI Days at ICMAT (2019), 5th East Asian Conference on Harmonic Analysis and Applications (2017), International Conference on Harmonic Analysis and Applications (2016), and 2nd East Asian Conference on Harmonic Analysis and Applications (2014). It is really helpful to broaden his horizon and provide him with opportunities to communicate with specialists in these

fields. So far, Cao has collaborated with 13 researchers from Argentina, China, Japan, Spain, and Sweden.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: **Ciencias matemáticas**
Nombre: COSSETTI , LUCREZIA
Referencia: RYC2021-032803-I
Correo Electrónico: lucrezia.cossetti@gmail.com
Título: Abstract commutator theory for non-self-adjoint operators

Resumen de la Memoria:

At the turn of millennium it became clear that going beyond the classical interpretation of observables as self-adjoint operators was a necessary step for a more satisfying description of quantum mechanics. The interest of the physics as well as the mathematics community to problems framed into a non-self-adjoint setting has been sharply increasing since that date. The purpose of our project goes in this direction: we aim at developing an abstract theory which provides conditions ensuring spectral stability of perturbed non-self-adjoint Hamiltonians. In other words, we aim at proving the non-self-adjoint counterpart of the Mourre theory of positive commutators which represents a cornerstone result in spectral theory for self-adjoint Hamiltonians. Due to the lack of highly self-adjoint-sensitive tools like variational methods and the spectral theorem, a cross-fertilisation of ideas and techniques, new and classical, from the areas of mathematical physics and partial differential equations will play a crucial role to maximise the potential of success of our project.

Resumen del Currículum Vitae:

The PI obtained her PhD in 2017 at   La Sapienza , University of Rome under the supervision of L. Fanelli with a thesis entitled   Lamé and ZK: Spectral Analysis and Unique Continuation . During the PhD program she became familiar with highly non-trivial tools in PDEs and spectral theory. The results obtained during the PhD became part of two papers (one of those single-author) published in high-impact journals. After the PhD, she was awarded a three months visiting fellowship at BCAM, later (2018-today) she has been appointed 3 postdoc positions, respectively in France, Czech Republic and Germany. The last one is still running (until June 2022). During these research positions she worked on different problems of mathematics and mathematical physics: resolvent estimates and application to spectral enclosures for non-self-adjoint operators, applicability of the method of multipliers in spectral theory, magnetic improvements over classical Hardy, Rellich and Hardy-Rellich inequalities, unique continuation principles for dispersive partial differential equations. The rich portfolio of solid knowledges and expertises she gained for solving these problems are a necessary background to address effectively the problem proposed in the project.

In spite of her early stage career, she is author of 11 papers (9 published, 2 preprints), 3 of those are single-author, moreover 3 in collaborations were initiated after PI s proposed projects. The independence that the PI showed so far is outstanding considering her young age. The most valuable publications in the research direction of the proposal have been published in Communication in Mathematical Physics, Proceedings of the London Mathematical Society, Journal of Differential Equations, Journal of Mathematical Analysis and Applications. The prestigious feature of these journal highlights the high quality of the research carried by the ER and the interest of the community to the proposed problem. She has also demonstrated to have communication and teaching skills: she has given more than 50 talks/seminar both at international conferences (FRA,GER,AUT,NPL,SWE,CHN,ITA,SPA) and at international institutions (GER,BRA, ITA,CHL,AUT,UK,CZK,FRA). She taught 7 courses within the areas of Analysis, Geometry and Operator Theory. She made 9 research visits (by invitation) at other research centres/ universities (CHL,GER,CZK,FRA,BRA,SPA). She has been organiser of two international conferences (ITA,CAN) and she is the current appointed organiser of the PDE seminar at her institution.

The curriculum of the PI provides strong evidence of her suitability for the Ramon y Cajal fellowship and it makes unquestionable that the PI represents the best research young profile to address the proposed project.

Área Temática:	Ciencias matemáticas
Nombre:	GARCIA JUAREZ, EDUARDO M.
Referencia:	RYC2021-032877-I
Correo Electrónico:	eduardo20289@hotmail.com
Título:	Analysis of Moving Interfaces in Incompressible Flows

Resumen de la Memoria:

My research revolves around the fundamental question "Do solutions to Partial Differential Equations break down?" Whether solutions corresponding to smooth initial conditions propagate their regularity for all time or, on the contrary, form finite-time singularities is yet unknown for the majority of nonlinear PDEs. The Navier-Stokes Millennium Problem makes clear the special role played by incompressible fluid mechanics, and the impact of these questions on physics and applications via its connection to turbulence. In particular, I study the evolution of free boundaries that arise as interfaces between incompressible flows (such as water waves, sharp temperature fronts, two-fluid interfaces). The PDEs involved are typically nonlinear and nonlocal, requiring tools from functional and harmonic analysis, dynamical systems, and numerical simulations.

My research is structured in three connected blocks: fluid-fluid interfaces (in collaboration with F. Gancedo), fluid interfaces in a porous medium (with F. Gancedo, N. Patel, and R. Strain, and also with J. Gómez-Serrano, H.Q. Nguyen, and B. Pausader), and fluid-structure moving interfaces (with Y. Mori and R. Strain). My research initially focused on three problems within the first two blocks: Navier-Stokes density patches and two-fluid Navier-Stokes free boundary (solving a two-decade-old conjecture by P.L. Lions), Boussinesq temperature fronts, and the Muskat problem for fluids in a porous medium. The techniques I introduced allowed to obtain global propagation of the regularity of the interfaces in critical spaces, without assuming any smallness assumption on the initial data. We could handle the additional nonlocal effects produced by viscosity contrasts, and we addressed additional questions such as large-time behavior or ill-posedness in unstable settings. These techniques are now being extended to analyze the more complex case of fluid-structure moving interfaces, a new line of research I started to pursue in my second year at the University of Pennsylvania. In particular, we connected the Muskat problem with the so called Peskin problem, that describes the movement of a membrane immersed in a fluid. This connection creates a path to analytically study the fluid-structure boundaries of biological origin, a necessary step to improve the numerical methods available. In particular, our result for the Peskin problem with viscosity contrast leads the way to consider the striking problem of inextensible membranes, where phenomena such as the tumbling/tunk-treading bifurcation only occurs when different viscosities are considered.
On the second block, very recently, we found the first self-similar solutions for the Muskat problem, intimately connected with the evolution and stability of corners. These results and the ones in progress, dealing with degenerate nonlocal parabolic problems, finite-time singularities, and the possible application of computer-assisted proofs in fluid-structure moving interfaces, comprises the core of my current MSCA-IF project CAMINFLOW.

The previous research has been published in high-level journals within Mathematics (Mem. Amer. Math. Soc., D1, Adv. Math., Q1), Analysis (Anal. PDE, D1) and Applied Mathematics (Arch. Ration. Mech. Anal., D1, Ann. PDE, D1, Commun. Math. Physics, Q1), and has been communicated among the main seminars in the area (see CVA).

Resumen del Currículum Vitae:

I obtained my degrees in Mathematics and Industrial Engineering at the Universidad de Sevilla (US) in 2014. During those years I got the grant Beca de Colaboración and an Intro. to Research grant. From 2014 to 2018, I completed my PhD with F. Gancedo (US). Next, I held a Hans Rademacher Instructor position at the University of Pennsylvania (UPenn) for two years and then I moved to the Universitat de Barcelona (UB), where I currently enjoy a Marie Sklodowska-Curie Individual Fellowship.

My research lies within the area of analysis and partial differential equations of physical origin. The focus is to determine if these equations have solutions for all time or, on the contrary, finite time singularities arise. In this sense, the Navier-Stokes Millennium Problem places incompressible fluid mechanics in a prominent position. In the last decades, the evolution of free boundaries between incompressible flows has proved to be a great source of results in both directions. During my PhD, funded by the national FPU grant, I first studied the evolution of fluid-fluid interfaces for the Boussinesq and Navier-Stokes models, resolving in the positive a conjecture by P.L. Lions from 1996. Additionally, during a research stay at UPenn, I initiated a collaboration with N. Patel and R. Strain. This collaboration yielded in the first result of global regularity in critical spaces for the interface between fluids of different densities and viscosities in a porous medium (the Muskat problem). These results were published in highest-level journals (Ann. PDE, Arch. Ration. Mech. Anal., Adv. Math.; Q1, two D1), and my thesis was awarded the Premio Extraordinario.

At UPenn, I published three results (Commun. Math. Physics, Q1, Mem. Amer. Math. Soc., D1, Anal. PDE, D1), one of them initiated in my stay at Princeton University (funded by the FPU travel grant). The third one created a new line on fluid-structure moving interfaces of biological origin, in collaboration with R. Strain and Y. Mori. In my third year, working in the ERC project of J. Gómez-Serrano at UB, and in collaboration with H.Q. Nguyen and B. Pausader from Brown University, we found the first self-similar solutions for the Muskat problem (Adv. Math.), which corresponds to corners at time zero. This is a promising first step in understanding the evolution and stability of corners for the Muskat problem, which are a class of low regularity interfaces at the forefront of current state-of-art. The international impact of these works was recognized by the MSCA committee, which awarded my proposal with an Individual Fellowship. Since Sep. 2021, I am the PI of the project CAMINFLOW (see C.3), with works in progress in collaboration with J. Gómez-Serrano, Y. Mori, B. Pausader, and R. Strain. From Sep. to Dec. 2021, I carried my research at ICERM in Brown U., and this is planned for next fall again.

I have given invited talks at Brown, Princeton, Chicago, among others (20 in total), coorganized the seminars PHD and Fluid Conversations at IMUS (Sevilla), the Analysis seminar at UPenn, the MathFluids workshop at IMUS, and a Special Session at SIAM PDE 2019 in La Quinta, California, with

funding from the AMS-Simons Travel Grant. I was math major advisor at UPenn, count with the Spanish accreditation Contratado Doctor, a teaching experience of 433 hours, and a wide experience in refereeing for journals.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Ciencias matemáticas**
Nombre:	ELDUQUE LABURTA, EVA
Referencia:	RYC2021-031526-I
Correo Electrónico:	evaelduque@gmail.com
Título:	Propiedades topológicas y analíticas de variedades algebraicas complejas

Resumen de la Memoria:

Soy una matemática que trabaja en teoría de singularidades. Los espacios singulares no son variedades diferenciables en general, pero están compuestos de capas singulares, los "estratos". Estos espacios aparecen de manera natural en distintos campos de la matemática pura, incluyendo la topología en dimensiones altas y bajas, la geometría algebraica, la teoría de números, la combinatoria, y también en áreas más aplicadas, como el estudio de los espacios que describen los movimientos de robots.

Mi trabajo está basado en ideas interdisciplinares que se encuentran en el punto de contacto entre la topología geométrica, la geometría algebraica y el álgebra homológica. Uso técnicas diversas que van desde los invariantes de teoría de nudos a los haces constructibles, pasando por los "multiplier ideals". Mi investigación tiene el objetivo de mejorar nuestro conocimiento sobre las propiedades topológicas y analíticas de las variedades algebraicas complejas. Mis contribuciones se pueden englobar en cuatro categorías diferentes: teoría de Hodge para módulos de Alexander, generalizaciones de invariantes de Alexander clásicos, homología de intersección y teoría estratificada de Morse, y log-resoluciones de singularidades.

--APORTACIONES CIENTÍFICAS--
Tengo 6 artículos publicados o aceptados para su publicación (4 en el Q1 según el SJR y/o JCR), en los que se usan técnicas muy diversas del campo de las singularidades. Uno de ellos (en el que, entre otras cosas, generalizamos la teoría de Deligne
sobre estructuras mixtas de Hodge a algunas variedades no algebraicas) aparecerá como un Memoirs de la AMS de más de 140 páginas. Tengo otros tres artículos que se encuentran en proceso de arbitraje. Uno de ellos ha recibido recientemente informe positivo de dos árbitros en la revista Mathematische Nachrichten (Q1 según el último índice SJR, de 2020).

--RELEVANCIA--
18 citas desde 2018, según Google Scholar.

Hasta la fecha, he dado 23 charlas sobre mi investigación, en congresos o seminarios organizados en cinco países diferentes: España, EEUU (siete estados diferentes), Francia, México y Rumanía.

--PREMIOS DE INVESTIGACIÓN--
"Elizabeth S. Hirschfelder Scholarship" (2017), (para mujeres que han demostrado un progreso excelente en su tesis), y el "Excellence in Mathematical Research Award" (2018), ambos del Departamento de Matemáticas de la Universidad de Wisconsin-Madison.

"Distinguished Graduate Speaker Award" (2018) en el congreso "Underrepresented Students in Topology and Algebra Research Symposium" (incluía dar una plenaria en el congreso).

--ORGANIZACIÓN DE EVENTOS CIENTÍFICOS--
Organizadora del congreso "Singularities in the Midwest (online edition)", mayo de 2021; tuvo 16 ponentes de universidades en 7 países distintos (Alemania, Bélgica, Canadá, España, EEUU, Francia, México).

Organizadora del seminario "Graduate/Postdoc Topology and Singularities Seminar" del Departamento de Matemáticas de la Universidad de Wisconsin-Madison durante 6 semestres (2016-2018).

--LIDERAZGO--
AMS-Simons Travel Grant, Simons Foundation: Proyecto individual destinado a jóvenes investigadores, convocatoria competitiva de la American Mathematical Society (AMS). 1/07/2020   20/8/2021, dotación de 5000 dólares. Desarrollado en la Universidad de Michigan-Ann Arbor.

Resumen del Currículum Vitae:

--FORMACIÓN ACADÉMICA--
Licenciada en Matemáticas por la Universidad de Zaragoza (2013). Nota media de 9,90, Matrícula de Honor en todas las asignaturas. Premio Extraordinario de Licenciatura, Premio Academia General Militar (al mejor expediente de la Facultad de Ciencias de la Universidad de Zaragoza) y (Tercer) Premio Nacional Fin de Carrera. Durante estos años, disfruté de una Beca JAE de Inicio a la Investigación (tutor: Orlando Villamayor Uriburu), y una Beca de Colaboración con el Departamento de Matemáticas de la Universidad de Zaragoza (tutor: Enrique Artal Bartolo). Premios en tres ediciones de la International Mathematics Competition (Third Prize) y en la Olimpiada Iberoamericana de Matemática Universitaria (Medalla de Bronce).

Máster Universitario de Matemáticas y Aplicaciones de la Universidad Autónoma de Madrid (2014), con una beca del Departamento de Matemáticas (como parte del Posgrado de Excelencia Internacional). Nota media de 9,72, calificación de 10 en mi trabajo fin de máster, titulado "Variedades Tóricas" y dirigido por Orlando Villamayor Uriburu.

--INTERNACIONALIZACIÓN--

Doctorado con beca de la Caixa de estudios de posgrado en América del Norte, en el Departamento de Matemáticas de la Universidad de Wisconsin-Madison, bajo la supervisión de Laurentiu Maxim. Departamento número 15 del mundo, según el ranking de Shanghai de matemáticas de 2021.

Postdoc de dos años en el Departamento de Matemáticas de la Universidad de Michigan-Ann Arbor (el número 27 del mundo según el ranking de Shanghai de 2021). Mi mentor fue Mircea Mustata.

Tengo colaboradores en las Universidades de Wisconsin-Madison, Northwestern, Michigan-Ann Arbor, Zaragoza y Autónoma de Madrid.

--DIVULGACIÓN (PARA JÓVENES DE SECUNDARIA)--

Semana de la Ciencia, Universidad Autónoma de Madrid (2021): Realización de taller.

"Madison Math Circle", Universidad de Wisconsin-Madison: Organizadora (2016-2019), cuatro charlas, organización de dos talleres sobre juegos matemáticos (Waunakee Library STEM day, Saturday Science at Discovery).

"Girls Math Night Out!", Universidad de Wisconsin-Madison: Mentora de proyecto durantedos semestres (2015, 2017). Ganadora del premio de divulgación "Mentor GMNO award" del departamento de matemáticas.

Taller de Talento Matemático de Aragón: 8 sesiones de una hora, y sesiones extra de preparación para la olimpiada nacional de matemáticas (2008-2013)

--DIVULGACIÓN ESCRITA--

Revista Matgazine. ISSN: 2174-503 X. 2011 2013 (revista de divulgación): Comité Editorial, sección entrevistas: Número 3 (entrevista al medallista Fields Efim Zelmanov), y Número 4 (entrevista al antiguo director de investigación del Instituto Clay de Matemáticas, David Ellwood). Artículo de divulgación: "El problema de 'doblar y un solo corte'" (Número 4).

Quinto apartado (Partículas en Movimiento) del Capítulo 5 del libro "Desafíos Matemáticos(propuestos por la Real Sociedad Matemática Española en su centenario)." Editorial: SM. Junto con Sofía Nieto Monje (2012).

--FORMACIÓN DE JÓVENES INVESTIGADORES--

Estoy dirigiendo un Trabajo Fin de Grado titulado "Aritmética y nudos".

Impartí un curso de doctorado online en 2020 de 10 horas (junto con M. Herradón Cueto) sobre nuestro artículo "Mixed Hodge structures on Alexander Modules", Instituto de Matemática Interdisciplinar de la Universidad Complutense de Madrid.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Ciencias matemáticas
Nombre: MAGLIOCCA , MARTINA
Referencia: RYC2021-033698-I
Correo Electrónico: martina.magliocca@gmail.com
Título: Nonlinear parabolic equations and Biomatemathics

Resumen de la Memoria:

Since the doctoral period, I have studied nonlinear parabolic equations with first order source terms, homogeneous Dirichlet boundary conditions, and unbounded data in Lebesgue spaces.
The particular class of equations I analyzed finds several applications (Physics, Control Theory).

Due to my interest in mathematical problems with real-life applications, I later approached to Biomathematics and Fluid Dynamics. I hence studied models describing crystal surfaces growth. I am currently analyzing some free boundary problems describing tumors growth and cell motility.

Please find more details in my memoria.

Resumen del Currículum Vitae:

I obtained my Bachelor and Master Degrees in Mathematics at the "Sapienza" University of Rome.
I obtained a PhD scholarship from the University of Rome Tor Vergata. Under the supervision of Prof. Alessio Porretta, I defended my thesis on April 20, 2017, obtaining the title of PhD in Mathematics with note   Excellent cum laude .

During the PhD period, I started studying nonlinear parabolic equations. Due to my interest in mathematical problems with real-life applications, I later approached to Biomathematics and Fluid Dynamics.

I taught several classes for a total of 202 hours, as Assistant Professor and Professor as well.

I gave talks as invited speaker in several Universities (Univ. of Granada, Univ. of Valencia, Univ. of Cantabria, "Sapienza" Univ. of Rome) and Conferences ("V Congreso de Jóvenes Investigadores de la RSME", "Recent Advances in Analysis, PDEs and Applications", "PDEs in Rome", "Congreso Bienal de la Real Sociedad Matemática Española 2022", "Singflows Conference" in Bordeaux).

I obtained two postdoctoral positions:
01/03/2019 29/02/2020: Postdoctoral Researcher, "Sapienza" Univ. of Rome, Italy;
01/04/2020 30/06/2022: Postdoctoral Researcher, Centre Borelli ENS Paris-Saclay, France.

I took part of the group "Problemi differenziali per operatori completamente non lineari fortemente degeneri   (Differential problems for strongly degenerate fully nonlinear operators), founded by GNAMPA (Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni), from 11/03/2019 to 10/03/2020.

I obtained two grants from the FMJH (Fondation mathématique Jacques-Hadamard) that I used to finance my two months stay at the Univ. of Cantabria, and to organize the course of R. Granero-Belinchón.

Please find more details in my CVA.

Área Temática:	Ciencias sociales
Nombre:	KRAFT , PATRICK WILLI
Referencia:	RYC2021-031784-I
Correo Electrónico:	kraftp@uwm.edu
Título:	Exploring the Psychological Underpinnings of Political Attitudes and Behavior Using Text-as-Data Methods

Resumen de la Memoria:

Exploring the Psychological Underpinnings of Political Attitudes and Behavior Using Text-as-Data Methods

My research is situated at the intersection of political psychology, causal inference, and quantitative text analysis. Across various projects, I leverage experimental designs, social media data, and natural language processing to explore the psychological underpinnings of political attitudes, reasoning, and behavior. In doing so, my research provides answers to urgent questions including how to effectively combat misinformation, how moral rhetoric exacerbates political polarization, or how to overcome gender biases in politics.

Throughout my work, I aspire to combine strong causal designs and advanced quantitative methods to answer substantive questions related to important social issues. In my dissertation, I investigate how citizens discuss their political attitudes in verbatim and justify their preferences in front of peers. Building on recent advances in quantitative text analysis and machine learning, I examine open-ended responses in surveys across the United States and Europe, conduct large-scale content analyses of individual media environments, and employ experiments involving group discussions. For instance, in a paper derived from my doctoral thesis, I analyze when and how citizens rely on moral considerations when describing their political preferences (published in the Journal of Politics 2018). The paper offers methodological improvements over previous studies and shows systematic differences in the types of moral arguments made by liberals and conservatives even when they are not explicitly asked about morality. Furthermore, I present new evidence that moral reasoning in politics is amplified by exposure to polarized media discourse.

Since joining the University of Wisconsin-Milwaukee as an Assistant Professor in Political Science, I have continued to build on the foundations laid out in my dissertation along three major lines of research. A unifying theme across all three research avenues is that they explore different ways to leverage open-ended measures, text-as-data, and causal inference to answer important questions in political psychology. Going forward, I intend to continue exploring new ways to incorporate text analysis methods to study the psychological underpinnings of political attitudes, reasoning, and behavior. By continuing this line of work, I hope that my research will inform the development of effective strategies to combat misinformation and polarization on contentious political issues.

Research areas:

1. Motivated Reasoning, Misinformation, and Political Discussions:
Political misinformation has become a growing concern among media pundits and the academic community alike. The goal of my first major line of research is to explore the psychological antecedents of misinformation, the role of selective media exposure, and the potential to correct misperceptions through political discussions.

2. The Politics of Morality:
A second and closely related line of research focuses on the role of morality in politics and how it contributes to political polarization.

3. Gender and Politics:
The third major line of my research focuses on gender inequality in political representation as well as other more subtle manifestations of gender bias in politics.

Resumen del Currículum Vitae:

My academic career began at the University of Mannheim (Germany), where I received my bachelor s (2011) and master s degree (2013, with distinction). During my master s, I was awarded a Fulbright Scholarship to spend two semesters abroad at Stony Brook University (USA), where I subsequently earned my PhD in political science (2018). My dissertation received the department s Milton Lodge Award in recognition of outstanding research. After graduating from Stony Brook, I accepted a position as Assistant Professor (tenure track) in the Department of Political Science at the University of Wisconsin-Milwaukee. Although my contract has been extended to the 2025 academic year (when I will go up for tenure), I decided to permanently relocate to Spain to be with my family.

My work has been published in leading international journals such as the Journal of Politics, Public Opinion Quarterly, and Political Science Research & Methods. My current research efforts combine my long-standing interest in deliberation and motivated reasoning with the important issue of political misinformation and its correction. Recently, I was able to secure a grant to fund a new project titled We Need to Talk: Correcting Misinformation Through Political Discussions ($120,000). Using a combination of natural, laboratory, and survey experiments, this project explores how different types of political conversations impact the spread (and potential correction) of people s misperceptions related to climate change and COVID-19.

I believe that being a good scholar not only consists of publishing and securing grants, but also requires engagement in institution building. When I started my position at the University of Wisconsin-Milwaukee, I founded the Experimental Politics Lab a collaborative research group open to graduate

students in the Department of Political Science. Through the lab, I have supervised six graduate students and two post-doctoral fellows working on various research projects, the first of which recently appeared in American Politics Research (2022).

My interest in political behavior and methodology is also reflected in my teaching experience. I have taught introductory courses on American Government and Politics, advanced undergraduate seminars on Political Psychology, as well as several graduate level courses on Research Methods and Statistics including an advanced PhD seminar on Computational Social Science. I have taught these courses in traditional face-to-face formats as well as online, which allowed me to develop and incorporate new teaching approaches such as podcasts and YouTube video lectures. Furthermore, I have served on six dissertation committees (one as chair and main advisor) and five master thesis committees.

Total production: 19 scientific publications
Total peer-review journal articles: 7 (5 JCR Q1, 2 JCR Q2, 1 TOP3 article)
Total book chapters: 2
Total published Working Papers: 10 (6 currently under review)

H Index and other impact indicators:
Total Citations Google Scholar: 313
H-index Google Scholar: 7
I10-index Gogole Scholar: 5

Área Temática: Ciencias sociales
Nombre: RODRIGUEZ DE DIOS, ISABEL
Referencia: RYC2021-033612-I
Correo Electrónico: isabelrd87@gmail.com
Título: Youth and Digital and Social Media, and Interventions using Narrative Persuasion

Resumen de la Memoria:

I am a Postdoctoral Researcher at the Department of Communication of the University Pompeu Fabra (PhD, 2018 University of Salamanca) and my research is in communication science and media psychology. My research line focuses on how young people use digital and social media, for what purposes and with what consequences (i.e., digital and social media effects), and on how the use of narratives (i.e., narrative persuasion) in digital environments might be effective for improving digital safety and their experiences in these platforms. To study this, I combine surveys (cross-sectional and longitudinal) with experimental designs. Throughout my research career, I have made theoretical and empirical contributions that have advanced knowledge in the field. For instance, I have developed and validated scales to measure different constructs related to youth and digital and social media. I have also developed theoretical models about the mediation role of adolescents digital skills on the relationship between parental mediation and online risks and opportunities. As for my narrative persuasion and experimental research, I have also tested the effectiveness of narratives in mobile applications or social media for social purposes, such as improving digital safety among adolescents. These results have been disseminated through several scientific publications, such as articles in prestigious journals (JCR and SJR), and oral communications in international conferences. Due to the societal relevance of this research line, I have also given talks in schools and my studies have received wide media coverage. My research line has been supported by a competitive research grant (La Caixa Foundation), fellowships (i.e., predoctoral and postdoctoral), and several international research collaborations (University of Amsterdam and KU Leuven). I have also participated in multiple funded research projects linked to youth and media, and to narrative persuasion, but also in studies about other research lines related to communication conducted through psychophysiological experiments.

Resumen del Currículum Vitae:

I am a Postdoctoral Researcher at the Communication Department of the University Pompeu Fabra. I started my scientific career in 2014 and completed my PhD in 2018 at the University of Salamanca. Since then, I have developed a strong scientific background and a solid international trajectory.

My research mainly focuses on two communication fields: adolescents and social media, and narrative persuasion. In my research I interconnect both fields by studying social media effects on adolescents (through cross-sectional and longitudinal surveys) and how the use of narratives may be effective in changing attitudes and behaviors in relation to their social media use (experimental research). During these years, I have communicated the results of my research through nearly twenty peer-reviewed publications, including articles in prestigious journals (JCR and SCOPUS). In almost half of these peer-reviewed publications (45%) I am the first author or the corresponding author. Moreover, and as a show of independence and leadership, eight of these publications are not co-authored by my PhD supervisor. Additionally, I have presented my research in 22 international peer-reviewed conferences.

I am the PI of a competitive research grant funded by La Caixa Foundation to study whether social media affects adolescents' well-being and loneliness. I have also participated as a researcher in five funded research projects with different PIs and institutions, among them three national I+D+i projects. The participation in such projects, coupled with the development of international collaborations, has allowed me to get an outstanding research experience. First, I have been a lecturer at the University of Amsterdam (1st top Department of Communication according to QS World University). During my time working at the UvA, I joined the Youth & Media Entertainment programme group. Prior to that, I did a research at this group in 2017, which resulted in several publications. I have also been a visiting researcher at the Institute for Media Studies (KU Leuven), in which I joined the Belgium research team of the project EU Kids Online. As a result of this stay, two papers were published. This international research collaboration network with leading researchers in adolescents and social media has been built independently.

Due to the social relevance of my research, I have also shared the results and conclusions of my studies with the public. First, my research has received media coverage from both national (e.g., RNE, La Sexta TV, La Vanguardia, etc.) and regional (e.g., ETB) outlets. Likewise, I have been invited to give talks in high schools to share my knowledge with adolescents. I have collaborated with the industry sector through a research contract as well.

As for my training of young investigators, I have successfully supervised 12 international Master s Theses. To date, at least one of them has resulted in a scientific article. Finally, I am a member of several communication associations, such as ECREA (European Communication Research and Education Association), and part of the expert panel from the State Research Agency, Social Sciences Area. Likewise, I regularly contribute as a peer reviewer for relevant journals in Communication, especially in those focused on youth and social media, such as Computers & Education and Computers in Human Behavior.

Área Temática:	Ciencias sociales
Nombre:	PORTOS GARCIA, MARTIN
Referencia:	RYC2021-032179-I
Correo Electrónico:	martin.portos.garcia@gmail.com
Título:	Desigualdades sociales y participación política

Resumen de la Memoria:

Martín Portos has been a Conex-Plus Marie Curie Fellow in the Department of Social Sciences, Universidad Carlos III de Madrid since October 2020. His research explores the relationship between social inequalities and political participation. In his PhD thesis defended at the European University Institute (EUI) in 2017 Portos focused on the mass protests that unfolded in Spain in the shadow of the Great Recession. He argued, and forcefully showed, that political dissatisfaction mediates the impact of socioeconomic grievances in periods of material hardship over time and across different levels of explanation. This dissertation, which won the Juan Linz Best Dissertation in Political Science Award and the ISA s Worldwide Competition for Junior Sociologists, has recently been turned into a single-authored monograph published with Palgrave Macmillan. The applicant both delved deeper into this main topic of inquiry and broadened his interests as a Research Fellow at the Scuola Normale Superiore in Florence (2016-2020) through his participation in the research teams of several EU-funded projects (ERC, FP7, H2020, but also Italian MIUR), in which he examined, e.g., how different sources of inequality intersect, the youth and generational dimension, and the reintensification of territorial cleavage for political mobilisation. As of today, the young candidate, just 32 years old, has an unusual track record of publications, counting 3 monographs with leading international publishers, 17 JCR-indexed peer-reviewed articles (14 of them are Q1/Q2 journals), 6 further Scopus/non-JCR peer-reviewed articles, and 7 chapters in international edited volumes.

Throughout his academic career, Portos has followed ambitious training programmes at top institutions (e.g., University of Oxford, EUI, University of Wisconsin-Madison), complemented with international high-profile collaborations and specialized training to improve his methodological skills in both quantitative and qualitative techniques in social science research. He has been able to secure funding and individual grants (e.g., MSCA/ Marie Curie, Caja Madrid, Salvador de Madariaga, CIS/ Centro de Investigaciones Sociológicas, Banco Sabadell, DAAD/ German Academic Exchange Service), strengthening his autonomy and leadership as an emerging scholar with international visibility. Finally, his relevant teaching experience and teaching awards, service to the profession, and engagement in dissemination activities and public debate complement the applicant s highly internationalized research profile.

Resumen del Currículum Vitae:

Martín Portos is CONEX-Plus Marie Curie Fellow in Social Sciences, Universidad Carlos III de Madrid. He holds an MRes & PhD in Political and Social Sciences from the European University Institute with a thesis that focuses on anti-austerity political mobilisations (2013, 2017). He also gained an MSc in Politics Research from the University of Oxford (2012), and a Degree (Grado) in Political Science from the U. de Santiago de Compostela (2011), for which he was awarded the Regional and First National Extraordinary Award for the best academic performance in the Social Sciences in Spain.

Despite his young age 32 years old as of today Martín Portos already has a relevant international track record of scientific production (3 monographs, 17 JCR articles, 7 chapters in edited collections, as well as 6 further peer-reviewed Scopus/non-JCR articles and a number of reports), developing a research agenda focused on young people s political participation, social movements, inequalities and nationalism. He has authored three monographs with international leading publishers (with Della Porta et al., in Policy Press/Bristol University Press, 2017, and Routledge, 2022). His first single-authored monograph was published with Palgrave Macmillan (2021). Academic articles appeared in peer-reviewed journals, e.g. Acta Politica; American Behavioral Scientist; European Societies; Information, Communication & Society; International Political Science Review; Mobilization; Politics; Regional Studies; Social Movement Studies; Territory, Politics, Governance; West European Politics, etc.

Overall, Portos production is gaining strong recognition and visibility (Google scholar citations 513/ h-index 13/ i10-index 20). A number of awards testify to the quality of his work: he won the ISA's Worldwide Competition for Junior Sociologists and the Juan Linz Best Dissertation Award in Political Science from the CEPC, Government of Spain. Between 2016 and 2020, he was Research Fellow at the Scuola Normale Superiore di Pisa, where he is still affiliated with the leading research institute on social movement research, COSMOS.

Portos has participated in several transnational and domestic projects funded by European, Italian and Spanish public and private institutions (e.g. ERC, FP7, H2020, Italian MIUR). He is the individual recipient of several prestigious postdoctoral, research and travel grants (e.g. Conex-Plus Marie Curie, Salvador de Madariaga, Fundación Caja Madrid, Obra Social La Caixa, Lady Allen and Linares-Rivas, the German DAAD, CIS). He is a member in good standing and is actively involved in some of the major organizations in the field, such as the American Sociological Association, CES and ECPR. Importantly, Portos participated in or organized over forty seminars, workshops, and panels at major academic meetings; acted as a peer reviewer for more than twenty top political science and sociology journals, and project proposals for different countries and funding authorities. Moreover, the candidate has teaching and mentoring experience, including supervision of undergraduate thesis, member of juries and PhD supervision (ongoing). He was awarded a Recognition for Teaching Excellence 2020/2021 from UC3M. Finally, he is involved in dissemination activities and contributions to the public debate through publications on leading professional blogsites and traditional media (e.g. LSE-EUROPP, ECPR-The Loop, El País, TVE-1, RSI Swiss TV and radio station).

Área Temática:	**Ciencias sociales**
Nombre:	ALVAREZ BENJUMEA, AMALIA
Referencia:	RYC2021-032079-I
Correo Electrónico:	amalvben@gmail.com
Título:	The erosion of social norms in modern democratic societies

Resumen de la Memoria:

I am a sociologist primarily working on economic and political sociology. I have an interdisciplinary background and employ theories and methods from sociology, political science, or behavioral economics. I seek to address research questions that are relevant to the public debate as well as the academy. I focus on empirical-analytical approaches and quantitative methods, especially, but not only, experimental and (quasi-)experimental designs. Most of my work explores the conditions under which social norms change, emerge, or erode. My main line of research, which I started during my Ph.D., investigates social norms stigmatizing the overt expression of prejudice, such as racism, xenophobia, or sexism. This line of research focuses on the role of social norms in the rise of hate speech in online contexts. It has produced three published papers and three unpublished manuscripts so far. Most of the studies use different online experiments to rigorously test my hypotheses, which helps me consolidate my expertise on online and lab-in-the-field experiments.

As a senior research fellow at the Max Planck Institute for research on collective goods, I have been working on extending this line of research into offline contexts and developing new tools to measure social norms of prejudice expression. I participate in several other projects. I was appointed associate researcher at the Laboratory of Agent-Based Social Simulation (LABSS) at the National Research Council of Italy (CNR) where I am currently working on a project investigating the role of social norms in the spread of misinformation online. Other projects include a series of field experiments investigating whether people would publicly sanction anti-authoritarian messages. Past research has established peer-sanctioning as an important driver of norm compliance, but there is little evidence using real-world evidence. All these projects are made in collaboration with scholars from different institutions. My research has gained international recognition as I have presented it at international conferences and published it in top peer-reviewed sociology journals as well as in multidisciplinary Journals. I have been invited to talk at several renowned universities, such as The Santa Fe Institute, Utrecht University, Mannheim University, and the Centre for Research in the Arts, Social Sciences, and Humanities at Cambridge University as an expert on online hate. Currently, I plan to continue working on my research on social norms, prejudice, and extremism, as well as on advancing the other projects. Besides, I also aim to bring forward the use of online experiments for social science and improve the tools for measuring social norms of public discourse.

Resumen del Currículum Vitae:

I am a senior research fellow at the Max Planck Institute for research on collective goods (Bonn. Germany). I am also a research associate at the Laboratory of Agent-Based Social Simulation (LABSS) at the National Research Council of Italy (CNR). Before, I completed my Ph.D. in 2019 at the University of Cologne (Germany) at the Cologne Graduate School in Management, Economics, and Social Sciences (CGS) under the supervision of Dr. Clemens Kroneberg and worked as a junior research fellow at the research group Mechanisms for normative change (head of the group: Fabian Winter) of the Max Planck Institute for research on collective goods. I have been a visiting fellow at the Norms and Networks Cluster (NNC) at the University of Groningen (2018, host: Prof. Dr. Andreas Flache) and at the department of sociology at New York University (2018, host: Prof. Dr. Delia Baldassarri).

My research career expands six years, four as a junior researcher and two as a postgraduate/senior researcher. My primary line of research (Social norms of public discourse) explores the role of social norms in the rise of online hate speech. This line of research is very fruitful with three published articles in Q1 journals, and 2 further manuscripts. One of the publications even before completing my doctorate. The results of this line of research have been presented at international conferences and published in well-known peer-reviewed sociology outlets, such as European Sociological Review and Social Science Research, as well as in multidisciplinary journals such as Proceedings of the National Academy of Sciences (PNAS). I also participate in several other projects both within and outside the Max Planck Society. My research has gained international recognition as I have presented my research at international conferences, such as the International Network of Analytical Sociologists (INAS), the ISA World Congress of Sociology, the International Meeting on Experimental and Behavioral Social Sciences (IMEBESS), or the Annual Conference of Experimental Sociology (ACES) among others. I have given invited talks as an expert on online hate speech at several renowned universities, such as The Santa Fe Institute, and the Centre for Research in the Arts, Social Sciences, and Humanities at Cambridge University, and invited to talk about my research on invited seminars in Maastricht University, LABSS, or Mannheim University.

Besides research, I have mentored graduate students who have developed their master thesis in my research group, with one of them successfully converting their thesis into a paper. I have also taught several courses at the postgraduate level teaching online and lab-in-the-field experiments. I have taught courses at Pompeu Fabra University in Barcelona, The Higher School of Economics in Saint Petersburg, and the computational Social science summer school at Maastricht University. I have also been an instructor for the DYNAMICS Ph.D. group at Humbolt University and Hertie school in Berlin. I am actively involved in the academic community by reviewing international sociological journals, such as European Sociological Review and American Sociological Review. But also for multidisciplinary journals such as PNAS and Nature, among others. I am part of the board of editors of Papers, Revista de Sociologia (ISSN 2013-9004). I have also been awarded and short

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Turno de Jóvenes Investigadores

Área Temática:	Ciencias sociales
Nombre:	TRIAS LLIMOS, SERGI
Referencia:	RYC2021-033123-I
Correo Electrónico:	strias@ced.uab.es
Título:	Unequal mortality dynamics

Resumen de la Memoria:

I am a demographer conducting research at the intersection between demography, social epidemiology and public health. My work has been focusing on studying mortality patterns and trends focusing on specific determinants or causes of death, such as lifestyle factors or, more recently, COVID-19 from a cross-national perspective. My work combines methodological demographic tools, with epidemiological techniques, which altogether serve me as a source of inspiration for adapting and developing new approaches for unrevealing population health issues, particularly from a cross-national perspective. Currently, I hold a Juan de la Cierva-formación fellowship (2021 & 2022). Furthermore, I am collaborating as a researcher within the ERC-CoG from Dr. Permanyer. Finally, I am leading a 1-year research project that received funding in a highly competitive La Caixa Foundation (success rate 4.8%), and I have been recently awarded the prestigious European Demographer Award 2022 for junior scholars.

My academic career has been highly international, including the prestigious European Doctoral School of Demography (EDSD), a PhD from the University of Groningen in 2019 (the Netherlands), a post-doc at the London School of Hygiene & Tropical Medicine (United Kingdom), and my current position as Juan de la Cierva researcher at CED (Spain). Over the past 9 years, I have been actively participating and contributing to national and international conferences in the fields of demography, population health and public health. I actively participate in scientific networks of specific population health topics within demography: EAPS Health, Morbidity and Mortality Working Group, the Multiple Causes-of-Death Network and the REVES Network on Health Expectancy.

My passion for research has moved me to lead and develop most of the key contributions in my CV. I have published a total of 29 publications (12 Q1 JCR, 19 Q1 SJR). My leadership in research can be quantified in 10 original research articles as first author most of them in Q1 journals-, six commentaries/editorials/short articles as first author, and five research articles as last author (senior author). My research has been cited 340 times according to Google Scholar (h-index of 11), and six of my first-author publications have been cited at least 20 times.

I have experience teaching courses at the Bachelor s (Political Science) and Master s level (in Demography and Health, and in Population Studies) in three different universities and countries (University of Groningen-NL, London School of Hygiene & Tropical Medicine-UK, and Pompeu Fabra University-ES), all with very high evaluations. I am currently co-supervising a post-doc, and I have supervised three master theses from the EDSD. In 2019, I obtained the Professor Lector (Assistant Professor) accreditation from the AQU, Government of Catalonia, Spain.

I am highly committed to serving academia within different positions. My work in service of the academic community includes being Co-Head of Health, Mortality and Causes of Death Research Group (CED-UAB). In addition, I was Remote Evaluator of the ERC Starting Grants SH3 (2020), and I am serving as Associate Editor in Public Health Reviews, and I am a regular reviewer for high-ranked demographic and population health journals.

Resumen del Currículum Vitae:

I am a demographer conducting research at the intersection between demography, social epidemiology and public health. My work has been focusing on studying mortality patterns and trends focusing on specific determinants or causes of death, such as lifestyle factors or, more recently, COVID-19 from a cross-national perspective. Through my research trajectory, I have been combining demographic with interdisciplinary approaches a source of inspiration for adapting and developing new perspectives for unrevealing population health issues, particularly from a cross-national perspective. My research trajectory can be split in four different stages.

First, alcohol and lifestyle-related mortality during my PhD researcher time. In 2019 I completed my PhD in Demography at University of Groningen (the Netherlands). My PhD promotor was Prof. Fanny Janssen. During my time as PhD researcher I participated in the VIDI research grant on lifestyles and mortality dynamics led by Prof. Fanny Janssen. I her project I have been involved in the methodological developments and approaches to be applied to various lifestyle factors in relation with their demographic impacts in terms of mortality.

Second, after completing my PhD I had the opportunity to join the London School of Hygiene & Tropical Medicine (LSHTM) as post-doctoral Research fellow (2018-2020). The LSHTM is renowned for its research and education continuing education on public and global health from a multi-disciplinary perspective. In this post-doc I was mainly collaborating with Prof. David Leon on risk factors, socioeconomic inequalities and cross-country differences in cardiovascular mortality in Russia.

Third, as a demographer, I put my knowledge, skills and expertise to the service of the scientific community and I lead several research articles to aware and inform scientists and societies about the COVID-19 consequences in terms of life expectancy dynamics. This research line allows me to publish several articles and to have several requests for interviews in national media.

Fourth, Over the last years, I have been broadening my research interests to morbidity and developing in-parallel research ideas and project proposals on: i) health inequalities; and ii) multi-morbidities and implications in terms of mortality dynamics and multiple causes of death. Ageing societies are rapidly changing the demographic profile of our societies, as well as it had implications on the morbidity profile of the populations since there is a growing number of individuals suffering one or multiple chronic conditions or risk factors. On the one hand, health inequalities can be considered the

most fundamental inequalities in life, and the morbidity prevalence increase of the population is not necessarily homogeneous across socioeconomic groups and does not necessarily mirror the observed mortality dynamics.

My diverse research trajectory and wide range of publications in major journals has allowed me to be well-known among social scientist and journalists interested in population health issues. My two PI and co-PI submissions for ERC-Starting Grant and Horizon-RIA as well as this Ramón y Cajal application will hopefully facilitate the four mentioned research lines at CED.

Área Temática:	Ciencias sociales
Nombre:	CABELLO VILLAREJO, VIOLETA
Referencia:	RYC2021-031626-I
Correo Electrónico:	Violeta.Cabello@bc3research.org
Título:	Knowledge co-production for governance of the water-food-ecosystem nexus

Resumen de la Memoria:

I am a social environmental scientist with an interdisciplinary background. I obtained natural science training during my graduate and postgraduate studies (Bsc in Environmental Sciences; Msc in Applied Ecology; Msc in Environmental Hydrology), together with social science and transdisciplinary training during my PhD in Human Geography at the University of Seville (2016). After completing my PhD with cum laude and an outstanding doctorate award, I refined my research focus on participatory knowledge generation for water governance in semi-arid areas as a postdoctoral researcher at the Institute for Environmental Science & Technology (Autonomous University of Barcelona) and at the Ispra Joint Research Center of the European Commission. My current research line, pursued as a Juan de la Cierva-Inc fellow at the Basque Center for Climate Change, is centered on knowledge co-production for governance of the water-food-ecosystem nexus.

Throughout my academic career, I have contributed to five topical research lines and pushed inter and transdisciplinary methods and theory within my field. I have specifically advanced the analysis of social-ecological systems in water governance and developed mixed-methods frameworks for the assessment of water policies and for interconnecting the governance of water, food, energy and ecosystems. I have pioneered research on the implications of the expansion of Information and Communication Technologies for water governance. In my current research, I apply participatory knowledge generation methods to explore wicked situations in which the expansion of agriculture in water scarce areas has created a threat to emblematic ecosystems, triggering social tensions and political polarization. At the moment, I am conducting an in-depth case study on the collapsing social-ecological system of the Mar Menor lagoon (Murcia, Spain). In the upcoming years, I plan to internationalize my research with 4 other Mediterranean cases.

I have published 14 articles in international peer-reviewed journals, 12 JRC-indexed. 10 of my articles are in Q1 journals (5 signed as first author and 4 as second author). Several of my first-authored articles are published in high-ranked journals, such as Sustainability Science (28/777 in Geography, Planning and Development), or Environmental Science and Policy (24/777 in Geography, Planning and Development; 25/289 in Management, Monitoring and Law). I co-edited 1 special issue in an international peer-reviewed journal, published 6 book chapters with prestigious publishers, 10 contributions to conference proceedings and 9 FP7/Horizon2020 project deliverables (3 as first author, 4 as second author).

I have conducted international research stays in India, United States (2), The Netherlands and Italy. I have lectured at universities and research centers in Ecuador, Bulgaria, Belgium, United States and The Netherlands. My international profile is also reflected in my participation in 4 European FP7/H2020 projects and in 28 presentations delivered at international conferences and invited seminars. Since 2015, I have been a member of the WATERLAT/GLOBACIT research network on water governance and I recently partnered with the PATHWAYS network on Sustainability Transformations and the European Knowledge Network on Climate Assemblies (KNOCA).

Resumen del Currículum Vitae:

I am a social environmental scientist with a research trajectory on water governance and co-production of knowledge for sustainability problems. I have specifically studied the interconnections between social water uses, environmental water requirements, impacts on aquatic ecosystems, water policies and technological innovations as environmental solutions, with a special focus on semi-arid areas like South-Eastern Spain, the Canary Islands and Arizona. My scientific contributions are reflected in 14 articles published in international peer-reviewed journals, 6 book chapters, 8 conference proceedings and 9 FP7/H2020 project deliverables. I have communicated my research in 14 international conferences and 14 invited lectures in international seminars. I have participated in the organisation of 6 international conferences, 2 as steering committee and 4 as scientific committee, and 2 conference sessions. To communicate my research to the wider public, I actively use a personal blog and a Twitter account, and I have produced 2 policy briefs, 2 radio podcasts and 2 press articles.

Through my academic career, I have conducted 5 international research stays and collaborated with scholars from the University of Arizona, University of Sophia (Bulgaria), the Centre National de la Recherche Scientifique (France), the Joint Research Center in Ispra (Italy), the James Hutton Institute (Scotland), the UNESCO Institute for Water Education, the Open University of Amsterdam (The Netherlands), and the University of Kalyani (India), in addition to national collaborations.

I have won five competitive grants, including La Caixa Predoctoral Fellowship, the national program FPU and Juan de la Cierva Incorporación. I have participated in 4 FP7/H2020 projects, contributed to two recently funded proposals (one national, one EuHorizon) and another 3 under evaluation. I have been employed as a postdoctoral researcher in the coordination group of the H2020 MAGIC (7.4M), where I have coordinated research in teams of 4-5 people. I have led research activities in two other European projects (SWAN and NEWAVE) and one national (Outonomy). I have worked as project manager of the FP7 project ALGATEC (1 M) and coordinated the Wikitoki Lab for Collaborative Practices.

As part of my academic activities, I have frequently collaborated with public institutions, practitioners and grass-roots organisations. I have designed and facilitated more than 30 participatory workshops in academic projects and institutions. I am a member of the Coordination Panel of the Spanish Citizen Assembly for Climate Change launched by the Ministry for Ecological Transition (2021-2022). I have collaborated with water authorities in a knowledge transfer project on Open data in the water sector in Spain . I have co-created a digital atlas for mapping social conflicts related with water governance in Andalusia and transferred it to an environmental organisation. I have shared my research outcomes with public authorities in Tucson (Arizona), the Canary Islands and Spain. I have supervised 1 MSc thesis and participated in 2 MSc thesis tribunals. I frequently revise manuscripts for indexed journals (16 recognised revisions) and have been once revisor for H2020 projects.

Área Temática:	Ciencias sociales
Nombre:	VARVAROUSIS , ANGELOS
Referencia:	RYC2021-034401-I
Correo Electrónico:	aggelosvar@gmail.com
Título:	Post-Growth Spatial Development

Resumen de la Memoria:

I am a social scientist on spatial development and sustainability science. My BSc was in civil engineering with a focus on spatial planning and architectural technology. In my MSc studies I was further trained in Urban Planning and Regional Development, I incorporated human-nature interactions in my view, and I did my thesis on Degrowth and Decentralization. In my PhD and post-doc studies at ICTA/UAB, I further developed this research line by incorporating sustainability approaches such as Political Ecology, the Commons, Alternative Economics, and Post-Development studies. In my research stay in Austria at the Institute of Social Ecology, I further enhanced the interdisciplinarity of my approach with the fields of Social Ecology and Island Studies. The outcome of this rich mixture of complementary focuses is a very novel and solid research framework that can be framed as Post-Growth Spatial Development and seeks to understand how places are being produced in conditions of multidimensional crises, what is the role of collective action in this production, how and why spatial injustices are being reproduced and multiply, and what can be the institutions and social processes needed for a wide socioecological transformation at different geographic scales.

My 5 most important achievements include:

i.	Creating a new theoretical framework that I call the Liminal Commons for understanding and conceptualising community-based resource management that goes beyond Ostrom s tradition and is inscribed in the field of the Political Ecology of the Commons.

ii.	Contributing to the study of crises by offering a new reading of crisis-ridden social and spatial destabilizations that incorporates elements from political anthropology, post-development studies, and decolonial thinking.

iii.	Pioneering the study of Spatializing Degrowth by examining how the degrowth theory and practice can inform the creation of a radical spatial agenda for both urban and rural geographies.

iv.	Pioneering in bridging Social Movement Studies and the Theory of the Commons to better understand how different modes of collective action can foster societal transformation.

v.	Leading the systematic mapping and conceptual and institutional clarification of the field of Social and Solidarity Economy at the national and EU level and contributing to the conceptualization of platform cooperativism.

The high impact of my achievements is illustrated in the number of my past and ongoing publications: 1 monograph in a major academic publisher, 8 peer-reviewed articles (6 Q1), 7 book chapters in academic publishers with referees, 2 organizations of Special Issues in Q1 journals, 1 co-authored book with Prof. Manuel Castells, 2 edited volumes as sole editor, 3 International Policy Reports funded by EU, 1 book in Greek, and 246 citations only 3 years after completing my PhD. The internationalization is evidenced in my 14 international conferences oral presentations, in my academic positions in Greece and Spain and in my research stays in Austria, the US, Netherlands, and the UK. My leadership skills are evidenced in raising 232.000 either as PI or lead author of research proposals and in being the Director of an ICTA/UAB Master's Programme. The quality of my teaching is evidenced in the 16 master theses I have supervised and my exceptional feedback grades (average: 4.62/5).

Resumen del Currículum Vitae:

I am an urban studies scholar with an interdisciplinary background. Currently, I am a Post-Doc Researcher at ICTA/UAB in Spain leading an Erasmus+ project for UAB on Social Economy. In parallel, I am the Director of the master s programme of ICTA/UAB on Degrowth: Ecology, Economics, Policy that hosts the most renowned academics in the field globally. Since 2020 I am an Associate Professor of Spatial Development at HOU/Greece and a Visiting Lecturer at the Tilburg University/Netherlands. Since 2013, I am a core member of Research and Degrowth which is the leading think tank in the field globally. From 2020 to 2021 I was the PI of the Action Research Project Islands of Hope, which was awarded a very competitive pan-European Civic Europe grant (15 projects out of 789 proposals). From 2018 to 2020 I was a Post-Doc Researcher and the Coordinator of the project COSMOS on the commons funded by MINECO and hosted by ICTA/UAB. During my PhD, I was the Research Coordinator of the project SINALECO on alternative economies, also funded by MINECO and hosted by ICTA/UAB. In both cases, I was the lead author of these proposals. In 2019 and 2017, I have been the PI of 2 research projects (after being successfully ranked 1st in competitive open calls), the 1st directly from the EU and the 2nd from the British Council/EU. Both projects produced mapping studies on Social Economy in Greece that remain core references for public policy at both the Greek and the EU level. Between 2016-2019, I worked closely with Prof. Kowalski of the BOKU University/Austria in the project SUSAKI on Island Sustainability. From 2014 to 2017 I was a member of the Alternative Economics Group of the Fondation Maison des sciences de l'homme/France led by Prof. Manuel Castells, which produced a book published by Polity Press. In addition, since 2018 I am the leading curator of all the research projects related to Athens (coded as HackAthens) at the Onassis Cultural Centre (Athens/New York). In 2013, I was awarded a scholarship from the State Scholarships Foundation/Greece ranked 15th among 2554 candidates. I have published 8 scientific empirical peer-reviewed articles in international journals (6 of them Q1). In 5 of them, I was the first author and in 2 I was the sole author. Since 2017, I also published 7 book chapters in prestigious academic publishers such as Polity Press, Elgar, and Routledge. In addition, I have been the sole editor of the award-winning book To whom does Athens belong? , which received the critiques appraisal for its content. Most importantly, in 2022 I published 1 monograph titled Liminal Commons , in the top book series in the field of the commons by Bloomsbury Academic Publishing. In my ongoing projects, I am an editor of a SI in Urban Studies (Q1 IF:4.663) on Degrowth and Urbanization, which is expected within 2022; in another SI in Performance Research (Q1) on Social Imaginaries and Commoning expected in 2023; I am the sole editor of a book on Post-Pandemic Cities . I have presented in 14 international conferences since 2014; organized 2 international conferences in 2016 and 2017; chairing an upcoming conference at the University of Amsterdam on Degrowth and Urbanization; organized 3 International Summer Schools in Greece and Spain. I have 246 citations (h-index:8; i10-index:8) only 3 years after completing my PhD. In teaching, I am receiving excellent feedback scores (average 4.62/5) and I have supervised 16 Master Theses.

Área Temática:	Ciencias sociales
Nombre:	VILLAVICENCIO , FRANCISCO
Referencia:	RYC2021-033979-I
Correo Electrónico:	villavicencio@tutamail.com
Título:	Demographic methods for a better understanding of population dynamics

Resumen de la Memoria:

In September 2013, thanks to a grant from the German Academic Exchange Service (DAAD), I started doctoral research at the Max Planck Institute for Demographic Research in Rostock, Germany. In January 2015, I obtained funding from the SDU eScience Center to enrol in the PhD program at the Faculty of Science of the University of Southern Denmark, and pursued research in Odense under the supervision of Dr. Fernando Colchero.

I received my PhD in Statistics in July 2017 with the dissertation "Methods to Analyse Sparse Demographic Data: From Bayesian Inference to Agent-Based Modelling". The main contribution of the thesis is the development of methods to analyse demographic data that, due to their complexity or incompleteness, could not have been analysed with other standard tools. Four topics are addressed: (1) record linkage; (2) Bayesian inference; (3) mathematical demography; and (4) agent-based modelling. The thesis provides an overview of the theoretical foundations behind each of these four methodological approaches and develops specific applications for the solution of particular data problems.

In Aug 2017, after completing the PhD, I started a post-doc position at the Interdisciplinary Centre on Population Dynamics of the University of Southern Denmark. In this career stage, I further developed two lines of research linked to the topics addressed in my PhD: Bayesian statistics and mathematical demography. Moreover, I began to have strong interest on human longevity and old-age mortality.

Between Jan 2019 and Apr 2021 I was Assistant scientist at the Department of International Health of the Bloomberg School of Public Health, Johns Hopkins University, in Baltimore, USA. In this career stage I started a new line of research: estimation of causes of death among children and adolescents from 0 to 19 years of age. My appointment was mainly funded by a grant from the Bill & Melinda Gates Foundation, and we worked in close collaboration with the World Health Organization.

I resigned from my position at Hopkins after being granted a Juan de la Cierva fellowship. I joined the Centre d Estudis Demogràfics (CED) in Barcelona in May 2021.

My quantitative background has consistently been an asset in my career, but always focusing on applications to social sciences, particularly to demography, and public health. Mathematical demography and the application of Bayesian statistics to population studies have been the main areas of interest throughout the years. However, my research interests have evolved over time: During my PhD I was interested in historical demography and agent-based modelling but did not do much research on these topics afterwards; during my first post-doc I became interested in human longevity, lifespans and health inequalities, and non-human populations; at Johns Hopkins University the focus was on public health and the estimation of causes of death.

In the upcoming years, I aim to continue working with colleagues at Hopkins, Denmark, and CED, and conduct research on cause of death estimation, longevity, and inequalities in human lifespans and health. I will work on expanding my scientific network, further develop my own research agenda independently, and apply for an ERC Starting Grant in 2023.

Resumen del Currículum Vitae:

I am a demographer, statistician and data scientist interested in the study of how population dynamics affect public health and ageing. My research focuses on the development of methods to analyse incomplete demographic data, with especial emphasis on mortality, causes of death and longevity. I hold degrees in both Geography (2009) and Mathematics (2010), a Master in Population Studies (2011) and a European Master in Demography (2013) from the Universitat Autònoma de Barcelona. I received my PhD in Statistics from the University of Southern Denmark in 2017 with the dissertation "Methods to Analyse Sparse Demographic Data: From Bayesian Inference to Agent-Based Modelling". I am currently a Juan de la Cierva fellow at Centre d'Estudis Demogràfics (CED) in Barcelona.

Since 2015 I have contributed 13 scientific articles and 5 book chapters, being 1st leading author in 5, co-first author in 1, and 2nd author in 8. These works have been published in highly prestigious journals such as PNAS, Lancet Child & Adolescent Health, Nature Communications, Philosophical Transactions of the Royal Society B, and Demography. Two additional papers have been accepted for publication in Lancet Global Health (in which I am co-first author) and The Lancet. As of 1 Feb 2022, my work has been cited 256 times and have a h-index of 9 (Google Scholar). I have also presented research in several international conferences and workshops, including the European Population Conference, the Population Association of America Annual Meeting, and the IUSSP s International Population Conference, the main and most prestigious scientific meetings in the field.

For the last 8 years I have worked and conducted research in 4 institutions from 4 different countries: Max Planck Institute for Demographic Research (Germany), University of Southern Denmark (Denmark), Johns Hopkins University (USA), and CED in Spain. Moreover, in 2018 I did a six-week research stay at Duke University (USA), and between Oct 2021 and Jan 2022 I was Adjunct professor at the Universitat Pompeu Fabra.

My quantitative background has consistently been an asset in my career, but always focusing on applications to social sciences, and demography in particular. I have been co-investigator in 7 major projects funded by the European Research Council, the US National Institutes of Health, and the Gates

Foundation, and collaborated with the World Health Organization. While working in these projects I also gained experience in management and grant-writing applications.

Thanks to all this international experience I have built a remarkable network of scientific collaborations. To date, I have co-authored works with more than 60 scholars around the globe. Parallel to the projects in which I have been co-investigator, I have always tried to work with researchers from outside my home institutions, keeping some independence and developing my own research agenda.

My research career has grown together with a strong commitment to teaching and knowledge dissemination. I have taught demography, mathematics, statistics, and R programming at bachelor, master, and doctoral levels in all the institutions I have been affiliated to. I have also been the master thesis supervisor of two students at the European Doctoral School of Demography. In Nov 2019 I obtained the lecturer accreditation from the AQU Catalunya agency.

Área Temática:	**Ciencias sociales**
Nombre:	ACOSTA GUTIERREZ, JAIME ENRIQUE
Referencia:	RYC2021-032210-I
Correo Electrónico:	acosta@demogr.mpg.de
Título:	Analysis of extrinsic mortality trends

Resumen de la Memoria:

My contributions to social science include advances in mortality modeling of long-term cohort scarring, short-term mortality shocks, and child mortality, data visualization, high-frequency high-impact global data collection and harmonization, mentoring promising young researchers, and open science best practices at all stages of the research process.

Today, my agenda stands on all of these contributions, which are well-known among the international community of demographers and epidemiologists. My dissertation research (U. Montréal, Canada) focused on influenza and behaviorally-driven mortality and the long-term cohort burdens (and protections) and health inequalities from these underappreciated causes, leading to 5 Q1 publications. These interests brought me to join the Research Group on Lifespan Inequalities at the world-leading Max Planck Institute for Demographic Research (Germany), where I developed and applied cutting-edge award-winning mortality modeling and visualization techniques, leading to 2 Q1 publications on age-period-cohort aspects of cause-of-death mortality.

I continued as a Research Scientist in the Laboratory of Population Health in the same Max Planck Institute, where I have maintained my cohort excess mortality modeling agenda alongside a productive and high-impact COVID-19 agenda. I took a leading role in the global effort to monitor the pandemic in four main ways: 1) by co-founding and directing the high impact project COVerAGE-DB, a global demographic database of COVID-19; 2) by leading an open letter calling on Latin American governments to take action early in the pandemic; 3) by coauthoring 8 Q1 papers and 8 preprints on diverse social and demographic perspectives on the pandemic; 4) by leading several projects to estimate excess mortality with national and multilateral organizations. My nascent research trajectory has led to 16 publications (14 Q1) and 1 book chapter (450 citations and an h-index of 8).

My research production follows the Open Science principles by publishing in Open Access journals and including reproducible materials to guarantee transparency and facilitate access to data and methodological tools.

I have experience in teaching demography and mentoring young researchers. I have a faculty position at the International Max Planck Research School for Population, Health, and Data Science (Germany), where I co-supervise 2 PhD students (Adarsh   U. St Andrews, UK, and Lauren Bishop   U. Stockholm, Sweden) and lecture Mortality Trends. I also co-supervise Gonzalo de Armas, a PhD student at the Universidad de la República (Uruguay). I am regularly invited as a lecturer at the U. Montréal (Canada), U. Nacional de Córdoba (Argentina), and U. República (Uruguay).

The RyC fellowship will allow me to continue and grow this agenda from Spain, where I have already developed strong collaborations with researchers at CED, U. País Vasco, and U. Pompeu Fabra. This includes high impact publications, continued leadership in the global effort to monitor the short and long term demographic effects of the pandemic, third-party funding to support a research team and mentorships, expanded journal editorship roles, higher organization roles in discipline associations, and increased cooperation between academia and global organizations, including the WHO and UNICEF.

Resumen del Currículum Vitae:

I am a demographer, currently working as a Research Scientist at the Max Planck Institute for Demographic Research in Germany. I specialize in the analysis of mortality trends, epidemic and pandemic mortality; cohort (generational) influences on mortality; and the drivers of behaviourally-driven causes of death. Methodologically, I have developed new techniques to study Age-Period-Cohort effects on mortality; and am an expert in the measurement of excess mortality.

I have published 16 scientific articles in the leading journals of demography, epidemiology, and general science, 1 book chapter, and 8 working papers. 14 of my 16 peer-reviewed publications appeared in Q1 journals. In total, these articles have been cited 417 times with an h-index of 7 (Google Scholar). These include publications as the 1st and co-1st author in top journals such as Demography, PNAS, and International Journal of Epidemiology. I have experienced substantial international mobility, by studying in Colombia and Canada, and researching and teaching at institutions in Germany, Canada, Uruguay, and Argentina.

I co-founded and currently direct the research project COVerAGE-DB, a global database of demographic data about COVID-19. In this project, I coordinate a large and diverse international team of 75 researchers, affiliated with 29 leading institutions in the field in 20 different countries. This project has received 300,000 EUR in funding from the MPIDR.

During my PhD, I obtained two highly competitive doctoral scholarships (SSHRC, 105,000 CAD; MPIDR, 35,000 EUR). Afterward, I was awarded two prestigious Canadian postdoctoral scholarships (SSHRC and FRQ, 110,000 CAD).

I am currently collaborating with UNICEF for the measurement of the pandemic impacts on child mortality. I am an observer member of the WHO - Technical Advisory Group on estimating COVID-19 Excess Mortality. I also worked with the Quebec Statistical Institute (Canada) to design a model for excess mortality estimation and with the DANE (Colombia) to implement demographic methods for mortality estimation. I am also a member of the Early Career Taskforce of the International Union for the Scientific Study of Population (IUSSP).

I have taught at the Master s and PhD levels, with excellent evaluations. During my PhD, at the Université de Montréal, I worked as a substitute lecturer of Statistical Methods. Since 2019, I am an active faculty member of the International Max Planck Research School for Population, Health, and Data Science. In this program, I co-supervise 2 PhD candidates (Adarsh Adarsh   U. St Andrews, and Lauren Bishop   U. Stockholm), and I am a regular lecturer of the course Mortality Trends. Within the project COVerAGE-DB, I trained and directly supervised database coordinators, as well as 11 research assistants in data collection, management, and analysis. I led the organization of the 2021 Rostock Retreat on Visualizing Uncertainty. Within the IUSSP - Early Career Taskforce, I co-lead a project to democratize knowledge through a series of open-access online training courses on different topics.

I have participated in selection committees for PhD students at the PHDS program and evaluated research projects for the funding program BRAIN-be 2.0 (Belgium). I was guest editor of a special issue for the Canadian Population Studies, and regularly review articles for top journals in the field.

Área Temática:	Ciencias sociales
Nombre:	RUTIGLIANO , ROBERTA
Referencia:	RYC2021-033136-I
Correo Electrónico:	r.rutigliano@rug.nl
Título:	Fertility and Family Ties

Resumen de la Memoria:

My main research interests are fertility and family dynamics in low-fertility contexts, with a special focus on the role of intergenerational relationships and public policies in women s work-family reconciliation strategies. My doctoral thesis focuses on the influence of parental support on adult children's entry into parenthood. My past research has led me to slightly shift the focus of my ongoing and future research to the transition to motherhood, and the effects that parental support over time might have on this transition.

These interests have produced outstanding solo-author as well as co-authored publications in the top ranked journal of my field. Currently, I am collaborating on an ERC-Advanced Grant Family Ties that binds at the University of Groningen, and on one other project about the relationship between fertility, levels of education and women s inequalities. In the latter, I carry out fertility-related research. Thanks to my international network (see below), I have several ongoing collaborations with international scholars.

My current and future research focus on better understanding the consequences of intergenerational relationships on both women s entry into motherhood and their health trajectories. Specifically, the literature about (grand)parental help is mainly focused on the impact of free childcare on families economic budget constraints. However, (grand)parents are also providing emotional support. This type of help has been neglected in the recent demographic literature.

A first future line of research is to systematically investigate the role of grandparental support in the transition to childbirth. Childbirth is an important individuals life transition as it significantly affects individuals identities and well-being. Both emotional and material support are crucial for individual wellbeing. This latter aspect has been extensively studied in psychology but not in demography. This represents a compelling topic for advanced societies, given the increasing share of elderly people, the decreasing number of children per woman, and the weak family policies.

Furthermore, this year I have submitted an ERC Starting Grant application about delayed fertility and women s well-being.

Resumen del Currículum Vitae:

I am a social demographer with a strong background in economics, demography, and sociology, and who has studied and worked at several highly ranked European institutions and programs. Currently, I hold a permanent position as Assistant Professor in the Department of Demography at the University of Groningen. My position combines teaching duties (60%), research (30%), and organizational tasks (10%).

My main research interests are fertility and family dynamics in low-fertility contexts, with a special focus on the role of intergenerational relationships and public policies in women s work-family reconciliation strategies. My PhD focuses on the influence of parental support on adult children's entry into parenthood. My past research has led me to slightly shift the focus of my ongoing and future research to the transition to motherhood, and the effects that parental support over time might have on this transition. These interests have produced outstanding solo-author as well as co-authored publications in the top-ranked journal of my field. Currently, I am collaborating on an ERC-Advanced Grant Family Ties at the University of Groningen, and on one other project about the relationship between fertility, levels of education and women s inequalities. Thanks to my international network, I have several ongoing collaborations with international scholars. Furthermore, this year I have submitted an ERC Starting Grant application about delayed fertility and women s well-being.

Publishing record
Despite being an early-stage researcher, and having a heavy teaching load in my current position, I published several articles in Q1 journals as a first or a corresponding author, including a solo-authored publication in Demography, the top journal in the field of demography; a shared first authorship as a corresponding author of a paper in the Journal of Marriage & Family; and the first authorship of an article in the European Journal of Population. I have also been involved in the publication of a book chapter about the Spanish fertility gap edited by the prestigious La Caixa Foundation. My research has been cited 116 times according to Google Scholar (h-index: 5), and I expect this number to rise rapidly due to my recent publications, and to work that is currently under review at major journals (four manuscripts), and that I hope will be published in the upcoming months.

My research about fertility and intergenerational relationships has been covered by different media outlets, including Population Europe, the most renowned network for population studies.

Currently, I teach courses on statistics, demography and research methods at both master and bachelor levels. I have been enjoying teaching tremendously and this was well-recognized by the students as three of my courses were in the top-three best-evaluated courses. Furthermore, I am the coordinator of the population studies master theses, and I supervise master theses myself. Finally, I have earned a University Teaching Qualification.

Área Temática: Ciencias sociales
Nombre: PANNICO , ROBERTO
Referencia: RYC2021-033595-I
Correo Electrónico: robertopannico@libero.it
Título: Public Opinion

Resumen de la Memoria:

I hold a PhD in Political Science (with International Mention) from Universitat Autònoma de Barcelona, a Master degree from Universitá di Siena and bachelor degree from Universitá di Napoli L Orientale . After completing my PhD, I joined the Instituto de Ciencias Sociâis da Universidade de Lisboa as a Post-Doctoral Researcher in the ERC Project   "Measuring and analysing the politicisation of Europe before and after the Eurozone crisis (MAPLE)". Starting from March 2022, I will be a Beatriu de Pinós Fellow at the Universitat de Barcelona. I have also been a visiting PhD student at the New York University and at the Aarhus University.

My research concerns public opinion and political behaviour, with a particular but not exclusive focus on voters   relation with the European Union. In particular, my activity concentrates on the following issues: (1) the ability of political parties to shape citizens   attitudes (2) the (electoral) consequences of EU integration on national politics (3) citizens   attachment to new parties (4) the electoral consequences of terrorism. On these topics, I have published one book chapter and 6 articles in flagship journals such as British Journal of Political Science, Electoral Studies, European Union Politics, and West European Politics. This publication record includes both co-authored and single-authored works.

I am currently involved with different roles in several research projects. In my current position as Post-Doctoral Researcher for the ERC Maple Project, I have been the primary responsible for the experimental part of the project. I led the processes of design, programming, testing, data collection and data analysis of different multi-country survey experiments with innovative designs. Starting from March 2022, I will be the principal investigator (PI) of the project   Almost straight to the target? Intended and unintended consequences of Eurosceptic party messages in Western Europe , funded by the Beatriu de Pinós fellowship. The project introduces the innovative idea that the differences between left-wing and right-wing Eurosceptic parties might be misunderstood or not perceived by voters, giving rise to unintended consequences of party massages. Finally, starting from September 2022 I will also be in charge for the experimental part of the project   There is no alternative? Economic choice perceptions and their role for democratic support and voting behaviour in the Eurozone bailout countries , led by Lea Heyne at the ICS- University of Lisbon.

Resumen del Currículum Vitae:

I currently am Post-Doctoral Researcher for the ERC MAPLE project at the Social Sciences Institute of the University of Lisbon. Starting from March 2022, I will be a Beatriu de Pinós Fellow at the University of Barcelona. In 2017 I was awarded a PhD in Political Science (with International Mention) from the Autonomous University of Barcelona. I have also been visiting PhD student at the New York University (USA) and the Aarhus University (Denmark).

I am a political scientist specialised in the study of public opinion. My research has a particular but not exclusive focus on voters   relation with the European Union. In particular, my activity concentrates on the following issues: (1) the ability of political parties to shape citizens   attitudes (2) the (electoral) consequences of EU integration on national politics (3) citizens   attachment to new parties (4) the electoral consequences of terrorism.

On these topics, I have published 6 articles in peer-reviewed international high-impact journals (all SJR Q1 journals and 3 of them JRC Q1 journals) such as West European Politics, British Journal of Political Science, European Union Politics, and Electoral Studies. Two of these articles are single authored. I have also published a book chapter for Edward Elgar and several scientific-technical reports. For my internationals publications, in 2020 I received, together with other researchers of the institute, the award   Prémio Estímulo e Reconhecimento da Internacionalização em Ciências Sociais (ERICS) from the ICS   University of Lisbon.

I am currently involved with different roles in several research projects. In my current position as Post-Doctoral Researcher for the ERC Maple Project, I have been the primary responsible for the experimental part of the project. I led the processes of design, programming, testing, data collection and data analysis of different multi-country survey experiments with innovative designs. Starting from March 2022, I will be the principal investigator (PI) of the project   Almost straight to the target? Intended and unintended consequences of Eurosceptic party messages in Western Europe , funded by the Beatriu de Pinós fellowship. The project introduces the innovative idea that the differences between left-wing and right-wing Eurosceptic parties might be misunderstood or not perceived by voters, giving rise to unintended consequences of party massages. Finally, starting from September 2022 I will also be in charge for the experimental part of the project   There is no alternative? Economic choice perceptions and their role for democratic support and voting behaviour in the Eurozone bailout countries , led by Lea Heyne at the ICS- University of Lisbon.

During my academic career, I have established and maintained collaborations with scholars from different institutions in different countries: Marina Costa Lobo and Lea Heyne (Institute of Social Science   University of Lisbon), Jordi Muñoz and Albert Falcó-Gimeno (University of Barcelona), Eva Anduiza and Henrique Hernandez (Autonomous University of Barcelona). The international character of my profile is also attested by my activity as reviewer for international journals (e.g. APSR, EJPR, WEP, EUP, PP) and my regular participation at international conferences (e.g. IPSA, EPSA, ECPR, SGEU, ISPP, IMEBESS, CES).

Área Temática:	Ciencias sociales
Nombre:	LAVIZZARI , ANNA
Referencia:	RYC2021-032917-I
Correo Electrónico:	lavizzari.anna@gmail.com
Título:	Gender, political participation and protest

Resumen de la Memoria:

I am a Postdoctoral Research Fellow at the Faculty of Political and Social Sciences   Scuola Normale Superiore (Italy) where I am affiliated with the leading research institute on social movement research in Europe, the Centre on Social Movement Studies (COSMOS). Since the beginning of my doctoral research, I implemented interdisciplinary research and teaching for the study of political participation and contentious politics, with a notable attention to gender aspects and dynamics. My work has opened an innovative research agenda that applies social movement theories to different empirical fields, including gender studies and youth studies. This agenda serves a two-fold purpose: first, to explore how gender dynamics play a role in the way protests unfold and social movements build their strategies, claims and alliances; second, to assess the political, cultural, and biographical impact of social movement activities. In sum, this research agenda helps the scholarship in social movement studies to better understand the crucial role played by gendered processes in protest politics, and gender scholars to evaluate the impact of social movement activities on gender equality. My work has been published in recognized international multidisciplinary journals (e.g. Politics, European Societies, American Behavioral Scientist, Journal of Youth Studies) and book publishers (e.g. Routledge, Palgrave).

During my four years of postdoctoral experience I have developed a high degree of internationalization due to my involvement in European research projects and a consolidated interdisciplinary network at international level especially in England, Switzerland and Italy which has led to successful research collaborations and projects. I have shown an active involvement in the development of new knowledge and in the promotion of academic exchange with the organization and participation in more than thirty conferences, seminars, panels and workshops exploring the intersection between Political Science and Sociology. Finally, I have collaborated with key stakeholders and civil society actors, demonstrating my ability to effectively create social and political impact. In this regard, I was appointed national rapporteur for Italy at the Pool of European Youth Researchers of the Council of Europe-European Commission to research and consult on youth policy implementation at the EU level.

Resumen del Currículum Vitae:

Anna Lavizzari is a Postdoctoral Research Fellow at the Faculty of Political and Social Sciences   Scuola Normale Superiore (Italy) since 2018, where she is still affiliated with the leading research institute on social movement research in Europe, COSMOS. Her international and interdisciplinary education includes a PhD in Political Sciences from the University of Kent (United Kingdom), with a thesis focused on anti-gender campaigns in Italy (2017). She also gained a BA in International Relations (University of Geneva, Switzerland) and a MA in International Conflict and Security (University of Kent, UK), both with first class distinction. She was also the recipient of the University of Kent 50th Anniversary Research Scholarship Award. Anna s research agenda and scientific production focus on issues of political participation and behavior with a notable attention to gender dynamics and protest politics. Her work has been published in multidisciplinary international journals (e.g. American Behavorial Scientist, European Societies, Politics, Journal of Youth Studies) and book publishers (Routledge, Palgrave Macmillan). Her first single-authored monograph is Protesting Gender: The LGBTIQ Movement and its Opponents in Italy (Routledge, 2020). In addition, Anna has participated as member of the research team in several transnational and domestic projects funded by European and Italian public and private institutions (e.g. EU H2020, Italian Ministry of University and Research). She is currently member in good standing and is actively involved in the activities of some of the major research networks and organizations in the field of political science, gender and sociology, such as the European Consortium for Political Research (SGs of Politics and Gender; Participation and Mobilization), European Conference on Politics and Gender (ECPG), Italian Political Science Society (SISP) and European Sociological Association (ESA). Importantly, she has participated and/or organized more than thirty seminars, workshops, conferences and panels in major academic meetings. Dr. Lavizzari has also contributed to the scientific community as a peer reviewer for leading political science and sociology journals. Moreover, the candidate has extensive teaching and mentoring experience as supervisor of BA/MA dissertations. Finally, she is national rapporteur for Italy of the Pool of European Youth Researchers (PEYR) of the Council of Europe   European Commission, for which she regularly conducts research and dissemination activities of youth policy and research and has been involved in evidence-based policy-making initiatives as a research consultant through projects mandated by several civil society organisations (e.g. The International Lesbian, Gay, Bisexual, Transgender, Queer & Intersex Youth and Student Organisation, the Friedrich-Ebert Stiftung, Open Society Foundations).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Ciencias sociales
Nombre: DELCLOS ALIO, XAVIER
Referencia: RYC2021-031672-I
Correo Electrónico: xavi.delclos@gmail.com
Título: Estudio de las movilidades de residentes y visitantes, y su relación con el entorno construido y la salud urbana.

Resumen de la Memoria:

I am a human geographer interested in mobility and physical activity and how to promote more sustainable and healthier cities. I am currently a Juan de la Cierva-Formación postdoctoral fellow at the Department of Geography at the Universitat Rovira i Virgili (Spain). Previously, I developed my research at the Institute of Urban and Regional Development (IURD) at the University of California at Berkeley (USA). Before that, I served as a researcher at the Research Group on Mobility, Transportation and Territory (GEMOTT) at the Universitat Autònoma de Barcelona (Spain), where I had previously developed my PhD dissertation.

My research pivots around human movement at different scales, perspectives, and using different and complementary methodologies. My PhD dissertation explored the multiple dimensions of daily travel time in Barcelona. While conducting my PhD research, I opened a second research line about the link between the built environment and physical activity. I continued to pursue this research avenue as part of the SALURBAL project, where I focused on the health dimensions of human mobility. From my current position I have included two new and necessary analytical perspectives: first, the bidirectional relationship between the COVID-19 pandemic on travel behavior, active transportation, and physical activity; second, the consideration of mobilities of visiting population in addition to day-to-day behavior of residents. My research has relevant implications for policymakers in the arena of urban and transportation planning and in terms of public health.

My research has so far been funded by highly competitive individual grants such the FI-DGR and the FPU grant and, after my postdoctoral experience abroad, the Juan de la Cierva-Formación fellowship that I currently hold. I have conducted research in Spain, the United States of America, Denmark, South Korea, and Latin America, and I have been involved in 17 national and international competitive projects. I have authored over 40 publications, most of which are published in high-rank peer-reviewed academic journals. My leadership in demonstrated by contributing to draft and acquire highly competitive funding, being the lead author in 14 publications, and by already training younger professionals and researchers, including 10 different courses since 2016, the co-supervision of 5 Master's Theses and 2 Doctoral Theses that have already resulted in high-impact academic publications.

Resumen del Currículum Vitae:

Dr. Xavier Delclòs-Alió is currently a Postdoctoral Researcher (Juan de la Cierva-Formación program) at the Department of Geography at the Universitat Rovira i Virgili (Spain). Previously, he worked as a postdoctoral researcher at the Institute for Urban and Regional Development (IURD) at the University of California at Berkeley (USA), and before that, at the Research Group on Mobility, Transportation and Territory (GEMOTT), of the Department of Geography at the Unviersitat Autònoma de Barcelona (Spain). He holds a PhD in Geography, qualified as Excellent Cum Laude, from the Universitat Autònoma de Barcelona (Spain), in which he delved into the multiple dimensions of daily travel time by focusing on the Barcelona Metropolitan Region. To do so, he had funding from competitive predoctoral scholarships (from a FI-DGR grant provided by the Generalitat de Catalunya, and later from a FPU grant from the Ministry of Education of the Spanish Government).

His current lines of research are mostly related to the link between the urban environment and individual travel behavior of both resident and visiting population. His research covers a wide variety of topics in the fields of travel behavior, urban studies and, more recently, public health. Currently, he is involved in gathering, processing, analyzing, and interpreting data on urban phenomena as part of different national and international research projects that delve into the intersection between mobilities, physical activity and health. Dr. Delclòs-Alió has so far been involved in 17 national or international competitive research projects, 1 non-competitive research project and 6 knowledge-transfer projects. The scientific production of Dr. Xavier Delclòs-Alió consists of 40 academic publications and 34 contributions to national and international conferences. In terms of the publications, 22 of them (55%) are published in peer-reviewed journals indexed in the Journal Citation Report by the ISI Web of Knowledge (15 of them in journals ranked in the first quartile of their category), 4 are published in Scopus journals and 14 correspond to published conference proceedings, book chapters or others. He is the lead author of 14 of the publications in his curriculum (35%), he is the second author in 13 publications (5%) and in 12 publications he appears in other positions (30%). He has published in the fields of Geography, Urban studies and planning, Transportation, Environmental studies and, more recently, also in the field of Public, Environmental and Occupational Health. According to Google Scholar (February 4th, 2022), Dr. Delclòs-Alió's work accumulates 333 citations (327 since 2017), which corresponds to an H index of 10 and an i-10 index of 10. Dr. Delclòs-Alió has been part of different project and award evaluation committees, has been part of the Editorial team of a Scopus journal and has served as an anonymous referee for over 20 peer-reviewed journals.

Dr. Delclòs-Alió has also started to contribute to training young professionals and researchers. He has teaching and training experience, including 10 different courses since 2016. Dr. Delclòs-Alió has co-supervised 5 Master's Theses and is currently supervising 2 Doctoral Theses. Lastly, he has invited to give presentations in multiple research seminars both during his different international research stays at the University of Aalborg (Denmark), Hanyang University (South Korea), and also others such as the Environmental and Occupatio

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	ANAYA MARTIN, MIGUEL
Referencia:	RYC2021-034941-I
Correo Electrónico:	miganamar@gmail.com
Título:	Halide perovskites for energy devices

Resumen de la Memoria:

The research undertaken throughout the candidate s career has been centred on the design, synthesis and characterisation of emerging optoelectronic materials especially halide perovskites to understand the interrelation between their photophysical, structural and compositional properties and propose routes to attain devices of superior performance. The methodology is based on a combination of optical modelling tools and multimodal correlations at different length scales to demonstrate nanostructured devices for light harvesting, light emission and high energy radiation detection.

Dr Anaya was awarded a prestigious La Caixa Fellowship to fund his PhD (only selected proposal in Materials Science, 2014, 114k) to develop a project on the optical design of perovskite materials and solar cells. During this time, he developed models to understand the optical behaviour of single and double junction perovskite solar cells, which he demonstrated empirically. He also proposed a novel photonic structure to provide perovskite solar cells with structural colour, resulting in impact at both the academic and industrial levels. Finally, he reported seminal results on the environmental effects on the photophysics of this class of materials. He published 15 papers (11 as 1st author).

During his time as PDRA and Marie Curie Fellow at the Dept Physics in Cambridge (2018-2021), Dr Anaya adapted his optical modelling tools to describe the behaviour of emerging LEDs. He also commenced a new line based on in-situ photophysical techniques in conjunction with synchrotron based structural measurements to discern how halide perovskites form and perform under different stresses, which cemented his independent career.

The candidate is now a RAEng Research Fellow and Principal Investigator at the CEB Department, Cambridge, where he supervises and co-supervises 4 PhD students and several master students (> 1.5 million as PI and co-I). His main lines revolve around i) new, scalable deposition strategies for stable solar cells, ii) development of in-operando synchrotron techniques, iii) multimodal, correlative quantitative microscopy and iv) design of new high-energy radiation detectors. During his postdoctoral time, Dr Anaya has published 25 papers (4 as corresponding author) in the top echelon of journals.

Resumen del Currículum Vitae:

The candidate was awarded a prestigious La Caixa Fellowship to fund his PhD (only selected proposal in Materials Science), obtaining in 2018 the extraordinary PhD thesis Award and recognition from the GEFES/Spanish Royal Society of Physics as the Best Thesis in Experimental Physics. This PhD thesis opened a new line at the Institute of Materials Science of Seville. He developed the first optical models to describe single junction (JPCL, Adv. Mater.) and multi-junction all perovskite solar cells (JMCA, Joule, EES). He also designed and fabricated a novel solution-processed photonic crystal (JMCC) and subsequently integrated it in highly efficient colourful perovskite solar cells, resulting in impacts at both the academic (Nano Lett., JMCC) and industrial levels (patent, EP 15382026.1). Finally, he pioneered the description of the environmental effects on the photophysics of halide perovskites (JPCL 2015) and the crucial role of O_2 on those processes (JPCL 2018). As a result of his PhD work, during which he visited world-class laboratories (e.g. Snaith group at Uni of Oxford), he published 15 articles (11 as 1st author), putting him among the most cited researchers in the field of halide perovskites in the south of Spain.

The candidate started his postdoctoral research in 2018 at the Department of Physics, University of Cambridge, where he held a Marie Curie Fellowship under the supervision of Prof Sam Stranks. Since 2021, he has been first a Leverhulme Early Career Fellow and later a Royal Academy of Engineering Research Fellow in the Department of Chemical Engineering and Biotechnology (CEB) and a Research Fellow at Darwin College, University of Cambridge. He leads a group focusing on the modelling, fabrication and multimodal characterisation at multiple length scales of emerging semiconductors for low cost, sustainable optoelectronic applications. Dr Anaya lines cover: i) optical modelling and fabrication of perovskite LEDs based on quantum confined materials, ii) development of synchrotron beamlines to characterise the structural and chemical properties of devices in operando conditions to elucidate strategies to enhance their performance, iii) development of correlative multimodal microscopies to understand the interplay between photophysics, structure and chemistry of new materials at the nanoscale, iv) co-sublimation of complex halide perovskite-inspired material for solar cells of superior performance, and v) fabrication of emerging high-energy radiation detectors.

His postdoctoral/independent work has led to 25 peer-reviewed papers published the top echelon of journals (all Q1, accumulated h index of 22 (20), and >2000 (>1500) citations according to Google Scholar (WoS)), including Science, Nature, Nature Nanotechnology, Nature Photonics, ACS Energy Letters (5), Adv. Mater (4), Nature Energy, Ener.&Environ. Sci. and Advanced Energy Materials (2).

Despite his early career stage, during his postdoctoral/independent time, the candidate has raised over 1.5 million over multiple projects and international collaborations (e.g. Surrey, Purdue, Imperial College), and manages multiple multi-million facilities such a clean room or a radioluminescence rig (see research memory). His management skills are complemented by his Research Fellowship at Darwin College (>£6M budget).

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	MANTIONE , DANIELE
Referencia:	RYC2021-031668-I
Correo Electrónico:	mantione89@gmail.com
Título:	Innovative conductive polymers

Resumen de la Memoria:

The research line of Mantione start to be defined during his Ph.D. thesis. In that period, he faced two main topic which follow him across the years:
1. the potential of conductive polymers
2. the difficulties of synthetic organic chemistry view by out-of-the-field researchers.

1. The topic of conductive polymers represent the main of Mantione s research line. A typical conductive polymer, we can think as example PEDOT:PSS, three main components are visible: the monomer scaffold, in case of PEDOT the ethylenedioxothiophene unit, the doping/solubilizer agent, the PSS in this case and overall the physical state of the dispersion, in the case of PEDOT:PSS is a water dispersion. During the years Mantione acquired knowledge in modifying chemically the scafforld, via organic chemistry reactions, substitute the PSS and tune the formulation to improve the desired properties. 4 papers as first author inherent to this topic and 3 paper as co-author with another Ph.D. student at that time Isabel del Agua has been produces during the Ph.D. thesis time at UPV/EHU. This research continues during his following postdoctoral years, both in UK and in France, continuing to explore the conductive polymer field and giving to Mantione 6 scientific article contributions in the field. Being able to apply these conductive polymers in solar cell, bioelectronics systems, in vivo and in vitro. Since the lasts two years, Mantione consolidate his research line writing a review and being the corresponding author of 5 publications in the conductive polymer field. In this last time, he dedicates to exploring the world of thiophene trimers, a new concept of monomeric unit for the creation of conductive polymers. This unit has a low oxidation potential and high conductivity, resulting applicable together within milder oxidant and in less quantity. The opportunity to continue to develop this research line gave birth also to other collaborations with Mantione s Ph.D. institution during his postdoctoral research, in UK as well as in France.

2. The second topic of Mantione s research line is a cooperative exploitation of science. During his experience, he saw how even if the literature is clear, people not in the field of organic synthesis are not approaching a, sometimes simple, synthetic receipt, and, avoiding it, decreasing the impact of their work. In all the different groups Mantione looked to fill this gap by giving advices, collaborations and a simple DIY explanation of organic chemistry procedures. This led to many collaborations in different field accordingly to the knowhow of the people present in the different research groups. During his Ph.D. among others, porous polyamide network in collaboration with Dr. Zulfiqar; as well as the design and synthesis of organic dye for liquid marbles and hybrid sulfur-selenium polymers. From the internship in IBM a fruitful collaboration with Dr. Jehanno lead as well as a collaboration with Prof. Hedrick. The time Mantione spent in the University of Bordeaux was new in term of independent and creations of new collaborations. He collaborates among others, with Dr. Cummings and Dr. Mariotti. During all the career of Mantione, the teaching and training of younger researcher was crucial both in term of building a solid network and in order to create fruitful collaborations and and optimum scientific works.

Resumen del Currículum Vitae:

My passion and main interest are focused into merging the organic synthesis and application
of small molecules, more specifically in electrically conductive polymers science. During my B.Sc. and M.Sc. I have been introduced to the antiviral synthesis, focusing in the nucleotides modification at the University of Pavia in Italy, in 2013 I got my M.Sc. degree with the maximim mark 110/110. In my Ph.D. the main topic of my thesis was conducting PEDOT-like polymers, I have been part of OLIMPIA ITN-FP7 Marie Curie network. I am interested in the synthesis and modification of conductive polymers, and their biocompatibility. In the course of my Ph.D. I also had the possibility to collaborate with many people of my group, developing and synthetizing molecules for CO2 absorption, heterogeneous catalysis, hydrogel crosslinking, redox polymers for batteries, inverse-vulcanization with sulfur, catechol chemistry, MRI contrast agent (TEMPO- and PROXYL-base), thermosensible polyurethanes, PET depolymerization catalyst. During this time, a fellowship from Basque Country gave me the opportunity to do an internship at IBM Almaden, San Jose in California, where I worked for 6 months on plastic recycling and MRI contrast agents, continuing what started in Spain. Right after my Ph.D defense I started my postdoctoral research for 5 months in the group of Prof. Andrew Dove in the University of Warwick in the UK, where I focused in the thiol-yne click reaction, design of new catalyst for ring opening polymerization and new cyclic ester monomers. My career continued in the LCPO at the University of Bordeaux in the field of conductive polymers and monomer synthesis, principally applied to block-copolymer self-assembling, batteries and optical devices. I started for 9 months as industrial project fellow as part of SMILE project in ARKEMA group, then, I won an AMADEUS IdEx LabEx fellowship in collaboration with the University of Bordeaux that allow me to continue the research for 4 months. After this I won a Marie Curie Individual fellowship (MSCA-IF) grant TEXTHIOL gave me the possibility to explore the thiol-yne click reactions and the world of conducting polymers and to continue the successful collaborations in block-copolymer self-assembling, perovskite solar cells and PILs synthesis, staying for a total of 24 months at LCPO institute. Recently, I won a second MSCA-IF (REPLAXTIC #101028975) and moved to Donostia-San Sebastián working for a newborn start-up Polykey polymers s.l. This new reality is giving me the possibility to expand my knowledge relate to lithium-ion batteries and enhancing my entrepreneur view. For my next career step, I am looking for the opportunity to create and develop my ideas, independently as PI, in an innovative environment which also gives me the opportunity to broaden my experience in the academic sector, with high prestige grants like ERC starting. Ramon y Cajal would enable me to do just that, together with the possibility to work in a dynamic and ethic laboratory, staying update on the new discoveries and technologies of new materials.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	MARIN MARIN, RICCARDO
Referencia:	RYC2021-032913-I
Correo Electrónico:	riccardo.marin@uam.es
Título:	Nanoparticles with optical properties for imaging and sensing

Resumen de la Memoria:

During the BSc and MSc internships (U. Ca Foscari, Italy), I investigated lanthanide-doped ceramic phosphors, studying the effect that the material s composition and crystal structure have on the photoluminescence. This investigation also yielded a patent.

In 2014, I started a joint PhD with bursary at U. Ca Foscari and the Institut National de la Recherche Scientifique (Canada), working on $CuInS_2$ and CuS nanoparticles (NPs). My knowledge of wet-chemistry synthesis methods and spectroscopic characterization of semiconductor and lanthanide-doped NPs grew sizably during those years. A relevant outcome of my research (published in JACS) was the establishment of a synthesis method for small yet bright lithium-based lanthanide NPs with core/shell architecture - an approach at the base of a slew of publications that I co-authored with other group members. I also investigated energy transfer mechanisms between lanthanides and $CuInS_2$ NPs, as well as structure-property relationship in semiconductor NPs alone. These results were achieved despite the supervisors limited experience with semiconductor NPs. During those years, I also started working on luminescent nanothermometers: a theme that acts as fil-rouge throughout my career.

After completing my PhD, in 2017 I moved as a postdoc to the University of Ottawa (Canada). During this stay, I worked on the microwave-assisted synthesis of lanthanide NPs and the design of lanthanide complexes that feature simultaneously luminescence and single-molecule magnet (SMM) behavior. My expertise in spectroscopy and luminescence nanothermometry was key to develop a new class of optomagnetic lanthanide-SMMs with built-in thermometric capabilities: a class of compounds with great projected applicative potential. Indeed, SMMs retain their magnetic properties only below a threshold temperature and monitoring of this parameter is vital to ensure the working of future SMM-based spintronic/electronic devices. This intuition led to several publications in prominent journals (ACS Central Sci, Chem Sci) and to a dedicated review (Angew Chem). During this time, I became proficient in confocal microscopy and hyperspectral imaging and I was the main organizer of the 1st Workshop on Luminescence & Magnetism in Molecules & Materials at the University of Ottawa.

In 2019, I moved as a Marie Sklodowska-Curie fellow to the Universidad Autónoma de Madrid (Spain) in the group led by Prof. D. Jaque to work on near-infrared (NIR)-emitting NPs for bioimaging and in vivo sensing. The same year I was awarded a Juan de la Cierva Incorporación (declined in favor of the MSCA). I spent the first months to set-up a wet-chemistry lab. During the COVID pandemic, I authored 3 review articles (Chem Rev, Nanoscale Horiz, ACS Nano) on strategies for the synthesis of luminescent NPs and their use in optical imaging. In the lab, I supervised the work of a PhD student on the preparation of novel NIR bioimaging contrast agents, and then I focused on strategies to make Ag_2S NPs more efficient emitters and thermal nanosensors. In a study led by Dr. E. Ximendes and the myself, we used Ag_2S NPs as luminescent thermometers to monitor the thermal evolution of magnetic hyperthermia therapy in vivo. The synergy with Dr. Ximendes is also leading to a study on the use of machine-learning methods to improve the performance of luminescent nanothermometers.

Resumen del Currículum Vitae:

My CV indicates sustained excellence. I published 46 peer-reviewed manuscripts in journals of the highest caliber, including Adv Mater, ACS Centr Sci, Adv Funct Mater, JACS, Chem Sci, Angew Chem, Chem Rev, and ACS Nano. I am corresponding author in 9 of them, and 74% were published without my PhD supervisors. The quality of these publications remained invariably high regardless of my affiliation (and hence, supervisor) as a PhD or postdoctoral fellow, and irrespective of the topics covered including luminescent nanoparticles, plasmonic nanomaterials, optomagnetic coordination compounds, optical imaging, and thermal sensing. I am the co-inventor of a patent on bismuth-based phosphors and co-author of a book chapter on optical coherence tomography. With more than 1100 citations and an h-index of 20 (Google Scholar 01/02/2022), these numbers highlight my independence as a researcher and creative thinking. All this was achieved despite the disruption initially caused by personal events which urged me to act as a de facto caregiver to my disabled mother during the first years of my academic career and later on by the ongoing pandemic.

I established a dense network of international collaborators stretched throughout North and South America, Europe, and Asia which allows me to access a broad range of know-how and instrumentation.
Weekly interactions with biologists and physicians, then, are key to the success of my current research at the interface between the disciplines of chemistry, physics, and biology. In hand with my social skills, awareness of EDI issues, and ability to coordinate the work of several researchers, I can arrange the most suitable research team and lead it to cover all angles of multidisciplinary research. My communication skills in written, graphical, and oral form is the last piece of the puzzle, which allows me to effectively communicate the results of these investigations in different forums.
The recognition of the quality of my work and my standing within the community is recognized by the fact that I have been invited to deliver 3 talks at international conferences, and I will be giving one additional invited talk in October next year. I have also served as reviewer for several journals, among which Adv Sci , Angew Chem, Nano Today, Adv Funct Mater, ACS Photonics, as well as evaluator for multiple projects submitted to the National Science Centre Poland.

I have experience in student mentoring, with 5 theses (either already defended or with ongoing projects) supervised at the undergraduate and graduate level. Over the past years I have given several symposia on luminescent nanoparticles for biomedical applications and optomagnetic metal complexes in the context of academic courses. During the doctorate, I served the Department as tutor for the courses of Maths I and Physics I, training the students to the solution of exercises in preparation for the exams a service for which I was awarded the title of Best Tutor of the Year 2014.

The competitivity of my profile as a researcher and my ability to attract funds are underscored by the obtainment of prestigious fellowships at the European (Marie Sklodowska-Curie Action) and national (Juan de la Cierva Incorporación, Spain) levels. I have also been involved in the writing of several grant proposal and have applied for the last round of ERC Starting Grant 2022.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	DAVO QUIÑONERO, ARANTXA
Referencia:	RYC2021-034791-I
Correo Electrónico:	davo.arantxa@gmail.com
Título:	Diseño integral de catalizadores para aplicaciones energéticas y mediambientales: Desde el diseño racional de sitios activos hasta la fabricación de prototipos

Resumen de la Memoria:

Arantxa Davó Quiñonero obtained a PhD in Materials Science in the University of Alicante in 2019. The applicant s PhD Project Thesis centred in the catalytic removal CO in H2 streams for fuel cells applications was recognised with the Best Thesis award of the Spanish Catalysis Society and the Extraordinary Prize from the University of Alicante.

After her PhD, Arantxa Davó Quiñonero enrolled as a postdoc in Trinity College Dublin funded by means of a Marie Skldowska-Curie/EDGE Postdoctoral Fellowship that she was awarded. She leaded a hybrid project combining theory (ab initio calculations) with experiments (2D-materials fabrication) toward the rational catalysts design with molecular level definition. Since the approach optimised in the experimental part could be successfully implemented in the semiconductor industry, the applicant joined a Spoke project within Intel Ireland and Trinity College at the end of the MSCA grant co-leading one of the main Work Packages for the advanced 2D materials fabrication.

Currently, Arantxa Davó Quiñonero is Research Assistant in the University of Granada excelling as Principal Investigator (PI) of an Excellence Project from Junta de Andalucía. The Project she is leading deals with the 3D-printing fabrication of advanced structured materials with application in CO2 storage and conversion. To date, she is co-author of 34 research papers, being 11 as first author and 6 as corresponding, 1 book chapter and 1 patent while having received a total of 563 citations since 2017. She additionally serves as Managing Editor in the reputed Elsevier s journal Applied Surface Science.

In summary, the main research of Arantxa Davó Quiñonero has been targeted to the design of advanced and multifunctional nanomaterials with application in (1) catalysis; in particular: (i) catalysis applied to fuel cell technology and H2 market: CO-PROX reaction and other environmental control processes; (ii) catalysis applied to CO2 valorisation: CO2 methanation; (iii) 3D-printing technology applied to catalysis; and (2) nanoelectronics, as in the fabrication of 2D materials for back-end transistors. The applicant has a unique expertise that combines a complete battery of experimental, theoretical and transversal scientific skillset portfolio, as proven by the long list of projects in which she has got involved and developed independently.

Resumen del Currículum Vitae:

I obtained my Bachelor of Science degree in Chemistry with Honorific Mention distinction in the University of Alicante (UA). Upon completion of my Master of Science degree in Materials Science (UA), I received two important recognitions: the Extraordinary Prize and the award from the Spanish Catalysis Society (SECAT). My PhD in Materials Science was funded by a competitive FPU grant (70,000) from the Spanish Ministry of Education and my doctorate received a cum laude qualification with International Mention and the awards of the Extraordinary Prize in Materials Science PhD and the Best Thesis in Catalysis 2019 (SECAT). During the final year of my PhD, I was endowed with a prestigious Marie Skłodowska-Curie Actions/EDGE Fellowship (128,144) that I handled as PI in the Advanced Materials and BioEngineering Research centre (AMBER), based in Trinity College Dublin (TCD). Once the MSCA-EDGE grant ended, I joined a big project within TCD and Intel Ireland, as the co-leader of 1 out of the 4 core work packages involved, devoted to the fabrication of advanced 2D materials with electronic applications. Currently, I am Principal Investigator (PI) of a Project of Excellence from the Government of Andalusia (184,900).

As an early-career researcher (PhD in 2019), I have an exceptional publication track record with: 34 research articles (11 as first author, 6 as corresponding), 1 book chapter and 1 patent. Since 2017, my work has received 563 citations and my research has been published in prestigious and high impact journals highlighting 6 Appl. Cat. B (IF 19.5), 1 Chem. Eng. J. (IF 13.273) 2 ACS Catal. (IF 13.1), 1 J. Hazard. Mater. (IF 10.6), 1 Appl. Mater. Today (IF 10.0), 2 ACS Appl. Mater. Interfaces (IF 9.2) and 1 ACS Sust. Chem. Eng. (IF 8.2).

In terms of internationalisation and project leadership, I have attained 27 months of international postdoctoral experience besides 9 months predoctoral stays abroad. During my postdoc in Trinity College Dublin as a MSCA Fellow I developed an independent research bridging for the first time two groups of very different background: the computational catalysis group of Prof. Melchor and the polymer and advanced materials group of Prof. Morris. I have been PI in 3 international computational projects, one of them of 5 million hours in a Tier-1 supercomputing centre (IT4Innovations) in the frame of the competitive European DECI program. Additionally, I have participated in two competitive projects conducted in the ALBA Synchrotron Light Facility (Barcelona).

Lastly, in parallel to my main research activities, I am Managing Editor in Elsevier s Applied Surface Science journal, role I excel since June 2021. Appl. Surf. Sci. has an IF of 6.7 (JCR) and is Top-1 in Materials Science, Coatings & Films ranking. Moreover, I am Review Editor in Frontiers in Chemistry, served as guest editor of one Special Issue MPDI s Catalysts journal, other Special Issue in Frontiers in Catalysis and I am evaluator in top-ranked journals such as ACS Catal. Throughout my career, I have also acquired supervision experience with the co-supervision of 7 final-year undergraduate projects, 5 MSc Thesis and 2 visiting PhD students and I have presented more than 30 oral and poster communications to national and international scientific conferences, including 3 keynote invited presentations in international (Poland and Mexico) and national events.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	FRESCO CALA, BEATRIZ
Referencia:	RYC2021-034702-I
Correo Electrónico:	beatriz_maria_89@hotmail.com
Título:	Functionalized nanomaterials as a key to the preparation of unique and innovative polymeric sorbents for the determination of micropollutants and microorganisms in environmental samples

Resumen de la Memoria:

My research career started during my undergraduate studies (2007-2012, University of Córdoba). Specifically, in my 2nd year of Chemistry, I joined the Department of Analytical Chemistry as a student-collaborator and then I received my first competitive research fellowship (2 years) that allowed me to start in the synthesis and functionalization of nanomaterials for their use as sorbents in the group of Prof. Soledad Cárdenas. Later on, I obtained another competitive research fellowship during my Master. In 2014, I received a FPU for the development of my Ph.D., which was focused on the evaluation of the potential of monolithic solids modified with nanoparticles in microextraction techniques. I would like to highlight that the research line of my doctoral thesis was completely new in the group, and I did not hesitate to be involved in it and carried out two short-term research stays in reference research groups on the topic to achieve all the skills needed. Additionally, I developed both teaching and scientific exhibition activities. Finally, I received her Ph.D. in Chemistry (October 2018) with the highest degrees (Summa Cum Laude) and international mention. Moreover, I have been awarded 4 external recognitions which are also examples of my learning and research capacities.

During the postdoctoral stage, I have also been a beneficiary of several competitive contracts (in Spain) and a Humboldt postdoctoral fellowship for a 2,5-year stay in Germany. During the 1st postdoctoral period, I was focused on the formation of nanostructured polymeric solids via emulsions and specifically, the role that nanoparticles can be played in the emulsion formation and stabilization as well as in the characteristics of the final polymeric phase. In 2020, I joined Prof. Mizaikoff's group (Germany) and I have been working on an ambitious and highly innovative research plan centered around next-generation molecular imprints for detecting viruses using a fully synthetic approach based on functionalized nanomaterials mimicking virus surface functionality.

As a result of these years of research, I have published 22 publications in highly ranked peer-reviewed international journals (+3 submitted articles and +1 Encyclopedia chapter) and 2 book chapters (No. citations=329. h-index=10). It should be also noted, the high involvement that I made in these publications, as reflected in the small number of authors, as well as the first/corresponding authorship in most of them. Recently, I have been awarded a very competitive fellowship (Junta de Andalucía contract) and I have also been selected as a principal investigator of a research project funding from Ulm University, which involves the preparation of surrogate-imprinted polymer filters for improved water quality.

In summary, my research has revolved around the synthesis of nanomaterials and polymers and their use as sorbents, which have mainly been used for the extraction and detection of contaminants in environmental waters. Thus, my research line has evolved from the use of functionalized-nanomaterials for microextraction purposes (pre-Ph.D.) to their use as synthetic surrogates of viruses for the synthesis of selective imprinted-polymers (2nd postdoc p), passing through the preparation of nanoparticle-modified polymeric materials with enhanced-sorbent properties (Ph.D. and 1st postdoc).

Resumen del Currículum Vitae:

I studied Chemistry at the University of Córdoba finishing my Bachelor s degree with the Extraordinary End-of-Studies Award in 2012 as well as my M.Sc. in 2013. While I was still studying my degree, I received her first research fellowship (research initiation fellowship) which allowed students with the best grades to join a research group and carry out a research project for 2 years. Thanks to this opportunity, I joined the research group FQM-215 (Department of Analytical Chemistry). After that, while I was doing my M.Sc., I was awarded a research collaboration fellowship for 1 year from the Science and Innovation Ministry of Spain. In 2014, I received a competitive predoctoral grant (FPU) for the development of her Ph.D. under the supervision of Prof. Soledad Cárdenas. During this period, I performed short-term research stays at the University of Valencia (Spain, 2016) and at the Academy of Sciences of the Czech Republic (2017). I received my Ph.D. in October 2018 with International mention and Sobresaliente Cum Laude. My Doctoral Thesis was focused on analytical sample preparation with contributions related to the design and use of innovative monolithic sorbents in separation techniques. Experimental work evolved from the immobilization and incorporation of carbon nanoparticles at the surface and monolithic structure, which are formed by the copolymerization of various monomers of organic and inorganic nature, to the development of novel methods of synthesis of porous solids consisting only of nanomaterials carbon. I have received awards for my Ph.D. and for my scientific career from the Andalusian Regional Group of Spanish Society of Analytical Chemistry (GRASEQA), the Spanish Society of Analytical Chemistry (SEQA), Lilly Company and Royal Spanish Society of Chemistry (RSEQ). During the postdoctoral stage, I have also been a beneficiary of several competitive contracts (in Spain) and then I was also awarded the competitive and prestigious international Alexander von Humboldt fellowship for 2,5-years postdoctoral research stay in Germany. With this AvH Fellowship, I joined the group of Prof. Boris Mizaikoff (Institute of Analytical and Bioanalytical Chemistry at Ulm University). My research topics have included the development of a new generation of virus-imprinted polymers without the need to use an infectious template during the preparation. The core goal is developing synthetic imprinted polymers selectively binding specific viruses using surrogate templates such as peptides, surface proteins or appropriate nanomaterials emulating its size, shape, and surface functionality. During the second half of this postdoctoral period, I was awarded a Start-Up project within the financial support programs for female researchers at Ulm University and currently, I am the PI of this project. Recently, I have been also received a competitive 3 year-contract for postdoctoral research given by Junta de Andalucía (Spain). To date, I am co-authored 22 publications and 2 book chapters, which have been cited 329 times (h-index=10). In addition, I have presented 27 communications to national and international conferences, and I have experience in teaching and training research beginners. Moreover, I am acted as a reviewer for several journals, as an editor of journals and Encyclopedia, and as an expert evaluator of the decentralized actions of the Erasmus+ Program (SEPIE). I have also participated in numerous scientific dissemination activities.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	RAMIREZ RODRIGUEZ, GLORIA BELEN
Referencia:	RYC2021-032734-I
Correo Electrónico:	gloriaramirez.iq@gmail.com
Título:	Hybrid nanostructured materials for biomedical and environmental applications

Resumen de la Memoria:

My research is aimed at engineering novel hybrid nanostructured materials for biomedical and environmental applications. During my career I have applied the multidisciplinary knowledge, harvested during the last 10 years in prominent European Institutions.

I started my research career in 2012 at IACT-CSIC (Spain). I was introduced into the fascinating field of calcium phosphate nucleation and crystal growth. It provided me both fundamental knowledge and a source of inspiration for the design of advanced multifunctional biomaterials.

In 2014, I was awarded a Marie Curie fellowship within the EU-funded project "Bio inspired Bone Regeneration at ISTEC-CNR (Italy). My PhD was aimed at developing novel biomaterials for bone tissue regeneration going from the design of 3D hybrid scaffolds through a bottom-up approach inspired in bone to the evaluation of their biological performance. I was the first and corresponding author of the JCR-articles related to my PhD thesis, which demonstrated my high-level of involvement in the research since the beginning of my scientific career. I also worked on the design of calcium phosphate nanocarriers for the controlled delivery of therapeutic agents to treat heart failure.

In 2017, I began a postdoctoral position at University of Insubria (Italy) and I joined to To.Sca-Lab where I received a training in cutting-edge nanocrystallographic techniques (WAXTS and DSE). The combination of WAXTS, SAXS and complementary analytical techniques led to uncovering relationships between structure of nanocrystalline materials and the material s functional properties. I was also involved in the design of multinutrient nanofertilizers towards sustainable agriculture.

After 4 years of research abroad, I moved to BioNanoMet group of University of Granada (Spain) in 2018. This represents an important point in my research career to gain maturity to become an independent researcher. I have adapted my previous experience, knowledge and transferable skills on the design, synthesis and characterization of biomimetic materials to substantially contribute to the research activities of the group, including: hybrid living biomaterials for antibiotic free therapy of bacterial infections, biomimetic bone grafts, nanocomposites to treat colon cancer and nano-agrochemicals for sustainable agriculture. I have also received an intense training on invaluable leadership skills, such as: project management (4 JCR-articles as corresponding author and 3 projects as PI; two micro-projects from UGR and one submitted national project), supervision of students (1 PhD student, 5 Bachelor Theses and 2 Master Theses), transfer knowledge (4 PCT-patents) and outreach activities.

Resumen del Currículum Vitae:

Scientific Contribution. My research is aimed at engineering novel hybrid nanostructured materials inspired by bone with potential application in biomedical and environmental fields. I have 28 JCR-papers [7 as 1st author and 6 as corresponding author], which demonstrates my relevant contribution in the research carried out. 21 of the JCR-papers are in Q1 (75%) and 3 of them in D1. 11 articles have been published as Open Access and 5 of them were selected as covers in prestigious journals, such as Science Translational Medicine (IF: 17.9, D1), and Environmental Science: Nano (IF: 8.1, D1). Others were published in Acta Biomaterialia (IF: 8.9) and Advanced Materials Technology (IF: 7.9). I am also corresponding author of a book chapter (Elsevier). I have an H-index of 12 (>500 citations), exponentially increasing in the last years (212 citations in 2021). I delivered 54 communications in national and international conferences: 23 oral presentation (one as invited speaker) and 31 posters. I was presenting author of 20 communications, some of them in relevant international conferences such as 10th World Biomaterial Congress (2016, Canada). I was a member of the organizing committee of the I Workshop in Advanced Chemistry and I and II Multimat Congress (University of Granada). During the predoctoral fellowship within Marie Curie-ITN (ISTEC-CNR, Italy, 36 months) and postdoctoral stage (Uninsubria, Italy, 12 months), I gained confidence working in an interdisciplinary and international environment and strong skills on biomaterial design and characterization, in vitro evaluation of their biological performance and cutting-edge nano-crystallographic techniques. After 4 years of research abroad, I was awarded competitive postdoctoral fellowships at the University of Granada (BioNanoMet group, FQM-368): Juan de la Cierva Formación and Junta de Andalucía. I receive an intense training on relevant research skills related to leadership and independent thinking that ends up in the publication of JCR-articles as corresponding author and submitting my own projects as principal investigator.

Contribution to the society. I am the co-inventor of 4 PCT-patents and 1 patent in submission. Two PCT-patents are transferred to companies (Biosearch S.A. y Cellbitec S.L.). I am also co-founder of a start-up company (NanoIntec S.L.). I have participated in two research contracts with an Italian and a Spanish company. I am participating in a regional public-private collaboration project (NanoFERTi, P18-TP-969, Proyecto I+D+i Junta Andalucía, 2020-2022). I am also part of the Scientific Advisory Board of Cellbitec S.L. I have participated in several outreach projects from the University of Granada (FCT-17-12340 and FCT-18-13165).

Capabilities of mentoring, lecturing and evaluation. I am co-supervisor of a PhD thesis in Chemistry at the University of Granada and have supervised 2 Master theses and 5 Bachelor theses. I am a lecturer of Chemistry in different degrees of the University of Granada (260 hours in total). I was awarded the certification of Profesor Contratado a Doctor in 2021 by ANECA. I am member of the Reviewer Board of Minerals (MDPI, IF: 2.25). I am also a regular reviewer for a number of journals including (e.g. ACS Nano, Regenerative Biomaterials, IJMS).

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	SASSELLI RAMOS, IVAN
Referencia:	RYC2021-033294-I
Correo Electrónico:	sasselli89@gmail.com
Título:	Design of Supramolecular Peptide Assemblies for Nanomedical Applications

Resumen de la Memoria:

My research career has focused on the development of self-assembled peptide materials for nanomedical applications employing a combined computational/experimental approach. During my PhD (2013-2016) at the University of Strathclyde in Glasgow (UK), as Marie Curie ESR, I employed this approach to understand structural features of these assemblies to a level otherwise not achievable and to answer key questions in the field, such as the thermodynamic nature of one-dimensional supramolecular assemblies. The 11 publications with an average of ~50 citations (WoS) demonstrate the impact of my work.

In 2016, I joined the Stupp group at Northwestern University (Chicago, USA) to develop functional materials by connecting molecular design, supramolecular structure, and material function. My contribution allowed us to optimize the parameters for the 3D printing of these materials (Small 2021). More importantly, my approach was key to discovering the role of molecular mobility within the assemblies to optimize the performance of peptide-based nanostructures as scaffolds for spinal cord regeneration (Science 2021). I have been co-author of 5 articles, other 3 are being currently considered for publication, and other 2 will be submitted in the following months, as well as a patent.

In 2019, I moved to CIC biomaGUNE (San Sebastian) to incorporate the interaction with target biomolecules in the design strategy of the materials. We currently work in the development of materials based in branched peptides for nanomedicine, and of protein-peptide hybrids to form self-assembled two-dimensional structures. Additionally, I collaborate with other groups working in co-assembled artificial photosystems, aromatic amphiphiles assemblies, metabolite detection through SERS (surface-enhanced Raman spectroscopy), and polymer-coated nanoparticles. I have co-authored 4 articles so far and this year we will submit other 3 works.

Through these years I have also participated in the training of students, ranging from BSc to PhD, and, currently, I co-supervise a PhD student with Prof. Aitziber L. Cortajarena (CIC biomaGUNE). I also got involved in teaching activities, being co-instructor in different classes at the University of Strathclyde (Glasgow, UK) and Northwestern University (Chicago, USA). More recently, I am involved in outreaching activities as a member of the Pint of Science and independently giving talks at high schools.

During these years I have participated in 16 conferences, with oral contributions in 7 of them, as well as being part of the organizing committee in conferences and workshops (2 international and 1 national).

Resumen del Currículum Vitae:

My CV stands out by the coherence, where every step has been towards building a distinct scientific profile focused on the combination of experimental and computational methodologies for the design of functional nanomaterials. I apply both types of methods symbiotically to optimize materials for given applications. Two articles illustrate this. In Small 2021, my dual approach was used to reveal the key role of intermolecular cohesion for the viscosity of the materials to optimize the experimental parameters for their implementation as 3D printed scaffolds. In Science 2021, the symbiotic application of computational and experimental methods allowed us to reveal the importance of molecular mobility within supramolecular assemblies for the efficacy of bioactive materials and to find optimal materials and parameters to promote spinal cord injury recovery in mice.

I started developing this distinctive approach for the design of the materials through a mixed computational/experimental PhD in 2013 as a Marie Curie ESR, between the groups of Prof. Rein V. Ulijn and Prof. Tell Tuttle at the University of Strathclyde. There, I learnt how to symbiotically combine theoretical, computational and experimental methodologies, conciliating them to connect molecular design and structure. My work there was crucial to interpreting experimental FT-IR (Langmuir 2013, >100 citations), to understand the thermodynamic nature of supramolecular one-dimensional structures (ACS Nano 2016, 59 citations) and the forces driving the formation of the assemblies (PCCP 2016 and Soft Matter 2016), and in the application of a dynamic approach for the discovery of new materials (Nature Nanotech. 2016, cited 122, and OBC 2017).

In 2016 I moved to Northwestern University as a postdoc in the group of Prof. Samuel I. Stupp, aiming at connecting molecular design with bioactivity. As in an experimental group, I developed the computational part of my research independently. I was able to connect the design of the building blocks with their applications in tissue regeneration and 3D printing (Science 2021 and Small 2021). Additional work focuses on the understanding of how tuning certain interactions affect the properties of the materials (Acta Biomater. 2021 and Nano Lett. 2021) and on revealing key aspects of the formation of superstructures (J. Phys. Chem. B 2022). My work involved the proposal and coordination of projects with scientists from very different backgrounds.

From 2019, at CIC biomaGUNE, as Gipuzkoa Fellow Research Associate, I carry out an independent line in the development of materials with innovative designs to control their interaction with biomolecules such as proteins. Since January 2020, I co-supervise a PhD student who develops peptide-protein hybrid co-assembled materials, within the group of Prof. Aitziber L. Cortajarena. I have also established collaborations with other groups in biomaGUNE (e.g., Prof. M. Prato and Prof. L Liz Marzan).

Through my years of research, I have not only contributed to the training of new students, including 2 BSc, 3 MSc, and 2 PhDs, and organizing conferences and workshops (2 international and 1 national). As a passionate about teaching, I was co-instructor in different undergraduate classes. Additionally, since 2019 I give outreaching talks, and I am part of the Pint of Science team.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	GARZON MANJON, ALBA
Referencia:	RYC2021-033479-I
Correo Electrónico:	garzonalba@gmail.com
Título:	Single Atom Catalysts and Cu Based Bimetallic Nanoparticles for CO2 electroreduction reaction: Design and Atomic Scale Exploration (SANA-CO2)

Resumen de la Memoria:

I have more than 10 years of experience in materials science and materials characterization. I received my master and PhD degree at Universitat Autònoma de Barcelona (UAB) (Spain) where I was involved in an FP7 European project called Eurotapes coordinated by Institut de Ciència de Materials de Barcelona   Consejo Superior de Investigaciones Científicas (ICMAB-CSIC). Besides my deep commitment with the scientific part of the project, I was responsible of the organization, coordination, and budget management tasks corresponding to the UAB partner. In December 2016 I started my postdoctoral research at the Max-Planck Institut für Eisenforschung GmBH (MPIE) (Düsseldorf, Germany) in the field of complex solid solution nanomaterials. Since 2019 until now, I am the head of the fuel cell project. During all these years, I have shown leadership, scientific independence and ability to train and supervise upcoming young scientists such as Bachelor, Master and PhD students e.g. within the project about ultra-long time life Fuel Cells at the MPIE. Furthermore, during my successful scientific stay in Germany, I faced and managed not only several cultural changes but also learned how to work successfully in a very international and interdisciplinary environment. Despite this challenging task, I initiated several collaborations with the University of Bochum and University of Rome, among others. Since 2019, I lead the   Bundersministerium für Bildung und Forschung   (BMWi) project on fuel cell research within an industrial partnership, namely the PAULL project with Freudenberg Sealing Technology, which is one of the world leading companies in the fuel cells sector. Within this project I learned how to manage the various tasks of scientific projects (e.g. writing and applying successful proposals: BMWi (overall budget of 599.880,71) and IMPRS SusMet (overall budget of 180.000) and how to lead employees (research and admin staff) within the project. Within the framework of the applied project, as a junior research group leader, I had the opportunity to gain new knowledge and experience as well as to extend my current network of scientific partners from industry and research.

As a summary, my PhD at UAB gave me the opportunity to grow up as scientist dealing with the design and synthesis of nanomaterials. Furthermore, during my period at MPIE I have developed my career in the field of nanomaterials characterization with novel and powerful techniques such as atomic resolution aberration corrected (scanning) transmission electron microscopy (AC-STEM). Therefore, my strengths are the development as well as characterization of novel catalytic nanomaterials for energy and environmental applications. All my acquired experience and knowledge in the study of materials science using electron microcopy (EM) techniques together with the Ramón y Cajal (RyC) proposal will help me to further stablish my scientific career. Moreover, the present project will also help me on the one side to acquire new third-party funding projects (e.g. MINECO/MICINN RETOS Calls, Horizon Europe EIC Pathfinder, ERC Starting/Consolidator Grants, etc.). On the other side, it will allow me to establish new partnerships for the future and to increase my visibility. All together this will support me to gain far-reaching qualifications, especially for my further scientific career.

Resumen del Currículum Vitae:

I have done my Ph.D in chemistry at the Universitat Autònoma de Barcelona (UAB) in collaboration with the Institut de Ciències de Materials de Barcelona (ICMAB) (1.4.13   30.11.16). My research was focus on dealing with the deposition of superconducting thin-films doped with nanomaterials and studying biocompatible stable nanoparticles as antioxidant agents. I received my degree in Chemistry 4th November 2016 at UAB with summa cum laude distinction. Since December 2016 I am working at Max-Planck-Institut für Eisenforschung GmbH first as postdoctoral research (1.12.16   31.8.19) and then as project leader (1.9.19   currently). My research line is devoted to the study nanomaterials for energy related fields by their characterization using advanced electron microscopy techniques. By using advanced Cs-corrected transmission (scanning) electron microscopy techniques. During my time at MPIE I was co-applicant of a BMWi project on fuell cells (o.b of 599.880,71) and of a IMPRS SusMEt (fundings for three-years PhD student with an o.b of 180.000). Furthermore, I got single nomination for the Hermann Neuhaus Prize from Max-Planck-society (2022) with a prize money of 25.000 . My work has been published in 18 articles in high quality scientific journals including Advanced Energy Materials, Nature Chemistry, ACS Energy Letters, Nature Communications, and RSC Nanoscale among others. My h-index is 10 and my index i10 12 (431 citations, 418 since 2017). Furthermore, I have given both oral and poster presentations at several national and international conferences as well as workshops also as an invited speaker (15 conference with oral contribution, 5 as invited speaker). I presented lectures of advanced electron microscopy techniques focused on energy-related materials at the RWTH Aachen and Bochum University. Moreover, I am also in mentoring programs and supervising bachelor, master and Ph.D students (I have supervised and co-directed 3 PhD (currently 2), 2 masters and 1 bachelor students with a background in nanoscience and nanotechnology as well as in chemistry and physics within my current fuel cell project. I have been engaged in multidisciplinary research teams including chemistry, chemical engineering, nanomaterial engineering, and several energy applications. I also participated in research projects with various companies such as Bruker and Freudenberg Group, Innovation Together.

Moreover, I was selected in a competitive process to become one mentee of the mentoring program at MPIE where I could learn on topics such as communication skills, conflict management and leadership. I was chosen to represent MPIE as an outstanding scientist in a video for the public as well (https://lt.org/publication/how-can-we-encourage-more-widespread-use-hydrogen-fuel-cells) and I was selected to be part of the   Sign Up! for Leadership   program for advanced postdoctoral researchers (2022). The   Sign Up   program is conducted since 2010 in a cooperation of the Max-Planck Socity with the European Academy for Women in Politics and Economics Berlin. Its goal is to support career and leadership development of female scientists. Candidates are awarded for their exceptional scientific skills and team spirit and serve as an inspiration for young, early-career scientists. Only 40 nominees can participate in 2022 after a very challenging and competitive selection process.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	DE LUCA , GABRIELE
Referencia:	RYC2021-032524-I
Correo Electrónico:	gabriele.deluca@gmail.com
Título:	Functional Oxide Heterostructures

Resumen de la Memoria:

The increasing energy demands of our society pose new challenges for the development of energy-efficient devices. Transition metal oxides can drive the transition to a greener global framework because they host a vast amount of electrical, magnetic, and optical properties. My research confronts this issue by exploring the functional properties of epitaxial oxide heterostructures as a knowledge bridge for their projected technological implementation.

In nanoscale devices, the examination of the desired properties without perturbing them or the simple access to a buried heterostructure constitute a major challenge. Optical probes provide a solution to this problem because they are non-invasive and allow for remote sensing. In the earlier years of my research career (Master, PhD), I established nonlinear optics as an innovative tool to characterize the architecture of functional oxide perovskite thin films and interfaces. Based on this experience, I also engineered an in-situ investigation method capable of detecting in real time and with sub-monolayer accuracy the emergence of ferroelectricity directly during the oxide thin-film growth.

In these years of research experience, I realized that in the oxide electronics community most of the investigations are focused on single perovskite oxides. I believe, however, that time is mature for oxide growth technology to examine and eventually combine different crystal systems with atomistic precision in purely-artificial heterostructures. Motivated by this confidence, I started to explore epitaxy beyond single perovskites in the hunt for novel functional properties.

A first step in this direction was my postdoc, when I started investigating the functional properties of double perovskite oxides. These compounds have a crystal structure similar to perovskite oxides but two different B/B´ cations. For instance, La2NiMnO6 is a ferromagnetic insulator with a Curie temperature around 280 K, a combination of features that is not encountered in any single perovskite oxide. A close examination of this system allowed me to discover its outstanding stability against epitaxial strain, useful for prospective spintronic devices, but also a dramatic effect that the interfaces have on its ferromagnetic properties in the ultrathin regime.

In the last year, I moved further beyond the perovskite oxide structure to encompass a wider expertise in transition metal oxides. I was awarded a SNSF Postdoc Mobility research grant to investigate Hf1-xZrxO2 (HZO) fluorite epitaxial heterostructures and freestanding membranes. This research direction was motivated by the recent and unexpected discovery of room-temperature electric hysteresis loops in ultrathin HZO polycrystalline films. As this property emerges only at the nanoscale, it is fundamentally different from conventional perovskite oxides and still not completely understood.

My personal objective is to advance our society towards an oxide-electronics-based technology while exploring uncharted territories that can lead to new and intriguing discoveries. I am convinced that the research on functional oxide materials will lead to a plethora of exciting experimental results of interest for the international scientific community and my expertise on transition metal oxides (from samples growth to advanced characterization) will be key for its successful development.

Resumen del Currículum Vitae:

I am a condensed matter physicist working in the oxide epitaxy area with a specific interest in interfaces, ferroic materials and light-matter interaction.

My Bachelor and Master thesis (University of Napoli, Italy, 2010 & 2012-2013, Prof. Marrucci) laid the foundations for my PhD thesis (ETH Zurich, Switzerland, 2013-2017, Prof. Fiebig) during which I developed advanced characterization methods based on nonlinear optics. A central finding of my research has been demonstrating that the symmetry analysis of the optical second harmonic radiation allows to determine the correlation between complex architectures and physical properties in polar and multiferroic oxide heterostructures.

After a short postdoctoral period in the same group, when I was asked to train younger PhD students, in May 2018 I joined the recently formed group of Prof. Gibert at the University of Zurich (Switzerland), now relocated at TU Wien (Austria). During these years, I further engineered high-quality ferroic oxide heterostructures and I also discovered novel interface phenomena. I was also awarded a travel grant for a 6 weeks research visit (Spring 2019) in University of Wisconsin-Madison (USA) in Prof. Eom group. The aim of the visit was to understand how to implement and operate a RHEED-enabled sputtering system. After setting up the experiments there, I used the developed experience to supervise the design of a new vacuum chamber in University of Zurich. This is now the only place in Europe having such cutting-edge growth facility.

In the first half of 2020, when the COVID-19 epidemic was slowly spreading across the world and the first lockdowns in Europe were carried out, I paused my oxide research focus for a few months and I participated to a science communication project (CoronaVerus) focused on explaining daily surveillance pandemic data to the general public. An early intuition of mine used to interpret the anomalous case fatality rate encountered in Italy in the first weeks of the pandemic contributed to a peer-reviewed article also mentioned in non-specialist newspapers.

In March 2021 I moved with my own funding (SNSF Postdoc Mobility awarded in December 2019) to Prof. Catalan group in the Catalan Institute of Nanoscience and Nanotechnology (ICN2, Spain). My current research project aims at understanding the unexpected emergence of ferroic properties in nanoscale fluorite oxides.

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The mixture of my experiences involves a deep knowledge of optical characterization methods in combination with the growth of atomic-scale controlled high-quality oxide heterostructures. This expertise is complemented by the proficiency in laboratory-based structural, electric and magnetic characterization tools and the use of state-of-the-art synchrotron facilities. My research expertise is recognized by twelve published research papers and a certified peer reviewer activity with 4 different journals.

I am a valid and independent researcher, capable of leading novel research lines and guiding younger scientist to the path of discovery. I am currently co-supervising two PhD thesis (one in University of Zurich with Prof. Gibert, one in ICN2 with Prof. Catalan) and a Bachelor thesis. I already supervised one Master thesis and two other Bachelor thesis. I am working to become a well-respected scientist in the oxide electronics community.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	SERRANO SANCHEZ, FEDERICO
Referencia:	RYC2021-033518-I
Correo Electrónico:	fed.serrano.s@gmail.com
Título:	Thermoelectric Transport and Crystal Structure

Resumen de la Memoria:

In the last decades, the ever-growing demands on energy production further stretch the usage of fossil fuel resources. The environmental impact is increasingly severe, and seeking alternative energy sources for a sustainable development has become one of the main concerns in the new century. Thermoelectric materials allow for the direct energy conversion between heat and electricity and enable waste heat recovery in energy production processes. Furthermore, thermoelectric devices display distinctive advantages, such as extreme reliability and endurance, which are truly attractive for technological applications. Actual implementation requires improving the energy conversion efficiency or thermoelectric performance, evaluated by the materials figure of merit $zT= S^2*sigma*T/kappa$;, where S is the Seebeck coefficient, 'sigma' the electrical conductivity, T the absolute temperature and 'kappa' the total thermal conductivity. The overall optimization of these properties is a challenging task due to the physical interrelation between them, usually antagonistic.

Modern theoretical methods and experimental progress have led to breakthroughs in thermoelectric efficiency by novel scientific approaches. Among the most relevant are nanostructuration, the phonon-glass electron-crystal concept, and band engineering. These three approaches are addressed along my research line. My expertise in several synthesis methods, both of polycrystalline and single crystal samples, allows for the preparation of new thermoelectric materials with complex atomic structures and nanostructured morphology. By employing neutron powder diffraction, I can contribute to the understanding of charged defects, which alter the band structure, and the chemical bonding in the crystalline structure, closely related to the thermal conductivity and anisotropic transport properties. These detailed structural investigations can lead to new strategies to improve thermoelectric efficiency, such as by filling-fraction fluctuation for the thermal conductivity reduction. As well, the optimization of the carrier concentration and heavy-element substitution target the band convergence approach and phonon and electron transport decoupling, as in $CoSb_3$ skutterudites. Moreover, the study of thermal transport can contribute to other materials science fields, such as in the investigation of structural and electronic phase transitions, topological materials, solid-solid interfaces and nanoelectronics.

Resumen del Currículum Vitae:

I am a motivated researcher interested in the field of materials science, energy applications, crystallography and condensed matter. My main experience is in solid-state synthesis and chemical-physics characterization, and investigation of the interrelationship between structure and transport properties of semiconductors, more precisely, thermal transport of thermoelectrics for energy conversion. I am contributing author of 36 articles (12 as first author, 3 corresponding author) in well-known journals and 2 book chapters since 2015, with an h-index of 11 and 384 citations (Scopus). I presented my results in 13 different national and international conferences. I have contributed to the study of novel materials with interesting thermal transport properties, showing new routes to the preparation of nanostructured samples, and developing strategies targeted at improving thermoelectric efficiency. This is described more thoroughly in the summary of my researcher career. I have participated in neutron and X-ray diffraction experiments at the Paul Scherrer Institut (PSI, Switzerland), beamline HRPT, Institut Laue Langevin (ILL, France), beamline B2B, and the ALBA Synchrotron (Spain), beamline MSPD. Besides, since 2015 I have been included in the research team of two Spanish National Projects.

In 2019, I obtained my own funding by a Marie Sklodowska Curie Action-Individual Fellowship (MSCA-IF) project in the Solid-State Chemistry (SSC) department of Prof. Claudia Felser at the Max-Planck Institute for Chemical Physics of Solids (MPI-CPfS), in Dresden. It has provided me the opportunity to lead and conduct my own independent research in the field of thermoelectric and topological materials in a highly renowned group. Then, I have been granted a postdoctoral contract to continue my research work at the department, being a valuable asset in Prof. Felser s group.

Throughout my career I have established several scientific collaborations. Apart from my collaborators at the MPI-CPfS, my research network is formed of several international groups and researchers, such as from the Max-Planck-Institut für Eisenforschung, Instituto de Ciencia de Materiales de Madrid, the European Synchrotron Radiation Facility (ESRF), the ALBA synchrotron, the ILL neutron source, Johns Hopkins University, Zhejiang University and Universidad de Castilla La Mancha, among others. These allow me to conduct different specialized experiments and investigations that have proven to positively complement my research on materials science.

At the time of the deadline I have 5 years and 14 months of research experience (3 years and 4 months as a student and 2 years and 10 months as a postdoctoral researcher).

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	DOMINGUEZ ROBLES, JUAN
Referencia:	RYC2021-034357-I
Correo Electrónico:	juadomrob@gmail.com
Título:	Polymeric materials for the development of medical devices

Resumen de la Memoria:

I started my scientific career in the Chemical Engineering Department at the University of Córdoba (UCO) where I carried out my PhD Thesis (January 2015-February 2018). During this period, my research focused on the characterization, fractionation and valorisation of technical lignins coming from different agricultural and forest crops. Technical lignin refers to the native-lignin derivative obtained as the result of the delignification process of the lignocellulosic biomass. Technical lignin is derived mainly from lignocellulosic biomass, and thus its composition and structure directly depend on the source (botanical origin) and method of extraction. Once the native-lignin leaves the cell wall (isolated), its structure is completely altered. Traditionally, technical lignin has been obtained as a by-product of paper mills wherein the revenue is primarily generated by the cellulose-based products, and therefore every process has been optimized to maximize the qualitative and quantitative yield of cellulose. However, the valorisation of lignin is now recognised as essential to enable the economic viability of the lignocellulosic biorefining industry. In this context, in which my PhD was framed, lignin valorisation is now considered in the design phase and has renewed the interest in this macromolecule from valorisation to application approaches. Moreover, during my PhD, I carried out several research stays, being the most important the one at VTT Technical Research Centre of Finland for which I was funded by the UCO (3,000) and VTT (15,000). After the completion of my PhD, I joined Prof. Ryan F. Donnelly s research group at Queen s University Belfast (QUB) (UK), who is an internationally recognized expert in drug delivery, as a Postdoc (May 2018 - to date). During this stay, my research has focused on the design and development of implantable and antimicrobial drug delivery systems for various healthcare applications, such as microneedle array patches, wound dressings, surgical mesh implants, biodegradable subcutaneous implants and cardiovascular prosthesis. Regarding the latest, I recently led the project Development of antimicrobial and personalised vascular graft prosthesis using 3D printing (budget: £2,500, 2021), funded by the Society for Applied Microbiology, as principal investigator. Furthermore, I have created and I am currently leading a new research line regarding the development and manufacture of pharmaceutical and biomedical devices using lignocellulosic materials. To date, I have participated in 14 research projects and my publication record includes 49 SCI articles, >50 papers/abstracts in conference proceedings, 3 book chapters (citations: 1517, h-index = 22) and one patent (EP3698841); maintaining an average of 14 JCR-indexed publications/year in the last two years, and a clear ascending trend of citations, which evidences the growing interest of the published results in the field. Moreover, due to the interest triggered by the latest outcomes of my research, I have been invited to present different lectures about my area of expertise to undergraduate and postgraduate students in the Universidad Nacional Autónoma de Honduras and the Universidad Industrial de Santander (Colombia).

Resumen del Currículum Vitae:

Since I started my PhD in 2015, my research activity has translated in 49 papers in JCR-indexed journals (34 published in Q1 ranked journals), including 19 of them as first author and 5 of them as corresponding author, as well as 3 book chapters. I have also presented part of my research work with posters, oral presentations and invited lectures in national and international conferences. I sincerely believe that my research work is contributing to a better knowledge and understanding of the use of polymeric materials for the development of advanced medical devices. This is evidenced by the clear ascending trend of citations (half of them obtained in 2021) of the aforementioned research works (total citations: 1517, h-index = 22, i10 index = 34), which also shows the impact and the quality of the work I have been carrying on over the past 7 years, being internationally recognised by my peers. During my career, I have obtained funding from institutions such as the Society for Applied Microbiology (SfAM), the University of Córdoba and VTT Technical Research Centre of Finland. I have collaborated extensively with 14 national and international Universities and leading research centres, working together with 99 co-authors. Additionally, I have worked in collaborative projects with leading pharmaceutical and cosmetical companies. Due to this work, I am the author of a patent developed in collaboration with one of these companies (L Oréal) (EP3698841). I have also been actively involved in a wide variety of outreach activities to promote the engagement of general public and school children with science and technology, such as the European Researchers' Night and Coffee with Science , organised by the Science Week of Andalusia, among others. All these achievements led to be selected as finalist for the 2020 Vice-Chancellor s Research Prizes competition in the Postdoctoral Researcher category (being selected among the three best Postdoc across the whole University) (December 2020).

In addition to my research experience, I have been actively involved in the supervision of several students. I supervised the final project of a BSc (Mª Dolores Gómez Sánchez, graduated in June 2016) and a MSc (Lourdes Gómez Fernández, graduated in July 2018) student at the University of Córdoba. Similarly, I have been involved in the supervision of several students during their research duties in the laboratory, including undergraduate (Sean Dynes), MSc (Emilia Utomo) and PhD students (Sarah Stewart, Álvaro Cárcamo Martínez and Qonita Kurnia Anjani) at Queen s University Belfast. As a result of this, I was selected as a finalist for the Postdoc prizes in the Exceptional support category , organised by the Postdoctoral Development Centre at Queen's University Belfast (September 2020). Moreover, I am a reviewer for multiple JCR-indexed journals (> 25), and I have been invited to be the guest editor of 6 JCR-indexed journals from different publishers, including Elsevier, MDPI and Frontiers. More recently, I have been appointed as a member of the editorial board of two Journals: Journal of Renewable Materials (Tech Science Pres) and Chemical and Biological Technologies in Agriculture (Springer). Finally, I have been a member of the scientific committee for various international conferences such as the 2nd IWBLCM (Córdoba, Spain) and the 12th CIADICYP (Girona, Spain).

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Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	GAVILAN RUBIO, HELENA
Referencia:	RYC2021-032448-I
Correo Electrónico:	helena.gavilanrubio@gmail.com
Título:	Magnetic nanoparticles and clusters: developing combinatorial therapies to tackle cancer

Resumen de la Memoria:

Including the completion of my PhD and 4 years of postdoctoral experience, I have been dedicated to full-time research since 2012. I have worked in five different institutions: University of Heidelberg in Germany (Max-Planck Institute for Intelligent Systems), Universidad Complutense de Madrid (UCM), the Materials Science Institute of Madrid (ICMM-CSIC) (Spain), the Italian Institute of Technology in Genova (Italy), and the Carlos III University of Madrid (UC3M). During these years, I have developed a strong track record that includes 24 publications and 17 conference presentations. I am co-inventor of 2 patents and I am co-founder of 1 spin-off from IIT. I have developed an extensive network of international/national collaborations with major scientists that have pioneered the fabrication, analysis and application of nanocrystals in biomedicine.

Since my PhD, my research line has focused on the development nanomaterials for biomedicine. Included under this topic is the treatment of solid tumors by means of nanomaterials . In particular, I have exploited magnetic nanomaterials, discovering new ways for the scalable and controllable synthesis iron oxide and other ferrite nanoparticles (NPs), paying special attention to the control of the nanocrystal s dopants, shape, size, and assembly. I have explored their potential and suitability for magnetic hyperthermia therapy, that exploits the heat generated by the NPs under an external radiofrequency with limitless penetration depth, to locally raise the temperature and burn tumor cells.

Despite the European approval of magnetic hyperthermia therapy as adjuvant therapy for glioblastoma multiforme tumor and the ongoing clinical trials on other solid tumors, nanotherapies have yet not become part of the standard of care for cancer therapy due to their limited performances at clinical conditions. In the search of alternative, my research work focuses on the assessment of how size, shape, composition and assembly of the nanomaterials boost the MHT performance at clinical conditions and embrace the concept of multimodal therapy, which aims to combine MHT with chemotherapy, radiotherapy, immunotherapy, photodynamic or phototherapy. In particular, my current line focuses on the development of two-material inorganic heterostructure made of MXenes and ferrite nanocubes, benefiting from the structural and magnetic properties that each counterpart offers. To ensure optimal therapeutic performance, I explore the integration of inorganic heterostructures in polymeric materials forming nanocomposites.

Resumen del Currículum Vitae:

Including the completion of my PhD in October 17th 2017 and 4 years of postdoctoral experience, I have been dedicated to full-time research since 2012. I have worked in five different institutions: University of Heidelberg in Germany (Max-Planck Institute for Intelligent Systems), where I conducted my Bachelor Thesis and an Internship; Universidad Complutense de Madrid (UCM) in Spain, where I conducted my Master Thesis; the Materials Science Institute of Madrid (ICMM-CSIC) in Spain, where I conducted my PhD; The Italian Institute of Technology in Genova (Italy), where I worked as a postdoctoral researcher and the Carlos III University of Madrid (UC3M), where I currently I work as a Research Fellow in the Dept. of Materials Science and Engineering and Chemical Engineering in the Group of Polymers and Composites. During these years, I have built up a strong track record that comprises 24 publications and 17 conference presentations. My work has been published in high impact factor journals such as Chem. Soc. Rev. (IF = 54.5, 2020), Nature protocols (IF = 13.4, 2022), Adv. Drug Delivery Rev. (IF = 13.3, 2019), ACS App. Mater. (IF = 8.4, 2019) and Acta Biomater. (IF = 6.3, 2017). The work of my thesis has substantially contributed to the ongoing creation of ISO norm (ISO 19807 Nanotechnology: Liquid suspension of magnetic nanoparticles). I have coped with systematical elaboration of reports and deliverables in the 6 R&D and Innovation projects I have been involved in. I am co-inventor of 2 patents and I am co-founder of 1 Start-up from IIT: HyperCube . I aim to move forward in the use of nanocrystals in biomedicine and explore their incorporation in polymer matrix composites.

2014   2017   PhD in Advanced Chemistry at the Dept. Physical Chemistry I at UCM. Thesis made at the MAMBIO s group at ICMM-CSIC, Spain and supervised by Prof. M. P. Morales and Prof. L. Gutiérrez. Thesis framed within the EU project + a national project.
Research lines: Colloidal synthesis of magnetic nanoparticles for Biomedical Applications. Major results: 10 papers + 1 book chapter. (Thesis defense date: 17/10/2017)
2018   2021   Postdoc researcher at IIT (Italy) in the Group of Nanomaterials for Biomedical Applications (NfBA) leaded by Dr. Teresa Pellegrino. Engagement in 4 EU projects.
Research lines: Gramm-scale production of magnetic and magneto-plasmonic nanoparticles with cubic/anisometric shape for biomedical applications. Major results: 14 papers + 2 patents.
2021 - Present   Postdoctoral Fellowship at UC3M (Spain) in the Group of Polymers and Composites leaded by Prof. Juan Baselga.
Current research lines: Fabrication of MXenes-polymers-magnetic nanoparticle s composites for the development of opto-magnetic multifunctional platforms for Biomedicine.

Finally, I have developed an extensive network of collaborations in the frame of material science and nanotechnology based on magnetic nanoparticles:
- Prof. Claire Wilhem (U. Paris Diderot, France)
- Prof. Quentin Pankhurst (University College London, UK)
- Dr. Teresa Pellegrino (Italian Institute of Technology, Italy)
- Prof. Roy Chantrell (University of York, UK)
- Prof. Puerto Morales (ICMM-CSIC)

- Prof. Lucía Gutiérrez (INA, Zaragoza, Spain)

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	GRANADOS MIRALLES, CECILIA
Referencia:	RYC2021-031181-I
Correo Electrónico:	c.granados8@gmail.com
Título:	Design of Sustainable Permanent Magnets through Advanced In Situ Experiments

Resumen de la Memoria:

I am a Juan de la Cierva fellow at the Ceramics for Smart Systems Group, at Instituto de Cerámica y Vidrio, CSIC, Spain. My scientific interest is to explore new materials and/or novel functionalities for their application as permanent magnets. A great deal of the technologies enabling clean energy generation and green mobility (wind turbines, e-vehicles) operate on magnets that contain Rare-Earth Elements (REE), which are critical raw materials with a high supply risk. Therefore, realizing a sustainable future with lower CO_2 emissions inexorably relies on the substitution of REE by non-critical materials in these devices. In this context, my main research goal is maximizing the magnetic performance of REE-free alternatives taking advantage of the experience gained throughout the different stages of my career.

As a PhD at the Center for Materials Crystallography (Aarhus University, Denmark), I became an expert on Rietveld modelling of powder diffraction data, using both X-rays and neutrons as a probe (PXRD, NPD). More specifically, I planned and participated on numerous in situ powder diffraction experiments at Large-Scale Facilities, with the aim of gaining a better understanding of various dynamic physicochemical processes happening to nanoparticles and achieving control over the produced material. Moreover, I designed and adapted various custom-made experimental setups to better suit the requirements of each specific case under study. As a postdoctoral fellow at CSIC, I devoted a great deal of work to understanding the growth mechanism of various complex oxides based on Low-Energy Electron Microscopy (LEEM). Highly epitaxial ultra-thin films (nearly model systems) were grown by Molecular Beam Epitaxy (MBE) while the surface was imaged with LEEM. I also participated on LEEM experiments coupled with synchrotron Photoemission Electron Microscopy (PEEM), an extremely powerful tool to understand the materials at the atomic level, including magnetic interactions and magnetic domain configurations.

As a leader of the line   Design of Sustainable Permanent Magnets through Advanced In Situ Experiments , I currently dedicate my efforts to carrying out in situ investigations on both ultra-thin films and powder samples (model and real systems), with the aim of designing preparation methods that allow obtaining highly controlled products in terms of composition, size and microstructure. Following the in situ studies, I am also concerned with making these processes viable at the industrial scale. Up-scaling the methods designed at the lab-scale will allow preparing tailor-made permanent magnet materials matching the requirements of the specific applications. In this context, I have recently published a family of worldwide patents reporting a novel method for manufacturing ferrite-based magnets with a >30% decrease in energy consumption. At present, I participate in the ongoing projects INSPIRES (EIT Raw Materials, Project nº. 20090), MAT4LOWDISS (RTI2018-095303-A-C52) and HESIOD (IEEE-Special Project), in the latter as principal investigator.

Resumen del Currículum Vitae:

Graduated in Chemistry, I obtained my PhD in Nanoscience (June 2017) from Aarhus University, Denmark, working under the supervision of Prof. Mogens Christensen and Prof. Bo Iversen. In 2018, I joined the group led by Prof. J. F. Fernández at Instituto de Cerámica y Vidrio, CSIC, Spain, hired under the EU Project AMPHIBIAN (H2020-NMBP-2016-720853) in which I participated as a Work Package Leader. I currently enjoy a Juan de la Cierva postdoctoral fellowship at the same institution (FJC2018-035532-I), after being the top rated candidate within the area of   Ciencias y Tecnologías de Materiales   in the corresponding competitive call.

I have published 31 peer-reviewed scientific articles, out of which 84% are in Q1 journals and 42% Open Access, that have reached 347 citations and an h index=12 since my first publication in 2016. I have a personal average impact factor of 7.47, calculated based on the IFs of each scientific journal in the corresponding years. I have contributed to 48 conferences (39 international), including 19 oral communications and 3 invited talks. Other publications include 1 non-reviewed article and 1 family of worldwide patents.

Currently, I am Principal Investigator of 1 international project (IEEE-Special Project, $10.000). I have been directly involved in 3 EU Projects (Work Package Leader for H2020-NMBP-2016-720853) and 1 MICINN Project. I have also received 1 postdoctoral fellowship (FJC2018-035532-I, 50.000) and 1 predoctoral fellowship (SU PhD, Denmark, 36.500). I have also received EU funding as PI through the NMI3-II EC access program (FP7, nº. 283883, ID20150702, 1.430) and NFFA-Europe (H2020, nº. 654360, ID1032, 1.780), to carry out beamtime experiments at Paul Scherrer Institute (PSI) and Heinz Maier-Leibnitz Zentrum (MLZ). respectively. As a regular user of various Large-Scale Facilities, I have participated on 20 beamtimes (80 full beam days, 240 shifts) and 17 of my published articles (55%) are based on data collected at this type of installations. I have designed and executed up to 10 beamtime experiments as co-proposer and 4 as Main Proposer. A beamtime experiment of which I was PI was designated as one of the   Research Highlights of 2018   by the German Electron Synchrotron (DESY).

I have supervised 3 Bachelor and 4 Master student projects. All of them have chosen to continue in an academic career, and they are either doing a PhD or have recently completed it. During my PhD, I accumulated 590 teaching hours in English in official Bachelor and Master courses at Aarhus University, Denmark (e.g. Hard X-ray Synchrotron Science, Coordination Chemistry,   ). I am certified by ANECA for the position   Profesor Contratado Doctor .

As a Work Package Leader (WP9 Communication) for the EU Project AMPHIBIAN, I was the main responsible for the Open Access Repository of the project complying with the EU s Open Science policy, I managed the project website and social media platforms and organized dissemination events and activities addressed to the general public. I have been part of the organizing committee of 1 international conference (EPDIC14) and 2 national

workshops, and I am co-organizer of 1 symposium at a national conference (SECV 2022). I am an active member of "Comisión De Igualdad Intercentros UAM+CSIC" (2018 now) and "Grupo de Igualdad, Comunicación y Divulgación del ICV-CSIC" (2019 now).

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	SESSINI , VALENTINA
Referencia:	RYC2021-033921-I
Correo Electrónico:	valentina.sessini@gmail.com
Título:	Design of multifunctional stimuli responsive bioplastics and biocomposites for emerging applications

Resumen de la Memoria:

The principal research line of Valentina Sessini to date has focused on the design of multifunctional stimuli responsive bioplastics and biocomposites with outstanding properties for a range of novel, disruptive applications. Valentina Sessini s 8-year scientific career started in 2013 in the framework of the International Master Course in Green Chemistry at the University of Sassari. Then she started to work in the area of biobased and biodegradable polymers as she performed a short stay at Novamont S.p.A where she worked on starch-based adhesives. Since then, Valentina has gained a broad research experience in the synthesis, processing, and characterization of bioplastics in different renowned research groups such as:

(i) Materials Science and Technology Centre of the University of Perugia, UNIPG (PhD student, Italy, 11/2013-10/2016), where she worked (supervised by Prof. J. M. Kenny and Dr. L. Peponi) on smart and multifunctional blends and bionanocomposites based on starch. This resulted in 3 book chapters and 8 articles with average IF~4.6 (6 as 1st and 1 as corresponding author - V. Sessini et al. Polym. Degrad. Stabil., 2019, 159, 184-198) and 11 conference contributions (3 oral communications).

(ii) Institute of polymer science and technology, ICTP-CSIC (predoctoral researcher, Spain, 12/2016-05/2017), where she worked (supervised by Dr. L. Peponi) on stimuli-responsive polymers with shape memory properties. This resulted in 2 book chapters and 4 articles with average IF~3.8 (2 as 1st author) 1 patent application and 1 conference contribution (oral communication).

(iii) Laboratory of Polymeric and Composites materials, University of Mons, UMONS (postdoctoral researcher, Belgium, 06/2017-08/2018), where she worked (supervised by Prof. P. Dubois and Prof. J.M. Raquez) on the synthesis and processing of smart bioplastics with shape memory and piezoelectric properties. This resulted in 1 book chapter and 3 articles with average IF~5.3 (2 as 1st and corresponding author - V. Sessini, et al. ACS Sustain. Chem. Eng. 2021, 9, 14946-14958; V. Sessini et al. Polym. Degrad. Stabil., 2018, 152, 126-138.) and 7 conference contributions (1 oral communication).

(iv) Sustainable Catalytic Processes with Organometallic Compounds group, University of Alcalá, UAH (Marie-Curie Fellow, Spain, 05/2019-present), where she is leading and developing a new research line within the group as part of her Got Energy Talent COFUND Marie-Curie project designing piezoelectric bioplastics for energy harvesting applications by catalytic processes. Until now she has supervised 1 MSc + 1 BSc students and currently she is supervising 1 MSc + 1 PhD students. Valentina has authored 2 book chapters and 3 articles with average IF~4.1 (2 as 1st author) and 11 conference contributions being speaker in 3 (1 invited talk) and chairman in 1.

During her career, Valentina Sessini was involved in different European project such as BIOHARV project and the Cost action PRIORITY. Moreover, she organized and managed different outreach activities for renowned event such as the Science Week and the European Researchers Night. In September 2020, Valentina was awarded by EuroScience as the Best Young European Researcher 2019.

Resumen del Currículum Vitae:

In 2013 Valentina Sessini (H-index 11) entered in the PhD program of the University of Perugia as the winner of a competitive Scholarship of the Italian Ministry of Education. In 2017, she obtained her PhD degree in Civil Engineering and Innovative Materials at the University of Perugia defending her PhD thesis titled "Multi-responsive Shape Memory Nanocomposites: from Renewable sources to Biocompatible Polymers directed by Prof. Kenny and Dr. Laura Peponi in which she already published 8 articles and 3 book chapters. Thanks to the mobility activity developed during her PhD thesis, she had the possibility to move to Madrid and work at the ICTP CSIC. Moreover, during her PhD, Valentina Sessini obtained different mobility grants such as, Erasmus + Traineeship and "Soggiorno all'estero" granted from UNIPG, and she moved to Mons joining the Prof. Dubois's group in 2014 and 2015 for 7 months. She also collaborated with the Dr. Lourdin's group at the National Institute of Agronomical Research - INRA at Nantes (France) in December 2015. In the frame of her PhD degree, Valentina has impactfully contributed to the research topics on shape-memory polymers and related nanocomposites, being considered as pivotal materials for the polymer science and engineering field. After her thesis, she was offered a postdoctoral position at the University of Mons (BELGIUM), working in the framework of the INTERREG FWVL BIOHARV project. The main objective of her postdoctoral project was to design new biobased non-isocyanate polyurethanes with piezoelectric properties for potential application as energy harvesters. In 2019 Valentina Sessini obtained a Marie-Curie Fellowship, at the University of Alcalá in Spain in which her research topic encloses the design and the synthesis, by catalytic processes, of new bioplastics with piezoelectric properties for possible energy harvesting applications, with the aim to offer innovative industrial solutions in the field of smart energy.

During her research career she had the opportunity to learn advanced technical and scientific skills regarding the design, environmentally friendly synthesis of bioplastics, as well as their processing and characterization. Moreover, she had the chance to strengthen her curricula about making decisions concerning experimental approaches, research funding, mentoring and project management that had reinforced her independent thinking and leadership qualities. She is also very active in networking by implementing a vast European network of collaborators active in the field of bio-based polymers and related smart materials.

The impact of Valentina s research in the field of polymer materials and related materials is clearly reflected in her scientific production. She has published 18 peer-reviewed JRC scientific publications (average impact factor: 4,6) with 465 cites and 8 book chapters. Her work has been presented in more than 38 national and international congress. She is frequently Reviewer of high-quality SCI Journals (IF>12.5) from different editorials (ELSEVIER, Wiley, MDPI, ACS, among others). She is co-editor of the Elsevier book "Biopolymers: Synthesis, Properties, and Emerging Applications" and guest editor of the Special Issue Molecules Advances in Shape Memory Polymers. In September Valentina was awarded by EuroScience as the Best Young European Researcher 2019.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	VAZ , DIOGO
Referencia:	RYC2021-033455-I
Correo Electrónico:	d.vaz@nanogune.eu
Título:	Spin-based nanodevices

Resumen de la Memoria:

During my researcher career, I have been focusing on investigating new spin-based phenomena and building cutting-edge logic nanodevices. I am an expert in spintronics, magnetoelectrics, 2D electron systems, strongly correlated oxides, and nanofabrication. Among some of my biggest achievements are: the first experimental demonstration of spin-charge conversion in oxide-based $LaAlO_3/SrTiO_3$ heterostructures; tuning and modeling of the properties of the 2D electron gas at $LaAlO_3/SrTiO_3$ interfaces and $SrTiO_3$ surfaces using metallic capping layers; improvement of one order of magnitude and largest to date reported spin-charge conversion efficiency in $Al/SrTiO_3$, revealing topological non-trivial features that boosted the effect; a new technique to experimentally determine Rashba properties of 2D systems from angle-dependent magnetotransport; spin-charge conversion in $KTaO_3$ 2D electron gases; non-volatile electric control of spin-charge conversion in engineered $Al/SrTiO_3$; and chirality-dependent charge-to-spin conversion in tellurium nanowires. Beyond fundamental research in novel systems, I have devised two device applications involving one patent for a ferroelectric-based spin logic device, and the world s first experimental demonstration of a new magnetoelectric spin-orbit logic device at room temperature, highlighted by Intel as a breakthrough in new switches for energy efficient computing .

The main goal of my research is to discover new technologies beyond the conventional CMOS to tackle the increasingly higher demands imposed by the consumer electronics industry. To achieve this, I am searching and investigating new options to perform ultra-low power logic operations, with unconventional materials and physical phenomena that can be, in the future, integrated with current manufacturing chip processes.

Resumen del Currículum Vitae:

In 2015, I graduated from Universidade Nova de Lisboa in Portugal, where I obtained a bachelor s (2010-2013) and master s degree (2013-2015) in Micro and Nanotechnology (within the top 10%). Due to the extremely diverse course list, namely Advanced Electronics, Nanofabrication Processes, Physics, Biology, Management, and Art History, I gained a broad set of tools that allow me to tackle the most challenging problems in creative and resourceful ways. Moreover, dealing with people from different backgrounds, granted me the ability to be easy-going and diplomatic with anyone, which boosted tremendously my team working and networking capabilities. During my stay in Universidade Nova de Lisboa, I did two internships, the first within a scientific research project to improve solar cell efficiency, and a second in Rauschert (globally leading company of technical ceramics) where I worked in the quality management department. In 2015, I won an Erasmus+ traineeship grant to perform a scientific research internship in Paris (France), where I eventually stayed for a PhD. As a result of this internship, I was awarded Best Thesis and Excellence Award 2016 , given by the president of the senate of the European Materials Research Society.

By the end of 2015, I won a doctoral grant from Sorbonne Université (2015-2018), in Paris (France), to be developed at the Unité Mixté de Physique CNRS/Thales lab. There, I worked under the supervision of Prof. Agnès Barthélémy and Dr. Manuel Bibes, pioneers in oxide electronics and multiferroics, and in close collaboration with 2007 Nobel prize winner Albert Fert, co-discoverer of the giant magnetoresistance (GMR). During this project, I investigated the physics of two-dimensional electron gases formed at the surface of complex oxides, and their usage for the exploration of spin-based phenomena. From this work, I published 6 peer-reviewed articles (4 as first author), three of them in high-impact journals (two in Nature Materials, one in Advanced Materials), and one as a review article. In addition, this work resulted in 1 patent filled for a new type of logic device. Moreover, this doctoral experience was boosted by the fruitful collaborations with France, Germany, Poland and Switzerland. Working with such a diverse group of people made me a good team player and expanded tremendously my scientific knowledge. In March 2019, I joined CIC nanoGUNE (San Sebastian, Spain) as a post-doctoral researcher. Within a collaborative project with Intel, we were able to achieve the world s first functional demonstration of a fully integrated Magneto-Electric Spin-Orbit device (MESO), a work featured in Intel s yearly report, as one of three massive advances towards new switches for massively energy-efficient computing . In 2020, I successfully obtained a Marie Skłodowska-Curie Individual Fellowship, securing 160,000 in funding to explore spin-charge conversion in highly resistive materials for efficient magnetization readout, a project entitled SPECTER. Since then I have published 1 peer-reviewed article currently accepted in Nature Materials, and I am writing two more. I have also presented my research work in 14 conferences and workshops (10 oral contribution and 4 poster presentations), notably with 3 invited talks and 1 technical talk at IEDM 2021, one of the most important device-oriented conferences worldwide.

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	GONZALEZ HERRERO, HECTOR
Referencia:	RYC2021-031050-I
Correo Electrónico:	hector.gonzalezherrero@aalto.fi
Título:	Atomic scale characterization of novel low dimensional materials.

Resumen de la Memoria:

For the last ~10 years, my research has been focused on the synthesis and study of low dimensional materials (specially 2D materials) and their properties by means of Scanning Tunneling Microscopy (STM) and non-contact Atomic Force Microscopy (nc-AFM).

My Ph.D. was devoted to understand and manipulate graphene properties at the atomic level, using a low temperature scanning tunneling microscope (LT-STM) in ultra-high vacuum conditions as main experimental technique. My main interests were to study how to selectively add magnetic moments to graphene via adsorption of single hydrogen atoms, to go beyond the standard use of STM by showing that it can also be used to visualize topological properties, and to understand graphene/substrate interactions in order to modify its properties.

After my defense, I joined the group of Dr. José Ángel Martín Gago under the graphene flagship program to continue with my research related with graphene and 2D materials. My research during that time pursued the growth of graphene on insulators in UHV and I also participated in a project studying new protective layers for graphene preservation.

In 2018 driven by my interest in non-contact AFM, I moved to Czech Republic to work with Prof. Pavel Jelínek. In the 2 years I spent there, I learnt how to functionalize tips and obtain high resolution AFM images to study on-surface chemistry. In particular, I studied pentacene 1D-polymers. Previous studies had shown how these polymers are in a non-topologically trivial electronic phase, exhibiting in-gap zero-energy edge states. I studied how the topological phase of the polymers depends on their length, finding the critical length at which the topological quantum phase transition takes place. Thanks to our theoretical calculations, we found out that the mechanism governing the quantum phase transition is a Pseudo Jan-teller effect.

Since 2020, I am at Aalto University in Finland where I joined the group of Prof. Peter Liljeroth. In this new postdoc, I have shifted my research interest towards Transition Metal Dichalcogenides (TMDs). I am currently learning how to grow different TMDs using Molecular Beam Epitaxy and using my expertise on scanning probe techniques to study their properties with a 300mK STM with the possibility to apply magnetic fields.

From mid-2022 I am expecting to start my Marie Sklodowska-Curie Global Fellowship. My project aims to realize and understand new correlated electronic phases of matter in TMDs twisted heterostructures that do not exist in single TMDs layers. An extra feature of stacking 2D materials, is the appearance of an interference pattern called moiré. The size of the induced moiré will depend on the size of the twist angle. This moiré pattern can be used to apply a periodic potential that can give rise to new physics. Twisted graphene devices have already shown incredible results while twisted TMDs devices have started to attract attention just recently. These new electronic phases could radically alter the conductivity of the heterostructure, and are expected to be highly sensitive to the electron density in the moiré superlattice and hence can be tuned via electronic gates, creating novel low energy switches.

Resumen del Currículum Vitae:

I graduated in physics in 2010 and obtained my M.Sc. in Condensed Matter and Nanotechnology in 2011 at the Universidad Autonóma de Madrid. During my Ph.D. (2011-2017) I developed my research at the NanoSPM laboratory in the Condensed Matter Physics Department (Universidad Autónoma de Madrid) under the supervision of Prof. Iván Brihuega. I made a 2 months research stay at the Max Planck Institute for Solid State Research in Prof. Klaus Kern s group and 1 month at the Radboud University in Prof. Alexander Khajetoorians group. My Ph.D. thesis "Probing and manipulating graphene physics at the atomic level" was awarded with summa cum laude honors. My worked was focused on the study of graphene by means of Scanning Tunneling Microscopy.

After my Ph.D., I worked for 6 months as a postdoctoral researcher at the Instituto de Ciencia de Materiales in Madrid with Dr. José Ángel Martín Gago. There, I continued investigating graphene, and developed new methodologies to grow this purely 2D material on different surfaces and cap it in order to protect it. Also, I collaborated with my former group to finish some experiments I had started during my Ph.D. and to improve the STM setup.

Thereupon, I moved for 2 years to Czech Republic for my second postdoc. This time my research was focused on 1D polymers grown by on-surface chemistry and how their properties change depending on their length using nc-AFM together with STM.

Currently, I am a postdoctoral researcher at Aalto University in Helsinki, where I conduct research on structural and electronic characterization of transition metal dichalcogenides by means of scanning probe microscopy techniques, together with RHEED and XPS.

I have published 10 peer-reviewed papers, some of them in prestigious journals such as Science, Nature, Advanced Materials, ACS Nano and PRL. My record prioritizes quality over quantity with 40% of my publications in the top 10% journals of its field (D1) and the 60% left published in the top 25% (Q1). Most of my papers include collaborations with national or international theory groups. My papers have received over 700 citations according to ISI Web of Science (>900 in Google Scholar). Two of my articles have the Web of Science highly cited mention (they received enough citations to place it in the top 1% of the academic field of Physics based on a highly cited threshold for the field and publication year). I have also refereed for Nature Communications.

I have presented 7 oral contributions in national and international conferences and I have participated in more than 7 research projects national (Consolider, MINECO) and international (ERC, graphene Flagship, Academy of Finland).In 2020 I was awarded with a Marie Sklodowska-Curie global fellowship, securing my own funding and independence for the next 3 years. However, the project had to be postponed due to the covid pandemic till mid-2022.

During the last years I have actively participated in the guidance of master and Ph.D students. Since January 2022, I am a teaching assistant of the Surface Physics course with Prof. Peter Liljeroth, where I take care of the exercise sessions as well as correcting the assignments from the students.

Throughout my career I was awarded the Max Planck Prince of Asturias Award Mobility Programme to spend 2 months in the MPI institute for solid state research, the INC Young Researchers Prize in Materials Science and the PhD Extraordinary Award from the Universidad Autónoma de

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	CONCELLON ALLUEVA, ALBERTO
Referencia:	RYC2021-031154-I
Correo Electrónico:	albertoconcellon@gmail.com
Título:	Functional Materials based on Liquid Crystals

Resumen de la Memoria:

I am a chemist with an extensive experience working in the border area between organic and supramolecular chemistry, in addition to various fields of materials science. During my scientific career I have designed new functional organic materials for addressing critical global challenges in the areas of organic electronics, optics, soft robotics, photonics, point-of-care biosensing and environmental remediation.

I obtained my PhD in Organic Chemistry from the University of Zaragoza (2014 2018), where I focused on the synthesis of functional soft materials based on liquid crystal dendrimers (supervisors: Dr. Mercedes Marcos and Dr. Pilar Romero). The molecular shape, intermolecular interactions and nanosegregation of the dendritic architectures influenced their self-assembly into a range of well-organized nanostructures that I used to prepare organic semiconductors, proton-conductive materials, nanoporous polymers, and drug delivery systems. I undertook pre-doctoral stays at the Eindhoven University of Technology (Prof. Albert Schenning) and at the University of Calabria (Prof. Attilio Golemme) that enabled the creation of new robust inter-institutional collaborations in my PhD group.

Since 2018, I am a postdoc in the laboratories of Prof. Timothy M. Swager at MIT, where I have mastered a variety of state-of-the-art synthetic tools and methodologies for the innovative design of complex smart colloids, chemical sensors and chiro-optical materials. I have recently established a paradigm-shifting concept for the fabrication of complex smart colloids comprising liquid crystals. I have also demonstrated the extraordinary potential of this liquid crystal emulsion platform: a) it can serve as efficient template to control the organization of nanoparticles at fluid interfaces, and b) it can transduce complex molecular recognition events to detect foodborne pathogens. Presently, I am leading our group efforts to develop a new generation of fluorescent polymers that respond to per- and polyfluoroalkyl substances.

My scientific achievements have been published in 27 peer-reviewed journals. I also have one US patent and have made 30+ contributed presentations at international conferences. Moreover, I have been involved in several research projects funded by the Government of Spain, the US Department of Defense and the US Air Force Office of Scientific Research, and have experience with project management and dissemination of my research. In addition, I have a proven record of independence and leadership, as I was Assistant Editor of the journal Synfacts (Ed. Thieme Group), the representative of PhD students and postdocs at my PhD institution, co-organizer of several outreach programs, as well as a demonstrated record of teaching BSc courses, research tutoring, and individual mentoring.

In conclusion, I believe that all these experiences in organic synthesis, polymers and soft materials has prepared me to conduct an exciting research program that will appeal to and engage the scientific community focused on the preparation of advanced functional materials.

Resumen del Currículum Vitae:

I received my BSc in Chemistry (2012) from the University of Zaragoza (UNIZAR) with an undergraduate dissertation on biodegradable polymers for tissue engineering purposes (supervisor: Prof. Luis Oriol). During this time, I also enjoyed a 3-month introduction to research fellowship at the Institute of Nanoscience of Aragón. I then carried out my MSc in Chemical Research (2013) at the same university with a dissertation on photo-responsive supramolecular polymers (supervisors: Prof. Luis Oriol and Dr. Milagros Piñol).

I then carried out my PhD in Organic Chemistry at UNIZAR with a PhD Fellowship from the Spanish Ministry of Economy and Competitiveness (supervisors: Dr. Mercedes Marcos, Dr. Pilar Romero). My PhD research was focused on the preparation of functional liquid crystal dendrimers and their application in organic electronics, nanoporous materials and drug delivery. To strengthen the multidisciplinary of my education, I performed two predoctoral stays abroad: the first one in Italy (3 months at the University of Calabria, 2015) in the team of Prof. Attilio Golemme and the second stay in the Netherlands (4 months at Eindhoven University of Technology, 2017) in the group of Prof. Albert Schenning. During my PhD, I also gained valuable experience as the representative of PhD students and postdocs or the co-organizer of several outreach programs. I obtained my PhD in 2018 with the qualification of Summa Cum Laude and the Best Doctoral Dissertation Award.

Afterwards, I moved to the USA to work as postdoc at the Massachusetts Institute of Technology (MIT) in Prof. Timothy Swager s group. During my postdoctoral career I have gained expertise in chemical and physical properties of complex liquid crystal emulsions and pioneered their use as biosensors. Moreover, I have mastered a variety of state-of-the-art synthetic tools and methodologies for the preparation of polycyclic aromatic hydrocarbons, conjugated polymers or functional nanoparticles.

All this research has resulted in many scientific outcomes, and up to now, I have published one book chapter and 27 publications in top peer-reviewed journals in the areas of Multidisciplinary Chemistry [J. Am. Chem. Soc. (3), ACS Cent. Sci. (2), Angew. Chem. Int. Ed. (1), Chem. Sci. (1)], Materials Science [Adv. Funct. Mater. (1), ACS Nano (1)], Organic Chemistry [J. Org. Chem. (1), Org. Chem. Front. (1)] and Polymer Science [Macromolecules (2), ACS Macro (1)]. I am first author in 63% of my publications and 75% these works were published in first quartile (Q1) journals. My h-index is 12 and my publications have received over 300 citations (Web of Science). I have also more than 30 contributions at national and international conferences and I am co-inventor of a US patent derived from my postdoctoral research. I have participated in 8 national and international projects and I am a regular reviewer (44 reviews in the last 3 years) for top JCR-indexed journals from the ACS, RSC, Elsevier or Wiley. I am a member of the ACS, RSEQ and the International Liquid Crystal Society. Additionally, I have a demonstrated record of teaching BSc courses, research tutoring and mentoring undergraduate and PhD students.

Área Temática:	Ciencias y tecnologías de materiales
Nombre:	PASCUAL GONZALEZ, CRISTINA
Referencia:	RYC2021-034194-I
Correo Electrónico:	cristinapascual88@gmail.com
Título:	The study of structure-processing-properties relationships in new advanced functional materials

Resumen de la Memoria:

The knowledge of the relation between structure, processing and physical properties is fundamental to design new materials with new functionalities for many fields. This structure-properties-property relationship has been the main research line of the candidate along her career.

During the post-graduate period, Cristina investigated the improvement of piezoelectric properties by the introduction of defects in a ceramic crystal structure. Following this methodology, Cristina directed forward the study of optical properties of the electroceramics, that were not very explored. During her PhD, Cristina developed different strategies to narrow the band-gap of promising lead-free ferroelectric ceramics by chemical modifications, in order to increase its photovoltaic efficiency.

During her postdoctoral stage, Cristina had a more multidisciplinary research experience. The candidate was focused on the development advanced structural composite materials including metal, ceramic, and polymeric-matrix composites. More specifically, Cristina showed special interest in the processing of new composite materials for 3D printing with tailored properties, for a wide range of engineering applications.

First, the candidate investigated the mechanical properties of 3D printed continuous carbon fibre-reinforced thermoplastic composites by Fused Filament Fabrication (FFF). Second, she optimased processing routes of carbon fibre composite material with polyurethane (PU) protective coating, by Vacuum-Assisted Resin Infusion (VARI) and Resin Transfer Moulding (RTM). Finally, Cristina developed new biodegradable metal/polymer composites with personalized properties (mechanical and degradation) for tissue engineering applications.

To sum up, Cristina Pascual-González is an applied physicist with a multidisciplinary profile in Materials Science and Technology. Her versatile research career has allowed the candidate to develop a broader vision of the material science field, from the most fundamental approach to the fabrication of structural and functional parts.

Resumen del Currículum Vitae:

Cristina Pascual-Gonzalez obtained the degree of Doctor of Philosophy (PhD) in Materials Science at Sheffield Hallam University where she was awarded a Vice Chancellor's PhD full-time scholarship (Sheffield, United Kingdom). Then, Cristina worked as Researcher Associate in the Composite Materials Group at IMDEA Materials (Madrid, Spain), from February 2018 to January 2022. Currently, she holds an Assistant Professor position at Universidad Rey Juan Carlos in the Applied Mathematics, Materials Science Engineering, and Electronics Technology Department.

She has published 1 book chapter and 15 research articles in periodicals indexed in the Journal Citation Reports (JCR), out of which 12 are in journals listed in the first quartile of the areas of materials multidisciplinary, materials ceramics, composites and physics applied (high impact factor journals as, Additive Manufacturing or Composites Part B: Manufacturing); and the rest articles are listed in Q2. The candidate is the first author of more than fifty percent of her publications and the second author for the remaining, which have received 313 citations since 2016 (h index of 12, i10 index of 12).

Pascual-Gonzalez has attended 9 international conferences (4 articles for Conference Proceedings) and has actively participated in different National, European and International R&D programmes. Additionally, she has been recently invited to take part as external expert in the evaluation of proposals for E-COST actions and Topic Board Member of Materials Open Access Journal (MDPI).

Cristina has also supervised 4 BEng Thesis and 4 MEng Thesis. Cristina worked as Associate Professor part-time in Aerospace Engineering Degree and MEng Industrial Engineering at Universidad Rey Juan Carlos and Universidad de Navarra, respectively. She is also devoted to science spreading focused on families and high school students (Science Week, Feria Madrid por la Ciencia y la Innovación and Día Internacional de la Mujer y la Niña en la Ciencia).

Área Temática:	**Ciencias y tecnologías de materiales**
Nombre:	BERMUDEZ GARCIA, JUAN MANUEL
Referencia:	RYC2021-033040-I
Correo Electrónico:	j.bermudezgarcia@gmail.com
Título:	Hybrid materials for eco-friendly refrigeration, heating and energy storage.

Resumen de la Memoria:

I'm a postdoctoral researcher leading a research line on the development of solid materials for eco-friendly refrigeration, heating, and energy storage, where I have raised ~250 k (217k for wage and 33k for research). These materials could replace the hazardous refrigerant gases that will be phase-out by 2030 (Kigali Agreement). They are safer for the environment, the transport and the user and favour circular economy. Therefore, my research aligns with the Spanish priority area of "Climate, Energy and Mobility", and with 2 of the 5 EU Missions ("Adaptation to Climate Change" and "Climate Neutral and Smart Cities").

I have a demonstrated experience across materials science, chemistry, nanoscience, physics, engineering and knowledge transfer. I have a ScB in Chemistry, and a ScM and a PhD specialized in Environmental Chemistry. In that regard, I have worked in several prestigious institutions as pre- and postdoctoral researcher, including two of the top five universities of the world: the University of Oxford and the University of Cambridge.

I have an h-index = 11, 451 cites, and 21 publications (16 Q1 / 2 covers / 10 first, 10 corresponding and 3 last author) including 1 Nat.Commun. (IF: 12.3), 1 Coord.Chem.Rev. (IF: 22.3) and 1 Nat.Chem.(IF: 24.4). Moreover, I'm invited to contribute to a book chapter for IOP Science, and I'm author of several book chapters derived from research and teaching innovation conferences. In this time, I have also been invited to review 40 manuscripts for high impact journals (32 for Q1).

Regarding teaching activities, I'm co-supervisor of 1 PhD, 3 ScM, and 9 ScB Thesis, and I count with over 207 hours of teaching.

In technology transfer, Beko sponsored my participation in the entrepreneurship "Impulse Programme" (University of Cambridge), I was finalist in "Emerging Technologies Competition" (RSC) and "Global Cooling Price" (as collaborator and advisor for the Barocal spin-off), and I'm co-inventor of several patents and prototypes.

Moreover, I'm very active in public engagement activities, with over 50 appearances in well-known events, TV, radio and press, and managing a science channel on social media.

In turn, my career has been recognized with 2 PhD, 2 research and 2 communication awards.

Resumen del Currículum Vitae:

I'm a postdoctoral researcher working in the synthesis, characterization and multifunctional properties of hybrid materials for energy and environmental applications, especially for eco-friendly refrigeration, heating and energy storage. I've worked in multidisciplinary environments across chemistry, nanoscience, materials science, and physics, and in collaboration with engineers, spin-offs and companies, entrepreneurs, and technology transfer experts.

I have an h-index = 11, 451 cites, and 21 publications (16 Q1 / 2 covers / 10 first, 10 corresponding and 3 last co-author). Moreover, I have been invited as peer-reviewer of 40 manuscripts for high impact journals (32 for Q1).

I'm also author of 7 oral communications (1 invited, 4 internat.) and 28 posters (20 internat.) in science conferences, 1 research-conference book chapter, and 5 book chapters on teaching innovation derived from teaching innovation conferences. Moreover, I've been invited to contribute to 1 research book chapter about barocaloric materials for refrigeration in IOP Science (deadline June 2022).

I have raised ~250k (217k for wage / 33k for research) through 2 postdoctoral fellowships, 1 seed-project and 1 knowledge transfer contract. I've also participated in 8 research (1 EU / 4 National / 3 Autonomic) and 4 public communication (3 EU / 1 National) projects, and 3 transfer contracts.

I've worked in several international world-leading institutions, such as Univ. Oxford, UK (6 months, Predoc) and Univ. Cambridge, UK (24 months, Postdoc).

At Univ. A Coruna, I'm co-supervisor of 1 PhD (still ongoing), 3 ScM (1 at the Univ. Cambridge) and 9 ScB (5 still ongoing) Theses. Moreover, I count with 185 h (44h still ongoing) of teaching at Univ. A Coruna, and 22.5 h at Univ. Cambridge.

In 2017, my research set an important advancement in the field of barocaloric materials for eco-friendly refrigeration, with the discovery of a hybrid material that could operate under pressures below 70 bar (accessible by commercial systems). Before that, barocalorics required operating pressures above 1000 bar (far from market needs). This discovery (published in Nat.Commun.) was the seed for the development of my own research line in hybrid materials for cooling, heating and energy storage.

In technology transfer, this research line has led me to be co-inventor of 5 patents, to be scientific advisor for a refrigeration spin-off (Univ. Cambridge), to be finalist in 3 transfer competitions, and to be trained in the selected entrepreneurship "Impulse Programme" (Univ.Cambridge), where I was sponsored by the multinational company Beko.

In public engagement activities, I've been invited speaker in recognized events (TEDx, Naukas), TV shows (Órbita Laika) and radio. My research has been featured over 50 times on TV, radio and press, and 2 long-term museum exhibitions (one still pending). I manage a science channel on social media, also featured on TV (La Sexta, TVE) and press (C&EN).

In turn, my career was recognized with 2 PhD, 2 research and 2 communication awards. In addition, I was also honoured with a distinguished position as Research Fellow (2019-21, now Life Member) at Clare Hall College (Univ. Cambridge), where I was also member of the Evaluation Committee of the "Research Fellowships in Sciences" (in 2 calls), of the Election Committee for the Presidency, and of the Governing Body.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	FERNANDEZ MARTINEZ, MARCOS
Referencia:	RYC2021-031511-I
Correo Electrónico:	m.burriach@gmail.com
Título:	The role of elemental composition and diversity of organisms on ecosystem functioning

Resumen de la Memoria:

I am a multidisciplinary ecologist, working on the effect of climate and nutrient availability on global carbon balance, ecological stoichiometry, plant reproduction and bryophyte ecology. During my career, I have tried to combine these subfields of ecology to go beyond traditional studies. Thanks to my ability to attract funding, my research has always been very independent, raising funds such as: i) PhD scholarship at CREAF, Spain (PhD FI AGAUR 2013-2015) to study how climate, nutrients and anthropogenic impacts effect forest productivity, ii) postdoctoral fellowships (BOF 2017 and the prestigious FWO Postdoctoral fellowship 2018-2021, 257.600) at the University of Antwerp, Belgium, to study how biodiversity and nutrient availability controls regional and global carbon balance, iii) one research stay at the International Institute of Applied System Analysis, Austria (FWO fellowship for short stays in 2017) to study non-linear dynamics of ecosystem carbon fluxes, and iv) research projects as principal investigator (£5000 from British Ecological Society 2018, 9998 from University of Antwerp research funds 2020) to study how the elemental composition of bryophytes is affected by their environment and relates to their functional traits. This independence has been further strengthened by obtaining an extremely competitive (success rate ~10%, 301.500) Junior Leader fellowship from La Caixa Foundation (October 2021), which allowed me to re-join CREAF and start my research group: Elemental Diversity and Macroecology. My research is now focused on understanding how the elemental composition of organisms determine how their ecosystems function.

I have also collaborated in 12 other national and international projects, including the Synergy IMBALANCE-P project (13.4 M) from the European Research Council, for which I served as the Junior coordinator (2016 to 2020). My research is highly international, including research experience in four different countries (Spain, Belgium, the United States of America and Austria) and a large number of nationalities amongst my co-authors. I have published 60 SCI articles, one book chapter and 16 non-SCI articles. I am the first author in 25 SCI articles (including Nature Climate Change and Nature Plants), and last author of 3. I have published 14 SCI papers without any of my doctoral or postdoctoral supervisors. I have contributed to 34 oral presentations and/or posters at scientific conferences, seminars and international project meetings, of which 25 have been led by myself. I have reviewed 61 SCI articles for journals such as Science, Nature, Ecology Letters, and Global Change Biology and I am a subject editor of the prestigious ecology journal Oikos and member of the editorial board of the popular science magazine l Atzavara .

I have supervised 2 BSc projects and 1 MSc thesis at University of Barcelona. I am currently supervising 2 PhD students and 1 MSc at the Autonomous University of Barcelona (UAB). My research has been awarded four scientific prizes: 1) Ciutat de Barcelona Prize (2019), 2), Premio eccellenza (Consiglio Nazionale delle Ricerche), 3) Ramón Margalef IEC Award (2018), and 4) the Extraordinary PhD Award from the UAB (2018). I have been shortlisted for the 2021 Tansley Medal of the New Phytologist Foundation (the winner will be announced during 2022).

Resumen del Currículum Vitae:

Over my research career I have published cutting-edge science in highly prestigious journals (e.g., Nature, Science, Nature Climate Change, Nature Plants, Nature Ecology and Evolution, Nature Geoscience) and specialised top journals (e.g., Ecology Letters, Global Change Biology, New Phytologist, Functional Ecology, Proceedings of the Royal Society: B, Ecology) using field data collected by myself, analyses of big ecological datasets and modelling.

SCI publications: 60 (25 as first author, 3 as last/senior author and 14 without any PhD or postdoc supervisor)
Book chapters: 1;
Non-SCI publications: 16 (6 as first author, 3 as senior author);
H-index (Google Scholar) = 23;
i10-index (Google Scholar): 40;
Citations (Google Scholar): 2120;

Projects as PI:
3 competitive research projects: 1) British Ecological Society (2018, £5000), 2) University of Antwerp research funds (2020, 9998), 3) Jóvenes investigadores (JIN 181.000 , 2021), awarded but not accepted due to incompatibility with the Junior Leader postdoctoral fellowship.
4 competitive fellowships: 1) PhD in 2013-2015 (FI-AGAUR), 2) Postdoc fellowships in 2017 BOF University of Antwerp, 3) FWO postdoctoral fellowship in 2018 (257.600), 4) Junior Leader postdoctoral fellowship in 2021 (301.500 , ~10% success rate).
1 non-competitive project from the Catalan Institution of Natural History (2015-2022),
Collaboration in projects: 12, including an ERC-Synergy Grant (IMBALANCE-P) for which I served as junior coordinator.

Supervision:
Finished: 2 BSc projects, 1 MSc thesis at University of Barcelona.
Ongoing: 2 PhD students and 1 MSc student at Autonomous University of Barcelona.

Teaching:
Field and laboratory instructor (2013): Undergraduate edaphology in Autonomous University of Barcelona. Degrees in Environmental Biology and Environmental Sciences.

Accredited as tenure track lecturer (2019) and accreditation of research (2020) by the Agency for the Quality of the Catalan University System (AGAUR).

Research experience abroad: from October 2017 to September 2021, University of Antwerp (Belgium). Short stays at University of Nebraska (USA) and the International Institute for Applied Systems Analysis (IIASA, Austria).

Oral conferences (first author): 25.

Reviewing activities: 61 reviews in SCI journals, including Science, Nature, Ecology Letters, Global Change Biology and Science of the Total Environment. 3 Reviews for grant panels (1 for the National Science Centre of Poland and 2 for the Czech Science Foundation).

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	CHIODO , GABRIEL
Referencia:	RYC2021-033422-I
Correo Electrónico:	chiodogabriel@gmail.com
Título:	Stratospheric composition in a changing climate: drivers and mechanisms

Resumen de la Memoria:

My long-term research goal is to improve our understanding of the climate response to anthropogenic and natural forcings agents and identify sources of predictability, as this would serve the purpose of developing better weather and climate models. The most innovative aspect of my work was the characterization of the solar signal using a new regression technique, which takes into account lagged relationships between physical variables in the stratosphere (Chiodo et al.,2014). I have revisited the link between North Atlantic climate and solar variability, and showed that decadal variations in wintertime climate are due to internal variability and not the solar cycle, in contrast to a large body of literature claiming a solar influence (Chiodo et al., 2019). After completing the PhD, I broadened my research to encompass other aspects, such as the role of ozone-climate interactions. Stratospheric ozone chemistry is commonly neglected in atmospheric models, and its role in driving surface climate has been overlooked. My work has shown that ozone reduces the climate response to solar variability, as well as the atmospheric circulation response to greenhouse gases (Chiodo and Polvani, 2016; 2017; 2019). This implies that climate models without interactive ozone overestimate the climatic impacts of solar forcing, as well as the effects of GHGs on the atmospheric circulation. These papers motivated the creation of a focus area on Chemistry/Climate feedbacks within the next phase of the Chemistry Climate Modeling Initiative, which I am coordinating. Since 2019, I am leading an Ambizione research group at ETH Zurich, investigating the role of Stratospheric ozone in driving Northern Hemispheric climate. Our results show that Arctic ozone depletion can largely affect surface climate via changes in the dynamical coupling between the stratosphere and the troposphere, motivating future work on the effects on sub-seasonal prediction. Since 2020, I am also leading research on a new topic in my group: Stratospheric Solar Geoengineering, a practice aiming at countering global warming via stratospheric aerosol injections. As part of this research, we are exploring the climatic and chemical effects of a new type of injection strategy: solid particles. We aim at providing a rigorous and objective assessment of geoengineering including its risks (ozone depletion) and benefits. Initial results indicate potential for Alumina particles as injection material due to its low chemical reactivity, but also highlight the need of new laboratory measurements to reduce uncertainties in the chemical kinetics. In the next 5 years, my research will explore feedbacks between stratospheric composition, radiation and dynamics, in order to establish how their interplay influences climate variability and how the coupling between composition and the circulation shape weather and climate. Open questions to be addressed are: What is the impact of stratospheric composition on predictability? What is the influence of ozone recovery on climate change projections? What are the sources of uncertainty in future circulation changes? How will mitigation via Stratospheric Solar Geoengineering affect climate? Answers to these questions will provide crucial insights into the role of composition feedbacks in a changing climate, which carries important societal and future policy implications.

Resumen del Currículum Vitae:

I obtained a PhD at Universidad Complutense, with a dissertation on the atmospheric response to the solar variability. Due to my research contributions in the field, I became involved in a EU project focused on improving our understanding of the climate response to solar variability (ES1005), and actively participated in Spanish project Consolider Supercomputacion y e-ciencia . I received awards and fellowships including a FPU PhD Fellowship, conference (WCRP) and visitors grants to work as visiting scientist at NCAR (ASP) and MPI-Hamburg (IMPRS). After successful completion of my Dissertation (cum laude) in 2014, I did a Post-doc at Columbia University, where I conducted a new line of research on ozone-climate interactions. I became part of the team of a multi-institutional project "The Impact of the Ozone Hole on the Climate of the Southern Hemisphere" and my research provided new insights into the radiative impacts of the ozone hole on Antarctic surface climate. In 2018, I was awarded with the Ambizione Grant (ref 180043) The Overlooked Role of Stratospheric Ozone in forcing Northern Hemisphere climate , funded by the Swiss National Science Foundation, which allowed me to lead an independent research group at ETH-Zurich. Upon moving to ETH in 2019, I secured additional funding in 2020 via a ETH Research Grant (ref ETH-17192) to work on stratospheric solar geoengineering (SSG); this enabled me to expand my group and broaden the research focus to a timely and highly debated method aimed at reducing the effects of global warming, studying in detail its benefits and risks. I am teaching Stratospheric Chemistry at ETH and obtained outstanding teaching evaluations (score of 4.3 / 5). Currently, the projects I am leading are worth 1.2 Million Euros. I am supervising 2 PhD and 2 MSc students. I led students to successful completion of 1 PhD (J. Oehrlein) and 2 MSc projects (N.Bergner and L.Endres) in 2021; these students received outstanding evaluations for the work under my supervision, including invited talks and were all successful in getting other academic jobs. I gave more than 30 seminars, with over 10 invited contributions in the last 4 years alone, including seminars in prestigious institutions such as Harvard University, and keynote lectures at major international conferences such as the AGU Fall Meeting and EGU Assembly. Due to my research contributions, I became member of the Scientific Steering Committees of the WCRP Chemistry Climate Model Initiative and International Association of Meteorology and Atmospheric Sciences, where I coordinate outreach activities for Early Career Scientists. I have been session convener at EGU since 2020 and served as Associate Editor for the journal Frontiers, where I recently authored an Editorial on the Evolution of Stratospheric Ozone. I am a co-author of the upcoming WMO 2022 Ozone Assessment, a document of strong political relevance. I am maintaining strong ties with NASA and Columbia University as exemplified by my co-PI role in a 1-million dollar grant on Ozone Depleting Substances (ref 1914569), as well as Harvard University, via joint projects on Stratospheric Solar Geoengineering. I published a total of 26 papers, 12 as lead author (CA), including 2 papers in Nature journals and one presently in press. I have an H-Index of 15 and received over 600 citations as of January 2022 (G.Scholar).

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	YAÑEZ SERRANO, ANA MARIA
Referencia:	RYC2021-032519-I
Correo Electrónico:	ayanezserrano@yahoo.es
Título:	Ecosystems dynamics through volatile organic compounds.

Resumen de la Memoria:

My research is focused on the study of atmospheric processes at the biological boundary, having an interdisciplinary approach to understand the interaction between forest ecosystems and atmospheric chemistry. I use the study of volatile organic compounds (VOC) to understand the role of biology in atmospheric chemistry and biosphere-atmosphere interactions, and how this role changes due to land use and climate change. For this, I use observations at multiple spatial and temporal scales, performed with multiple analytical techniques to have a holistic and mechanistic understanding of the system functioning.

I graduated in Environmental Science from Nottingham University UK (2009), received a M.Sci. in Atmospheric Science and Biogeochemical Cycles from Lund University, Sweden (2011), and my Ph.D. degree in climate and the environmental from the University of Amazonas State and the Brazilian National Institute for Amazonian research, Brazil (2015). My Ph.D. focused on the study of the dynamics of biogenic volatiles organic compounds (BVOC) within and above a central Amazonian rainforest site. After completing my Ph.D., I held three postdoctoral positions: at the Max Plank Institute of Chemistry based in Brazil, at Freiburg University in Germany, and at CREAF, Spain, with a Juan de la Cierva Incorporacion grant. In 2020, I was awarded a Beatriu de Pinos Grant which I had to decline in favour of a talent attraction Severo Ochoa Post-Doc at IDAEA, Spain. In 2021 I was awarded with a La Caixa Junior Leader Retaining fellowship. I have taught in graduate courses in Brazil and I have experience mentoring undergraduate, master and doctorate students. I have made important scientific contributions in the fields of VOC, at ecosystem, plant and soil level, particularly in Amazonian ecosystems. Currently, I am leading a project characterizing the VOC composition of a Mediterranean rural site. I am a founding member of the Latin America Early Career Earth System Scientist Network (LAECESS), and I actively participate in engaging early careers in the scientific community by organizing Early Career Workshops at major international conferences as well as in science dissemination.

Resumen del Currículum Vitae:

My research has been based on exploring and understanding the complexity of the interactions between ecosystems and the atmosphere, particularly through the study of volatile organic compounds (VOC). I received my B.Sci. in Environmental Science from Nottingham University, the United Kingdom (2009). Afterwards, I moved to Lund University in Sweden where I received my M.Sci. in Atmospheric Science and Biogeochemical Cycles (2011) with distinction. Following, I was awarded the CAPES scholarship from the Brazilian government to perform my PhD studies. I did my PhD in Climate and Environment at the University of the State of Amazonas (UEA, Brazil) and the Brazilian National Institute of Amazonian Research (INPA, Brazil). My Ph.D. focused on the dynamics of biogenic volatiles organic compounds (BVOC) within and above a central Amazonian rainforest site. My supervisor was Prof. Dr. Paulo Artaxo from Sao Paulo University (Brazil) and my co-supervisor was Prof. Dr. Juergen Kesselemier from the Max Plank Institute for Chemistry (Germany). During this period I was also part of the International Max Plank Research School (IMPRS), which provided me with a certificate that my Ph.D. was obtained under the prerequisites of the IMPRS. At this time I was teaching as assistant on the graduate courses Atmospheric Chemistry and Biogeochemical cycles and Global Change in the degree of meteorology at UEA (60 hours each). For the last course I was the main responsible for the production of all teaching materials. After defending my Ph.D. in June 2015, I started a post-doctoral fellowship with the Max Plank Institute for Chemistry, Germany to perform studies on BVOC dynamics in Amazonia where I worked until August 2016. In September of 2016, I was hired as postdoctoral researcher for an ERC Consolidator grant at the Institute for Ecosystem physiology at Freiburg University, Germany. During this time, in which we were studying the linkage between the carbon fluxes from the primary and secondary metabolism in plants, I gained further knowledge in plant physiology, as well as knowledge in different analytical techniques such as PTR-TOF-MS and isotopic analysis. During my time in Freiburg, I have supervised four undergraduate students, one M.Sci. student and one Ph.D. student. In November 2018 I took maternity leave. In April 2019 I was awarded with a Juan de la Cierva Incorporacion grant to work at CREAF (Ecological and Forestry Applications Research Centre, Barcelona). In 2020 I was awarded a Beatriu de Pinos grant which I declined in favour of a postdoctoral contract under the talent attraction program of the Severo Ochoa programme at IDAEA, Spain. In 2021 I took another maternity leave and I was awarded with a La Caixa foundation Junior Leader Retaining fellowship, which I started in December 2021 at IDAEA.

To date, I have published 32 research articles (31 in Q1 journals), out of which 8 as first author. I have 1090 citations, an h-index of 19 and an i10-index of 24 (GS).

During my master thesis I contributed to the knowledge on sesquiterpene dynamics in Amazonian rainforest characterizing the distinct ozonolysis profiles within the forest canopy. During my Ph.D. and 1st post doctorate, I discovered marked seasonality in BVOC abundance due to seasonal changes in BVOC sources, drivers and sinks, including radiation, temperature and phenology. I also expanded my research on BVOC dynamics in further ecosystems in order to gain a holistic understa

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	FERRAGUTI , MARTINA
Referencia:	RYC2021-031613-I
Correo Electrónico:	martina.ferraguti@gmail.com
Título:	Disease Ecology and Epidemiological Modelling of pathogen transmission

Resumen de la Memoria:

I am mainly interested in the Disease Ecology and Epidemiological Modelling of pathogen transmission. My research focuses on the study of the impact of Biodiversity on mosquito-borne diseases. I use a multidisciplinary approach to address questions at the interface of different disciplines with the commitment of helping in the understanding of the transmission of zoonotic pathogens in the unprecedented scenario of Global Change. I have used a wide range of approaches, including novel molecular techniques and the extensive monitoring of natural processes to investigate the vector-host-pathogen interactions of infectious diseases and how the environmental and anthropogenic factors (e.g., biodiversity, urbanization, land-use change) affect pathogen transmission and spill-over. Thus, to fully understand the transmission of vector-borne pathogens, I have conducted research at different scales from specific populations to extensive communities, using as model different groups of insect vectors (i.e., mosquitoes), vertebrate hosts and a diversity of pathogens (i.e., protozoa, viruses) including those causing zoonotic emerging diseases, also exploring the environmental drivers affecting their interactions.

As an empirical ecologist myself who has worked on vector-borne diseases, I am well aware of the current gap between theoretical and empirical disciplines, and the lack of experts linking these two fields. After years of field work during my PhD, I understood the importance of exploring epidemiological models as an essential tool to provide basic guidelines for public health practitioners. My ultimate goals are aimed at answering broad questions in Epidemiology, such as understanding the ecological factors that affect the dynamics of transmission of zoonotic pathogens in wild populations, and how human and ecological factors, e.g., biodiversity, shape the transmission of vector-borne pathogens, thus helping to set better biodiversity conservation policies and public health. This is currently an area of growing interest worldwide given the increasing incidence of emerging and re-emerging diseases, and experts with a profile like mine - who understand of both disciplines, ecology and mathematical modelling of infectious diseases, are essential to facilitate knowledge interchange and a shared research framework for the scientific community and public health managers.

During my career, I have both worked independently and collaborated with a wide range of national and international researchers from internationally recognized institutions (e.g., Lund University, Sweden; Utrecht University, University of Amsterdam, The Netherlands; CISA-INIA, Spain), as supported by the co-authorship of my papers. This network increases my future chances of applying for and obtaining funding for multidisciplinary and international research projects.

Resumen del Currículum Vitae:

I study the ecological and evolutionary factors that affect the transmission of vector-borne pathogens, answering questions related to the impact of Biodiversity on mosquito-borne diseases. Financed by the competitive FPU program, I performed my PhD thesis at the EBD-CSIC, defending it with honours in 2017 and obtaining an International PhD in Biology. My thesis received the Extraordinary Doctorate Award by the Pablo de Olavide University, and the Best Ornithology thesis award by SEO/BirdLife. During this period, I used a combination of field observational techniques and phylogenetic analyses to study the transmission of vector-borne pathogens affecting humans, wildlife and livestock, gaining a multidisciplinary experience in research areas such as Ecology, Parasitology, Ornithology and Medical Entomology. I described the environmental factors affecting mosquito communities (Ferraguti et al. 2013, PloS One; Ferraguti et al. 2016, Sci Rep; Martínez-de la Puente, Ferraguti et al. 2016, Malaria J), and the role of biotic and abiotic determinants of infection by the West Nile virus and avian Plasmodium in wild birds (Ferraguti et al. 2016, Epidemiol Infect; Ferraguti et al. 2018, J Anim Ecol; Martínez-de la Puente*, Ferraguti* et al. 2018, Sci Rep, *shared co-authorship), to finally identify the role of Biodiversity on the successful transmission of different pathogens (Ferraguti et al. 2021, PLoS Pathog).

I won 2 highly competitive postdoctoral grants: Juan de la Cierva-Formación (JdC) and Marie Sklodowska Curie Fellowship (MSCA-IF). During my JdC at the University of Extremadura, I continued my research especially considering pathogens of ecological relevance such as avian malaria parasites (Ferraguti et al. 2019, Parasites Vectors) also exploring the human drivers affecting their transmission (Ferraguti et al. 2020, Ch.14 in: Avian Malaria and Related Parasites in the Tropics book). Finally, I investigated the transmission of mosquito-borne infectious diseases by integrating experimental and mathematical approaches to address empirical and theoretical questions in my MSCA-IF at the University of Amsterdam. I am currently analysing pathogen transmission through the lens of mosquito by epidemiological models that describe how insect behaviour and ecology relate to vector-borne disease transmission in changing environments. Given my early career stage, I believe I have an excellent track record in field-based ecology as is indicated by my outputs: my research has resulted in 28 scientific articles, 10 articles as 1st author (and 11 as 2nd author). In addition, I led 2 book chapters and 7 popular science publications. The quality of this high scientific production, and my leadership in them, justify my expertise in the research field and should be contextualized due to my young age. My works have received more than 571 citations (H-index=12, i10-index=15, Google Scholar), which supports the novelty and international relevance of my studies. I contributed to 45 communications (26 internationally, 28 as 1st author) at 36 conferences, including 9 invited talks. I participated in a total of 17 research projects, leading 4 of them (PI) and one technical report. Overall, my work received 9 awards/grants and 9 scholarships for scientific events.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	DORADOR RODRIGUEZ, JAVIER
Referencia:	RYC2021-032385-I
Correo Electrónico:	JDoradorR@gmail.com
Título:	Applied ichnology to study facies of scientific and economic interest

Resumen de la Memoria:

As an ichnologist, I focus on the study of trace fossils to better understand past environmental (i.e., climate) conditions, depositional processes, and economic implications of bioturbated sediments.

My main scientific expertise is:
- Palaeoenvironmental studies of Quaternary deposits based on ichnological content to analyse past environmental conditions and ocean/atmosphere dynamic, to better understand present and future climate.
- 2D and 3D image processing to facilitate ichnological characterization and tridimensional reconstruction of trace fossils.
- Petrophysical properties analysis on bioturbated sediments to characterize the influence of trace fossils in some rock properties which affect the reservoir quality and their economic implications.

  After my PhD, I have been awarded by 4 competitive postdoc fellowships: Newton International Fellowship, Marie Curie Individual Fellowship, Juan de la Cierva-Incorporación and Personal Investigador Doctor (waived due to incompatibility). The scientific quality of my research is supported by 41 papers (39 in SCI journals, 32 in Q1, 15 as first author) and 55 congresses contributions (2 invited talks). I have been PI of 2 international projects and Participant in other 9 (7 National, 2 International). Moreover, I leaded two privately funded projects in collaboration with Statoil and Equinor. I co-supervised one master thesis and currently a PhD student and another Master student. Additionally, I have co-leaded two workshops in international meetings and being quite active in outreach activities.

  In the short and mid-term, my plan is to develop my research lines, and initiate a new line focused on carbon capture applications. For that, I will analyse sediment cores and outcrop samples from different marine settings using a multi-technique approach. This plan will be developed within the Ichnology and Palaeoenvironment Research Group from the UGR, which is currently funded by four research projects. However, I have already submitted proposals leaded by myself to get extra funding to the UGR and the Spanish Government calls.

Resumen del Currículum Vitae:

Degree in Geology in 2011 (8.1/10) and Master in Applied Geology in 2012 (9.34/10) from the University of Granada (UGR), Spain. Along those years, I started working on research thanks to the Collaboration grant (Spanish Government) and the Initiation to research grant (UGR). After that, I got a UGR-FPU fellowship to do the PhD, obtaining the maximum qualification Cum Laude in March 2017, with international mention and the extraordinary prize by the UGR Sciences Doctorate School. Along that period, I did 4 international stays in different institutions from Germany, Canada, Switzerland and Norway (11 months in total), collaborating with the most prestigious research groups, publishing with them, and starting to develop my own research line. After my PhD, I stayed in the UGR for 6 months as a postdoc (Ayuda Puente), and then I was awarded with the Newton International Fellowship by the Royal Society (8% successful rate), starting as a Postdoc Researcher at the Royal Holloway University of London (RHUL) in March 2018. I was integrated in the Drifters RG and the Joint Industry Project on contourites, involving academic and non-academic (oil companies) members. After some months, I was awarded with the prestigious MSCA Individual Fellowship (Marie Curie) by the European Commission (93.8/100) and then I became a Marie Curie Fellow at the RHUL until March 2021 (36 months as international postdoc). In April 2021, I started my current position as Postdoctoral Researcher at the UGR under the Juan de la Cierva-Incorporación Program. My research line is focused on the ichnological study of facies of scientific and economic interest. Nowadays, I have published 41 papers, 39 of them in journals from the SCI, 32 within the Q1 and 15 of them as first author. Moreover, I have presented my research in scientific meetings with 55 contributions (36 international) and 2 of them as an invited talk/keynote. I was Principal Investigator of 2 international research projects, and Participant in other 9 (7 National, 2 European). Moreover, I leaded two projects privately funded in collaboration with Equinor to analyses the bioturbation impact on reservoir quality. I co-supervised one master thesis, currently another one and a PhD student and I am quite active in teaching, being involved in fieldtrips and several undergrad and master courses. Moreover, I co-leaded two workshops for scientists about ichnology in international meetings (IW-TOAE, BSRG). I was member of the organization team for the XI EJIP congress and co-chair of the ichnological session during the last meeting for the BSRG. I have received some recognitions as the Jordi de Gibert award by the International Ichnological Association (IIA) and the Research Grant by the Spanish Palaeontological Society (SEP). I am member of the SEP, the International Association of Sedimentologists and the IIA and was Editorial Board Member in Advances in Geoscience for two years, and current Review Editor in Frontiers in Earth Science, and reviewer for more than 15 international journals. I am active in outreach, participating and organizing workshops and social science activities in Spain (researchers night, outreach talks, museum guided visits) and UK (open day, fossil for kids). I got the positive evaluation from ANECA to be Profesor Ayudante Doctor and Profesor Contratado Doctor in September 2017.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	ARIAS ORTIZ, ARIANE
Referencia:	RYC2021-034455-I
Correo Electrónico:	ariasortizariane@gmail.com
Título:	Carbon sequestration by ecosystems at the land-ocean interface: an interplay between carbon emissions, burial and export

Resumen de la Memoria:

My research focuses on understanding the capacity of ecosystems at the land-ocean interface in storing carbon at different time scales and under different land-uses. I study the balance between carbon burial, carbon emissions, and lateral export in different wetland types, as well as the processes that control soil organic matter decomposition and associated carbon dioxide and methane emissions.

In 2013, I received a Fundación Iberdrola fellowship to conduct a MSc in Oceanography and Marine Environmental Management at UB-UPC. In 2014, I obtained an Obra Social "La Caixa" fellowship to undertake a Ph.D. at the Institute of Science and Technology - ICTA-UAB (2015-2019). My Ph.D. research focused on quantifying carbon sequestration rates in sediments of Blue Carbon ecosystems, mainly seagrass meadows, mangrove forests, and saltmarshes. By using radiometric dating techniques combined with carbon biogeochemistry, my research contributed to developing methods and guidelines to quantify carbon sequestration rates in Blue Carbon ecosystems and understand how carbon sequestration changes with ecosystems shifts due to disturbance and restoration.

Quantifying the climate benefits of coastal ecosystems using sediment carbon stocks and accumulation rates is challenging because the rates of carbon accumulation are slow, they are limited in spatial scale and sampling frequency, nor they are adept at sampling the production of methane or the hydrologic export of carbon. In 2019, I was awarded the NOAA Climate & Global Change Postdoctoral Fellowship and joined the UC Berkeley Biometeorology Lab led by Prof. Dennis Baldocchi to learn about ecosystem-scale carbon flux measurements using the eddy covariance method. My research initially focused on comparing net rates of atmospheric carbon uptake to sediment carbon accumulation rates. It contributed to the realization that the ratio of sediment carbon sequestration to methane emissions is the metric to be used to evaluate an ecosystem's climate mitigation benefit, establishing a benchmark for coastal wetland restoration projects that target carbon sequestration for climate change mitigation.

Currently, my research is at the intersections of biogeochemistry, biometeorology, and climate science and stems from two key areas. First, understanding tidal wetland methane flux predictors for which I lead a national-scale synthesis effort to elucidate drivers of methane emissions across tidal wetlands in the US. Second, quantifying net wetland ecosystem carbon balance to improve our mechanistic understanding of land‐ocean‐atmosphere carbon exchanges and carbon accounting in nature-based climate mitigation projects at the land-ocean interface

Resumen del Currículum Vitae:

In 2013, I received a Fundación Iberdrola fellowship to conduct a MSc in Oceanography and Marine Environmental Management at UB-UPC. In 2014, I obtained an Obra Social "La Caixa" fellowship to undertake a Ph.D. at the Institute of Science and Technology - ICTA-UAB (2015-2019). My Ph.D. research focused on quantifying carbon sequestration rates in sediments of Blue Carbon ecosystems, mainly seagrass meadows, mangrove forests, and saltmarshes. I used radiometric dating techniques combined with carbon biogeochemistry to study how efficiently these ecosystems bury carbon and for how long it is preserved in their sediments.

In 2019, I completed my Ph.D. (Cum laude) and wrote a research proposal to approach carbon sequestration from an atmospheric science perspective. I was awarded the prestigious NOAA Climate & Global Change Postdoctoral Fellowship (success rate 3%). As a NOAA C&GC fellow, I joined the UC Berkeley Biometeorology Lab led by Prof. Dennis Baldocchi. Initially, my research focused on comparing ecosystem-scale carbon flux measurements with sediment carbon accumulation rates. My work contributed to the realization that the ratio of sediment carbon sequestration to methane emissions is the metric to be used to evaluate an ecosystem's climate mitigation benefit, establishing a benchmark for coastal wetland restoration projects that target carbon sequestration for climate change mitigation.

In 2020, I was appointed leader of the Methane Working Group – Data Synthesis Project in a large-scale NSF-funded project to build a collaborative network for coastal wetland carbon cycle synthesis. Within this project, I coordinate a national-scale synthesis effort of tidal wetland methane emissions across the US and the creation of an open-source database of tidal wetland greenhouse gas fluxes intended as a community resource for Earth and environmental science research.

My research output includes 22 scientific papers and 2 book chapters. All papers have been published in prestigious journals (86% Q1; 55% D1). With >1000 citations, my research profile has an H index of 14/16 (WoS/Google Scholar). Additionally, I have presented my research in > 10 oral presentations at international conferences and workshops and have been invited to give 2 conference talks and 3 seminars. I have obtained 148k USD in funding as a PI, ~105k in salaries through highly competitive calls as a MSc and Ph.D student, and have participated in international projects that sum over 2 million in funding.

I am part of global networks such as Ameriflux and the Coastal Carbon Coordination Network, where I contribute datasets and lead synthesis activities. Additionally, I am a member of professional societies such as the American Geophysical Union and act as an ad hoc reviewer for well-respected international journals.

I have taught at university (91h at UAB), served as an examiner of 1 senior undergraduate thesis, and have mentored 1 high school, 2 undergraduate, and 1 Ph.D. student within the possibilities of an R1 American Institution.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	REVUELTO BENEDI, JESUS
Referencia:	RYC2021-033859-I
Correo Electrónico:	revuelto84@gmail.com
Título:	Combination of novel remote sensing and modeling techniques to push forward the understanding of snow dynamics in mountain areas

Resumen de la Memoria:

My research is focused on the understanding of snow related processes in mountain areas at different spatial and temporal scales to anticipate the consequences of climate change and also to provide clues for improving water management in areas dominated by seasonal snowpacks. To achieve this goal, I have complemented my background as a physicist with specialized training on novel monitoring systems and state of the art snow simulation tools.

I did my PhD (2011-2015), funded by the FPU program, at the Pyrenean Institute of Ecology (IPE-CSIC). During this period I acquired high-level training in near-range remote sensing technologies (Terrestrial Laser Scanner) for the study of snowpack distribution and on the application of spatial statistics. I also did two short international research stays in the two cutting-edge snow research laboratories in Europe (one month at the SLF, Davos, (Switzerland) and 5 months at the CEN Grenoble (France)), which allowed me to develop new skills on simulating snow dynamics, boosting new collaboration research lines.

Along my international mobility period (2016-2019) I worked in two environmental laboratories in France. I was firstly involved in a one year research project in the LTHE (now IGE, University Grenoble -CNRS) aimed at improving the simulation of snowpack processes to forecast floods in mountain areas. Then, after receiving a worldwide competitive research project as Principal Investigator (PI) from the AXA research foundation, I worked for two years in the CEN (MétéoFrance CNRS), improving the forecasting capabilities of Crocus snowpack model, by assimilating satellite observations, and downscaling the spatial resolution of simulations. I also spent one month on a research stay at the IANIGLA (Mendoza, Argentina) monitoring snow and glacier dynamics in the Andes.

Since late 2019 I am a postdoctoral researcher at the IPE-CSIC. I was firstly involved (10 months) in the EU-ERANET INDECIS climate project. From September 2020 I work as Juan de la Cierva-I, implementing unmanned aerial vehicles (drones) to observe snow and glaciers at high spatial resolution over extended areas and later exploiting this information to improve emerging simulation tools. Nowadays, I am leading my own research line, managing experimental sites, supervising students and technicians, but also establishing novel projects in mountain areas.

Along my career, field work in mountain areas has had great importance. I have leaded more than 100 experimental campaigns in mountains areas from which I have derived high quality databases exploited in several publications. My research is of interest not only for the scientific community but for operational programs of water agencies, avalanche risk predictors and ski resorts managers, which I am also engaged with. Thanks to a strong presence in broad audience media (TV, journals) I also aim to increase the awareness on how climate change is shaping and will shape our mountains. I have been supported by some of the most competitive national and international research projects (PI in 4 projects). The multidisciplinary path of my career paves the way to establish in Spain a research line with high socio-economic impact focused on reducing the uncertainty on snowpack observations and projections in mountain areas to allow a better adaptation to climate change.

Resumen del Currículum Vitae:

My research is encompassed in the Earth and Water sciences expertise area, as it aims to improve the understanding of hydrological processes in mountain areas with particular focus on snow dynamics and glacier evolution at different spatio-temporal scales. I master the observation of the cryosphere in mountain areas with close range remote sensing techniques and space borne sensors, but also I have a high expertise on implementing detailed snowpack models.

Field work has had great importance throughout my scientific career. Most of my results are supported by databases obtained in field campaigns in remote mountain areas in which I have been directly engaged. I have been involved in more than 200 field campaigns (> 100 under my leadership) all over the world (Pyrenees, Alps, Cordillera Blanca, Central Andes), to observe snow and glaciers dynamics, and maintain experimental sites. I was the first researcher systematically applying and generating TLS and drone observations in the Pyrenees and one the first all over the world to implement these tools in mountain areas.

I have collaborated with researchers all over the world (>200 co-authors) in environmental science projects mainly in mountain areas, sharing my expertise on near-range remote sensing techniques or on simulating snow dynamics. My scientific achievements are supported by my long-track record with 69 (+6 under review) SCI articles (81%-Q1, 29%-D1) with an h index=23/26, (citations = 2930/4037, Scopus/Google scholar). In total, I am first author of 15 SCI articles (86%-Q1 and 53%-D1). These publications include high and very high impact journals in environmental sciences as WRR, TC, GRL, ESSD and also PNAS. The results of my research have been communicated in >100 contributions in international congresses. Among other remarkable achievements, I was invited in the 2017 AGU session Modeling of the Cryosphere: Seasonal Snow to present my research about the assimilation of satellite observations in snowpack models; in 2019 I was awarded with the second award of the Young research innovation award on cryophere science and mountain areas and in 2021 Nature Climate Change highlighted one of my latest works as main author, which presented the recent demise of Pyrenean glaciers.

My career has been supported by some of the most competitive funding programs. My PhD was funded by the FPU program. During one of my postdocs , I was beneficiary of an AXA research fund postdoctoral fellow, a worldwide competitive program awarded with 130.000 . Now I am beneficiary of a JdCI, awarded with 99.000 (salary+project).

My research and some field work activities, have been disseminated in more than 30 broad audience journal articles, radio and TV, highlighting the impact of my research to the society. In the last years I am leading training activities as specialized workshops with different stakeholders of snow industry (UIMP, UNIZAR) and actively participating in science dissemination seminars. In total I have supervised 5 MSCs thesis (1 ongoing) and 5 BSCs (1 ongoing) thesis and shortly I will start the supervision of a PhD student. In 2020 and 2021 I have had two JAE-predoc students as main supervisor,

supported by the CSIC. From 2017 to 2020 I was convener of an AGU assembly session. I have reviewed more than 21 articles for 11 SCI journals, and also research projects for FWO and AEI

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	BARANOV BARANOV, VIKTOR
Referencia:	RYC2021-032144-I
Correo Electrónico:	baranowiktor@gmail.com
Título:	Climate change in the past and present & Insect decline

Resumen de la Memoria:

My research career is defined by studies of the ecosystem functions of insects in time and space. I work in the fields of the insect ecology, systematics, and palaeontology. I study how global change impacts the crucial ecosystem functions of extant insects (such as carbon sequestering or matter and energy transfer). Over the years I studied how the bioturbation of freshwater insects can act as a driver of CO_2 cycling at the large scale. I also studying role of the climate change in the insect decline. Importantly, my researched showed that during heat waves, bioturbation can work as a switch between CO_2 sink and CO_2 source in the lake sediments (DOI 10.1098/rsbl.2016.0448).

I am currently studying how the climate change is influencing global size and shape patterns in insects. One of my research questions involves trying to figure out why size-temperature-patterns (like Bergmann s rule) exist in poikilotherm animals. I also study how temperature variation and climate change are impacting body shape and fitness in insects, using largest dataset on the aquatic Diptera size in existence (DOI 10.3390/insects13010034). My work has showed that certain groups of aquatic insects (i.e. Chironomidae, Diptera) are getting consistently larger in the colder climate, likely due to higher oxygen availability in colder water.

My work on the extremely important Breitenbach stream insect abundance and diversity dataset have shown 81.6 % decline in aquatic insect abundance over 42 years due to mean annual temperature increase by 1.8°C. These results created a lot of interest from the public and elicited policy-making reaction in Germany (https://www.altmetric.com/details/75044907?src=bookmarklet).

My body of work also deals with reconstruction of the ontogenetic developmental series of the extinct Arthropoda, using µCT-scanning and digital dissection. The main aim of my palaeontological research is to find how insect ontogeny was and is influenced by their phylogeny and environment. I am strongly involved with the Arthropoda biodiversity studies. My work mostly focused on systematic and taxonomy of different merolimnic flies (Corethrellidae, Chaoboridae & Chironomidae). I have also worked on numerous other insect groups, including true flies, alderflies, beetles, and lacewings. I have described 30 new species and 6 new genera of extant and fossil insects, using both morphological methods, digital morphology methods (synchrotron scanning). My studies have showed unexpectedly high diversity of the Diptera larvae in the Baltic amber, which only can be uncovered using µCT-synchrotron (DOI 10.26879/1129).

I am currently working on the large projects dealing with Diptera diversity in Namibian Naukuluft Regions and in the Dominican Republic. The Dominican Republic project is addressing the role of the dark diversity of extant aquatic insects of Hispaniola Island in understanding the past of the Caribbean. We are working to compare (often virtually unknown) aquatic insects of Hispaniola with the fossil record in Miocene Dominican amber. I am doing similar research in Croatia, which is a previously poorly known hot spot of Diptera diversity, where we have described first ever blind, actively flying cave insect. Overall goal of my research is to understand how climate change impacts insects ecosystem functions in the past and present.

Resumen del Currículum Vitae:

I have graduated with degree in Zoology from Kharkiv National University (Ukraine) in 2012. I have received a competitive Marie Curie Fellowship to work at the Leibniz Institute of Freshwater Ecology (Berlin, Germany) within the frame of the INTERFACES FP7 project (ID 607150). I have received my PhD from Humboldt University of Berlin (May 2017). During my PhD I have published several papers on the climate change impact on insect bioturbation, that are highly cited. As PhD student I made research stays at University of Birmingham (UK) (6 Months), Plymouth Marine Laboratory (UK) (one month), CSIC Blanes (Spain) (one month) and Purdue University (USA) (one month). These visits, together with the highly international atmosphere of the Marie Curie doctorate, had prepared me well for the international academic career. After my PhD I have applied for Marie Curie Individual fellowship and, while I have not received funding, I was granted Horizon 2020 Seal of Excellence (ID 750641). I have worked in the Senckenberg Museum as a Postdoc (Germany) focusing on the analysis of long term-data on the decline of insects. I showed that even in virtually anthropogenically untouched habitats, the abundance of insects has decreased up to 81.6% because of climate change. While doing this work I improved my statistical skills (mostly in R programming language). Since 2018, I continued to work as a postdoc in Prof. J.T. Haug s group at the Faculty of Biology at the Ludwig-Maximilians-Universität München (LMU Munich, Germany), focusing on the evolution of ontogeny in arthropods. On this postdoctoral position, I increased both my taxonomic and phylogenetic background, and gained experience in advanced imaging methods: digital microscopy, scanning electron microscopy, synchrotron scanning tomography and methods of reconstruction of the tomographic scans. During my current Postdoc I have secured ca. 66.000 Euro in third party funds. I also have participated in the number of the international projects. I am taking part in the large palaeontological international project, aimed at excavating a new Lagerstätte in Australia, called McGrath Flat. I am also running a project on the long-term stability of the rainforest ecosystems of Dominican Republic, together with colleagues from the University of Santo Domingo. I have visited collections of the Los Angeles County Natural History Museum (USA) and Smithsonian Natural History Museum (USA). Over the years I also have worked in the numerous museum collections in UK, Spain, Poland, and Norway. My work has resulted in 70 peer-reviewed publications (JCR indexed, 29=Q1, 16=Q2; 39 as first and corresponding author). I have 6 articles as first author in the top multidisciplinary and topical outlets (Nature Scientific Reports, Biology Letters, Systematic Entomology, PeerJ, Conservation Biology). My h-index is 14 and my i10 index is 20, based on 742 citations (Source: https://scholar.google.com/citations?user=D6fqb5QAAAAJ&hl=en). I participated in over 30 conferences in international and national meetings (International Congress of Entomology, EGU, AGU fall meeting etc). I have extensive experience in teaching and in scientific communication. I have taught bachelor and master levels course in Kharkiv National University (Ukraine) and LMU Munich. I have supervised numerous bachelor and master students, and two PhD candidates.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	CORNEJO CASTILLO, FRANCISCO MIGUEL
Referencia:	RYC2021-032949-I
Correo Electrónico:	fmcornejo@icm.csic.es
Título:	Ecology and evolution of marine nitrogen-fixing bacteria

Resumen de la Memoria:

My research focuses on the ecology and evolution of microbes involved in the cycling of nitrogen (N) in the ocean. These microbes (N2-fixers) sustain primary production in vast regions of the ocean, playing key roles in marine ecosystems. I am particularly interested in some N2-fixers symbiotic with algae that seem to be in the path to become organelles, which offer a unique model to better understand the origin of bacterial-derived functions in eukaryotes and the transition towards complex forms of life.

I got my PhD at the ICM-CSIC (Spain) in 2017 (Best PhD thesis Award). I studied the importance of N2-fixing bacteria as drivers of biogeochemical cycles in the ocean and learned about their evolution through the application of single-cell imaging techniques, genomics, DNA/RNA sequencing and bioinformatics. I produced relevant results (Cornejo-Castillo et al, 2016. Nature Comms) and developed new molecular tools and bioinformatic pipelines for the detection of uncultured microorganisms (Cornejo-Castillo et al, 2019). I presented my work in national/international meetings, being once awarded with the 'Best Student talk Award' in the X Aquatic Microbiology Congress (Spain, 2014). I participated in global oceanographic expeditions (Malaspina, TARA-Oceans), did international research stays, and mentored other students on the use of bioinformatic tools, which altogether boosted multiple collaborations and co-authorships (16 papers during the PhD). The 4 years right after my thesis I was working as a postdoc in USA and France with my own funded project. I got a Marie Curie Global Fellowship that was evaluated with 98.4 points (out of 100) and, as a result, I was named one of the 30 researchers representing the Marie Curie fellows (European Parliament, Belgium, 2017). This fellowship brought me to the University of California Santa Cruz (UCSC) in January 2018, where I spent almost three years. I elaborated new hypotheses of global relevance (cell membrane lipids allow marine nitrogen fixation; Cornejo-Castillo & Zehr, 2019. PNAS), and developed tools for tracking the gene expression and protein expression as part of a Senior Thesis supervised entirely on my own and qualified thesis with honours . In 2020, for one year I worked at the Station Biologique of Roscoff (France), where I applied a bioinformatic approach to estimate for the first time the contribution of N2-fixing bacteria in the deep ocean (last and corr. author, in review in PNAS). I am currently part of an international working group to write a review about N2-fixation across aquatic biomes. Since 2022 I am back in the ICM-CSIC as a P.I. of my own 3-year project funded by La Caixa Junior Leader programme to try to get a closer look of the early evolution of eukaryotes through the study of extant N2-fixing marine symbioses.

I have published 23 articles (9 as first/second author), including Science, Nature Comms and PNAS (3506 cites). Since 2017 I have ensured my salary and research funding from highly competitive calls, two Marie Curie fellowships and one from La Caixa Foundation, which together account for more than 700K . In summary, my track record demonstrates a high degree of independence, maturity, leadership, and transversality filling the gap between fields that do not usually communicate, such as marine microbial ecology and cell evolution.

Resumen del Currículum Vitae:

Since 2017, I m a doctor in marine sciences by the Universitat Politècnica de Catalunya (UPC, Spain), specialized in diversity, ecology and evolution of nitrogen-fixing microorganisms in the ocean (Best PhD thesis Award)

My research aims at exploring the ecology and evolution of marine symbiotic microbes, with the ultimate goal of understanding the mechanisms underpinning the early evolution of organelles (e.g., chloroplasts) in eukaryotes. To do so, I apply different methods, such as single-cell techniques (genomics and microscopy), high-throughput DNA/RNA sequencing and bioinformatics. Also, during my career I have designed new molecular tools and approaches (CARD-FISH probes, qPCR primers, antibodies and bioinformatic pipelines) that have been repeatedly used by the scientific community. Also, I have participated oceanographic expeditions (Malaspina and TARA Oceans), and mentored PhD students on the use of bioinformatic tools, which boosted multiple collaborations (16 co-authored papers during the PhD period).

I obtained a Marie Skłodowska-Curie Fellowship that was scored among the best ones and brought me to the University of California Santa Cruz (UCSC) in USA, where I spent almost three years. I opened new research lines such as the study of the role of lipids in marine nitrogen fixation (Cornejo-Castillo & Zehr, 2019. PNAS), or the exploration of new lifestyles in non-cyanobacterial nitrogen fixers (Cornejo-Castillo & Zehr, 2021. ISMEj). Also, I supervised a Senior Thesis entirely that got the qualification of honour thesis (the highest score at the UCSC).

In November 2020 I moved back to Europe, to the Station Biologique of Roscoff (France), where I joined the TONGA project, which already produced my first scientific article as a last author (now in second-round review in PNAS). Since November 2021 I came back to the ICM-CSIC as a P.I. of my own 3-year project (UCYNELLE) funded by La Caixa Junior Leader programme. My project aims at using symbioses between unicellular marine microbes as model systems to understand the evolution of the eukaryotic cell. I currently collaborate with researchers from international institutions, including the UCSC, Stanford University, University of Rhode Island and MIT (USA); University of Bristol (UK); CNRS and MIO (France); and ICM, AZTI Foundation and IEO (Spain).

I have shown excellent capacities to secure funding from highly competitive international calls, accounting for ca. 711K Euros. So far, my scientific production includes 23 peer-reviewed articles, with papers in Science, Nature Comms and PNAS. During these years I have participated in multiple international meetings and workshops, chaired a special session on microbial interactions (2020, San Diego, USA) and co-organized another one on marine nitrogen fixation (2022, Hawaii, USA). I have reviewed two PhD thesis (external evaluator), proposals (ANR-France). I have a strong commitment with bringing science to society and I give talks in outreach activities (e.g., Pint of Science or European Night of Science), round-tables, etc.

Overall, my scientific experience has consolidated between research fields that do not usually communicate, such as marine microbial ecology and cell evolution and, in summary, my track record demonstrates a high degree of independence, maturity and leadership.

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Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	REOLID PEREZ, JESUS
Referencia:	RYC2021-034362-I
Correo Electrónico:	jreolid@ugr.es
Título:	Carbonate platform and drift deposits

Resumen de la Memoria:

In 2011, I graduated with a degree in Geology at the University of Granada. In 2012, I got my master degree in Geology at the University of Granada. I obtained my doctoral degree (Magna cum laude) at the University of Hamburg in 2016. I have participated in five oceanographic expeditions making a total of 174 days on-board research vessels, including the RV Meteor (Bahamas 2013), RV Sonne (Maldives 2014; Saya de Malha Bank 2019), RV Joides Resolution of the IODP (Maldives 2015), and RV Alkor (Baltic Sea 2018). Since 2016, I carried out postdoctoral research at the University of Hamburg (2016-2018) and the University of Granada with a Juan de la Cierva-Formación (2018-2020) and Juan de la Cierva-Incorporación (2020-present) contracts. I have participated in a total of 9 national and 5 international projects.

My main research focuses on carbonate platform and periplatform deposits, including platform slopes and carbonate drifts because of the biological, ecological, and geological significance of these environments. Carbonate platform slopes form the transition between shallow-water shelf carbonates and deep-water basinal deposits. The slopes of carbonate platforms are of the greatest interest to sedimentologists, stratigraphers, palaeontologists, and petroleum geologists. Carbonate platform slopes may contain reservoirs for oil and gas, their configuration often influences processes on the platform and on the distal areas around them, and they contain significant variability in biological assemblages, lithologies, and depositional and diagenetic processes compared to those of the platform itself. I also work on how bottom currents affect carbonate platform and slope deposits, and how they form carbonate contourite drifts.

Some of the main findings of my research are the discovery of 1) the factors controlling carbonate slope facies and geometries and their relation to sea level; 2) how the action of bottom currents can produce the drowning of large carbonate platforms of the Indian Ocean (Maldives, Mauritius); 3) a new type of sediment drift (Delta drift) in which in situ carbonate production is a controlling factor together with the action of bottom currents; 4) a new methodology, the ichnofabric logs, that provided information on the main changes in the organic matter content/paleooxygenation of the sediment comparable with most of the geochemical proxies traditionally used by sedimentologists; and 5) criteria for onshore carbonate-drift recognition in one of the worldwide most representative outcrops from the Oligocene-Miocene of Cyprus. I have also generated a database of ichnological features of carbonate drifts around the World for ichnologists and sedimentologists working on such deposits.

Resumen del Currículum Vitae:

In 2011, I graduated with a degree in Geology at the University of Granada. In 2012, I got my master degree in Geology at the University of Granada. I started my PhD within the frame of the Project NEOCARPS (Neogene Carbonate Platform Slopes) of Prof. Dr. Christian Betzler at the University of Hamburg, where I obtained my doctoral degree (Magna cum laude) in 2016. In my PhD research, I studied Neogene carbonate platform slopes from SE Spain, Sardinia (Italy), Bahamas, and Maldives, focusing in the factors controlling slope geometries and facies composition and distribution along the slope. I have been trained in different techniques, including the 3D digitalization of outcrops using Laser Imaging Detection and Ranging (LIDAR) and photogrammetry after drone surveys; laboratory analyses of samples, including cathodoluminescence, X-Ray Fluorescence (XRF), electron microscopy (SEM, TEM); and a number of marine geology techniques, including Reflection Seismic, Parasounds, Multibeam seismics, CTD profiling, and the marine-sedimentology methodology. From 2016 to 2018 I carried postdoctoral research at the University of Hamburg. Since July 2018, I have carried out postdoctoral research within the programs Juan de la Cierva Formación (2018-2020) and Juan de la Cierva Incorporación (2020-present) at the department of Stratigraphy and Paleontology (Departamento de Estratigrafía y Paleontología) of the University of Granada. Nowadays, my research is focused on the sedimentology and ichnology in carbonates of the Neogene of Cyprus (MioEast-GIF), Israel (MEDCLINO/MEDSCHAN-COST), and south Spain (SECAMARA-Spanish Government; TRANSCARB-Andalusia Government), as well as carbonates of the Jurassic of south Spain and North Africa (IGCP655-UNESCO) and present-day carbonate platforms and slopes of the Indian Ocean (SO-270 MASCARA-DFG).

I participated in five oceanographic expeditions on board the research vessels RV Meteor (Exp. M95, Bahamas 2013-35 days, sedimentologist), RV Sonne (Exp. SO-236, Maldives 2014-23 days, leader of the sedimentology lab), RV Joides Resolution of the Integrated Ocean Drilling Program (IODP Exp. 359, Maldives 2015-61 days, sedimentologist selected by the ECORD - European Consortium for Ocean Research Drilling), RV Alkor (Baltic Sea 2018-5 days, sedimentologist), and in the new RV Sonne (Exp. SO-270, Saya de Malha Bank 2019-50 days, sedimentologists and lab manager). I also made research stays in other universities and R&D centers including the Rosenstiel School of Marine and Atmospheric Science (RSMAS) of the University of Miami (2015-2 months, with the funding of the IAS Post-graduate Grant), the IODP Gulf Coast Core Repository (Texas Agricultural and Mechanical University, 2016-1 month, with the collaboration of the ECORD and the IODP), and the University of Haifa (2019-1 month, 2020-1 month, with the funding of the COST).

Parallelly to the main research-line, I carried out research focused on vertebrate fossils from south Spain. These investigations resulted in the publication of papers in peer-reviewed international journals, and in the participation in science divulgation projects. These projects include books and an animated series (published in DVD by University of Jaén), played in TV, and in the exhibition Els Nostres Dinosaures at the Ciutat de les Arts i les Ciències in Valencia.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	PANIW , MARIA
Referencia:	RYC2021-033192-I
Correo Electrónico:	m.paniw@gmail.com
Título:	Towards mechanistic ecological forecasting: Demographic processes and biotic interactions

Resumen de la Memoria:

I am currently a MSCA IF-2019 fellow at Doñana Biological Station (EBD-CSIC). I received this highly competitive international grant due to the scientific output starting with my PhD (University of Cádiz, 2012-2016), which included academic stays in USA and Switzerland. I then accepted a postdoc at University of Zurich (2016-2018) under an ERC-funded project, and finally moved to CREAF as a Juan de la Cierva-formación fellow (2019-2020). During my PhD and postdoc, I was primarily interested in understanding the mechanisms that shape population responses to global-change drivers across different taxa globally. At CREAF, I have expanded my skills into community-level analyses by investigating how community responses to extreme events can be better predicted by accounting species-specific life-history processes. My current MSCA project aims to develop a comprehensive theoretical and empirical understanding of the processes that threaten the persistence of interacting species.

My scientific career has relied, above all, on leading numerous international collaborations. During my PhD and postdoc, I have worked with and learned from leading biodemographers, applying and developing a large variety of statistical modeling tools (such as Bayesian latent state population models) to answer my research questions. My statistical and biodemography skills have also allowed me to collaborate with researchers outside my core area of expertise, including disease ecologists and environmental chemists.

Throughout my career, I have advanced ecological forecasting by bringing to the spotlight the importance of considering complex demographic responses when projecting species fates. These advances were made possible by leading a long-term demographic monitoring project and an international synthesis on mammal climate-change responses; and engaging with a global network of collaborators harness the power of long-term data for ecological forecasting. My expertise in forecasting is being applied to improve species conservation of African predators and lemurs of Madagascar; and most recently through a research grant I secured from the British Ecological Society that aims to assess biodiversity loss under plant invasion in the Carpathians. Lastly, my efforts to improve forecasts by scaling from individual traits to community dynamics using theoretical and empirical analyses have resulted in new collaborations with eminent community ecologists.

My ongoing collaborations, leadership and quantitative skills, and interdisciplinary approach provide an excellent foundation to yield novel biological insights into urgent topics of global-change effects on natural systems.

Resumen del Currículum Vitae:

My publications accumulate 465 citations. I have published 31 peer-reviewed papers in multidisciplinary journals including Science, Ecology Letters, and Nature Climate Change. I am first and corresponding author on 15 and second author on 11 papers. I am the senior author on 1 publication. I have also published 2 book chapters. My h-index is 12 and my i-index is 16 on Google Scholar (h-index 10 on WoS). I am committed to openly sharing code and data and have made both available from 10 papers (>300 downloads) and 1 book chapter.

I have firmly established myself as an expert in quantitative ecological forecasting. I am have consistently combined long-term empirical data and advanced modelling to understand how genetic and phenotypic traits and life-history factors affect extinction risk under human pressures. My work has improved the ecological understanding of the taxa most vulnerable to climate change and has highlighted the key role of demography and biotic interactions in forecasts. My research is continuously generating new hypotheses to answer timely global-change questions such as role of species interactions on multiple invasion.

I am currently leading 2 and participating in 3 competitive projects from international and national calls (total research budget ~ 1,000,000). I collaborate with > 30 researchers and conservation practitioners from 9 countries .

I am dedicated to collaborative long-term data collection initiatives. I lead a demography project on a carnivorous plant. This has resulted in 15 peer-reviewed publications from international collaborations thus far. I have also established 2 other long-term monitoring projects to improve forecasts of biodiversity change.

My work has been featured in international newspapers and in pieces for The Conversation and 4 blog posts I wrote. I have also produced an animated related to my MSCA project and am developing an educational book on invasive species in Ukraine. My research is being applied to improve the conservation of African ungulates and plant communities in the Carpathians and Spanish heathlands. A key element of my most recent project is fostering an inclusive collaboration with Ukrainian researchers and conservation managers through benefit sharing.

I have co-supervised 4 PhD theses (3 ongoing), 6 MS theses (1 ongoing), and 2 BS thesis. I am committed to teach state-of-art quantitative skills and encourage my mentees to publish peer-reviewed papers (resulting in 4 student-led articles + 3 articles in review). I also have the ANECA accreditations of Profesor Ayudante & Contratado Doctor (since 2019) and have taught 3 modules in graduate programs at UPO (Sevilla) & Univ. Zurich, and three international biodemography courses, among others. I have been on the evaluation committee for 5 MS theses (Univ. Cádiz & EDB-CSIC) and 2 PhD theses (EDB-CSIC & as external examiner at IPE-CSIC).

I have reviewed > 35 articles in international journals and 2 major research grants (NSF and NECR). I am also a review panel member (Research Grants) for British Ecological Society and Associate Editor at Journal of Applied Ecology and a recommender for PCI Zoology.

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I have been awarded the Best Thesis Award (Univ. Cadiz) & Ecological Forecasting Outstanding Publication Award (ESA). My work has been featured has been featured on the cover of Journal of Animal Ecology.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	SERRANO NOTIVOLI, ROBERTO
Referencia:	RYC2021-034330-I
Correo Electrónico:	roberto.serrano@uam.es
Título:	Geospatial climatology: climate extremes and variability from high-resolution data modelling

Resumen de la Memoria:

My research aims to understand the high-frequency climatic variability and their extremes in the instrumental period (since ~1900 CE). I combine observations and environmental variables through geostatistical modelling, using big data strategies, to reconstruct and analyze the precipitation and temperature in the instrumental period at a very high spatial and temporal resolution. I am interested in the improvement of climatic observational models to better reproduce frequency, duration, and intensity of past extreme events, and contribute to a trustful study of their trends and variability. I completed my PhD in 2017 (Summa Cum Laude, Extraordinary Doctorate Award) at the University of Zaragoza. As a postdoc, I improved my model-based computing skills at the Barcelona Supercomputing Center (2017-2018) and then I moved to EEAD-CSIC with a Juan de la Cierva-Formación grant (2019-2020). Since late 2020, I hold an Assistant Professor position in Physical Geography at the Universidad Autónoma de Madrid (UAM), where I led the creation of a multidisciplinary international research group focused on Natural Hazards and Global Change. My research comprises the development of high-resolution observational climatic datasets and its application to the study of the impact of extreme events over natural and anthropic systems. I am devoted to the improvement of modelling climate-related natural hazards in a global change context, helping to build sustainable territories. To this end, my contributions in the fields of i) climatic variability, ii) agro-forestry climatology, and iii) software-based evaluation tools, encompass collaborations with international groups from 7 countries. I have done 5 research visits in universities at Chile and USA, which combined with my collaborations in Spain resulted in more than 40 publications, 4 international, and 6 national projects as collaborator or researcher. I have combined quantitative geostatistics, data science, and climatology, to develop reliable climatic datasets covering remote zones with incomplete observations in extreme environments, such as mountains (Pyrenees, Andes) or arid areas (Atacama, southern Iberian Peninsula). This experience greatly helped me to obtain a young researchers project from UAM as co-PI, a contract with a company as PI, and a Recualificación mobility grant, all of them in 2021, totaling more than 100k in funding as PI.

Resumen del Currículum Vitae:

The research from my PhD (University of Zaragoza, 2017) resulted in a novel reconstruction method of climate that helped to create high-resolution datasets of daily precipitation and temperature in Spain, which have been used in multiple studies from different fields such as climatology, habitat modelling, or water resources. As a postdoc, I gained an important scientific and networking experience at the BSC (2017-2018) which I used to improve my research about the impacts of extreme climate on agro-forestry systems in EEAD-CSIC (2019-2020), resulting in a new research line about climate-based environmental risks in a Global Change context, which I currently lead in UAM as Assistant Professor.

I have been involved as researcher in 10 national and international projects, totaling more than 2.5 million, with research groups from France, Chile, Slovenia, Germany, USA, several universities in Spain, and CSIC. I have also participated in contracts with the regional administration over the last 10 years about creation and management of climatic data, providing information to the study of regional climate.

I am currently co-PI of a young researchers competitive project from UAM (2022-2024, 39k), the PI of a contract with a meteorological company (2022, 10k), and I am leading as PI a newly created (2022) multidisciplinary research group in UAM about Natural Hazards and Global Change. I also hold a Recualificación grant (2021, >55k), from the Ministry of Universities. As a postdoc, I was given a Juan de la Cierva-Formación grant (2019-2020), a José Castillejo mobility grant (2020) and a Fulbright grant (2020) (>68k in total), that greatly helped to extend my network to work with researchers from the U. of Chile and U. of Tarapacá (Chile), from the U. At Albany (USA), from the U. Paris 8 and MeteoFrance (France), and from the U. of Ljubljana (Slovenia) and Johannes Gutenberg-Universität Mainz (Germany). I am a regular reviewer of postdoctoral projects in Chile and of manuscripts from more than 15 scientific journals (e.g., Sci. Rep., Int. J. Climatol., J. Hydrol., Phys. Geo.). I am the president of the Working Group Climate Change and Natural Hazards from the Spanish Association of Geography and a board member of the Spanish Association of Climatology.

Among the diverse outreach activities such as collaborations with media, I acted as producer of a scientific documentary about climatic reconstruction, funded by FECYT (2018, 10k).

I have tutorized 4 Master and 4 bachelor students and I am currently tutorizing 8 more bachelor theses and co-tutorizing one doctoral thesis. I have participated in more than 10 R language courses in Spain and Chile, and I published one teaching manual about the use of GIS with R.

My research work has been awarded with the National Prize Arquímedes (2013), the International Prize in climatic and meteorological research Eduard Fontserè (2017), the Extraordinary Doctorate Award from the U. of Zaragoza (2018) and the Prize Manuel de Terán (2019) to the best doctoral thesis of Geography in Spain.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	CALATAYUD ORTEGA, JOAQUIN
Referencia:	RYC2021-034013-I
Correo Electrónico:	j.calatayud.ortega@gmail.com
Título:	Causes and consequences of the spatio-temporal organization of biodiversity across scales

Resumen de la Memoria:

I am a community ecologist and biogeographer working at the intersection between biogeography, ecology and evolution. I understand science as a multidisciplinary endeavor and during my formation I explored diverse fields. I did a Master in Genetics and Evolution (Granada University, 2012-2013), a PhD in Ecology and Biogeography (Alcalá University, 2014-2017) and a postdoc working with network theory (Physics Department, Umeå University, 2017-2019). In my current position at Rey Juan Carlos University (2019-onwards), I work on understanding the mechanisms behind the coexistence of species in ecological communities. To do this, I use different types of data (from detailed field and experimental work to large databases) and analytical methodologies (e.g. comparative methods, machine learning, network theory). Currently, I am also starting my own research group by supervising a PhD student, two technicians and a BSc, thanks to the funds I have been able to raise (> 190,000 as PI in national and international competitive calls).

My research focuses on understanding the causes and consequences of the organization of biodiversity across multiple temporal and spatial scales: from the effects on biodiversity of events occurring during Earth s History, to geographical and environmental determinants of current diversity and evolutionary patterns, and the role of ecological interactions in driving species coexistence and community assembly. Five years after my PhD, my work has already expanded our understanding of various fields, including groundbreaking discoveries related to the evolution of plant-pest interactions, the origin of Earth s climate regions or the maintenance of biodiversity in competitive environments. I am 1st author of articles in top-tier journals such as PNAS, Nature Ecology and Evolution or eLife and 2nd author in publications in Science, Nature Communications and Ecology Letters, totaling 23 SCI articles (mean IF = 7.792; 91% Q1; h-index = 11).

Resumen del Currículum Vitae:

I am a community ecologist and biogeographer working at the intersection between biogeography, ecology and evolution. My research focuses on the causes and consequences of the spatio-temporal organization of biodiversity. I did a Master in Genetics and Evolution (Granada University, 2012-2013), a PhD in Ecology and Biogeography (Alcalá University, 2014-2017) and a postdoc working with network theory (Physics Department, Umeå University, 2017-2019). Currently, I hold a postdoc position at Rey Juan Carlos University (2019-onwards), and I am working in understanding the coexistence of competitor species.

My research is helping to answer some key questions such us: Did drastic past events leave a signal on current biodiversity? What environmental and geographical factors shape biodiversity? How do species interactions drive community assembly and stability? During my formation I have developed truly multidisciplinary skills which allow me to combine advances from diverse fields to push forward my own research. My work has led to groundbreaking discoveries related to the evolution of plant-pest interactions, the origin of Earth s climate regions or the maintenance of biodiversity in competitive environments. I am 1st author of articles in top-tier journals such as PNAS, Nat. Ecol. Evol. or eLife and in leading journal such as Proc. R. Soc. B or J Biogeogr. I am also 2nd author in publications in Science, Nat. Comm. and Ecol. Lett. I have published 23 SCI articles (mean IF = 7.79; 91% Q1; h-index = 11), receiving 380 citations growing exponentially over time (according to Google Scholar).

During my career I have acquired a solid capacity to lead my own research group. I have led and participate in large and successful scientific international consortia. Moreover, I am supervising a PhD student, two technicians and one BSc (plus one in the past); all of them are currently pursuing a scientific career. I have also participated in 7 national and international projects, being co-PI of an international project (55,200) and PI of a national project (137,698). This year, I have applied for a project grant (55,312) that is currently under review.

I also have considerable national and international experience and visibility: c. 60% of my collaborations have been conducted with international scientists. This percentage substantially increased during the two years I spent at Umeå University (Sweden). Moreover, I collaborate with researches working in my own and diverse fields (e.g. physics, mathematics). My research network involves c. 160 scientists from 27 countries working on 9 disciplines.

I am fully committed to services to the scientific community and to disseminating my work to the specialized and the general public. I have reviewed for more than 15 journals. Moreover, my research has been disseminated through 19 presentations in national and international conferences. I also participate in outreach activities: press releases, radio interviews, conferences to the general public and newspaper articles. I am also devoted to formative activities (c. 300h teaching experience) and the organization of specialized courses.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	TRIGUERO MAS, MARGARITA
Referencia:	RYC2021-034215-I
Correo Electrónico:	mtrigueromas@gmail.com
Título:	NOVEL APPROACHES IN ENVIRONMENTAL SCIENCES FOR HEALTHY SUSTAINABLE GREEN CITIES

Resumen de la Memoria:

I am an environmental scientist conducting transdisciplinary research on urban sustainability. I work at the intersection of environmental public health, urban planning, environmental exposure and environmental justice. My major research interests include: urban nature, urban environmental planning and novel environmental exposure assessment. I have conducted my research activities at the CREAL (2008-2017), ISGlobal (2017-2018), UAB, Spain (2008 & 2018-2021) and MIT, US (since February 2021).

I started conducting research in the field of environmental perception in collaboration with the UAB and Desphande Foundation (India). Then I focused on environmental exposure assessment as the national fieldwork coordinator of the FP7 project ICEPURE. During my PhD studies (2012-2017) as an FI-AGAUR and CIBERESP fellow at UPF and Staffordshire University (UK), I undertook extensive research on nature-health associations, its pathways and effect modifiers. I also developed and used novel exposure assessments of contact with nature. Between 2017 and 2018 I developed a pilot environmental health project at CISM (Mozambique) on climate and published novel studies on public transport.

In 2018 I was awarded a Juan de la Cierva-formación grant (ranked 1st in the panel, 2017 call) to work at BCNUEJ (UAB). At BCNUEJ I co-coordinated the BCNUEJ research area of   Urban environmental health and equity   (2018-2021). I combined research stays in the US (Univ. of Oregon, CSUOhio) with being the co-PI of 2 projects (DonesJardins, Rooftop Gardens), publishing pioneering studies on the links between greenspace, environmental gentrification and health.

In February 2021 I became a research scientist at the Massachusetts Institute of Technology (MIT) (US) where I coordinates the research line Environmental justice, urban planning and public health . I am currently the co-PI of FEMPUBLICBCN project on COVID-19, public space use changes and women s health.

I am recurrently among the 0,001% most cited scientists in the world (in 2021 I was 1 of the 2828 cross-field scientists selected: https://recognition.webofscience.com/awards/highly-cited/2021/, in 2020 I was 1 of the 2493 cross-field scientists selected: https://recognition.webofscience.com/awards/highly-cited/2020) and among the 0.1% most relevant experts on Parks and heath (Expertscape: https://expertscape.com/ex/parks%2C+recreational; I am in the 8th position worldwide).

Resumen del Currículum Vitae:

I am an environmental scientist conducting transdisciplinary research on urban sustainability. I investigate the differential health impacts of urban sustainability policies on various human population subgroups, paying special attention to improved environments and renaturing interventions (greenspaces and bluespaces).

As an undergraduate student, I started conducting research on environmental perception and knowledge. I continued my training learning about exposure assessment. Later, I was awarded a FI-AGAUR and a CIBERESP fellowships to study the impacts of natural spaces on human s health (PhD 2017, International mention, UPF). During my PhD, I developed novel objective measures of contact with natural spaces, and I uniquely showed the impacts of residential greenspaces on mental health outcomes, indicating the role of stress as a potential mechanism. Then I was also the fieldwork coordinator of different WPs of an FP7 project.

In 2017-2018 after my PhD, I was selected to develop as postdoctoral researcher a pilot environmental health project at CISM (Mozambique) exploring climate, mortality and morbidity. Meanwhile, I also published the first studies showing that public transport strikes are associated with increased mortality and hospitalizations, but that such increases are not mediated by air pollution. These works strengthened my quantitative methods skills, my understanding of the importance of greenspaces as a climate adaptation and mitigation tool and my systemic thinking about sustainable cities. In 2018 I was awarded a Juan de la Cierva-formación grant (ranked 1st in my field) to work at ICTA-UAB. Within its BCNUEJ lab, I co-coordinated the BCNUEJ research area of   Urban environmental health and equity   (2018-2021). I also scientifically co-coordinated the quantitative part of an ERC-funded project and was the co-PI of 2 projects (DonesJardins, Rooftop Gardens) I fundraised for, publishing pioneering studies on the links between greenspace, environmental gentrification and health. During these years I perfected my proficiency in qualitative methods to study the links between urban sustainability projects and environmental justice, and worked in collaboration with Univ. of Oregon and CSUOhio.

In February 2021 I became a research scientist at the Massachusetts Institute of Technology (MIT) where I coordinate the research line Environmental justice, urban planning & public health . I currently work on two mixed-methods participatory action research projects which examine the relationship between urban natural spaces, environmental gentrification, and underprivileged residents   health; including insights about the Covid-19 pandemic. Of these, I am the co-PI of 1 (FEMPUBLICBCN; sharing the role with a junior researcher), leading and organizing a group of 16 PhD researchers and technicians.

I am now an independent researcher, capable of managing a research team. I have successfully collaborated with a total of 157 researchers from 4 different continents. Between others, my work has advised the EEA and EPA and has been featured in RTVE, La Cope and El País.

I am recurrently among the 1% most cited scientists in the world (2021 and 2020) and among the 0.1% most relevant on Parks (Expertscape). All the above is considered an outstanding record considering that I completed my PhD less than 5 years ago.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	MESTRE MARTIN, MIREIA
Referencia:	RYC2021-031946-I
Correo Electrónico:	mireia.mestre.martin@gmail.com
Título:	Ecología y Biodiversidad de los Microbiomas Marinos / Marine Microbiomes: Ecology and Biodiversity

Resumen de la Memoria:

My main interest is Ecology: that is, the interaction between living organisms and the environment. Among all living beings, I focus my work on microbial communities, since traditionally they have been the least studied fraction of the earth's biodiversity and biomass despite playing a key role in all ecosystems.

-Past: Education.
My interest in knowing and understanding the biosphere led me to study two B.S (Biology and Marine Sciences) and a M.S (Environmental Sciences Research). Subsequently, I did a Ph.D Thesis where I could join the knowledge acquired during previous studies. The Thesis included 4 articles in which I revealed novel patterns of marine microbial biodiversity from the microscale (marine particles) to the macroscale (global ocean). Among them, the most outstanding result is the description of the high connection between surface and deep ocean microbial communities. This connection is through vertical fluxes and has high ecological relevance. During this stage, I won some recognitions, for example: Award for the best Ph.D Thesis in Sciences, Landmark Paper Award 2018. In addition, during the Ph.D Thesis I collaborated with other scientists (7 co-authored articles).

-Present: Postdoc.
Now, at the postdoc stage, I wanted to lead and develop my own research line. This line focuses on understanding the diversity and function of the Antarctic marine microbiome. Specifically, the Antarctic zooplankton microbiome (mainly Antarctic krill and salps), and the microbiome they share with seawater. My hypothesis is that this microbiome plays a key role both in the metabolism of the animal itself and in the biogeochemistry of the Southern Ocean. To finance this line, I have obtained 4 projects (3 of them as Principal Investigator). During this period, I learned how to manage projects and how to collaborate with other institutions and researchers (national and international). To date, there are 2 students (undergraduate and master) involved in this line. During this period, I have also been participating in three other projects as a co-investigator. In addition, I have carried out activities at national and international level such as: talks as invited speaker (4), work presented in conferences and workshops (27), participation in scientific committees (1), participation in Editorial Board (1), review of scientific journals (6 journals), review of IPCC and IPBES reports (3), evaluation of projects (1), talks for students and general public and infographics (>10).

-Future: towards consolidation.
The next step after this postdoc stage has already begun: I published the article entitled "The Microbial Conveyor Belt: Connecting the Globe through Dispersion and Dormancy" (Mestre and Höfer, Trends in Microbiology, 2021). In this article, I propose a new theory that postulates that microbial dispersal is cyclical, recurrent, and occurs at the level of the entire biosphere. This dispersion is closely related to the functioning of planet Earth, and its disturbance (predominantly of anthropic origin) causes problems in the biosphere, including the health of humans and wildlife. In the near future I would like to develop a novel research line based on this theory.

Resumen del Currículum Vitae:

Education:
-2017: PhD in Oceanography. Universidad de Las Palmas de Gran Canaria, Spain.
-2011: M.S in Environmental Sciences Research. Universidad de Alicante, Spain.
-2010: B.S in Marine Sciences. Universidad de Alicante, Spain.
-2008: B.S in Biology. Universidad de Alicante, Spain.

Current position:
- Postdoc. Universidad de Concepción, Chile (Since 2019)

Publications (16 in total). Most relevant publications:
- Mestre, M; Höfer J. 2021. The Microbial Conveyor Belt: Connecting the Globe through Dispersion and Dormancy. Trends in Microbiology 29, 482-492; doi:10.1016/j.tim.2020.10.007.
- Mestre, M; Ruiz-González, C; Logares, R; Duarte, CM; Gasol, JM & Sala, MM. 2018. Sinking particles promote vertical connectivity in the ocean microbiome. PNAS Proceedings of the National Academy of Sciences (USA), 115(29), E6799-E6807; doi:10.1073/pnas.1802470115.
- Mestre, M; Borrull, E; Sala, MM; Gasol, JM. 2017. Patterns of bacterial diversity in the marine planktonic particulate matter continuum. ISME J. Nature. 11, 999-1010; doi: 10.1038/ismej.2016.166.

Congresses and talks (>27). Most relevant talk (Invited speaker):
- 2021: Invited speaker at the ASLO 2021 Aquatic Sciences Meeting. Session SS24: Aquatic structure and function across spatiotemporal scales. 22-27 June 2021, Held Online. Title: The Microbial Conveyor Belt: Connecting the Globe through Dispersion and Dormancy.

Projects (8 on going). Projects as Principal Investigator:
- Title: Connecting the zooplankton microbiome with ecosystem processes in the Southern Ocean . Funding: FONDECYT-Postdoctorado, Ministry of Science, Chile (2019-2022). Code: 3190369. Total: 80.000.000 CLP (approx. 90.000 EUR).

- Title: Connectivity of Euphausia superba populations: an assessment through the microbiota of krill exoskeleton . Funding: Antarctic Chilean Institute (INACH), Chile (2020-2022). Code: RG_49-19. Total: 18.000.000 CLP (approx. 20.000 EUR).
- Title: A detailed analysis of krill microbiome . Funding: Antarctic Science International Bursary (2019-2020, with extension due to COVID-19). Total: 6.000 GBP (approx. 6.700 EUR).

Technology/Knowledge transfer:
-Organization of R&D activities (1); Scientific committees (1); Evaluation and revision of projects (1), articles (>10) and reports (3); Editorial Board (1); Supervision of thesis (2 on going); Teaching as Invited Lecturer (2); Outreach activities (>10).

Scientific expeditions (8 in total). Scientific expedition as Leader:
- Expedition to Antarctica (2020, 10 weeks). Research stations: Profesor Julio Escudero and Yelcho, Antarctica. Research vessel: Karpuj (Chile). Leader: Mireia Mestre

Awards and recognitions (>5). Most relevant awards:
- 2019: Award for the best PhD Thesis in Sciences. University Las Palmas de Gran Canaria, Spain.
- 2018: Landmark Paper Award granted by the Deep-Sea Biology Society. Award given every three years for the best article on the biology of the Deep Ocean. Article: Mestre et al. 2018.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	JOLLES JOLLES, JOLLE
Referencia:	RYC2021-031801-I
Correo Electrónico:	j.w.jolles@gmail.com
Título:	Individual heterogeneity and collective behaviour in the context of environmental change

Resumen de la Memoria:

I am a Severo Ochoa postdoctoral fellow at the Centre for Ecological Research and Forestry Applications (CREAF). I have a PhD from the University of Cambridge (2016; supported by an independently-acquired BBSRC scholarship), and previously held a prestigious von Humboldt fellowship at the Max Planck Institute of Animal Behaviour and a Zukunftskolleg fellowship at the Institute of Advanced Studies, Konstanz. My research is focused on unravelling the role of individual heterogeneity in collective animal behaviour and its consequences across social and ecological scales. I use a strongly interdisciplinary approach in my work and combine laboratory experiments - using state-of-the-art approaches to monitor, track and analyse the behaviour of individuals and groups of animals - with field observations, and computer simulations. The premise of my work is a) there is large phenotypic variation among grouping animals that influences behaviour; b) such behavioural variation has large social consequences and drives the collective behaviour, social structure and dynamics of animal groups, communities, and populations; c) the social environment in turn modulates the behavioural expression and performance of individuals and thereby the phenotypic assortment of individuals and formation of animal groups; and d) individual and collective behaviour are directly affected by the environment but also affect how animals cope with their (changing) environment, with important evolutionary repercussions for the distribution and phenotypic variation of animal populations. With my ongoing and future work I am bringing these fours components together to help understand and predict how fish populations cope with severe droughts, focusing on unravelling the underlying individual and social response mechanisms. I have published 26 papers (3 more under review) of which 70% as first author, including in high profile journals such as Trends in Ecology and Evolution and Current Biology, which have been cited over 925 times (h-index: 16; google scholar).

Resumen del Currículum Vitae:

I am a Severo Ochoa Postdoctoral Fellow at the Centre for Ecological Research and Forestry Applications (CREAF-UAB), Barcelona. With a background in Behavioural Ecology and Experimental Biology, I use a strongly interdisciplinary approach, combining controlled laboratory experiments, with field observations, and computer simulations, to study the role of phenotypic variation among grouping animals and its consequences across social and ecological scales. My pioneering PhD work (University of Cambridge, 2016) provides experimental and theoretical evidence for a simple mechanism to explain collective behavioural patterns from the individual behavioural phenotypes of grouping animals. Supported by Alexander von Humboldt and Zukunftskolleg postdoctoral fellowships (Max Planck Institute of Animal Behaviour), I further established my own independent line of research and developed a comprehensive framework that shows how, across the animal kingdom, individual heterogeneity has fundamental consequences for sociality, ecology, and evolution. I also led a wide range of innovative empirical studies, including on personality and plasticity, parasitism, animal movement, group collective performance, and predator-prey dynamics, and published computational and theoretical work about the fundamental mechanisms underlying collective behaviour and heterogeneity. With my ongoing and future work I am bridging out to freshwater ecology and environmental science and using my expertise to help better understand how fish populations cope with drought by focusing on the underlying individual and social response mechanisms. I am also known for pushing novel mechanistic and technological approaches, which I share with the academic community by organising workshops and publishing theoretical articles. In total I have published 26 papers (an additional 3 under review), including 6 from my PhD, and in high profile journals such as Trends in Ecology and Evolution and Current Biology. I have presented my work at over 20 conferences across Europe and the USA. Throughout my career I have been highly independent and responsible for setting up and directing my own research, from conceiving, planning, and running my own projects, securing much of my own funding (> 300.000), and managing budgets, logistics, and assuring high ethical accordance. For 70% of my papers I am first author, including on the 5 papers with highest impact factor (IF: 5.4-17.7), demonstrating my leadership. My work is highly praised, reflected in acquiring a total of 925 citations and an h-index of 16 (Google Scholar) within my short career and giving over 10 invited presentations at institutes and conferences across Europe, including a plenary and a PhD masterclass. My strong academic commitment is reflected in my broad mentoring experience, including a PhD student (ongoing), 7 MSc students, 8 BSc students, and 3 interns, the various positions I have held, including in the Executive committee of the Zukunftskolleg and as head of Animal Facilities, University of Konstanz, and reviewing experience 110+ manuscripts for 30+ Q1 SCI journals. Besides keeping an active academic website (jollejolles.com) and social media accounts, I contribute significantly to public outreach by collaborating with musicians, artists, and film makers, participating in Science Festivals, and giving public lectures.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	GARCIA DEPRAECT, OCTAVIO
Referencia:	RYC2021-034559-I
Correo Electrónico:	octavio.garcia@uva.es
Título:	Anaerobic treatment technology

Resumen de la Memoria:

The Ramón y Cajal applicant, O. Garcia-Depraect, holds a PhD in Innovation Sciences from the Center for Research and Assistance in Technology and Design of Jalisco (CIATEJ) (April 2019), which is coordinated by the Mexican National Council of Science and Technology (CONACYT). Currently, the Ramón y Cajal candidate is a Marie Curie IF postdoctoral researcher at the Institute of Sustainable Processes (ISP) at the University of Valladolid (UVa). The main research line of the candidate is Anaerobic treatment technology, which addresses the development and implementation of innovative, sustainable and cost-effective biological treatment processes for the valorisation of multiple organic waste and wastewaters through the production of renewable bioenergy in the form of hydrogen and methane and other high-added products such as carboxylic acids and biopolymers, thus fostering the creation of a circular bioeconomy. Most of the research performed by the candidate falls within the following sub-lines: 1. Biological hydrogen production via dark fermentation, 2. Anaerobic digestion treatment, and 3. Bioplastics biodegradation and valorisation. All those research lines are timely and aligned with the European Green Deal, the Sustainable Development Goals 2030, the European Hydrogen and Biogas/Biomethane Roadmaps, the EU Circular Economy Action Plan (CEAP), and with the Spanish R&D&I strategy actions on climate change & decarbonization of economy, energy security including the production of renewable energy for sustainable mobility and transport purposes, and the sustainable exploitation of resources within a circular approach. He has acquired a unique expertise on Anaerobic treatment technology during his doctoral studies (2015-2019) and through 6 research stays (UNAM, Mexico, 1.5 months; UNESCO-IHE, The Netherlands, 4 months; CIATEJ, Mexico, 12 months; University of Valladolid (UVa), Spain, 4, 6 and 24 months). Over the last 5 years, the candidate has published 23 scientific publications cited 330 times (h-index 10) according to Google Scholar (21 in JCR Scientific Journals) +14 manuscripts in preparation, 71.4% of them within the Q1 of the Journal Citation Report classification, co-authored 3 patents and 2 International Book Chapters, and has participated in 18 national and international conferences (including 1 invited talk) in his field of expertise. The applicant has officially co-supervised 5 Master theses (4 currently in progress) and 4 ongoing PhD theses in (2) Spain and (2) Mexico. He has also mentored 3 undergraduate and 3 graduate students and participated in official teaching at BSc and MSc levels (10.7 ECTS). The candidate is a regular reviewer in 10 high-quality journals. He is member of the National System of Researchers (SNI) Level I at CONACTY and has participated in 10 R&D projects, leading 2 R&D projects as the PI (including a H2020-MSCA-IF-2019 project) and 2 research contracts as Co-PI (in coordination with FCC AQUALIA & FCC MEDIO AMBIENTE) with a total budget of 358.532,48 .

Resumen del Currículum Vitae:

O. García obtained his MSc degree in Bioprocessing Science at the National Polytechnic Institute (Mexico) in January 2014 and completed his PhD studies in Innovation Sciences at the Center for Research and Assistance in Technology and Design of Jalisco (CIATEJ, Mexico) in April 2019. During his Master studies, he conducted a 4-month research stay at IHE Delft Institute for Water Education (The Netherlands) under the supervision of Prof. Piet Lens. In 2018, Octavio conducted a 4-month international research stay at the Department of Chemical Engineering and Environmental Technology at the University of Valladolid (UVa) under the supervision of Prof. Raúl Muñoz, working on his doctoral project, which resulted in 3 co-authored patents (1 granted) in the field and 7 original JCR research papers (+1 review article), all of them in Q1 peer-reviewed journals as the first author. He was also awarded the Weizmann 2020 award from the Mexican Academy of Sciences for the Best Doctoral Thesis in Engineering and Technology. In July 2019, the applicant started a 1-year postdoctoral contract at CIATEJ within the national megaproject Clúster Biocombustibles Gaseosos. In 2020, the candidate joined the National System of Researchers (SNI) Level 1 of the National Council of Science and Technology (CONACYT, Mexico). In mid-2020, Octavio joined the Institute of Sustainable Processes (ISP) at UVa, as a postdoctoral researcher. In that period, he participated in the internationl project Valorization strategies of packaging materials via microbial fermentation, conducting pioneering research hand-in-hand with Prof. Raúl Muñoz in the field of bioplastics valorisation. The incorporation of the applicant to ISP also entailed the beginning of the biohydrogen production research line at ISP. By January 2022, the candidate has a publication record of 23 papers (21 in JCR Scientific Journals) +14 manuscripts in preparation, 71.4% of them within the Q1 of the Journal Citation Report classification and has co-authored 2 Book Chapters. He has participated in 18 national and international conferences in his main fields of expertise, which are biohydrogen production, anaerobic digestion biorefineries, and bioplastics biodegradation and valorisation. He has officially co-supervised 5 Master theses and 4 ongoing PhD theses in Spain and Mexico. The applicant has also mentored 3 graduate and 3 undergraduate students. In addition, the candidate has been actively involved in 10 R&D projects, leading 2 R&D projects as PI (including a H2020-MSCA-IF-2019 project) and 2 more as Co-PI (FCC AQUALIA & FCC MEDIO AMBIENTE) with a total budget of 358.532,48 . Since 2021, he participates in official teaching, with 77 hours of official lectures at UVa. In late 2021, Octavio became a Life member of the International Bioprocessing Association (IBA IFIBiop), member of the working group on biohydrogen of the European Biogas Association (EBA), and Guest co-editor of a SI in Processes journal. Currently, the candidate is a postdoctoral researcher at the ISP under the Marie Sklodowska-Curie Individual Fellowships (IF) programme from the European Commission. As the PI of the UP-GRAD project (budget of 160.932,48), the candidate is conducting novel research on the upgrading of anaerobic digestion process of food waste by cascade fermentation and further valorisation of biogas via biopolymer.

Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	BERDUGO VEGA, MIGUEL
Referencia:	RYC2021-031797-I
Correo Electrónico:	mglberdugo@gmail.com
Título:	Abrupt shifts and global ecosystem thresholds

Resumen de la Memoria:

I did my PhD in Ecology (2017) at Universidad Rey Juan Carlos (Spain), and have performed postdoc stays since then at URJC (14 months); Universidad de Alicante (8 months); Universidad Pompeu Fabra (12 months) and ETH (Switzerland; 13 months).

My research uses elements from physics and mathematics to be applied into core ecological questions. Some unique features of my research are the development of strong and original statistical approaches to tackle classical ecological questions; high transdisciplinary, and multidimensional view, which has increased the novelty of my contributions; and, in general, the analysis of big data or vast global datasets.

My main research line is on thresholds and catastrophic shifts in ecology, and basically pursues to understand whether changes in ecosystem structural and functional attributes are lineal, nonlineal or abrupt in response to changes in environmental conditions (in a context of climate change). This question lies in the intersection of ecological research in need of strong theoretical knowledge on complex systems and have been developed by me in the different labs in which I have worked, being highly original respect to that carried out by my advisors. My work on this line has attracted much attention. The main article I led on this topic gave birth to the creation of a framework underpinning critical shifts in drylands; was published in Science during one of my first postdocs, had 146 citations in 2021 (including citation in the IPBES-IPCC report of 2021) and has an AltMetric of 462 (being mentioned in multiple national and international media).

My mixed background on physics and ecology has conferred me great plasticity and strategic value in my research groups during my career. My willingness to learn from new fields, my skills, my collaborative character and a great curiosity motivated me to collaborate on and lead multiple studies on a great diversity of topics on ecological fields such as spatial ecology (5 studies), community ecology (3 studies), ecology of biological soil crusts (7 studies) and biodiversity-ecosystem functioning relationships (7 studies). I´m also conducting research on the field of ecosystem dynamics (2 studies under review). All these topics have complemented my formation and my research, conferring me a holistic view of ecology.

Historically, my research trajectory started with a highly multidisciplinar PhD (with papers on several ecological disciplines), followed by two postdoctoral positions (at URJC & UA) that consolidated my research line on catastrophic shifts, another one (at UPF) where I expanded my knowledge on mechanisms and mathematics of abrupt transitions and where I started to develop my first project as PI and the current one of international experience where I´m consolidating my experience as a group leader in charge of two Msc and one PhD students.

The career plan I envision for my future will make use of dynamical approaches to find dynamical evidences of ecosystem thresholds in drylands, testing the use of early warning indicators to predict abrupt shifts and establishing a network for identifying, cataloguing and analyzing abrupt shifts in ecosystems in a worldwide monitoring program. In parallel, I would like to focus on mechanisms of threshold formation, making use of the frameworks I have already developed in a paper recently published.

Resumen del Currículum Vitae:

I have published 33 JCR articles (not including comments or corrections), 8 of them as first or senior author, as well as one book chapter. All my publications but 2 are in journals ranked at >90th quantile of their categories. My publications accumulate 3768 citations (H-index =20, source GS). Indeed, all my publications but 14 (5 of them less than one year old) have more citations per year than the average of the journals where they are published. My main research line in the study of threshold and catastrophic shifts of ecosystems, has produced articles led by me that have been published in leading multidisiciplinary and ecology journals such as Science, Nature Ecology and Evolution, and Funtional Ecology. However I also have worked in other areas of ecology including spatial ecology, community ecology, the study of biocrusts and biodiversity (with papers led by me on Journal of Ecology, Ecography [x2], and Ecosystems [x2] and co-authored by me in Science, Nature, Nature Ecology and Evolution, PNAS, Nature Communications or Science Advances). My work has been presented in 14 international conferences including 4 invited speaker. I have organized or helped organizing 5 conferences and acted as a referee for 60 scientific publications (for journals such as Nature Climate Change, Ecology Letters, or Global Change Biology). I am also scientific collaborator of Restor, a private platform focused on advising restoration ecology.

I have more than one year of international postdoctoral experience plus 356 days of predoctoral international stays. As result, I have a large collaborative international network (>20 researchers just counting PIs with whom I have personally collaborated) in more than nine countries worldwide (including China, India, Kenya, France, Netherlands, Switzerland and USA to name only the ones in which I have been in person). I am involved in several collaborative international networks for merging efforts on data acquisition at global scales such as MUSGONET, and BIODESERT.

I have been the sole PI of one project funded by Asociación Española de Ecología Terrestre through a competitive grant. Indeed, I have attracted more than 125,000 in public grants, including FPU grant and Juan de la Cierva Formación grant. I have supervised two Bsc students and a postdoc, and I am currently supervising a PhD student and 2 Master students in my current position at ETH, where I lead a sub-group on abrupt changes and resilience at the Crowtherlab.

My research has been communicated via webpages, my personal twitter and blog, and via press releases, radio programs and even a documentary. The visibility of my research among other audiences different than scientists is well established by the alt-metrics of some of my articles (above 95% of quantile) and by the recent citation of my main paper in the prestigious IPBES report from IPCC panel (addressed to managers and policy makes). I have been involved on activities for science divulgation, including the publication of 3 articles; in national (Quercus; Investigación y Ciencia) and international (TheScienceBreaker) divulgation journals.

I also have been involved on teaching at Universidad Rey Juan Carlos (48 ECTs). Finally, I am credited as Ayudante Doctor by the ANECA.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	RODRIGUEZ RUIZ DE ALMODOVAR, CARMEN
Referencia:	RYC2021-031053-I
Correo Electrónico:	menchu.85@hotmail.com
Título:	GEOCHEMICAL AND PHASE-EQUILIBRIA MODELLING ON FLUID TRANSFER FROM MANTLE-DERIVED MELTS IN SUBDUCTION ZONES

Resumen de la Memoria:

During the PhD, my research was concerned with high-pressure experiments about the magma differentiation in silicic systems, for the fractionation of mobile elements to the melt and its concentration in residual melts. The mechanisms by which liquid separation occurs as discrete systems and finally produce magmatic differentiation were the objectives of my research. I performed thermal-gradient experiments to simulate differentiation processes in hydrous andesitic systems with diverse cooling regimes and without gravity effect. These experiments were carried out by specially designed horizontally arranged piston-cylinder apparatus. The temperature of the experimental 10-mm length capsule range from the liquidus to the solidus of the system in the same capsule. At the same time, thermal-gradient experiments were programmed with slow and rapid cooling ramps promoting and inhibiting advection, respectively. A deep geochemical study of capsules was carried out by laser ablation inductively-coupled mass spectroscopy (LA-ICP-MS), electron probe microanalyzer (EPMA), Raman spectroscopy, secondary ion mass-spectrometry (SIMS) and electron microscope. The experimental work was conclusive about in-situ differentiation mechanisms in thermal boundary layers that can be found in ascent conduits or margins from magmatic systems.

During the last decade, my research line has been focused on magmatic differentiation processes and its relation with water and alkali metals. The postdoc stage brings me the opportunity to focus my research activity on the study of natural examples of magmatic systems. I have investigated by exceptional natural formations of igneous rocks, such as the South Patagonian batholith (Argentina, Chile) with several postdoc stays, the Gredos and Beira-Extremadura batholiths (Spain), the Evora Massif (Portugal) and the plutonic-volcanic system of the Catalonian Pyrenees.

Since February 2021, I have started a POSTDOC grant from the Junta de Andalucía at the IACT (CSIC, Granada) with the Petrology, Geochemistry and Geochronology group, to develop phase-equilibria and geochemical modelling of slab fluids and their role on metal concentration in subduction magmatic systems at the new High-Pressure Lab of the Instituto Andaluz de Ciencias de la Tierra (CSIC-UGR).

Resumen del Currículum Vitae:

I am an Earth scientist looking at the magmatic differentiation at the crust, the genesis of calc-alkaline magmas and the metal concentration by hydrous magmatic melts/fluids. Constraining the metal concentration at crustal reservoirs is an outstanding scientific and societal challenge whose study necessarily needs a multidisciplinary approach.

During the course of my career I have combined and applied tools from several disciplines ranging from Mineral Physics (Raman spectroscopy, rheology), Geochemistry (major and trace elements and isotopes, SIMS, EPMA and LA-ICPMS), Thermodynamic and Thermo-mechanical modelling, Crystallography (Electron Backscattered Diffraction, Transmission Electron Microscopy), Experimental Petrology (equilibrium high-pressure and high-temperature experiments), and natural observations (from volcanic and plutonic rocks) to unravel the origin of the calc-alkaline magmas and its influence on metal concentration. This is a critical step to understand the role of volatiles in Earth s dynamics.

Since almost 3 years I am a CSIC postdoc scientist with a previous three years postdoctoral experience
including a position as a Juan de la Cierva-Formación and a postdoctoral contract at the University of Évora (Portugal).

The main achievements during my research career are divided in three phases: [1] pre-doctoral phase (2011-2015), where I developed magma cooling simulation under thermal gradients, in absence of gravity forces by horizontal high-pressure experiments and numerical modelling, relevant to the in-situ differentiation processes of andesitic magmas (i.e. subduction zones); [2] Post-doctoral phase (2016-2021), where I conducted geochronological techniques and geochemical and isotopic modelling in both plutonic and volcanic samples representing natural examples of magma systems from the Andean setting (Argentina and Chile) and the Iberian Massif (Gredos batholith, Évora Massif, Beira-Extremadura batholith and Pyrenees); and [3] as a postdoc researcher at the Instituto Andaluz de Ciencias de la Tierra-CSIC (since 2021), where I am back to the experimental petrology to determine the oxygen fugacity conditions and the interaction of mantle wedge and slab fluids in subduction zones.

Área Temática: **Ciencias y tecnologías medioambientales**
Nombre: LONG , MARC
Referencia: RYC2021-032869-I
Correo Electrónico: marc.florian.long@gmail.com
Título: Role of biotic and allelopathic interactions in Harmful Algal Blooms

Resumen de la Memoria:

Phytoplankton, at the base of marine primary production, is essentiel for the functionning of the earth systems but can also be responsible for environmental, economic, social, and human health issues when producing toxins: the so-called Harmful Algal Bloom species (HABs). In this context, my research focus on the biotic interactions affecting marine microalgal blooms. Before my PhD thesis, I revealed the agregation between microalgae and microplastics and evaluated the effects for the fate of microplastic in the ocean. It also highlighted for the first time the potential for microplastics to modify the sinking of microalgae and to affect the marine biological carbon pump. These two articles had a strong impact for the scientific community as highlighted by the number of citations (> 600 citations, GoogleScholar).

Then, I developed my expertise on the biotic interactions and chemical ecology of marine dinoflagellates. Specifically, I studied the interactions between dinoflagellate and diatoms (competition), Syndiniales (parasitism) and bacteria/cyanobacteria (predation/mixotrophy). Besides underlining the role of biotic interactions on the dynamic of dinoflagellate blooms, I developed my own research line by investigating the underappreciated role of chemical interactions. In this sense, I revealed the ubiquitous and essential role of allelopathy (i.e. the release of chemicals (allelochemicals) by a microalgae that influence the physiology of other microorganisms) in all the studied interactions. I revealed that by eliminating competitors, protecting cells from parasites and facilitating phagotrophy, allelopathy is an efficient competitive strategy that must help some species to recurrently form dense blooms. In the 5 research institutes where I worked, my research (12 scientific articles, 8 articles as a first autor) had a significant impact (citations GoogleScholar > 910) on the understanding of microalgal blooms.

To complete this original line of investigation, I will further study the the role of chemical interactions on HABs formation. My future research will particularly have three main complementary objectives: (1) define the extent of allelopathic interactions: does it affect a large range of species or is it limited to a few species?, (2) investigate the effect of environmental factors on these allelochemical interactions, and (3) study the role of allelopathy within complex natural communities.

By constraining the role of biotic interactions, my work helps the prediction, and the development of early warning systems. This knowledge on allelopathy will not only be applicable to the study of HABs, it will help to better understand the importance of biotic interactions in the variability of the primary production, and in the functioning of the biological carbon pump in the context of climate change.

Resumen del Currículum Vitae:

After completing my licence and my master at Université de Bretagne Occidentale (Université de Brest, UBO, France) (2011-2015) in parallel with working as a research assistant (LEMAR, France), I obtained my PhD (2015-2018) from the University of Wollongong (UOW, Australia) and UBO (France). In my PhD, I studied the role of chemical interactions in the competition between dinoflagellates and diatoms. Later, in my postdoctoral experiences (2019-2021) at Ifremer (National Institute for Ocean Science) and at the Station Biologique de Roscoff (France), I focused my research on interactions between dinoflagellates and microorganisms by looking at a) the role of cell death in parasitic infections, and b) the predation of bacteria and cyanobacteria by dinoflagellate. In parallel, I developed my own research line by investigating the role of chemical interactions in these biotic interactions. I am actually working as a postdoctoral researcher in the European project ALG-AD at LEMAR.

My research performed in 5 different institutions revealed the ubiquitous and essential roles of chemical interactions in biotic interactions (e.g. competition, parasitism, or predation). I also developed innovative techniques (e.g. flow-through roller tank, bioassays) for the study of biotic interactions between microalgae, with a strong impact for the scientific community. My research underlined the potential of these underlook interactions to structure planktonic communities, and to explain the success of some microalgae in forming dense (sometimes toxic) algal blooms. My multidisciplinary research helps understanding factors favouring the development of HABs, therefore helping a better forecast of HABs and the development of early warning systems based. Overall, these data help to mitigate the effect of HABs on aquaculture, fisheries and human health. This work is also valuable to understand the role of biotic interactions in primary production, in biogeochemical cycles and especially in the biological carbon pump in a context of climate change.

My research output includes the publication of 12 articles (8 articles as a first author) in international peer reviewed journals leading to 915 citations reported in GoogleScholar (h-index 9) and 656 citations reported in Scopus (h-index 8). My research was communicated in 23 oral presentations and 8 posters in national and international conferences, and in 4 invited seminars. I received 4 awards for my oral presentations including two awards granted by the International Society for the Study of Harmful Algae (ISSHA). I am a reviewer for 9 scientific journals and for the GlobalHAB science and implementation plan (sponsored by the SCOR and the IOC from UNESCO). I am an active member of scientific organisations such as the French research groups on harmful algae, on chemical ecology or the ISSHA. I developed a strong international network (France, Australia, USA, Germany). I have experience in teaching (74 hours) and mentoring: I co-supervised one postdoctoral researcher, but one undergraduate and one master student. I also actively participate in dissemination and outreach activities including talks in schools, open days of scientific institutions, citizen science projects and translation (Spanish to French) of articles on the blog of scientific popularization Fitopasión .

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	OSORIO TORRENS, VICTORIA-FRANCISCA
Referencia:	RYC2021-034685-I
Correo Electrónico:	vickyosoriotorrens@gmail.com
Título:	Behavior, fate and effects of natural and anthropogenic compounds of environmental concern in ecosystems

Resumen de la Memoria:

I started my career at IDAEA-CSIC Research Institute (Spain), investigating the behavior, fate and effects of pharmaceuticals and their Transformation Products (TPs) in waste waters and receiving surface water systems. Before obtaining my PhD, I moved to the Netherlands to join KWR Watercycle Research Institute as Marie Sklodowska-Curie (MSC) Experienced Researcher of the ITN EDA-EMERGE project to develop and validate novel analytical methods using cutting-edge instrumental technologies for the combined chemical and biological analysis of CECs in complex environmental matrices using the Effect Directed Analysis approach. In 2015, I completed my PhD in Analytical Chemistry of the Environment and Pollution with a dissertation entitled Fate, modeling, and risk of pharmaceuticals in wastewater treatment plants and Iberian rivers receiving the cum laude distinction. After a Maternity Leave I joined the University of Liège (Belgium) as MSC-COFUND-BeIPD Postdoctoral Fellow, where I investigated on the metabolism and behaviour of cyclic lipopeptides metabolized by plant-growth promoting bacteria in the rizosphere zone of plants using High resolution Mass Spectrometry (HRMS) and HRMS Imaging techniques. Then, I moved to BETA Technological Center (Spain) to lead the Instrumental Analytical Laboratory in charge of the validation and quality assurance of methods applied to assess chemicals in environmental samples and agri-food residues. As Scientific Researcher, I participated in several technology and knowledge transfer projects and other agreements with private companies from the water service and agri-food sectors. In 2020 I joined the Chemistry Department of the University of Girona as associate professor in the Analytical Chemistry Area and was appointed by the European Economic and Social Committee as Scientific Expert for the Section for Agriculture, Rural Development and the Environment. In my current position at the Catalan Water Research Institute as Beatriu de Pinós-COFUND Postdoc Fellow, I am working on the project REST-RESIST (Antibiotics of RESTricted use and corresponding RESISTant genes: tracking their emergence and fate in the environment and assessing natural and engineered attenuation processes to mitigate their spread). I have conducted my research along the narrow line between analytical chemistry and the environmental risk assessment of pollution caused by CECs. I am strongly interested in providing evidence of the presence of CECs in the environment and assessing the potential effects they may pose on ecosystems and eventual threats to human life from a One Health perspective focusing on four main scientific areas: (i) Study of occurrence, fate and behaviour of CECs in the environment. (ii) Investigation of unknown metabolites and TPs; (iii) Risks of CECs, metabolites and TPs to ecosystems; (iv) Antimicrobial resistance spread in the environment and eventual effects on human health. At mid-long term, my main goal is to consolidate my scientific career following the main investigation line developed but also moving beyond the comfort zone of my own past studies, to continue along the formation process that a researcher should never interrupt. I consider the Ramón y Cajal grant as the perfect vehicle to keep fulfilling the prospects of my professional career as researcher and scientific leader of a Research line.

Resumen del Currículum Vitae:

I am PhD in Environmental Analytical Chemistry, with a solid background in the study of environmental fate and behavior of contaminants of emerging concern (CECs), such as pharmaceuticals (PhACs) and their transformation products (TPs), and natural compounds such as bioactive metabolites produced by bacteria. I developed several analytical methods relying on cutting-edge instrumental techniques (Solid Phase Extraction and Pressurized Liquid Extraction; Liquid and Gas Chromatography; Mass Spectrometry (MS), High Resolution MS (HRMS) and HRMS Imaging). I am widely expert on chemical structure elucidation of unknown metabolites and TPs, characterization of physic-chemical properties and bioactivity of organic compounds. After Chemistry Degree (2008), I completed two Master (2010) and doctoral theses (2015) conducting research at IDAEA-CSIC as early-stage researcher. Under projects VIECO and SCARCE, I studied the behavior, fate and effects of PhACs and their TPs in waste waters and receiving freshwater systems. With the ITN EDA-EMERGE I joined KWR as MSC-Experienced Researcher (2013). I validated analytical methods based on Effect-Directed Analysis for combined chemical and biological analysis of CECs in European River basins. After a maternity leave, I joined the University of Liège as MSC-COFUND Postdoc Fellow (2016). I studied surfactins metabolized by plant-growth promoting bacteria in the rizosphere zone that can be used in agriculture for crop protection purposes. I identified and elucidated the chemical structure of metabolites of Bacillus bacteria by HRMS and studied their interaction with other bacteria and pathogens by HRMS Imaging. As scientific researcher at BETA Technological Center (2019) I participated in several technology and knowledge transfer projects with companies from the water management and agri-food sectors. I was Head of the Instrumental Analytical Laboratory performing validation and quality assurance of methods applied to assess chemicals in environmental samples and agri-food residues. In 2020 was accredited as lecturer in the field of science (AQU) and joined the University of Girona as associate professor in the Analytical Chemistry Area. During the academic course 2020/2021 I taught 5 subjects of Chemistry, Biotechnology and Biology Degrees and a Master program. Also in 2020, I was appointed by the European Economic and Social Committee as scientific expert for the rapporteur of the Opinion on the Chemicals Strategy for Sustainability reported by the Section for Agriculture, Rural Development and the Environment (NAT/807) and for the Opinion on the Zero Pollution Action Plan for air, water and soil (NAT/830). Since April 2021 I am MSC-COFUND Postdoc Fellow at ICRA leading the project REST-RESIST on which I will restart working once back from the second maternity leave. I am studying antibiotics of restricted use in veterinary, with critical importance to humans, as well as selective resistant genes by (i) tracking their environmental fate and (ii) evaluating mitigation processes.. I have published 20 articles in SCI indexed journals (H index 14), 4 book chapters, 2 scientific-technical reports, 1 scientific dissemination video and 1 popular scientific book. I am active reviewer (19 publications and 1 Doctoral thesis) and experienced in dissemination of science topics addressed to a broad range of audience.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	GIRONA GARCIA, ANTONIO
Referencia:	RYC2021-031262-I
Correo Electrónico:	antoniogironagarcia@gmail.com
Título:	CAPTIVE Carbon fAte in PosT-fIre enVironmEnts

Resumen de la Memoria:

I have a wide experience working on the effects of anthropogenic activities (e.g. afforestation, prescribed fires) and wildfires on soil. I am engaged in applied research on soil degradation, in particular, by the direct and indirect impacts of afforestation, prescribed burning, and wildfires. My scientific expertise includes soil science, with a special focus on soil organic carbon (SOC) and nutrients dynamics, and soil erosion and its mitigation, in post-fire environments.

Since the second year of my BSc (Environmental Sciences, 2008-2013, University Miguel Hernández of Elche, Spain), I showed interest on the effects of fire on soils and, over four years, I did three internships and was awarded an introduction to research grant on this topic. Afterwards, I pursued an MSc in Soil and Water Management (2013-2015, University of Lleida, Spain). From 2014 to 2015, I developed my MSc thesis at the University of Zaragoza and the Institute of Natural Resources and Agrobiology of Sevilla (IRNAS-CSIC, Sevilla, Spain). During this period, in which I studied the long-term effects of afforestation on soil, I developed my skills on the determination and interpretation of soil organic matter functional fractions and composition, by standard procedures and C and N stable isotopes (EA-IRMS) and analytical pyrolysis (Py-GC/MS).

From 2015 to 2019, I developed my PhD research at the University of Zaragoza in which I assessed the effects of the prescribed burning of subalpine shrublands for pasture restoration on soil properties, focusing on changes in post-fire SOC dynamics. I also analyzed environmental factors that need be taken into account when burning to minimize the effects of fire on soil. My PhD was funded by a FPI research grant, and conducted within the framework of two Spanish national projects from the Ministerio de Economía y Competitividad. I taught 240 certified hours of soil science courses, and supervised four BSc thesis for the degree in Environmental Sciences. During this period, I also received a research stay FPI grant from the Ministerio de Economía y Competitividad. I visited for 93 days the Moscow Forestry Sciences Lab of the USDA Forest Service (Moscow, ID, USA). There, I worked in the testing and validation of a physically-based model for soil heating and moisture fluxes during fires, the assessment of post-fire soil erosion and mitigation measures, and ash distribution after wildfires. I graduated summa cum laude, receiving the international PhD mention, and the extraordinary PhD Award by the University of Zaragoza.

I completed my PhD in April 2019 and since June 2019, I am a post-doctoral research fellow at the renown CESAM (University of Aveiro, Portugal). I am integrated in the Earth Surface Processes Team, a large and multidisciplinary team specialized on abiotic and biotic impacts of wildfires, with a special focus on soil erosion and its mitigation as well as on the eco-toxicological effects of wildfire ash on aquatic organisms. I am the principal investigator of a Portuguese FCT Project and the co-principal investigator from the University of Aveiro of an Interreg SUDOE project. Within the framework of these two projects, I am engaged in the field-assessment and modelling of post-fire soil erosion and its mitigation.

Resumen del Currículum Vitae:

Since the early years of my BSc in Environmental Sciences, my scientific and curricular path has focused on the effects of fires and forest management on the ecosystems, especially on soil degradation processes and SOC dynamics.

My MSc thesis (2015) covered the SOM quantitative and qualitative changes related to Scots pine afforestation in areas formerly populated by European beech stands. During this period, I developed my skills on the determination and interpretation of soil organic matter functional fractions and composition, by standard procedures and C and N stable isotopes (EA-IRMS) and analytical pyrolysis (Py-GC/MS). In 2014, I did a research stay (30 days) in the Institute of Natural Resources and Agrobiology of Sevilla (IRNAS-CSIC).

In my PhD thesis (2019), funded by a FPI research grant, I assessed the effects of prescribed burning for pasture restoration in subalpine shrublands of the Central Pyrenees (NE-Spain) on soil physical, chemical and biological properties, focusing on soil carbon dynamics after fire. This research was conducted within two national Spanish MINECO-funded projects. In 2018, I visited for 3 months the Moscow Forestry Sciences Lab of the USDA Forest Service (Moscow, ID, USA), having received a research stay grant. There, I worked in the testing and validation of a physically-based model for soil heating and moisture fluxes during fires, the assessment of post-fire soil erosion and mitigation measures, and ash distribution after wildfires. During my PhD, I also taught 240h certified hours on soil science courses (receiving, outstanding positive evaluations in the annual teaching reviews) and supervised four BSc thesis (graded 9/10). I graduated summa cum laude, with international mention and received the PhD extraordinary award.

I completed my PhD in April 2019 and since June 2019 I am the recipient of a post-doctoral fellowship at the CESAM (University of Aveiro, Portugal). I am the principal investigator of a Portuguese FCT Project and the co-principal investigator from the University of Aveiro of an Interreg SUDOE project. In the framework of these projects, I work on the assessment and modelling of post-fire soil erosion and its mitigation. During this stage, I have been the scientific supervisor of one BSc and one MSc students, and of one post-doctoral researcher.

These lines of research resulted in 19 articles (8 as first and corresponding author) in JCR journals, 1 book and 2 book chapters, with 30 co-authors from 12 institutions and 5 countries (Spain, Portugal, Italy, Chile, and the USA). I have received 220/288 citations with an h-index of 9/10 (Scopus/Google Scholar)

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I have been presenting author of 7 oral contributions to international conferences and seminars (2 invited), and 5 oral contributions and 3 posters to national conferences. I also co-authored 16 contributions in international and 5 in national conferences. I organized a session for the EGU2022 and co-organized another for the EGU2020, and an international webinar.

I reviewed 11 manuscripts in international journals and since April 2021, I am review editor of the Spanish Journal of Soil Science (Frontiers). I am member of the FIRELinks COST Action (CA18135), European Geosciences Union, Spanish Society of Soil Science, International Union of Soil Sciences, and the FuegoRED International Network.

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Área Temática:	Ciencias y tecnologías medioambientales
Nombre:	CAMACHO OLMEDO, CARLOS
Referencia:	RYC2021-033977-I
Correo Electrónico:	ccamacholmedo@gmail.com
Título:	Movement decision-making in changing environments

Resumen de la Memoria:

My research interests lie in the area of behavioural ecology and evolutionary ecology of animal movement. I mainly use bird populations as a model system to investigate the role of dispersal in eco-evolutionary processes.

I carried out my doctoral studies at EBD-CSIC and University of Seville under a Severo Ochoa contract (2014-2018). During this time, I conducted a sequence of studies on non-random dispersal and population differentiation (Camacho et al. 2013, Ecol. Evol.; Camacho et al. 2015, Evol. Ecol.; Camacho et al. 2016, BMC Evol. Biol.; Camacho et al. 2018, Behav. Ecol. Soc.; Camacho et al. 2019, Behav. Ecol.) that set the scene for my first postdoctoral positions.

I carried out my first collaboration as a postdoc in 2018-2019 as part of a team from the University of Massachusetts (USA) that conducts long-term research on Darwin's finches in the Galapagos Islands. I planned and coordinated a pioneering study to determine space-use parameters of the finches (Beausoleil, Camacho et al. 2018, Ecol. Evol. 2nd revision). I then joined Prof. Pim Edelaar's group at Pablo de Olavide University (Spain) and published the first experimental demonstration of the potential of 'Matching Habitat Choice' as a mechanism of local adaptation (Camacho et al. 2020, Proc. R. Soc. Lond. B). I simultaneously introduced the concept of 'Partial Matching Habitat Choice' as a context-dependent mechanism of local adaptation (Camacho & Hendry 2020, Oikos).

I moved on to Lund University (Sweden) in October 2019 for my second postdoctoral position, thanks to a grant from 'Fundación Ramón Areces'. My project aimed at investigating the annual cycle of migrants, under the supervision of Prof. Anders Hedenström. Not long after, the COVID-19 pandemic broke out so I reformulated the goals and timeline of the original research plan. Finally, I returned to Spain after 11 months in Lund to take on childcare and family responsibilities. Currently, I am a Juan de la Cierva-F researcher at IPE-CSIC. I am using cutting-edge statistical techniques to incorporate an evolutionary perspective into my research line.

I set up a long-term research project (2009-present) in the Doñana National Park that I plan and coordinate as an independent researcher. I got start-up funds and secured funding from multiple sources to ensure the success of the project in the long run. I manage a 5-person research team, currently consisting of one FPU doctoral candidate, one master's student, one undergraduate student and one technician. Our research aims at understanding the intrinsic and extrinsic factors influencing animal decisions relating to space use (e.g. Camacho et al. 2014, PLoS ONE; Camacho et al. 2017, Ecosphere) and timing of annual events (e.g. Hidalgo-Rodríguez et al. 2021; Behav. Ecol.).

My research has challenged the general assumption that dispersal precludes local adaptation and evolutionary diversification, redirecting the attention of researchers to neglected mechanisms (e.g. phenotype-dependent dispersal) that are also important for evolution. My next steps are leading me to establish a novel research program exploring 'Matching Time Choice' as opposed to 'Matching Habitat Choice' as a potential mechanism contributing to allochronic speciation through the separation of populations by breeding time.

Resumen del Currículum Vitae:

I am a Juan de la Cierva-F researcher at IPE-CSIC (Spain) and a research affiliate at Lund University (Lund). I obtained my doctoral degree in Biology at EBD-CSIC and University of Seville. Before taking up my current position, I conducted my postdoctoral research at Pablo de Olavide University (Spain) and Lund University (Sweden).

My track record as a scientist demonstrates research excellence, independence, and leadership. I have published 43 SCI-indexed papers in respectable journals, including Proc. R. Soc. Lond, Oikos, J. Anim. Ecol., and Evol. Appl. 50% of my SCI-indexed publications are single, first or senior author papers (81% Q1) and 30% of them do not include any of my current or former supervisors, indicating a strong degree of scientific independence. My international recognition is also evident from regular invitations to present special seminars at top universities (Oxford U, Lund U, McGill U, Québec U; 17 invited seminars) and plenary talks at scientific conferences (3).

I have been successful in securing sustained funding (>100.000 €) as Principal Investigator (PI) from multiple sources. I have participated in 15 research projects from competitive calls (2 as PI) and in 3 research contracts (2 as PI). I am part of the research team of 5 ongoing projects. I have supervised 1 PhD (1 ongoing), 7 MSc (1 ongoing), 1BSc, and 3 trainees.

I am currently guest editor of a special issue for Front. Ecol. Evol. I am also sole editor of a 30-chapter monograph for Springer (in prep.). I have reviewed 59 papers for top journals in their areas, such as Ecol. Lett., Proc. R. Soc. Lond., Ecography, Am. Nat., and J. Anim. Ecol. I have organized 2 scientific symposiums at international meetings, including the ESEB Conference Europe's most notable evolution meeting. I am also Expert Consultant for international funding schemes (e.g., SF Serbia and NSF Poland).

My research has been used to inform conservation efforts in public protected areas and to support the potential of some private sectors (e.g. ecotourism operators) for generating useful scientific data. I am committed to disseminating my research to audiences beyond the academy through popular science articles and outreach activities, such as talks and Open Days at our field sites.

Overall, my academic profile and record of research publication demonstrate a clear capacity to identify research gaps and trends, raise funds in the long term, train young researchers, lead a research team, contribute to society, and build international collaborations.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	SANCHEZ GARCIA, ALBA
Referencia:	RYC2021-032907-I
Correo Electrónico:	sanchez.garcia.alba@gmail.com
Título:	Paleobiology of fossil arthropods related with edaphic and aquatic environments

Resumen de la Memoria:

I am an organismic and evolutionary biologist with extensive paleobiological expertise. Although grounded in taxonomy, my works aim to extract paleoecological, paleoethological, and taphonomic data. My research has studied exceptional preservation localities of international importance. The integration of all available information to the interpretation and restoration of the original ecosystem is the target of my research.

My interests concern the evolution palaeoecology, palaeoethology, taphonomy and taxonomy of insects and other arthropods related with edaphic and aquatic environments. To date, I have published 17 papers (and 6 others in prep or under review) on multiple Hexapoda groups (Collembola, Diplura, Archaeognatha, Isoptera, Neuroptera, Hemiptera and Coleoptera), as well as Arachnida (Acari and Pseudoescorpionida) and Crustacea (Tanaidacea and Isopoda), in high-impact peer reviewed journals that are both interdisciplinary and specialized. Total: 1 in eLife, 1 in Scientific Reports, 1 in Plos One, 1 in PeerJ, 1 in Papers in Palaentology, 2 in Zoological Journal of the Linnean Society, 2 in American Museum Novitates, 2 in Journal of Systematic Palaeontology, 3 in Cretaceous Research and 1 in Comptes Rendus Palevol, 2 in European Journal of Taxonomy. Overall, I have described about 30 taxa new to science. Therefore, I have acquired a broad knowledge on fossil arthropods, rather than focusing my expertise on a single taxonomic group.

I have developed 6 stays in international research institutions of 3 countries: at the AMNH (New York, USA) as a postdoctoral researcher; and at the University of Kansas (Kansas, USA), the Muséum national d'Histoire naturelle (Paris, France) and the Senckenberg Forschungsinstitut und Naturmuseum (Frankfurt am Main, Germany) as a predoctoral researcher. During these research stays I received extensive training in different top-notch techniques for the study of amber inclusions (microCT and synchrotron imaging) and tomography visualization softwares (VGStudio Max) and many microscopy techniques. I have also acquired extensive experience at handling and interpreting variously-preserved paleontological specimens, including preparation, determination, databasing, digitization, and storage of several hundred fossil arthropod samples.

During my research career, I had the opportunity to spearhead multi-authored works, in which I coordinated and enhanced researchers efforts across the globe, often within a multidisciplinary framework. I have proved a leadership capacity concretized in 11 publications as first author, 1 publication as last author, and 11 publications as corresponding author. I have tackle poorly-studied subjects related to the study of edaphic and aquatic arthropod fossil communities, an developed my own research line. I have established a number of international collaborations independent of my PhD supervisors. Moreover, I have secured abundant external funding in Research and Innovation projects and through international competitive calls as a principal investigator.

Resumen del Currículum Vitae:

I obtained my MSc in Paleontology (2012) and PhD in Earth Sciences (2017) from the UB, working on the paleobiology on the systematics and palaeobiology of several arthropod groups, namely hexapods arachnids and crustaceans. My thesis received the maximum qualification, the International Mention, and the Extraordinary Doctoral Award of the UB (2016/2017). In 2018 I obtained by ANECA the enabling to 'Profesor Ayudante Doctor'. Subsequently, I have done two years of Postdoctoral Fellow at the American Museum of Natural History and the UV (GVA APOSTD/2019/188, 2 years contract, 18 months of stay granted). I got a total of 9 grants from different institutions in competitive calls. In 2012, I was awarded with a four-year FPI Doctoral fellowship of the Spanish Government (BES-2012-056873). I have also been awarded with three predoctoral grants for carrying out a research stay in a Spanish or foreign I+D institution (EEBB-I-16-11068, EEBB-I-15-10236, EEBB-I-14-08110) funded by the Ministry of Economy and Competitiveness; two SYNTHESIS grants (FR-TAF-3362, DE-TAF-5086) by the European Community Research Infrastructure Action; a grant from the 'II Convocatòria 2014 d'ajuts de mobilitat' by the UB; and a Collaboration grant for the fifth year degree. I have taken part of 4 multidisciplinary international research teams funded by governmental funds in consecutive competitive calls, and 8 projects (3 in progress): REDEK (PID2019-105546GB-I00); AMBERIA (CGL2017-84419-C2-1-P/2-P, CGL2014-52163, CGL2011-23948/ BTE); Sedimentary Geology (2017-SGR824, 2014-SGR251, 2009-SGR1451); and Paleontología Virtual II (UV-SFPIE_PID20-1352892). Throughout my research career I have published 17 articles (and 6 others in prep or under review) all in international journals indexed in the SCI that are both interdisciplinary, and specialized (5 in D1, 5 in Q1, 3 in Q2, and 4 in Q3). I am also the author of 4 book chapters. My paper 'Marsupial brood care in Cretaceous tanaidaceans', published in the prestigious journal Scientific Reports, was covered by more than 60 newspapers and science journals/blogs worldwide. I have proved an outstanding capacity of communicating scientific results, concretized in 17 communications in national and international meetings (including 1 invited talk, one of them awarded). I have also participated in the scientific and organizing committees of international meetings and museum exhibitions. I collaborate closely with international colleagues, and I keep a tight contact with the paleontological community. I carried out long research stays at the American Museum of Natural History (New York), University of Kansas (Kansas) and Muséum national d'Histoire naturelle (Paris). I also visited the Senckenberg Forschungsinstitut und Naturmuseum (Frankfurt am Main) and the MNHN during two short research stays for consulting collections. I have teached during four academic years (178.8 h), the last in progress (2021/22) at the UB and the UV and I am coordinator of two subjects. I am directing a MSc thesis.

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Área Temática: Ciencias y tecnologías medioambientales
Nombre: BOADA GARCIA, JORDI
Referencia: RYC2021-033650-I
Correo Electrónico: jboada@ceab.csic.es
Título: Resiliencia de ecosistemas marinos bentónicos

Resumen de la Memoria:

My scientific career began in 2010 when I started participating in field expeditions as a Research Assistant at the Centre for Advanced Studies of Blanes (CEAB-CSIC). Later in 2010, I was awarded a collaborative grant to work at the Ecology Department at the University of Alicante while finishing my BSc in Marine Sciences and Oceanography. In 2011, after finishing my BSc with honorific mention I was awarded a pre-doctoral research fellowship (FPI) by the Spanish Minister of Science and Innovation at CEAB-CSIC under the supervision of Dr Teresa Alcoverro and Dr Javier Romero. In April 2016, I finished my PhD in Fundamental and Applied Ecology entitled 'Change Agents: Sea urchin regulation and state shifts in Mediterranean macrophyte Systems' (Excellent Cum laude). At the end of 2016, I was awarded an Australian Awards Endeavour Research Fellowship to conduct postdoctoral research at the University of New South Wales (UNSW) in Sydney. After this international research I joined the University of Barcelona as a Postdoctoral Research Fellow coordinating a PN project. From mid 2020 to beginning of 2022 I worked at the University of Girona and the CEAB-CSIC as a JdC Formación postdoctoral fellow. Recently, I joined the Laboratoire d Oceanographie Villefranche-sur-mer (Sorbonne Université) as a MSCA-IF Postdoctoral Fellow for 2 years. My research has largely focused on understanding resilience of marine vegetation ecosystems such as kelp and other macroalgal forests and seagrasses. Specifically, I have worked on identifying tipping-points using a mechanistic approach (processes-based). To this aim, I mix natural surveys with experimentation in the lab and in the field which eventually allows to provide with forecasting capacity and contribute to ecosystem management and conservation. More recently, I apply this approach to global environmental change ecology questions within the framework of my recently awarded MSCA project SHIFT2SOLVE (among the top 22 projects).

Resumen del Currículum Vitae:

I account with a total of 28 publications (17 JCR and >90% in Q1 journals and >60% as significant contributor author). More than 50% of my research has reached top journals (if > 4), including Proceedings of the Royal Society B, Functional Ecology, Global Change Biology and Ecology. I currently account with a wide international trajectory of collaborations in Europe (France and Italy mainly) and worldwide (Australia mainly) and ~2 years of international experience as a predoctoral (6 months) and postdoctoral (~1,5 years) researcher. Overall, I have participated in >25 national and international projects (5 as Scientific Coordinator). As an experimental ecologist, I have participated in several field expeditions in the Mediterranean (Spain, Italy and France), the Great Barrier Reef (NE Australia) and the Great Southern Reef (New South Wales and Tasmania, Australia). I have worked as a referee for more than 10 high impact journals. Most of my publications have transcended to the general press and media as articles, radio interviews and/or TV documentaries. I have mentored 18 students including 6 BSc students and 3 MSc and I am currently about to start co-advising a PhD thesis. I have participated in numerous national and international outreach activities. I have also been invited as a speaker in several institutions to communicate my research.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	MUÑOZ RODRIGUEZ, PABLO
Referencia:	RYC2021-032489-I
Correo Electrónico:	pmr.redes@gmail.com
Título:	Origen y evolución de linajes tropicales con interés agrícola: biodiversidad, genómica y rasgos funcionales

Resumen de la Memoria:

Soy un biólogo con experiencia en biología evolutiva, genómica, taxonomía de plantas y manejo de datos. Obtuve una Licenciatura en Biología y una Maestría en Biodiversidad de la Universidad Autónoma de Madrid (UAM), y un doctorado en la Universidad de Oxford. Antes de mi doctorado adquirí experiencia trabajando en la taxonomía de Acalypha, un grupo de plantas tropicales, y trabajé 4 años como biólogo en diversos proyectos sobre conservación de la biodiversidad y la gestión de datos bioinformáticos. Mi investigación se centra en el género megadiverso Ipomoea, con especial atención en el boniato (I. batatas), un importante cultivo alimenticios para los humanos. En mi enfoque integro análisis filogenéticos y genómicos con un fuerte componente taxonómico. Esto acelera el estudio de grupos grandes y poco conocidos de plantas tropicales como Ipomoea y, en consecuencia, la velocidad a la que abordamos las lagunas de conocimiento de la biodiversidad tropical. También investigo el origen de las raíces de almacenamiento en el género y la prevalencia de eventos de dispersión a larga distancia en el género, que a su vez ayudan a explicar la evolución de la batata. Un hito importante en mi trabajo fue resolver el enigma del origen del boniato, gracias a la identificación de las especies silvestres que son sus parientes más cercanos, así como de varios eventos evolutivos que explican su diversidad actual. Otra contribución importante fue el descubrimiento de que las raíces comestibles del boniato no son el resultado de la domesticación sino un rasgo preexistente al cultivo, lo que ha generado un cambio de paradigma en la investigación de este cultivo. Además, basándome en datos genéticos y genómicos he generado las filogenias más completas de Ipomoea hasta la fecha y soy coautor de una monografía de todas las especies de Ipomoea (>425) del continente americano. He colaborado con investigadores de instituciones americanas y europeas, con contribuciones a la ciencia que abarcan otros grupos de plantas tropicales, teoría sistemática y conservación de la biodiversidad.

Resumen del Currículum Vitae:

Licenciado en biología (UAM), Master Universitario en Biodiversidad (UAM) y doctor en botánica (Universidad de Oxford). Mi investigación integra filogenética, genómica y taxonomía para el estudio de grupos megadiversos de plantas. Actualmente me centro en el género Ipomoea y en el origen y evolución del boniato (I. batatas). Los resultados de mi investigación han ayudado a esclarecer el origen de esta especie, uno de los cultivos más importantes del mundo, así como identificar sus parientes silvestres próximos y varios eventos evolutivos que explican su diversidad actual. Otra contribución destacada fue el descubrimiento de que sus raíces comestibles no son resultado de la domesticación por humanos sino un rasgo preexistente que facilitó su cultivo. Además, he publicado las filogenias moleculares de Ipomoea más completas hasta la fecha y soy coautor de una monografía taxonómica de todas las especies del género en América, el primer trabajo de este tipo en 200 años. También he trabajado en sistemática de otros grupos de plantas y en proyectos de conservación de biodiversidad. Los resultados de mi trabajo incluyen la revisión taxonómica de Acalypha para Sudamérica, la identificación de áreas españolas prioritarias para la conservación vegetal, y la descripción de 7 especies y 4 subespecies nuevas para la ciencia. Colaboro con investigadores de Reino Unido, España, EE.UU., México y Perú. Destaca mi colaboración con el Centro Internacional de la Papa (CIP), que facilita la transferencia rápida de los resultados de mi investigación para la mejora de cultivos. He hecho estancias de investigación en el CIP, Oregon State University (EE.UU.) y los Museos de Historia Natural de París y Copenhague.

He publicado 20 artículos científicos, 2 capítulos de libros, 2 informes gubernamentales, 2 contribuciones invitadas y 4 juegos de datos. He presentado mi investigación en conferencias internacionales y he sido ponente invitado en conferencias en China, Reino Unido y España. He recibido 5 becas de investigación, así como premios por el impacto social de mi trabajo (2018, BBSRC) y por mi trabajo con colecciones de historia natural (2020, E-SCoRe CETAF). Mi investigación ha recibido impacto mediático a nivel internacional, con entrevistas para el New York Times, The Guardian, Nature y EFE, poniendo de manifiesto su impacto e interés general.

Soy presidente de la Systematics Association, el primer presidente en su historia que no es un investigador senior. También soy miembro de la Asociación Internacional de Taxonomía Vegetal, la Sociedad de Biología Molecular y Evolución, y la Comunidad de Científicos Españoles en Reino Unido (CERU). Revisor de artículos científicos y coordinador o moderador de más de 40 conferencias científicas y simposios. He ocupado cargos de representación académica, incluido en la comisión que adaptó el plan de estudios de Biología en la UAM al Plan Bolonia y el de representante de estudiantes de doctorado en Oxford.

He impartido docencia en cursos de grado y posgrado en Reino Unido y España, laboratorio y cursos de campo, y he supervisado varios proyectos de investigación de estudiantes, incluidos 2 estudiantes Erasmus y 2 UNIQ. He impartido talleres de formación y he participado en decenas de actividades de divulgación científica, algunas de las cuales también han recibido reconocimientos públicos y diversos premios.

Área Temática: Ciencias y tecnologías medioambientales
Nombre: SANCHEZ VAZQUEZ, PABLO BREOGAN
Referencia: RYC2021-033826-I
Correo Electrónico: pbsanchez84@gmail.com
Título: A multidisciplinary approach to increase the recyclability of textile wastes

Resumen de la Memoria:

I graduated as Chemical Engineer at Universidad de Santiago de Compostela where I had my first contact with the academic research under a collaboration grant. Once I obtained my master s degree at Universidad de Vigo I worked in industrial R&D before returning to academia to do my PhD under the FPI Program. While working on my PhD I was awarded the Bourse d Excellence Eiffel by the Ministère des Affaires Étrangères (France) which allowed conducting my research between both labs in Spain and France. In 2017, I obtained my PhD degree with honors. As predoctoral researcher I published 6 articles in journals placed in first quartile of the Journal Citation Report Index. These publications deal with the key physicochemical properties of ionic solvents to be suitable absorbents in high performance heat pumps.

I started my postdoctoral stage at Tokyo Institute of Technology after being awarded a grant by the Japanese Society for Promotion of Science where I studied the effect of microwave heating on the dissolution kinetics of cellulose in ionic liquids. Then, my postdoctoral project Aplicación de solventes iónicos en el reciclaje de residuos textiles was funded by the Xunta de Galicia which allowed me staying for 12 months at École Normale Superiéure de Lyon where I worked on solvent design and separation between cellulose and synthetic polymers via selective dissolution and 18 months at Massachusetts Institute of Technology where I studied the connection between rheological properties of cellulose + solvents mixtures and the spinning process (extrusion + coagulation) of cellulosic fibers. When I came back from Boston, I joined the FA2 group as full member where I lead a research team of 4 members. At the moment I am the principal investigator of industrial contracts under article 83 to scaleup the technology to recycle textile materials (+100.000) and of the project From biorefinery wastes to high added-value products: streamlining the conversion of wood into carbon fibers where we work together with researchers at MIT and University of Aalto. As postdoctoral researcher I have published 7 research papers and another one is under review, among them two have been highlighted as relevant papers by the corresponding journal.

Resumen del Currículum Vitae:

I am a Chemical Engineer (USC) and Masters of Energy and Sustainability (UVigo). Once I graduated with the master's project I started working in the company Ecomanagement Techhnology first and then as freelance consultant in the energy sector. In 2014, I came back to academia to do my PhD degree under the FPI Program. During my PhD I was awarded the Bourse d'Excellence Eiffel which allowed me alternating my research between France and Spain and graduating also at UCA-CNRS (France). I obtained my PhD degree with honors in 2017. In the postdoctoral stage I have done a short research stay at TokyoTech (Japan) under a JSPS postdoctoral grant. After, my postdoctoral project Aplicación de solventes iónicos en el reciclaje de residuos textiles was scored first in the area of engineering which allowed me doing research stays at ENS-Lyon (France) and MIT (USA) under the Postdoctoral Program of Xunta de Galicia.

Since 2021, I conduct my research at UVigo as one of the leading members of the FA2 research group - awarded the Grupo de Referencia Competitiva funds by the Xunta de Galicia. From this position I lead a group of 4 PhD researchers working on recycling textiles using ionic solvents. In this front we have received funds to scale up this technology under the art. 83 tool (+100.000). I am one of the Principal Investigators of the project From biorefinery wastes to high added- value products: streamlining the conversion of wood into carbon fibers where we collaborate with researchers MIT and Aalto University (Finland) funded by the MISTI Program at MIT.

I have authored 14 scientific papers (7 as first author and 4 as corresponding author) and 4 book chapters and the results were presented in numerous international conferences (+10). I have participated in 9 scientific projects and 2 networks. I am the Principal Investigator of 2 research contracts under the article 83 and I co-lead an ongoing international project. I have supervised 2 master's projects and lectured for +300 hours in STEM degrees.

Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	FERRON JIMENEZ, HUMBERTO GRACIAN
Referencia:	RYC2021-032775-I
Correo Electrónico:	humberto150@hotmail.com
Título:	Macroevolution and functional morphology of aquatic vertebrates

Resumen de la Memoria:

I am a palaeontologist and evolutionary biologist focused on elucidating major evolutionary transitions in vertebrates (and recently other groups of animals), their causes and consequences, integrating evidence from living organisms and the fossil record, through the joint application of an array of state-of-the-art techniques in palaeobiology (computational fluid dynamics, finite element analysis, non-destructive X-ray computed tomography, geometric morphometrics, phylogenetic comparative methods, etc.).

My research career reflects a trajectory with (1) an outstanding publication record, (2) strong internationalization, and (3) high potential for leadership, representing a positive outlier within my academic stage (i.e., two and a half years after my Ph.D. defence):

(1)   The impact and quality of my trajectory is demonstrated by the publication of articles as first and corresponding author in international high impact journals such as Current Biology (IF: 10.834) or Proceedings of the Royal Society B (IF: 5.349). I count with a total of 24 published articles (61% in Q1, 61% as first author, and 61% as corresponding author) (+ 8 in revision) accumulating 144 citations (with an annual exponential increase). The excellence of my research has been recognized with several international awards and invited talks in renown centres and is also reflected in the number and prestige of international meetings I participated in, and the wide media coverage attracted by my research outcomes.

(2)   My research profile has a strong international component. I have performed several stays in international highly reputed academic centres during my PhD (in Germany, Australia, UK, and Sweden, summing up to one year) and a postdoctoral two-year stay at the University of Bristol (UK), within one of the most prestigious teams in palaeontology lead by one of the most cited scientists worldwide. Thanks to this, currently I count with an important network of international collaborations.

(3)   My potential for leadership is demonstrated by the attraction of international funding since very early stages of my career. The most prestigious merit in this sense was the obtention of a Marie Skłodowska-Curie Individual Fellowship being still at my predoctoral stage. My leadership skills and autonomy are also demonstrated by the publication of several papers as single or corresponding (and last) author, and an important experience in student supervision (supervising two Ph.D. students now).

Obtaining a   Ramón y Cajal   scholarship would constitute a keystone in my research career by enabling me to create my own research laboratory on   Macroevolution and Functional morphology   at the Cavanilles Institute for Biodiversity and Evolutionary Biology (University of Valencia), this being one of the most prestigious public research Spanish centres in the field of Evolutionary Biology.

Resumen del Currículum Vitae:

I graduated with honours in Biology from the University of Valencia (UV, Spain) in 2012, obtaining the   Mention to Academic Excellence . I did a Master in Palaeontology at the Autonomous University of Barcelona (Spain) in 2013, obtaining honorific qualification in my final research project. I obtained my doctorate from the UV in 2019 funded by the Spanish system within the FPU research program. My doctorate thesis was awarded with the Cum Laude score and got the International Mention and Extraordinary Doctorate Award. In June 2019, I was incorporated as a postdoctoral fellow at the University of Bristol (UoB, UK) within the prestigious Marie Skłodowska-Curie Individual Fellowship program funded by the European Commission (until June 2021). After this, I got three postdoctoral fellowships, Juan de la Cierva Formacion (which I declined), APOSTD Generalitat Valenciana (2021-2023) and Maria Zambrano (arranged for 2023-2024).

During my Ph.D. studies, I already demonstrated autonomy and leadership ability as proven by the publication of papers as single and as corresponding author. I did several research stays in international institutions, including close to five months at the Queensland Museum (Australia), three at the Uppsala University (Sweden), three at the UoB (UK) and one at the Museum für Naturkunde in Berlin (Germany) (all of them funded either by the FPU program or the European commission within competitive calls). Moreover, I visited many other international institutions during shorter periods of time. As a postdoc, I have performed a two-year stay at the UoB (2019-2021) within one of the most prestigious teams of palaeobiologists. Recently (November 2021), I returned to the Spanish system of science at the University of Malaga, where I develop my own lines of research contracted by the UV with an APOSTD fellowship for postdoctoral stays. From 2023, I will be contracted directly by the University of Malaga with a Maria Zambrano fellowship.

General quality indicators of scientific production
Track record: My career achievements include 84 scientific contributions, including: 24 papers in SCI journals (+ 8 in revision, among them, one in Nature) (e.g., Current Biology, Proceedings B, Scientific Reports, Scientific Reports, Biology Letters, PLoS one), 61% in Q1 journals, 61% as first author, and 61% as corresponding author; 55 abstracts to both Spanish and International meetings; 4 edited books; 1 authored popular book and 1 popular article. My work has received 144 citations (64 in the last year, in exponential increase). My work has been covered by Spanish and international media such as BBC, Nature Research Highlights, Science Mag, etc.
Awards: The excellence of my research has been awarded by several international institutions (Society of Vertebrate Paleontology; Paleonturology Dinopolis).
Research projects: I have attracted funding for Research and Innovation projects as Principal Investigator from Spanish bodies (14,000) and by the European Commission (SHYNTHESYS and Marie Skłodowska-Curie Individual Fellowship of 212,933.76). I have also been member of the research group in other four national and two international projects (>230,000).
Student supervision: I have co-tutored/supervised eight bachelor and two MSci projects and I am current co-supervising two Ph.D. students.

Other merits: see PDF in CVA

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Área Temática:	**Ciencias y tecnologías medioambientales**
Nombre:	PULIDO REYES, GERARDO
Referencia:	RYC2021-034953-I
Correo Electrónico:	gerardo_p_r@msn.com
Título:	Fate and environmental Impact of engineering nanomaterials and small size MicroPlastics and nanoplASticS
(IMPASS)	

Resumen de la Memoria:

The career of Dr. Pulido-Reyes has been intimately linked to the fields of microbiology and environmental protection. His research focuses on the occurrence, distribution and biological impacts of anthropogenic pollutants such as engineering nanomaterials and micro/nanoplastics in environmental and engineering systems. He has a vast experience working with engineering nanomaterials from metal-based to carbon-based nanomaterials and in particular with cerium oxide nanoparticles. The contributions of the candidate have helped to understand the duality of these nanoparticles, displaying both therapeutic/non-toxic and harmful effects depending on their exceptional reduction-oxidation properties enabled by the capacity of redox-cycling between their surface Ce3+/Ce4+ oxidation states.

Due to the increasing concern about the threat of plastic pollution posing to the environment, he has recently placed his attention to this world-wide issue. After release into the environment, plastics from consumer items are subject to degradation, causing them to break down into microplastics (<5 mm in diameter) and eventually into nanoplastics (<1000 nm). Firstly, Dr. Pulido-Reyes and col. have identified the occurrence of microplastics in places that were not considered before as in remote beaches of protected areas or directly, as first time evidenced, in the atmosphere at high altitudes. Secondly, he has evaluated the efficacy of current drinking water treatments for removing nanoplastics by conducting laboratory and pilot scale experiments and modelling the removal efficiency in full scale drinking water treatment plants. Thirdly, he has also participated in characterizing the transitional degradation from micro- to nanoplastics using biodegradable plastic pellets and, afterwards, assessing the biological effects of these secondary nanoplastics, singly and in combination with other materials, proving that biodegradable items may not always mean safe materials.

He is an expert (eco)toxicologist as he has worked with different environmental relevant organisms from different trophic levels, including microalgae, crustacean and fish. Using these models of study, he has deciphered the toxicological mechanisms of different nanoforms through an integrative approach (a deep understanding of the physicochemical properties of the materials, changes on the physiology of the affected organisms and, when possible, visual identification trough microscopy techniques).

The international career of the candidate is proved by the publications that he has with numerous internationals collaborators and the visits abroad. Although he is still a young researcher, he is dedicated to attract funding for conducting his own research group to understand the fate, transport and biological interactions of anthropogenic contaminants in aquatic and terrestrial ecosystems.

Resumen del Currículum Vitae:

Dr. Pulido-Reyes is a researcher of the Spanish National Institute for Agricultural and Food Research and Technology (INIA) in Madrid (Spain). He obtained his PhD in Microbiology after defending his thesis on ecotoxicological effects of cerium oxide nanoparticles in 2017 at the Universidad Autonoma de Madrid (Spain). Thereafter he worked as a postdoctoral fellow for nine months at the same university. After that, he moved to Switzerland where he obtained a competitive contract for two years at the Swiss Federal Institute of Aquatic Science and Technology (Eawag). He managed and developed, as principal investigator, the research project titled Retention of nanoplastics in drinking water treatment plants, jointly working with scientists but also with practitioners of the potable water company of the city of Zurich. He came back to Spain in 2021 and joined the H2020 funded European project NanoHarmony at INIA. The career of Dr. Pulido-Reyes has been intimately linked to the fields of microbiology and environmental protection. His research focuses on the occurrence, distribution and biological impacts of anthropogenic materials, such as engineering nanomaterials and micro/nanoplastics, in environmental systems as covered by his top-three most cited articles. In 2015, he contributed to untangle the mechanisms underlying the toxicity of CeO2 nanoparticles with an article published in Scientific Reports receiving until date over 200 citations. Moreover, the journal Environmental Science: Nano selected one of his papers as one of the best published articles of 2019 for the work on the release of nanoplastics from bigger biodegradable items (almost 100 citations). As corresponding author, the top-three closes with a critical review which emphasizes the role of the environment to change the properties of pristine engineering nanomaterials. Although he has worked as part of the research team for different national and international projects, he is devoted to attract funding for leading his own group. As a young research, he obtained a budget of >26.000 € for further developing his work in Switzerland (Eawag internal funding); he was awarded with a mobility grant (2500 €) to visit the University of Linköping (Sweden) and increase his international network (Yerun); and, as co-PI, he received indirect funding for using military aircrafts aiming at findings microplastics in the above space of the urban area of Madrid (INTA calls). Furthermore, he participated in the committee of one PhD defense (University of Alcala) and 3 Master thesis (University of Cambridge) and co-supervised the Master Thesis of one student of the University of Turin (now, he is a PhD candidate). Dr. Pulido-Reyes has attended plenty national and international conferences, but he has also been involved in the organizing committee being chairman of two sessions (SETAC meetings in Brussel 2017 and Rome 2018). As a highlight, he was invited to deliver a Keynote talk at an international meeting organized in Australia. How environmentally relevant nanoplastics impact biota in comparison with laboratory-made nanoplastics which have been used for the last years, the potential bioaccumulation of nanoplastics in the trophic chain and how hazardous plastic pollution is in the myriad of environmental contaminants are some of the questions that the applicant wants to answer in the next years.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	CORTIJOS ARAGONES, ALBERT
Referencia:	RYC2021-031001-I
Correo Electrónico:	acaragones@gmail.com
Título:	Plasmonic-enhanced electrical approaches for molecular detection

Resumen de la Memoria:

My research has mainly been in the field of molecular detection (MD), focusing on the electrical readout of unimolecular contacts. Conducting this research, at such reduced dimensions, is possible with the Scanning Tunnelling Microscope via its Blinking approach. It has the capacity to electrically measure unimolecular contacts formed between two electrodes in a fixed nanogap.

During my PhD (UB, ESP) the effects of the magnetic and electric fields were studied over MD. (i) Magnetic fields were used to tune the conductance of molecular contacts (spintronics) of different systems such as inorganic complexes or peptides. (ii) The application of electrostatic fields was employed in molecular reactions inside the interelectrode nanogap. This demonstrated a novel catalytic effect of the confined field over the chemical reactivity (electrocatalysis).

In my 1st postdoc (KCL, GBR) I got the task to set up a new lab dedicated to (bio)electrochemical MD with my own hardware/software. There, I expanded my knowledge to the biological and electrochemical facets of the MD field by working with different biomolecules. At that point, my inquisitiveness brought me to realise that the field of MD has one main drawback: the extremely short molecular contact s detection timescales. This question had a profound influence on my research, so at that time, I decided to focus on a new line of research in what is now my main interest. Still, during my 1st postdoc, I started exploiting novel ways to strengthen the molecular contact: enhancement of the molecule-electrode coupling via strong interactions, the tunning the contact orientation via supramolecular chemistry, exploring covalent chemistry schemes to improve the attachment of the detected molecule, and using novel materials for the electrodes.

The inflexion point in my carrier took place during my 2nd postdoc (MPIP, DEU) as a Marie Curie Fellow. There, developing my self-driven project, I established my own branch in the (bio)MD field mixing it with plasmonics. I designed the 1st plasmonic MD platform based on fixed nanogaps and electrical readings, the Plasmonic Break-Junction (PBJ). PBJ prolongs the molecular contacts lifetimes more than 1 order of magnitude, preserving the molecule s native structure. Later, I developed the electrochemical variant of the PBJ used to (i) promote the resonant excitation of the contacted molecule and (ii) shift the nanogap s plasmonic resonance to tune the trapping efficiency and thus the molecular contacts stability. It resulted in a trapping efficiency s increment of 3 orders of magnitude. My secondary project consisted of the development of a new hybrid platform, with the dual capability to monitor electrical and vibrational Raman signatures of molecules under physiological and electrochemical conditions. Also, I led a novel research project based on the application of electrostatic fields to catalyse a molecular isomerization process during molecular trapping and detection.

Since Jan 2022, I am a Senior Researcher at UB as a Beatriu de Pinós Postdoc Fellow. My main research interests continue in the plasmonic-enhanced (bio)MD, studying the plasmonic effects over the molecular contact s electronic coupling, orientation, and geometry. I combine this research with other fields as spintronics, supramolecular chemistry, electrocatalysis and biomolecular binding kinetics.

Resumen del Currículum Vitae:

My PhD (2017, UB), supported by a Ministerial grant, has its main contributions in the electrical molecular detection (MD) field: (i) Spintronics at room temperature. (ii) The 1st evidence of molecular catalysis via electrostatic fields (highly cited Nature). Also, I did a 3-month granted stay (UCD, USA).

In my 1st postdoc (KCL, GBR), I set up a new MD lab by myself with my hardware/software, and I supervised the research team and lines (ERC-CoG funds). I expanded my profile to MD s biological and electrochemical (EC) facets. I collaborated to workshops at KCL, and I participated in international projects, doing stays at USACH (CHL), MPI (DEU) and ETH (CHE). At that time, I realised that extremely short MD timescales are the field s main drawback, a fact that influenced deeply my research. So, I aimed to improve molecular contacts via new chemical interactions and electrode materials. The inflexion point in my carrier came with my 2nd postdoc (MPI, DEU). There, I established my own research branch in MD mixed with plasmonics. I designed the 1st plasmonic platform to prolong MD timescales in fixed nanogaps; I then coupled it to EC control. Also, I designed a hybrid platform combining MD with Raman spectroscopy. There, I was a research team s responsible and the MPIP s EC-lab manager. I was founded by 2 prestigious postdoctoral fellowships, the Marie Sklodowska-Curie (98.00%) and Alexander Von Humboldt (declined in favour of the former). I strengthen my leadership skills by mentoring a total of 4 MSc and 7 PhD students, joining workshops, and with the experience as PI/scientific manager of my Marie Curie grant. I established >20 international collaborations.

In 2021 I was awarded the María de Zambrano (100%, #1 in category) and Juan de la Cierva-Incorporation (89%, #1 in category) postdoctoral grants, both declined in favour of a Beatriu de Pinós Postdoctoral Fellowship (I am the PI/scientific manager). Since 2022, as a Senior Researcher at UB, my research continues the plasmonic trapping aimed at MD. At UB I have interdepartmental projects in spintronics and electrocatalysis. My research is cofounded by Maria de Maetzu grant, I am the researcher in charge of the MD line. I am waiting for an ERC-StG, MCINN, La Caixa Fdn, and a Max-Planck partnership resolutions. Also, I am part of 2 projects funded by the Chilean govt. as international PI. I combine my research with BSc/MSc students supervision; official teaching as coordinator and instructor; and UB s active formation in mentoring & leadership. Since 2015 I have been a reviewer for 12 leading journals, and since 2021 Review Editor of Frontiers in Chemistry and external evaluator for American Chemical Society Petroleum Research. I was selected Emerging Investigator for J. Mater. Chem. C. (2021).

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I have 24 publications (1st authorship in 14), including 1 review, and 3 as corresponding author. 1025 citations, >190 cites/year (last 5 years), and 42.71 cites/article. H-index of 15. My portfolio comprises 1 Nature with 360 cites, 3 Nano letters with 107, 93 and 33 cites; 1 Small with 81 cites; 1 Nat. Commun. with 59 cites; 4 J. Am. Chem. Soc. with 51, 31, 21 and 16 cites and 1 Electrochim. Acta with 44 cites. 2 Hot Papers in Angew. Chem. Int. Ed., and 2 covers (JACS & J. Mater. Chem. C). I contributed as a speaker to 15 international congresses (2 as invited) and dissemination activities.

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	HERNANDEZ GUTIERREZ, GUIOMAR
Referencia:	RYC2021-033801-I
Correo Electrónico:	guiomarhernandezgutierrez@gmail.com
Título:	Functional Polymers for Energy Storage

Resumen de la Memoria:

BSc-MSc: Thanks to a summer fellowship (JAE-Intro from CSIC) I developed a new synthesis method to obtain high molecular weight polyamides with polycondensation reactions. This project opened me the possibility to go for 2 months to University of Texas at Austin (USA) to synthesize polyamides and polyimides and investigate their gas separation properties.

PhD: I received a fellowship (FPU) from the Spanish Government to carry out my Ph.D. at POLYMAT. I developed new carbonyl-based redox-active polymers and demonstrated their versatility to be used in many different energy storage applications. I applied the synthesized polymers as active materials in lithium batteries and as binders for lithium-sulfur batteries, and investigated their structure-property relationship.

Postdoc: I wanted to learn more about batteries and electrochemistry and therefore I moved to the Ångström Advanced Battery Centre at Uppsala University in Sweden.

I started a new research line working with fluorine-free electrolytes for LIBs. The results showed that it is possible to replace the fluorinated and toxic electrolytes conventionally used in LIBs with more sustainable and less toxic alternatives while maintaining competitive electrochemical performance. Within the already established polymer electrolyte research line in the group, I added a new topic focusing on the practical aspects of using polymer electrolytes in batteries. I successfully implemented block copolymer electrolytes in lithium metal batteries able to operate at ambient temperature compared to the state-of-the-art materials that require higher temperatures.

Researcher: As I was gaining many new responsibilities relevant to promote my scientific career, I decided to stay in this group. I continued working on fluorine-free electrolytes further improving their performance to be comparable to the fluorinated electrolytes which attracted new collaborations with Hanna Ellis at the Swedish Defence Research Agency (FOI, Sweden), Josh Thomas at LiFeSiZE (Sweden) and Sandrine Lyonnard at CEA Grenoble (France). Regarding the topic of polymer electrolytes, together with two colleagues, we wrote a book about polymer-based solid-state batteries, published by De Gruyter.

Senior researcher: Before my temporary research contract ended I was offered a permanent senior researcher position which I accepted to further advance my academic career.

Besides continuing with the work on fluorine-free and solid polymer electrolytes, I started a new research line focusing on polymers with dynamic covalent bonds as self-healing functionalities to improve the mechanical properties of silicon-based electrodes.

Overall, I have published 27 papers and 1 book, my h-index is 14 and I have 674 citations, I have given 6 invited talks, attended 18 conferences and supervised 12 people. I have received funding at Spanish, Swedish and European levels as PI and co-PI.

As it has been already highlighted, throughout my scientific career I have established 3 research lines:

1.Redox-active polymers based on carbonyl functionality applied in energy storage devices

2.Safe and sustainable electrolytes focusing on fluorine-free liquid electrolytes and practical aspects of solid polymer electrolytes

3.Functional polymer binders containing dynamic covalent bonds as self-healing units to strengthen the mechanical stability of silicon-based electrodes

Resumen del Currículum Vitae:

My scientific career has focused on Polymer Chemistry and Energy Storage. My achievements are supported by 27 publications in peer-reviewed journals (15 in open access), including 2 review papers, one in Progress in Polymer Science, 10 as first author, 3 as corresponding author and 2 as co-supervisor. According to Google Scholar I have been cited 674 times and my h-index is 14. Together with two colleagues we have written 1 book published by De Gruyter (ISBN 9781501521133).

I have attended 18 conferences (2 invited, 8 oral and 8 poster contributions) and I have given 4 invited talks at international institutions in Sweden (at Chalmers University of Technology and at Batteries Sweden), Spain (POLYMAT) and Switzerland (Adolphe Merkle Institute). I have supervised 1 undergraduate student, 6 master students, 3 doctoral students and 2 postdocs.

I have received 3 awards: Benzelius Award from the Royal Society of Sciences at Uppsala for my research merits towards sustainable electrolytes, Best Talk Award and Best Poster Award at different conferences.

I have established many international collaborations with academia and industry, most of them still active nowadays. Some examples are Sandrine Lyonnard from CEA Grenoble (France), Sabina Abbrent from the Institute of Macromolecular Chemistry (Czech Republic) and Bernd Fuchsbichler from VARTA Microinnovation (Austria).

I have been involved in proposal writing both at Swedish and European levels resulting in 1 project funded as PI (EBBC from EIT Raw Materials KAVA 8 with 930,000) and 2 as co-applicant (NoVoC from HORIZON-CL5-2021-D2-01 with 5,400,000 and from the Swedish Energy Agency with 520,000). I have experience leading projects (COBRA H2020) and I am often the only representative from Uppsala University at H2020 project meetings.

I review papers regularly for high impact journals, I have been appointed as international expert of a Ph.D. thesis from Carlos III University (Spain) and I have been evaluator of postdoctoral fellowships within the MSCA-COFUND-2018 call.

I belong to the Junior Faculty steering committee to help organize events for early career researchers and I participate in outreach activities targeting the general public as well as people from industry. Furthermore, I am involved in many teaching activities within Uppsala University at different levels and to industrial partners through the Swedish Electromobility Centre.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	MARZO PUERTA, LEYRE
Referencia:	RYC2021-031590-I
Correo Electrónico:	leyre.marzo.puerta@gmail.com
Título:	From sulfur chemistry and organocatalysis to visible light-mediated photocatalysis as an excellent tool for synthesis

Resumen de la Memoria:

I carried out my PhD at the Universidad Autónoma de Madrid (UAM) financed by an FPU fellowship. I developed new synthetic methods using activated triple bonds as starting materials in the areas of sulfur chemistry and organocatalysis. In the first part of my thesis, I developed a new alkynylation method using sulfonyl acetylenes as alkynylating reagents. Starting from the corresponding organolithium compounds, a branch of aromatic, heteroaromatic, metallocenic, olefinic and alkylic compounds could be successfully functionalized. In the second part, I developed three organocatalytic methods to functionalize alkynals. First, I developed two aminocatalyzed tandem reactions between compounds bearing a nucleophilic and an electrophilic centre in the molecule and alkynals, to synthesize 4-aminochromes and 4-isoxazolines in an enantioselective fashion. Then I developed an aminocatalytic method that allowed to obtain Z- or E-enals in a stereocontroled manner via Michael addition reactions to alkynals. Depending on the pyrrolidine derivative employed as catalyst of the reaction, the final protonation step takes place inter- or intramolecularly, thus affording the Z- or E-isomer respectively.

During my PhD, I performed two internships: one month in the group of Prof. M. Á. Sierra (UCM, Spain), carrying out a study of the redox properties and UV-vis absorption spectra of different metallocenes. Then I spent 3 months in the group of Prof. O. García Mancheño (W.W.U. Münster, Germany), working on the Cu(I)-catalyzed oxidative C H bond functionalization ring expansion reaction with TMSCHN2 for the synthesis of dibenzoxe- and dibenzoazepines derivatives.

In 2015 I obtained my International Doctor Degree with Suma Cum Laude , and I moved to the group of Prof. Burkhard König to perform my postdoctoral stay financed by an Alexander von Humboldt Fellowship, to work on photocatalysis. During this period, I developed two visible-light mediated arylation reactions (I am first author on both articles) and I described the first visible light-mediated De Mayo cycloaddition reaction (I am corresponding author of this publication). I also wrote three different reviews on photocatalysis, that had a big impact in the field (more than citations). In addition, I started an international collaboration with Prof. E. Brachet (Paris Descartes University). In this collaboration I performed the mechanistic investigations of the visible light amination/smiles cascade reaction to obtain phthalazine heterocycles.

In 2018, I moved back to the FRONCAT group (UAM, Spain) with an "Atraccion de Talento Investigador" contract. Since then I have been granted with 2 national and 1 international project, that allowed me to start a research team formed by 2 PhD students, 1 master and 1 bachelor student, that allowed me to consolidate my line of research based on the development of new versatile photocatalytic methods with high interest for pharmacological industry. To the date we have already published one research article and two more are under revision. In addition, last year I published a review article related to my interest in the development of new photocatalyst to carry out asymmetric transformations. In addition, I collaborate other FRONCAT¿s projects based on my expertise in photochemical characterization and mechanisms elucidation, which has resulted in 5 publications.

Resumen del Currículum Vitae:

I started my research career in 2008 at the Universidad Autónoma de Madrid with an Undergraduate Collaboration Fellowship from the Spanish Government (MEPSyD). In 2011 I obtained my Interuniversitary Master Degree in Organic Chemistry (equivalent to DEA) funded by a Master Fellowship from the Universidad Autónoma de Madrid.

That year I started my PhD supported by a competitive FPU fellowship, working in sulphur chemistry and organocatalysis. In 2013 I performed two predoctoral internship: I spent one month in the group of Prof. Miguel Ángel Sierra at the Universidad Complutense de Madrid (Spain), and 3 months in the group of Prof. García Mancheño at the W.W.U. Münster with a grant from the Integriertes Graduiertenkolleg SFB 858. Here I acquired some expertise working on C-H bond functionalization with metal catalysis.

The work during these years materialized in 18 publications, and in 2014, I was honoured with the Lilly Research Award, awarded annually to the top 3 doctoral students in Spain. In March 2015, I obtained my International Doctor Degree with Suma Cum Laude .

This year I moved to the group of Prof. Burkhard König (Regensburg University, Germany) to carry out my postdoctoral studies, where in 2016 I obtained an Alexander von Humboldt Foundation Fellowship. During this period, I published 7 articles that had a big impact on the field, 2 of them as corresponding author, and I supervised a 6 months predoctoral internship.

In 2018 I moved back to Spain, to the FRONCAT group, with a competitive Atraccion de Talento Investigador contract (Comunidad Autónoma de Madrid). I am currently developing my own line of research funded by 3 independent projects as PI. I was granted with 2 national projects (CAM-UAM, ref: SI1/PJI/2019-00237, 49.300 ; CAM, ref: PEJD-2019-PRE/AMB-16640, 26.000), that have allowed me to create my own research team (2 PhD, 1 master and 1 bachelor students) to continue with my independent line of research. I also obtained an international project (WiRe, 10.500) to start an international collaboration with Prof. Olga García Mancheño at the W.W.U. Münster in the elucidation of photocatalytic reaction mechanisms. In 2019, I was honoured with the Thieme Chemistry Journals Award in 2019, (see: https://www.thieme.de/en/thieme-chemistry/thieme-chemistry-journals-award-previous-winners-107365.htm).

During these years I have published 32 articles, 4 of them as corresponding author. According to SCOPUS I have a H-index of 17 and more than 2000 citations. I have participated in 11 national and international projects (3 of them as Principal Investigator). I have presented my results in 18 international and national conferences and symposia. To date, I am referee for several journals (Naure Commun., Org. Let., Eur. J. Org. Chem., Org. Biomol. Chem., Molecules, Applied Science) and the Polish National Science Centre. I belong to the director board member of the specialized group JIQ-RSEQ. I am currently directing 2 PhD thesis, 1 master and 1 bachelor student. Over the past years I supervised 3 visiting PhD students, 4 bachelor and 3 master thesis. I hold the ANECA certifications of Profesor Ayudante doctor and Profesor Contratado doctor .

Área Temática:	Ciencias y tecnologías químicas
Nombre:	MATHEU MONTSERRAT, ROC
Referencia:	RYC2021-031578-I
Correo Electrónico:	rocmatheu@gmail.com
Título:	Catalysts for artificial photosynthesis: a journey from molecular catalysis to hybrid materials

Resumen de la Memoria:

Dr. Matheu was awarded Premio Extraordinario de Licenciatura in 2012 and subsequently granted La Caixa fellowship to conduct a Ph.D. at ICIQ. In the Llobet group, he discovered a new family of highly active molecular catalysts for the water oxidation reaction and prepared molecular devices for artificial photosynthesis. Because of their high kinetics, this family of novel catalysts has become the molecular water oxidation field benchmark since 2015.

Preparing hybrid materials that maintain the high activity of molecular catalysts constitutes a major challenge for molecular catalysis. Metal-organic frameworks (MOFs) are attractive solids in this regard because metal-coordination complexes generate extended porous structures. Accordingly, Dr. Matheu joined Prof. Yaghi's group at UC Berkeley, a world leader in MOFs. As a postdoctoral Ramón Areces fellow, he developed pioneering MOFs for artificial photosynthesis

At the end of his 1st Postdoctoral stay, Dr. Matheu envisioned that his future independent research would develop new (semi)conductive hybrid materials for artificial photosynthesis. This research demands an in-depth control of the charge-transport properties of the newly prepared solids. In 2020, Dr. Matheu became a postdoctoral researcher at Prof. Karunadasa¿s lab at Stanford, a renowned leader in halide perovskites. This emerging semiconductor class is currently explored for many optoelectronic applications, including solar cells and light-emitting diodes. He has recently developed metal-halide semiconductors, in which the charge-transport properties are controlled through novel doping strategies.

During his career, Dr. Matheu published 24 papers in top journals (J. Am. Chem. Soc. (6), Nat. Chem. (1), ACIE (1), ACS Catal. (5)), 14 of them as a first author, and one patent. He has also contributed by peer-reviewing well-respected journals (e.g., Nat. Catal.).

As a "Ramon y Cajal" fellow, Dr. Matheu aims to develop new hybrid materials for selective CO_2-to-C2+ electroreduction. The research will benefit from the multidisciplinary training of Dr. Matheu in molecular catalysis and electrochemistry at Prof. Llobet's and Lewis's group and hybrid materials, synthesis, and charge-transport at Prof. Yaghi's and Karunadasa's groups.

Resumen del Currículum Vitae:

Research experience
- Ph.D. "La Caixa" fellow at the Prof. Llobet group (5.8 years, ICIQ) in molecular water oxidation catalysis
- Research stay at the Prof. Lewis group (0.5 years, Caltech) in photoelectrochemistry
- Postdoctoral "Ramon Areces" Fellow at the Prof. Yaghi group (2 years, UC Berkeley) in porous materials
- Postdoctoral researcher at the Prof. Karunadasa group (2 years, Stanford) in hybrid semiconductors

Scientific Production
- Dr. Matheu has published 24 papers and filed one patent, first-authoring > 50 % of all publications, including works from his Ph.D., 1st Postdoc, and 2nd Postdoc.
- Publications include J. Am. Chem. Soc. (6), ACIE (1), Nat. Chem. (1), ACS Catal. (5), Trends Chem. (1), Nat. Rev. Chem. (1))
- Research work has received 1552 citations and provided Dr. Matheu with an H-index of 19 (Google Scholar).
-Dr. Matheu has presented his work in 6 international congresses/meetings (1 invited talk, 2 oral presentations, 3 posters)

Fund-raising
- 150 000 for salaries and research from fellowships (La Caixa, Ramón Areces)
- Principal investigator for the > 250 h of synchrotron time granted in competitive calls.
- Coordinator of a DOE-funded project at UC Berkeley.
- Dr. Matheu cowrote the awarded National Science Foundation (NSF) proposal in the Karunadasa group

Mentoring of young researchers
- Dr. Matheu has mentored four students (1 undergraduate, 1 Master, 2 Ph.D.), deriving in three high-quality publications
- Undergraduate laboratory teaching (120 h, Universitat Rovira i Virgili)
- Outreach in the USA (Solar Armi at Caltech, Global Science at UC Berkeley).

Technology Transfer
- Dr. Matheu has filled one patent

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	GARRIDO BARROS, PABLO
Referencia:	RYC2021-031249-I
Correo Electrónico:	pgarridobarros@gmail.com
Título:	Catalysis for energy conversion into chemicals and fuels

Resumen de la Memoria:

The development of sustainable catalytic processes relevant to energy conversion schemes has been the main driving force of Dr. Garrido Barros scientific career.

Graduated from University of Granada (UGR), he initiated his scientific training as an undergraduate research assistant in this same institution and the CSIC, allowing him to deepen into the environmental consequences of the anthropogenic pollution. Aware of the pivotal role of chemistry research in this context, he focused his main research line on the study and development of catalytic systems for renewable energy conversion into value-added products and fuels. This approach, which aims at mimicking the way nature harnesses solar light to drive challenging redox reactions, involves three fundamental aspects: oxidation reactions to generate protons and electrons, reductive transformations to produce chemicals and fuels, and the use of light as energy source. Dr. Garrido Barros has worked to achieve an integrated training in these aspects.

During his PhD, he worked under the supervision of Prof. Llobet at ICIQ-URV. His graduate work generated a new research line in the group consisting in the development of water oxidation catalysts based on earth abundant, late 1st row transition metals, exploiting the use of redox active ligands to overcome their restricted redox chemistry. He further studied the mechanism of relevant (photo)redox reactions and worked on immobilization strategies to generate hybrid anodes and their integration into electrochemical cells for fuel generation. He complemented his training in this area working as a visiting researcher in Prof. Batista group (Yale), Prof. Peters group (Caltech) and ALBA synchrotron, also stablishing a productive collaboration with Prof. Durrant (ICL).

He returned to Peters group as a Postdoctoral Researcher to address the challenges in reductive transformations to generate fuels and feedstocks. In this stage, he initiated a new research line by designing concerted proton-electron transfer (CPET) mediators for organic reductive transformations and tandem N2 reduction electrocatalysis. In parallel, he also worked in the development of new ammonia oxidation electrocatalysts based on iron complexes.

Since 2021, he is Senior Postdoctoral Researcher at Caltech where he leads the efforts towards expanding the applications of CPET mediators for electroorganic synthesis, based on in situ generation of useful organic radicals, and tandem electrocatalysis, by partnering these mediators with molecular co-catalysts. In addition, he is exploring new opportunities to exploit the use of light as energy source during N2 fixation and its impact in the product selectivity.

His career is defined by international mobility (42 months total) and a multidisciplinary background, including training in different disciplines such as organometallic/coordination chemistry, material science, homogeneous/heterogenous catalysis, electrochemistry, spectroscopy, photochemistry and computational chemistry. His future ambitions include building a new interdisciplinary research program in the fields of sustainable chemistry and energy conversion by exploring new fundamental knowledge to enhance the performance of (photo)electrocatalysts and their further integration into practical devices.

Resumen del Currículum Vitae:

Dr. Garrido Barros graduated from University of Granada (2013), where he received the excellence award Premio Extraordinario Fin de Carrera and was awarded several fellowships (UGR, Ministerio de Educación, CSIC and ICIQ) to perform research tasks as undergraduate assistant. Upon graduation, he moved to ICIQ-URV to pursue a Master (2014) and a PhD (2018) degree in Llobet group. His PhD work in the field water oxidation and artificial photosynthesis was recognized with the Premio Extraordinario de Doctorado (URV), with one publication (JACS 2015, >171 citations) resulting finalist of the SusChem PreDoc award. He continued his academic training at Caltech where he was appointed as Postdoctoral Researcher in Peters group (2019-2021), also obtaining a finalist position in the SusChem Investiga award with one publication (Science 2020). His scientific contributions and leadership resulted in his promotion to Senior Postdoctoral Researcher in 2021 at Caltech, where he co-leads a team working in the research lines deriving from his postdoctoral work.

His publication track includes 19 articles (first/co-first author >50%) published in high impact journals such as Science (1), Nat. Chem. (1), JACS (4), ACIE (1), ACS Catal. (3), Chem. Soc. Rev. (1), Nat. Rev. Chem. (1). His scientific production gathers over 751 citations, resulting in a h-index of 13 (WoS). Further work is currently under evaluation at Nature (1) and ACS Catal. (1), and three manuscripts are under preparation. He is also author of 2 book chapters, reviewer for ACS Catalysis (2) and J. Electroanal. Chem. (1), and has presented his work in international conferences including 4 talks (1 invited) and 6 poster communications.

His participation in the generation of new resources in the host groups includes conceiving new research lines, coordinating and preparing grant proposals for different funding agencies, and stablishing new collaborations with other research groups. He is also principal investigator of a project submitted to a Proyectos de I+D+I call (Junta de Andalucía). In addition, his graduate and postdoctoral stages were funded by competitive fellowships based on research proposals (La Caixa and Ramón Areces) that allowed him to explore his research interests.

He has been highly involved in teaching and mentoring new generations of scientists. For instance, he has mentored 5 graduate students and served as instructor, supervisor and evaluator of numerous academic actions such as the Summer Undergraduate Research Fellowship Program (Caltech), the Caltech Museum or the Science Olympiads (Los Angeles). He is also very active in outreach, serving as Chair of the Outreach Committee of the Caltech Postdoctoral Association, where he has been involved in the organization and execution of different outreach events (e.g., ExploreCaltech).

His continuous training includes leadership skills, graduating from the Caltech & Claremont Graduate University Leader Development Coaching Program . His independence and maturity as researcher have been recognized as he was selected 1 of the 10 participants in the Future Faculty Conference at University of Chicago, overall demonstrating his capacity to lead a research group in the field of sustainable chemistry and energy conversion.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	JORNER , LARS JOHAN KJELL
Referencia:	RYC2021-033836-I
Correo Electrónico:	kjell.jorner@gmail.com
Título:	Physics-augmented machine learning for chemistry

Resumen de la Memoria:

I m a researcher in computational chemistry and machine learning, aiming to revolutionize the discovery of molecular materials and catalysts by combining modelling with machine learning and artificial intelligence. I have a PhD in computational chemistry and physical organic chemistry from Uppsala University, focusing on excited state aromaticity with a prize-winning thesis. This was followed up by a first postdoc in the pharmaceutical industry with AstraZeneca, on machine learning and chemical reactivity, which rendered invitations to international conferences as well as internal company awards. My current postdoc is with Alán Aspuru-Guzik at the University of Toronto on using artificial intelligence and machine learning for molecular design and is funded by a prestigious postdoc grant from the Swedish Research Council.

Over my research career, I have published 23 peer-review articles (7 first author) in high-impact and high-quality journals and 1 book chapter. The results have been presented at 19 international conferences (7 oral, 12 posters) as well as invited talks to companies. I have substantial international collaboration experience and cross-cultural knowledge, having done my PhD in Sweden, my first postdoc in England, my second postdoc in Canada, and a research stay in China. I have substantial experience mentoring students at the PhD and undergraduate levels and in teaching. My experience from the pharmaceutical industry and ongoing collaborations have positioned me well for future collaborations and joint projects with industry. I have strong track record for obtaining independent funding, with 3 postdoc grant (one which comprises 300,000 EUR) and 6 sizeable travel grants.

My future research plans center around physics-augmented machine learning to make impactful predictions in chemistry despite the current lack of experimental data. These physics-augmented models would be employed in artificial intelligence systems for the accelerated discovery of novel catalysts and molecular materials in collaboration with experimental groups.

Resumen del Currículum Vitae:

I m currently a Swedish Research Council postdoc in the group of Alán Aspuru- Guzik at the University of Toronto, working on applying machine learning and artificial intelligence to the design of organic electronic materials and catalysts. I m the co-author of 23 peer-review journal articles (7 first-author), including prestigious journals such as Nat. Chem., Nat. Commun., Nat. Rev. Chem., J. Am. Chem. Soc., and Chem. Sci. My training is in organic chemistry and computational chemistry from the Uppsala University, where I did my PhD thesis on the photochemistry of aromatic organic compounds. Here, I acquired experimental skills in organics synthesis, photochemistry, and a broad range of computational chemistry methods. My achievements included highlights such as the first determination of aromatic stabilization in the excited state in collaboration with a Japanese group, and the first description of homoaromaticity in the triplet state. I was subsequently approached to write a single-author chapter on modelling of excited state aromaticity in a recent book. Moving to my first post doc at AstraZeneca UK, I worked on combining chemical reactivity modelling with machine learning. Here I picked up skills in dataset collection, programming, machine learning, cheminformatics, and data visualization. My work resulted in a seminal paper in Chemical Science, on the first combination of mechanistic modelling and machine learning for accurate prediction of reaction rates in solution. The work received particular interest both from academia and industry. In my current position with Aspuru-Guzik (own funding), I m developing my skills in deep learning and generative molecular design with application to organic electronic materials and catalysis (publications pending). I have given oral presentations at 7 international conferences and poster presentations at 12 additional conferences. In addition, I have given 6 invited presentations, including at prestigious institutes such as ETH Zürich, ICIQ and industry with IBM and the IQ Consortium.

My scientific output also includes datasets (and computer codes. My MORFEUS package for calculation of descriptors for machine learning is easy to use and has been adopted by experimental groups at prestigious institutes. My current work will result in additional tools of use to the community for use in ultrafast transition state calculations (POLANYI) and semi-empirical calculations of OLED materials (COULSON).

My teaching includes ca 10 months of full-time equivalents of teaching at Uppsala University in organic and computational chemistry. I have experience of teaching labs, problem-solving sessions, and seminars. I have experience with mentoring 1 master thesis, 2 undergraduate thesis and several research project courses and 6 visiting graduate students and postdocs. I m currently the mentor of 3 undergraduate students and 3 graduate students.

I am a reviewer for over 10 journals and I was recently awarded as an Outstanding Reviewer by Chemical Science. I also serve on the advisory board for the Chemical Information Science Gateway for F1000 Research. I m a member of the American Chemical Society , Royal Society of Chemistry and the Swedish Chemical Society. I was also awarded the Bjurzon award for excellent PhD thesis and the Best Master Thesis in Chemistry Prize by the Chemical Society of Uppsala.

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	SANTOS GARCIA, JENIFER
Referencia:	RYC2021-033481-I
Correo Electrónico:	jennysantoss@hotmail.com
Título:	Reologia Aplicada. Tecnologia de coloides

Resumen de la Memoria:

PhD in Chemistry (Cum Laude, International Mention) from University of Sevilla. My PhD thesis was about the development of new ecological pesticides (emulsion-based) and their rheological, microstructural and physical characterization. I have received three awards concerning my PhD. The best PhD (2017-2019) from Rheology Spanish Groups and Portuguese Society of Rheology, from Spanish Colloids and Interfaces Group and the Extraordinary Doctorate Award from University of Sevilla. In addition, a project about the formation of protein-polysaccharide complex was carried out during that stage. In this case, we developed a food product using potato protein as stabilizer, and different polysaccharides to stabilise the new system. During my PhD, I did three international research stays at Loughborough University about membrane emulsification, Harvard University about microfluidization and Universidade Nova de Lisboa about electrorheology.

In my postdoc stage, I have researched about the development of dispersed systems using essential oils as natural food preservative funded by Junta de Andalucía (2018) and the development of hydrogels with biomedical applications (2019) at Universidade Nova de Lisboa . I carried out a project about the development of dispersed systems using hydrogels composed by zein-polysaccharide complexes with potential biomedical applications . In addition, I worked in a company called Persan S.A. (applying Torres Quevedo programme) as a project manager, developing projects about rheology of detergents and softeners. Now, I focus on the development of nanoemulgels formulated with proteins with potential biomedical applications.

Resumen del Currículum Vitae:

Degree in Chemistry (Sevilla, 2011).MSc in Advanced Chemistry (Sevilla, 2012). PhD in Chemistry with International Mention (2017; Suma Cum Laude) with a scholarship of Plan Propio Universidad de Sevilla. Best Thesis award (2017-2019) by the Spanish and Portuguese Rheology Groups, Second best Thesis Award by the Colloids and Interface Spanish Group (2017), Extraordinary Doctorate Award by the University of Sevilla.

Contract from young researcher program Junta de Andalucía (2017-2018). Postdoctoral contract University of Sevilla from Perfeccionamiento postdoctoral program (2018). Project manager in Persan S.A. (2020). I resigned Martín-Escudero scholarship and Torres Quevedo contract by a Postdoctoral position in University of Sevilla (Junta de Andalucia postdoctoral programme) from February 2021 until now.

 H-index 15. 528 cites. Publication of 41 articles in journals indexed in the Journal Citation Report (JCR). 22 of them in the first quartile of its category. In addition, 25 are postdoctoral articles. 3 articles published without my PhD supervisors about the use of wastes to develop functional emulsions, beginning a new research topic on my own. 28 JCR articles in the last 5 years. 1 book chapter about microfluidization (Elsevier Editorial; SPI= Q1). 3 JCR-articles published in open access.

More than 30 communications in international congresses and national congresses.

Participation in 4 projects obtained in national competitive calls. IP of three projects funded by Plan Propio Universidad de Sevilla.

Collaboration with private sector: Participation in 5 research contracts with CEPSA Química, Reckitt-Benckiser, Ybarra and Persan S.A.

9 months of predoctoral research stays: 3 months at Loughborough University funded by University of Sevilla, 3 months at Harvard University with a RCC scholarship and 3 months at Universidade Nova de Lisboa funded by University of Sevilla. Every research stay results in the publication of a/some JCR-article(s). 6 articles published in journals indexed in the JCR derived from international collaborations.

18 months of postdoctoral research stay in Institute of nanostructures, nanomodelling and nanofabrication I3N (Universidade Nova de Lisboa) funded by Junta de Andalucia postdoctoral programme and University of Sevilla. 1 month of postdoctoral research stay at Instituto de Recursos Naturales y Agrobiología (IRNAS-CSIC) in Sevilla. 7 months as project manager in Persan S.A. (detergent company).

More than 600 hours of University teaching in chemical engineering and organic chemistry. Positive evaluation of all the teaching activity.

Direction of 8 Final Master's Projects and 10 Final Degree¿s Projects. Supervising 2 PhD, one of them industrial PhD with Eurotex company. Participant in 2 Teaching Innovation Project (IP of one).

Also actively involved in science dissemination tasks, giving talks to high school students in the event of Semana de la Ciencia in the 2019 and 2020 editions and Noche Europea de los Investigadores 2018.

As a reviewer, I reviewed numerous manuscripts which were submitted to international journals indexed in JCR related to food sciences and chemical engineering. Guest Editor of Materials Journal.

Technical expert for DNV GL Business Assurance España to evaluate projects about emulsions and sauces.

 Premio Jóvenes Investigadores Químicos 2019   by the   Real Sociedad Española de Químicos

Accreditation to Associate Professor (Profesor Contratado Doctor).

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	BOLEA FERNANDEZ, EDUARDO
Referencia:	RYC2021-031093-I
Correo Electrónico:	eduardobolea@gmail.com
Título:	Exploring new venues in trace elemental and isotopic analysis via ICP-mass spectrometry: a novel approach

for nano-quantification

Resumen de la Memoria:

Eduardo Bolea Fernández obtained his Bachelor and Master degrees (Licenciatura and Postgrado) in Chemistry at the University of Zaragoza, Spain. In 2013, he joined the Atomic and Mass Spectrometry (A&MS) research unit to carry out PhD research at Ghent University (Belgium), under the supervision of Prof. Dr. Frank Vanhaecke, Prof. Dr. Martín Resano and Dr. Lieve Balcaen, and obtained his PhD degree in 2017. His PhD explored the potential of a new technology, tandem ICP-mass spectrometry (ICP-MS/MS), for ultra-trace elemental and isotopic analysis. For his PhD work, he won the 2018 IUPAC-Solvay International Award for Young Chemists that recognizes the five most outstanding PhD theses in the Chemical sciences worldwide. In October 2017, he was granted with a postdoctoral fellow of the Research Council of Ghent University Special Research Fund (BOF-UGent) focusing on high-precision isotopic analysis of mercury using multi-collector ICP-mass spectrometry (MC-ICP-MS) for unravelling its biogeochemical cycle. In November 2019, he was awarded with a Junior Postdoctoral Fellow of the Research Foundation Flanders (FWO) that investigates new analytical venues in Metallomics and Nanotechnology. Nowadays, Dr. Bolea Fernández continues exploring the possibilities of ICP-MS instrumentation, and he has recently extended its capabilities for the detection and characterization of microplastics. In January 2022, he won the prestigious 2022 Young Scientist Winter Conference Award in Plasma Spectrochemistry for his contributions to the field of plasma spectrochemistry.

So far, Dr. Bolea Fernández is (co)author of 34 publications in peer-reviewed international journals, his work has been presented in >50 lectures on international conferences and workshops, and he has gained an international reputation in the field. He works together with experts from other research groups and industrial partners worldwide and combines high-end analytical method development and cutting-edge multidisciplinary research. He actively participates in attracting financial resources at European and (inter)national level by introducing new ideas, writing project proposals, and identifying and attracting academic talent. He has supervised 4 visiting PhD students and was co-promoter/supervisor of 8 Master thesis students, activities that he combined with the regular teaching of advanced analytical chemistry topics. Dr. Bolea Fernández is currently co-promoter of 2 PhD students and 3 Master thesis students.

Resumen del Currículum Vitae:

Eduardo Bolea Fernández obtained his Bachelor (Licenciatura) and Master (Postgraduado) degrees in chemistry at the University of Zaragoza in 2012. He carried out his PhD research at Ghent University, Belgium, and obtained his PhD degree in Chemistry in 2017. His PhD research explored a newly introduced technique (2012), tandem ICP-mass spectrometry (ICP-MS/MS), for ultra-trace elemental and isotopic analysis. His PhD resulted in a significant number of scientific publications (14) and led to his international recognition as an expert in this vibrant field. The first instrument manufacturer of this technology (Agilent Technologies) supported his research by providing 3 funding grants (115 000 USD). In April 2018, IUPAC selected his PhD dissertation for the IUPAC-Solvay international award for Young Chemists as they considered it one of the five most outstanding PhD theses in the Chemical sciences worldwide.

In October 2017, Dr. Bolea Fernández was granted with a postdoctoral fellow of the Research Council of Ghent University Special Research Fund (BOF) to carry out research on the topic of high-precision isotopic analysis of Hg using cold-vapor generation multi-collector ICP-MS instrumentation. In this context, he established a longstanding collaboration with the Institute of Marine Research (Norway) that has so far attracted significant financial resources (450 000).

In 2019, Dr. Bolea Fernández was granted with a Junior Postdoctoral Fellow of the Research Foundation Flanders (FWO) to carry out research in the context of metallomics and nanotechnology. Within his research group (A&MS), he initiated and is currently leading the research line of single-event ICP-MS, a novel method of operation of ICP-MS enabling the characterization of nanoparticles and individual cells. Moreover, he recently demonstrated for the first time ever that single-event ICP-MS can also be used for the characterization of microplastics by relying on their carbon content. In January 2022, he was selected as winner of the prestigious 2022 Winter Conference Young Scientist Award in Plasma Spectrochemistry for his relevant contributions to the field of Plasma Spectrochemistry.

Dr. Bolea Fernández s research has so far resulted in 34 scientific publications in peer-reviewed international journals (33/34 Q1, ca. 1100 citations, h-index=17). His work has also been presented in > 50 lectures (10 invited/keynote lectures imparted by him).

Over the years, Dr. Bolea Fernández has had the opportunity to stablish many collaborations worldwide with several experts from other research groups, institutions and instrument manufactures. He has also carried out short stays, allowing him to maximize the outcome of his multidisciplinary projects. He is currently co-promoter of 2 PhD dissertations and 3 Master thesis at UGent. He has supervised 4 visiting PhD students and was also co-promoter/supervisor of 8 Master thesis students. In addition, he is teaching advanced Analytical Chemistry subjects at Bachelor and Master level. He has shown the required skills for organizing groups of students and/or researchers by combining different leadership styles. Moreover, he has participated as a member of the Examination Board in 4 PhD defenses, and also, in the external assessment of 3 PhD dissertations. He actively participates as a reviewer for scientific journals (ca. 25/year).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	IGLESIAS ASPERILLA, DANIEL
Referencia:	RYC2021-031332-I
Correo Electrónico:	d.iglesias.asperilla@gmail.com
Título:	Multiscale tailoring of functional nanomaterials for innovative applications

Resumen de la Memoria:

Along his scientific career, the candidate spent 9 years abroad including 4.5 years of post-doc, 3.5 years of PhD and 1 year as Erasmus student.

In 2012, the candidate obtained the Degree in Chemistry (5 years) at the University of Castilla-La Mancha (Spain). During his undergraduate studies, he had the opportunity to study one full year at the University of Aberdeen (United Kingdom). During the last year of his degree, he joined the Microwave and Sustainable Chemistry Group to develop the project Synthesis of (1H)-1,2,4-triazole derivatives with photoluminescent properties .

In 2013, he got a Master of Chemical Research at the University of Castilla-La Mancha. In this period, he was funded by the Iberdrola Foundation to work on the project Use of nanotechnology to fight against climate change . During his master studies, he performed a short stage at the group of Prof. Hermenegildo García to work on the integration of nanomaterials in dye-sensitized solar cells.

In 2014, he was admitted at the Doctoral School of the University of Trieste (Italy) and was awarded with a pre-doctoral fellowship (competitive call) to perform his doctoral studies under the supervision of Prof. Maurizio Prato, a pioneer scientist on the chemistry of nanomaterials. A big part of his PhD was done within a European Project focused on the bottom-up fabrication of nano carbon-inorganic hybrid materials for photocatalytic hydrogen production (CARINHYPH). The CARINHYPH Project gathered top universities, research institutes and companies from five European countries. During this period, he secured founding to spend two months at IMDEA Materials (Spain). Another part of his PhD focused on the development of peptide-based supramolecular hydrogels.

In 2017, he joined the group of Prof. Silvia Marchesan (selected as Rising Star in Science in 2018 by the journal Nature) as a post-doctoral researcher to work on the development of soft materials. During this period, he also co-supervised master and PhD students as well as visiting researchers.

In 2019, he moved to the University of Strasbourg to work at the Institut de Science et d Ingenierie Supramoleculaires. The candidate joined the team of Prof. Paolo Samorì (four times awarded with ERC projects), where he worked as a post-doctoral researcher. During more than two years, he was involved in two European projects: i) DECOCHROM, an Innovation Action that aims to bring printed electrochromic devices into the market, where the main role of the team in the project was the development of inexpensive, transparent, and flexible electrodes based on low-cost metal nanowires and graphene; and ii) The Graphene Flagship, a huge European initiative to explore graphene and other bidimensional materials. He also led several projects on the field of nanotechnology with applications in sensing and (opto)electronics.

In April 2021, he joined Prof. Thomas Hermans lab at the same institution, where he brought his knowledge in nanotechnology to build transient nanomaterials. Since January 2022, he is a María Zambrano fellow (competitive call to attract talented researchers to Spain) at the University of Castilla-La Mancha where he is leading his own line of research interfacing nanotechnology and organic and supramolecular materials.

Resumen del Currículum Vitae:

Throughout his whole career, Dr. Daniel Iglesias focused on the hybridization of a wide range of nanomaterials (e.g., carbon nanotubes and nanohorns, graphene, inorganic 2D materials or metal nanowires) with a second component of different nature to fine tune the properties and boost their performance in applications in various fields including sensing, catalysis, (opto)electronics and energy storage. Another big part of his research activity was dedicated to the study of short peptides and their use as low-molecular weight gelators.

He obtained his Degree in Chemistry (2012) and Master s in Chemical Research (2013) at the University of Castilla-La Mancha. After that, he started an eight-year period abroad including a PhD at the University of Trieste (Italy) under the supervision of Prof. Maurizio Prato and a post-doc at the same university with Prof. Silvia Marchesan. Later on, he moved to the Institut de Science et d'Ingénierie Supramoléculaires at the University of Strasbourg where he worked as a post-doc first with Prof. Paolo Samorì and then with Prof. Thomas Hermans.

After eight years abroad, he moved back to Spain thanks to the prestigious talent attraction program María Zambrano fellowship. He is currently based at the University of Castilla-La Mancha where he is stablishing his own line of research combining all the previously acquired knowledge.

He has been recipient of four fellowships in competitive calls, which allowed him to develop his Master, doctoral studies, a research internship in renown institutions and finally to start a new line of research.

The potential of the candidate is demonstrated by the 25 publications in top-scientific journals including Nature Nanotechnology, Chem, ACS Nano, Advanced Materials, Angewandte Chemie, etc.

His independent research focuses on the preparation of novel multifunctional nanomaterials and assembling of sensing devices with spectroscopic and electrical readout.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	ERANS MORENO, MARIA
Referencia:	RYC2021-031428-I
Correo Electrónico:	mariaeransmoreno@gmail.com
Título:	Development and scale up of materials for CO2 capture

Resumen de la Memoria:

My main quest during my research career has been the mitigation of climate change consequences through the decarbonisation of the power and industrial sectors and distributed sources. I have mainly focused on Carbon Capture and Storage through the development of novel materials but also the scale-up and commercialisation of these technologies. Four stages have been key to my development as an up-and-coming research leader.

During my PhD at Cranfield University, I contributed significantly to the knowledge of synthetic Ca-based sorbents used in carbon capture and storage. I developed a scalable technique to produce kg-scale pelletised sorbents for calcium looping for CO2 capture from stationary sources. I investigated these materials at laboratory-scale and studied their challenges due to attrition/fragmentation and sintering. Moreover, I was the first researcher to test synthetic Ca-based sorbents at pilot-scale using interconnected fluidized beds.

During my first postdoc at Cranfield University, I developed substantial knowledge in developing a negative emissions electricity production prototype. I assessed the feasibility of H2 electricity production with Solid Oxide Fuel Cell (SOFC) coupled with a novel combined heat and power scheme, which uses the heat coming from the H2 fuel cell to calcine different materials. Moreover, I demonstrated the capability of different minerals towards achieving a balance of negative CO2 emissions (atmospheric CO2 capture) when coupled with H2 electricity production.

During my second postdoc at the University of Nottingham, I expanded my knowledge in scaling-up technologies through my heavy involvement in two industrially funded research projects. This has allowed me to gain a clear understanding of what is needed to bring a technology from laboratory-scale to commercial-scale. More importantly, what are steps to follow for the introduction of this technology into the market (market research, business case, etc.).

During my Marie Sklodowska-Curie Fellowship at Universidad Rey Juan Carlos, I am studying the viability of synthesizing different adsorbents for Carbon Capture and Storage, and their use in Direct Air Capture. Three different materials are being investigated: i) silica-based adsorbents, ii) activated carbon adsorbents, and iii) Ca-based adsorbents.

I have published a total of 20 publications (16 Q1, 2 corresponding author, 5 Open Access), I have also served as a topic editor of a peer-reviewed journal and reviewer in numerous journals. I have participated in a total of 7 publicly funded and 2 privately funded research projects. During my career, I have supervised students and staff members (5 MEng/MSc, 1 PhD, 1 Associate) and was appointed laboratory supervisor. Furthermore, I obtained funded and I am the Principal Investigator in 1 funded project and I acquired funding from the UK government to carry out two research visits during my PhD.

Resumen del Currículum Vitae:

I obtained a Meng in Industrial Engineering at Universidad Politécnica de Valencia in 2014 as well as an MSc in Carbon Capture and Storage in 2014 and a PhD in Energy & Power in 2017 both from Cranfield University. After finishing my PhD, I have taken three postdoctoral level positions. Firstly, I was a Research Fellow at Cranfield University for 15 months, then, a Research Associate for 2 years at the University of Nottingham. Lastly, I obtained a Marie Sklodowska-Curie Postdoctoral Fellowship (COFUND) at University Rey Juan Carlos where I have currently a contract ending August 2022. My research focus has always been how to mitigate the effects of climate change via novel technologies and specially CO2 capture technologies from large-point sources (power and industrial plants) as well as distributed emission sources (e.g. transportation). Namely, my main areas of research over the past 7 years are: i) calcium looping for CO2 capture, ii) chemical looping combustion, iii) hydrogen fuel cells, iv) direct air capture, v) upgrading of biogas to biomethane, and vi) development of microwave systems for environmental applications.

I have published 20 journal publications during my career (16 Q1, 9 first author, 2 corresponding author, 5 Open Access) with 459 citations and an h-index of 9 (data taken from Google Scholar) and I am currently working in 6 more publications (3 as a first author). My work has been presented in numerous international conferences and I have participated in 7 publicly funded research projects, which received their funding from the European Union and the British Government. In 5 of these projects I participated as a researcher, in 1 as a Principal Investigator and Researcher (Marie Sklodowska-Curie Fellowship). Additionally, I participated in a Knowledge Transfer Partnership as a Co-Investigator and Academic Supervisor of an Associate (postdoc level). I have been heavily involved in two industrially funded projects during my time at the University of Nottingham managing funding, staff, experimental campaigns, scale-up and company communication.

I have received three research awards during my career for my contributions to knowledge and outstanding performance surpassing my job requirements. Moreover, I have supervised 5 MSc/MEng projects (one ongoing), 1 PhD thesis (to be submitted March 2022) and mentored different research students and visiting researchers, as well as taught 540 h of MEng/MSc level lectures. Besides my technical research, I have also participated in educational research via a University of Nottingham project to test a active learning methodology in a Year 3 module and have participated in different outreach activities to engage the community. Since the beginning of my career, I have collaborated with research groups worldwide, which can be seen in my publications list. My career has been international as I have studied/worked in the UK for 7 years and carried out long research visits in another two countries (Italy and Germany), as well as obtaining a competitive fellowship to return to Spain. I also possess the accreditations Profesor Ayudante Doctor and Profesor Contratado Doctor from ANECA, as well as a CEng (Chartered Engineer) accreditation and a Project Management Qualification.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: Ciencias y tecnologías químicas
Nombre: TRUJILLO RODRIGUEZ, MARIA JOSE
Referencia: RYC2021-032502-I
Correo Electrónico: trujillo.mari@gmail.com
Título: High-throughput materials and strategies for analytical applications with biological, environmental, and agri-food interest

Resumen de la Memoria:

I work in the development of (bio)analytical microdevices to monitor pollutants, biomarkers, and agri-food products, through a multidisciplinary approach. Thus, I synthesize sustainable materials and further apply them (mainly) in analytical microextraction and chromatography.

During my predoctoral period at University of La Laguna (ULL, Spain), I mainly worked implementing polymeric ionic liquids (PILs) and magnetic ionic liquids (MILs) in microextraction. I performed a stay for 3 months at Iowa State University (ISU, USA). I finished my PhD in 2017 with 10 JCR articles, and 6 book chapters, while co-directed 2 undergraduate students. I was awarded by the SPME user club Award in 2014 and the Best PhD Thesis Award.

My postdoctoral period can be divided in 3 stages. My first stage was at ISU, USA (1 year and 8 months) with a contract funded by NSF. I prepared highly selective PILs and introduced MILs based on paramagnetic cations in analytical applications.

My second postdoc stage started in 2019 when I moved to University of the Balearic Islands for 1 year with a contract related to a national project. I upgraded my skills in dealing with biological fluids. Then, in 2020 I moved to the Spanish National Research Council (1 year and 1 month) with a Juan de la Cierva Formación contract. I prepared Au(III) ILs that were promising materials against cancer, and deep eutectic solvents as organocatalysts for aldol reactions. In this stage, I increased my research independence, being corresponding author in 4 articles.

My third stage started in June 2021, when I moved to my current institution (ULL) with an Excellence Junior research contract. Here, I am opening 2 research lines: one line related to the use of MILs for cancer biomarkers, being PI of a related project with 10k . The project is partially being conducted at University of Aveiro (Portugal) where I am performing a 5-months research stay since Jan 2022. My 2nd research line relates with the application of microdevices (with any sustainable material) for analyzing Canary agri-food products of interest (tropical fruits, cosmetics derived from Aloe vera, and sea water). I am also collaborating in other research line already stablished in my current group (MAT4LL) related to the use of metal-organic frameworks in Anal Chem.

As postdoc, I published 19 articles (+2 currently under revision) and 1 book chapter (+2 under revision). Overall, I have 29 JCR articles +2 under revision, and 7 book chapters +2 under revision, and I presented 39 communications in conferences. I directed +1 undergraduate student (3 in total), and I am co-directing 2 MSc and 3 PhD students.

In addition, I am Academic Editor in J Anal Methods Chem, member of the Early Career Editorial Board of Adv Sample Prep (Elsevier), Guest Editor in Separations, and Publicity Manager of the EuChemS-DAC (I co-supervise the presence of the network in social media). I am member of the organizing committee of 3 international conf. (2 conferences will be launched online in March 2022 and the third conference will be held in Tenerife in 2023). As additional merits, I was chair in an international conf., I have evaluated 2 int. projects, and participated in several dissemination activities. Overall, I participated in 11 research projects (1 international; 1 as PI and in the rest as researcher with contract, collaborator or working team).

Resumen del Currículum Vitae:

I have 11 years of total research experience, with 4 years and 6 months of experience as postdoc.

During my predoc at University of La Laguna (ULL), I obtained 3 fellowships (Canary Agency FPI contract, CajaCanarias fellowship, and collaboration grant of MEC), the Best PhD Thesis Award, and the 1st Award in the SPME user club (Sigma-Aldrich). I also did a research stay in 2016 at Iowa State University (ISU, USA, 3 months).

As postdoc, I have worked in 2 international and 3 national centers: ISU in 2017-19 (USA, 1 year and 8 months) with a contract funded by NSF, Univ. of the Balearic Islands in 2019-20 (Spain, 1 year) with a contract related to a national project, CSIC in 2020-21 (Spain, 1 year and 1 month) with a Juan de la Cierva Formación contract (3rd position in the Chem panel), and my current Excellence Junior contract funded by LaCaixa-CajaCanarias (1st position in the Sci panel) at ULL since June 2021. I am also conducting a stay at University of Aveiro (Portugal, 5 months) from Jan-May 2022.

I work in the development of (bio)analytical strategies to monitor pollutants, biomarkers, and agri-food compounds. My research has a multidisciplinary character as I synthesize tailored materials like ionic liquids (ILs) and magnetic ionic liquids (MILs), and use them in analytical (micro)extraction devices. My research work expanded the use of polymeric ILs and was pioneer in introducing MILs with metal-based cations in microdevices.

I have published 29 JCR articles (+2 under revision), being: 21 a result of my postdoc period, 4 as author of correspondence (AC), 26 Q1, 6 D1, 18 as 1st author, 3 Forefronts, and 2 among the most cited/downloaded. 18 articles are result of international collaborations. 1 AC article is part of the J Sep Sci issue "Emerging Thought Leaders in Separation Science". I have 7 book chapters (+1 under revision and +1 as invited AC under revision). These contributions have >1070 citations (GoogleScholar; 899 in Scopus).

I have presented 39 congress communications, being 22 internationals (6 orals and 1 invited oral), and 14 nationals (6 orals and 4 Awards).

I have participated in 11 projects (1 international). I am PI of a project associated with my current contract that accounts for 10k for establishing my own research lines (this amount will increase up to 20k in June 2022).

I supervised 3 BC students or TFMs. I am co-supervisor of 2 on-going MSc students or TFMs (expected defense in 2023), and 3 on-going PhD students (expected defense in 2025). One of such PhD Thesis is conducted under a collaboration agreement signed with a cosmetic company.

I got the Associate Professor ("Profesora Contratada Doctora") qualification from ANECA in 2018. I have 180 h of teaching experience in 2 Spanish universities.

I have reviewed >200 articles in JCR journals. I evaluated 2 research projects and acted as reviewer of a PhD Thesis.

I am member of 3 scientific associations, Publicity Manager of EuChemS-DAC, member of the Early Career Editorial Board of Adv Sample Prep (Elsevier), Academic Editor in J Anal Methods Chem, and Guest Editor in Separations.

I acted as chair in ExTech2018 and I am member of the organizing committees of 4 international conf. (1 in 2106 and 3 on-going congresses).

I participated in 7 scientific forums. I was mentee in the Int. Mentor Program of IMFAHE in 2016-17 and collaborated in 2 educational projects.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	KOSTINA , NINA
Referencia:	RYC2021-032317-I
Correo Electrónico:	kostina@dwi.rwth-aachen.de
Título:	SynCells to fight pathogens

Resumen de la Memoria:

My scientific dream is to use chemical and supramolecular synthesis to devise fully synthetic cells (SynCell) that interact with living matter to control and direct its behavior for the development of advanced biomaterials and to improve medical devices. I am developing a SynCells platform that recognizes and captures bacteria into a phagosome and inactivates it. I envision that the successful fabrication of such antimicrobial phagocytic SynCell will open a new paradigm to fight antibiotic-resistant pathogens. Not only this research will answer important scientific questions but I am confident that parts of it will have an impact on biomedicine and will form the basis of my career.

I began my career (2005) at Topchiev Institute of Petrochemical Synthesis (Moscow) working on transdermal drug delivery. Subsequently, I performed my end-of-career thesis (2009) on the synthesis of polyelectrolyte complexes for transfection. I pursue my Ph.D. (2010-2016) at the Institute of Macromolecular Chemistry in Prague in the group of Dr. J. Michalek. I received training in biomaterials, advanced polymer chemistry, and soft matter nanotechnology. I expanded my training with 2 international internships at Prof. D. Grijpma s group (Twente University, The Netherlands) and in Prof. C. Barner-Kowollik s groups (KIT, Germany). At the end of my Ph.D., I advanced the field by (1) developing new hydrogels that were stealth to bodily fluids and cells, (2) introducing a supramolecular approach to endow self-healing properties, and (3) I combined these technologies to marry the advantages of top-down and bottom-up synthesis for advanced biomaterials.

I received postdoctoral training in DWI-Leibniz Institute for Interactive Materials in Aachen where I learned superresolution microscopy and advanced force microscopies. I combined my research with leading an industrial project to engineer nature-inspired self-healing coatings. Subsequently, I opened my own research line in SynCell with the support of a prestigious Alexander von Humboldt postdoctoral fellowship. Currently, I am the leader of the subgroup SynCell in the group of Prof. C. Rodriguez-Emmenegger. I have participated in 11 projects as a scientist and have successfully acquired my own funding amounting to 142 000 .

My work has been presented in 25 scientific meetings (22 oral presentations and 21 posters) and published as 23 articles (8 as the first author) in high-impact journals (4xPNAS, Angew. Chem, ACS Nano, Nano Lett., etc). I also mentored 12 undergrads and 4 Ph.D. students and serve as a reviewer of various peer-review journals.

Resumen del Currículum Vitae:

The goal of my research is to build macrophage-mimetic synthetic cells (SynCell) that can fight antibiotic-resistant bacteria. I believe that such an innovative concept has a very high potential to become a new strategy for combating antibiotic-resistant bacteria and will cause a high impact on medicine.

To realize this goal I carefully planned all steps in my scientific career. First, I studied Chemical Engineering in Moscow and worked as a research assistant at A.V.Topchiev Institute where I received training in advanced analytical techniques and gene delivery. In 2009, I moved to the Institute of Macromolecular Chemistry in Prague, for a 10-month UNESCO-IUPAC internship followed by my Ph.D. in the group of Dr. J. Michalek. There, I developed scaffolds for tissue engineering stealth to proteins and cells. I learned advanced polymer synthesis, soft matter nanotechnology, and microscopies. I strengthened my expertise in biomaterials, biofunctionalization, and 3D printing during 2 international internships at Prof. D. Grijpma s group (Twente University, The Netherlands) and in Prof. C. Barner-Kowollik s groups (KIT, Germany). During my Ph.D. I participated in 3 scientific projects.

Then in 02/2016, I joined DWI-Leibniz Institute in Aachen as a postdoc first leading an industrial project for the fabrication of smart self-regenerative coatings. Then with the support of an A. von Humboldt fellowship, I began my new research line on SynCell (07/2017-10/2019). Thereafter, I became a subgroup leader in the group of Prof. C. Rodriguez-Emmenegger where I lead the research effort in SynCells. My research line is grounded in three basic pillars: (1) the synthesis of macromolecules programmed to self-assemble into vesicles that mimic cell membranes but that exhibit high stability. (2) The development of strategies to introduce biorecognition at the cell membrane. (3) The coupling of binding with a mesoscopic property of the SynCell to accomplish work. To carry on my interdisciplinary research line I established a strong fruitful global network of collaborators resulting in several publications. My unique work not only has been recognized by the SynCell community in Europe, highlighted by the GDCh German Chemical Society, in various press releases, and by several invited talks delivered by the leader of the group, but also established a completely new line at DWI-Leibniz Institute. My work laid the foundation for 6 national and international grants, where I contributed to funding acquisition and supervising research for 4 of them, and for 2 I am a PI (142 000).

During my career, I worked in 7 scientific groups, 5 institutions, and 4 countries (Russia, Czechia, The Netherlands, and Germany), supervised 12 undergrad students and 4 Ph.D. students, established a global network of scientific collaborators as well as built connections with industries, actively participated in 8 national and international research grants and during my postdoctoral period, I secured my own funding by Alexander von Humboldt fellowship and scientific project granted by RWTH Aachen University. My work was presented in 25 scientific meetings (22 oral presentations and 21 posters) and I have published 23 papers (8 as the first author) in reputable journals (PNAS, Angew. Chem., Nano Letters, ACS Nano, etc.), and have more than 670 citations resulting in an h-index of 16 (GoS).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: Ciencias y tecnologías químicas
Nombre: RAICH ARMENDARIZ, LUIS ADRIAN
Referencia: RYC2021-032530-I
Correo Electrónico: lraich@zedat.fu-berlin.de
Título: Multiscale Computational Approaches for Enzyme Engineering and Drug Design

Resumen de la Memoria:

The scientific career of Dr. Raich has been focused on understanding the function of proteins and enzymes at atomic level. He is expert in state-of-the-art molecular simulations, enhanced sampling techniques, and multiscale Quantum mechanics/Molecular mechanics methods to model complex biological systems. His PhD works provide insights into the catalytic mechanism of carbohydrate-active enzymes, unveiling fundamental interactions and conformations that are critical for their activity. This valuable knowledge helped him to guide the design of potent and selective sugar-based inhibitors, as well as to approach the challenging task of enzyme engineering.

During his research experience abroad, Dr. Raich mastered the use of Markov modelling techniques, powerful to characterize the intricate conformational landscape of proteins. He applied these techniques to analyze the dynamics of epigenetic-related proteins, revealing hidden states and cryptic pockets that may facilitate new therapeutic strategies for different health disorders. After the outbreak of COVID-19, Dr. Raich participated in projects aiming to fight SARS-CoV-2, focusing on an enzyme (TMPRSS2) crucial for the entry of the virus into human cells. His expertise in enzymatic mechanisms and drug design was key to rationalize the efficacy of several inhibitors against TMPRSS2, and to discover a combination of drugs that could be beneficial for the treatment of the disease.

Currently, Dr. Raich s research is merging artificial intelligence and molecular simulations to solve scientific problems. In particular, he combines graph neural networks, structural models, and evolutionary information to achieve deep representations of enzymes, aiming to use them for engineering tasks. Additionally, Dr. Raich is the principal investigator of a computational engineering project (CGT-design) aimed to tailor enzymes for the synthesis of natural products and drugs. His long-term goal is to develop a systematic methodology to control the activity of proteins and enzymes, either by engineering their sequences or by the design of site-specific inhibitors, with applications ranging from medical therapies to biotechnological devices.

Resumen del Currículum Vitae:

Dr. Raich holds a PhD in Theoretical Chemistry and Computational Modelling (Universitat de Barcelona 2018; excellent cum laude, European mention, and PhD extraordinary award). He is author of 26 peer-reviewed publications (including 1 Nature, 1 PNAS, 1 ACS Catal., 4 Chem. Sci., 5 JACS, 6 ACS Cent. Sci.) and one patent application. His PhD work was mainly centered in the elucidation of enzymatic mechanisms, but also in different fields of high multidisciplinarity, such as small-molecule homogeneous catalysis, inhibitor design, and gold nanoparticles. All these works gave him expertise in the planning, implementation, and dissemination of scientific projects, as well as experience working in collaborative environments. Dr. Raich shared his work in a variety of conferences and workshops (with over 10 contributions, including 2 invited talks and 2 selected oral communications), being proactive in discussions and networking. During this period he led a project in collaboration with an experimental group at Universitat de Barcelona, publishing a paper as co-corresponding author. He was also actively involved in teaching activities, giving a total of 60 hours of support lectures in organic chemistry and 180 h of laboratories.

In November 2018, Dr. Raich moved to Freie Universität Berlin (FUB) joining the group of Prof. Frank Noé, a world leading expert in Markov state modelling and machine learning. Between 2019-2021 Dr. Raich worked in a project funded by Bayer AG, during which he learned innovative techniques of interest for the industry. He developed his research in close collaboration with members of the company, transferring knowledge between the two organizations (FUB / Bayer AG), and publishing a relevant work related to epigenetics. After the outbreak of COVID-19, Dr. Raich was involved in several projects aiming to fight SARS-CoV-2, co-authoring four papers in which he helped to rationalize the efficacy of potent drugs against a critical target for the infection. One of these works resulted in a patent application entitled Pharmaceutical composition for treating COVID-19 that has recently received a positive report from the European Patent Office. He also participated in the Billion Molecules against Covid-19 JEDI Grandchallenge, being part of an interdisciplinary team that designed a smart drug screening pipeline driven by artificial intelligence.

Early in 2020, Dr. Raich was awarded with a prestigious Marie-Skodolowsa Curie individual fellowship (H2020-MSCA-IF-2019), with which he is developing an ambitious project (Deepzyme) focusing in the application of novel neural networks for the engineering of enzymes. In this context, Dr. Raich has established a fruitful collaboration with an experimental group at the Technical University of Denmark, being the principal investigator of a computational engineering project (CGT-design) that has been granted with more than 1.000.000 computing hours at Horeka, a powerful supercomputer based in Germany. He is also involved in the organization of a workshop about Markov modelling, where university students and international researchers both from the academy and the industry participate every year. Currently, Dr. Raich is leading the Design team of Prof. Noé s group, working together with excellent PhD students and Postdocs to solve challenging problems in the field of life sciences.

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	LLOPIS LORENTE, ANTONI
Referencia:	RYC2021-034728-I
Correo Electrónico:	anllolo2@upv.es
Título:	Engineering of nanobots and chemical communication between micro/nanosystems

Resumen de la Memoria:

My research line embraces the design of smart bio-nanosystems, with a special focus on two areas: (1) engineering of nanobots for biomedical applications and (2) engineering of chemical communication between micro/nanosystems.

At this regard, my main contributions to the area of nanobotics and chemical communication have been the following advances:

- Design, preparation and evaluation of nanoparticles equipped with enzymatic logic gates that are able to perform biocomputing operations, which result in the programmed delivery of an entrapped cargo. In particular, I designed and developed: (1) a nanodevice responsive to the neurotransmitter acetylcholine (Llopis-Lorente et al., Chem Eur. J. 2017), (2) nanobots actuated with thiol responsive gates (Llopis-Lorente et al., J. Mater. Chem B. 2017), (3) nanocarriers that process logic taks for anticancer drug delivery (Llopis-Lorente et al., ACS AMI 2017), (4) optical nanosensors based on enzyme-mediated detachment of labelled-reporters (Llopis-Lorente et al., Chem. Eur. J. 2017), (5) a nanodevice with self-immolative caps responsive to the neurotransmitter glutamate (Org. Chem. Front. 2019), (6) acetylcholinesterase-capped nanoparticles. Altogether, a key innovation of my research is the use of enzymes as functional elements in combination with stimuli-responsive moieties.

- Development of stimuli-responsive nanomotors equipped with molecular gates, which had not been developed before. At this regard, I have been first-author of two seminal publications: (1) enzyme-powered gated mesoporous silica nanomotors for on-command intracellular payload delivery (Llopis-Lorente et al., ACS Nano 2019), and (2) stimuli-responsive Janus nanomotors equipped with glutathione-responsive caps for enhanced cargo delivery in cancer cells (Llopis-Lorente et al., Chem Com 2019) (described below). I acquired experstise in this area through subsequent stays in Wilson s and Sánchez group. My key innovation in this area is the use of molecular gates on nanomotors for active transport and controlled drug delivery.

- Chemical communication between micro/nanosystems: (1) proposing and demonstrating the utility of enzyme molecules and molecular gates on immobilize on Janus particles, to establish interactive models of communication (Llopis-Lorente et al., Nature Comm. 2017), (2) collaborating in the design of the first circular network of communication between nanoparticles and proposing an approach for determining information transfer efficiency (Chem Sci. 2021), (3) writing a perspective on the status and future of the area (Llopis-Lorente et al., Nano Today 2018), (4) leading author of a tutorial review summarizing progress in the last years (Chem Soc Rev 2021), (5) engineering dynamic communication between artificial cells with spatiotemporal behaviour over DNA nanostructures..

- Chemical communication between nanoparticles and cells: (1) I actively participated (2nd author) in the development of an interactive model of communication between nanoparticles and yeast cells (description below) and wrote the manuscript in collaboration with the 1st author (de Luis, Llopis-Lorente et al., Angew 2019); (2) I coordinated the project and elaboration of the manuscript (as corresponding), involving communication between two different types of cells (bacteria and yeast) enabled by nanoparticles acting as nanotranslators.

Resumen del Currículum Vitae:

Antoni Llopis graduated in Chemistry in 2013 at University of Valencia (Premio Extraordinario de Licenciatura); after a 9-month research intership at Imperial College London, working on the synthesis and optical properties of gold nanoparticles.

Antoni obtained a PhD fellowship from La Caixa Foundation (competitive national call of 25 fellowships in all fields) for pursuing a PhD in Chemistry and Nanotechnology. He defended his PhD thesis entitled Enzyme-functionalized hybrid mesoporous nanodevices for sensing, controlled release and molecular communication in February 2019 (Extraordinary Doctoral Thesis Award), conducted at Polytechnic University of Valencia with Prof. Ramón Martínez-Máñez as supervisor.

During his PhD, Antoni conducted 3 short research stays: 1 month at Complutense University of Madrid (group of Prof. Reynaldo Villalonga) on the development of Janus metallic-inorganic nanoparticles, 6 months at Radboud University (The Netherlands) (group of Prof. Daniela Wilson) on the development of Janus nanomotors, 1 month at IBEC (Barcelona, group of Prof. Samuel Sánchez) on nanomotors for drug delivery.

Antoni moved to Eindhoven University of Technology (The Netherlands) in August 2019 as Postdoctoral Researcher in the van Hest s group. He obtained a Marie Curie Cofund Postdoctoral Fellowship (2019-2021), and expanded his research to the area of artificial cells: organic vesicles with cell-like functionalities (motion, communication, viscoadaptation, etc.); which has already resulted in 2 published articles (Nano Letters 2020; Chem. Sci. 2020), 1 submitted, 3 in preparation, and 1 book chapter submitted.

Since January 2022, Antoni is a Senior Doctor Researcher at CIBER-BBN. His current research line focuses on the engineering of nanobots and chemical communication between micro/nanosystems.

Antoni has published 28 scientific articles (9 first author, 2 corresponding, 1 journal cover (Chem. Soc. Rev.)). He has supervised 1 Bachelor s thesis, 2 Master s theses, and 1 PhD thesis. He has obtained the ANECA accreditations for Assistant Professor and Associate Professor.

Área Temática:	Ciencias y tecnologías químicas
Nombre:	GORDOBIL , OIHANA
Referencia:	RYC2021-031328-I
Correo Electrónico:	ogordobil002@gmail.com
Título:	Sustainable lignin valorization engineering

Resumen de la Memoria:

I am a Chemical Engineer specialized in renewable materials and biorefinery processes with 10 years of research experience in the sustainable valorization of lignin polymer and transformation of agro-industrial by-products to value-added compounds. With the goal to minimize the use of non-renewable resources, my interdisciplinary research focuses on the development of lignin-based functional ingredients, formulations, and materials with understood and controlled properties, for high-value applications in target markets such as polymers, coatings, and cosmetic and personal care. My research interest also involves the use of powerful analytical tools based on spectroscopy and chemometrics to gain fundamental knowledge of lignin structure-properties relationships and related mechanisms.

Since the starting of my PhD at the University of the Basque Country, I have been exploring new strategies to improve the lignin performance in specific applications through the development of sustainable conversion processes such as controlling extraction conditions, functionalization of its chemical structure, fractionation with organic solvents and synthesis of nanoparticles.

The postdoctoral experience at Innorenew CoE research institute in Slovenia has been the key to my professional development. Currently, I am working as a Marie Skłodowska-Curie fellow in the Wood Modification group, to research the BIO4CARE project, which aims to develop a sustainable and efficient lignin-based multi-functional ingredient for cosmetics and health care applications. During my postdoctoral period, I gained extra-scientific experience and reinforced interdisciplinary aspects of my research. I also enhanced my project management capacities through participation in R&D projects from different programmes and enriched my organizational skills, gaining experience in the equipment purchasing process (for a value >500 K). Additionally, thanks to the BIO4CARE project I increased my communication skills increasing my international visibility and renowned position in the lignin valorization field.

My efforts resulted in a solid scientific production with 27 articles JCR with 883 citations (h-index:14) and 25 contributions to international conferences. I have actively participated in 14 projects (3 as principal investigator) from regional, national, Slovene Government and European calls as well as industrial projects. I am part of 4 European research networks, and I am serving as a guest editor in 2 special issues related to my research line. Among performed pedagogical activities can be highlighted the co-supervision of 2 MSc students (1 on-going) and conducted invited lectures abroad.

My leadership and technology transfer capacities are evidenced by the creation of a technological-based company (LignoBasque) that develops and markets highly innovative, fast, and non-destructive portable analytical solutions for quality control in various processes and products of the forestry sector.

Resumen del Currículum Vitae:

I graduated in chemical engineering in 2011 at the University of the Basque Country (UPV/EHU) and I obtained my MSc degree from the same university in 2012. After one year working as an assistant researcher in the Biorefinery Processes research group in the Department of Chemical and Environmental Engineering (UPV/EHU), in 2014, I was granted 4 years fellowship from the University of the Basque Country to conduct my PhD studies within the same research group on the development of novel applications of lignin to convert it into a valuable product. I concluded my international PhD in 2018 (5 months of predoctoral stays in KTH, Sweeden) in the field of Renewable Materials Engineering receiving the qualification of outstanding Cum Laude. In 2019, I was awarded 1-year early-postdoc fellowship from the University of the Basque Country. During this year, I moved to InnoRenew CoE (Wood Modification group) in Slovenia for 5 months to learn about new analytical tools related to spectroscopy and chemometrics. In 2020, I received funding for the creation of an innovative Technological-based company under the name of the LignoBasque project from the Ekintzale/Txekintek programme, which is supported by the Basque Government, Gipuzkoa Provincial Council and BIC Gipuzkoa. Today, I am co-founder and 50% partner of the LignoBasque company. In addition, I was hired as an associate researcher to work in the Wood Modification group at Innorenew CoE and in 2021 I was awarded the competitive Marie Skłodowska-Curie fellow to develop the BIO4CARE project in Slovenia (2021-2023) in which I am currently focused on.

My research focuses on lignin and other agro-industrial by-products valorization through the development of efficient biorefinery processes, development and characterization of bio-based materials and formulations, and exploration of new analytic techniques. It is worth noting my networking capacity, with research and industrial collaborations with experts from Sweden, Finland, Poland, Austria, Lithuania, Slovenia, Spain, Tunisia, Turkey, Brazil and Italy. I have actively participated in 14 projects (3 as principal investigator) from local (4) and national (2), Slovene Government (2) and European (3) calls as well as industrial projects (3). I have published 27 peer-reviewed scientific articles (11 as a first author, 4 as a corresponding, >85% in Q1) in highly ranked international journals in my field gathering 883 citations in Scopus (h-index 14). Moreover, I have co-authored two book chapters and 2 conference proceedings. I have participated in 25 international conferences with oral (8) and poster (17) contributions. I co-supervised 2 MSc students (1 ongoing). I am an active member of 4 COST actions (currently committee member in CA20127 and working group member in CA16215, CA17128 and CA19145). I am serving as an Editor in Cosmetics and Polymers journal (MDPI) and the last year, I conducted invited lectures for the PhD level at Renewable Materials for Healthy Built Environments program at the University of Primorska in Slovenia and seminars related to my research.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	Ciencias y tecnologías químicas
Nombre:	BRESOLI OBACH, ROGER
Referencia:	RYC2021-032773-I
Correo Electrónico:	rogerbresoli@gmail.com
Título:	Chemistry of Photons: from photobiology to optical matter

Resumen de la Memoria:

Dr. Roger Bresolí-Obach joined the group of Prof. S. Nonell at IQS-URL as an undergraduate student until he defended his PhD (funded by a competitive FI grant; Generalitat de Catalunya and European Social Funds). The topics addressed during his PhD thesis were the development of new targeted photosensitizers and the detection of reactive oxygen species (specially singlet oxygen) using different analytical techniques, such as absorption, fluorescence or photoacoustics spectroscopies, overcoming some of the limitations of molecular fluorescent probes. During this period, he also completed two secondments in the research groups of Prof. E. Perez-Inestrosa (Universidad de Málaga; 1 month) and Prof. G. Cosa (McGill University; Canada; 3 month), where he realised the importance of optical imaging to study phenomena that occur at the nano-/micro-scale. He completed his PhD in 2018 (Excellent Cum Laude, International mention) and awarded with the ̈III Prize for the best doctoral thesis in photochemistry ̈ in Spain (GRUFO-RSEQ).

After his PhD with the aim to expand his skills and international visibility, Roger won a competitive FWO junior postdoctoral project (Belgium; FWO) under the supervision of Prof. J. Hofkens (KU Leuven; Belgium). There, he expanded his research interest to other challenging photonic related projects: like the development of a new multiplane widefield microscopy technique (allowing to image volumes of 50x50x4 um3) and the formation of dynamic evolved assemblies, in which is possible to optically-trapped particles in non-irradiated regions, where a priori the induced optical force should be negligible. Recently, Roger obtained some intriguing results when Au NPs are optically-trapped at the interface as they can be optically-bond outside the irradiated area. Indeed, this finding will change the paradigm of optical binding because until now the formation of optical bonds was strictly restricted inside the irradiated area, allowing the formation of more diverse optical matter. To conduct this multidisciplinary project, he contacted and successfully established several collaborations with internationally-recognized researchers. Prof. H. Masuhara from NCTU (Taiwan) invited Roger to perform two 3-month research stays at his laboratory to further learn about optical trapping and strengthen the collaboration between Roger and his group. As result, Roger has been appointed as a ̈Visiting Assistant Research Fellow ̈ at NCTU/NYCU (equivalent to ̈Visiting Assistant Professor ̈; February 2020-January 2022; Hsinchu; Taiwan) and 7 works (all of them with Roger as (co)-corresponding author) have already been published as peer-reviewed publications and >15 presentations (as oral/invited contributions) at international congresses. He has been actively involved in the preparation of two competitive projects proposals related to optical trapping, both successfully funded (W002221N and VS00721N; Funding Agencies: FWO and MOST) based on the results obtained by him. Roger is currently preparing with Prof. Hofkens two more competitive project proposals (C1 KULeuven internal funds-Submitted; Budget > 1 M ̈; FWO project ̈ Foreseen March 2022; Budget > 600 k ̈). During 2022, Roger has been appointed as ̈Visiting Assistant Professor ̈ at IQS-URL, where is the responsible of ̈Thermodynamics and kinetics ̈ (5 ECTS) and ̈Physical Chemistry ̈ (6 ECTS) courses.

Resumen del Currículum Vitae:

I obtained an average qualification of 3.13/4 and 3.44/4 (23/48 and 6/13 excellent with honors) in my BSc and MSc courses. During the 5th BSc year, I won a competitive Collaboration grant (AGAUR) to start my investigation at Prof. S. Nonell group (IQS-URL), where I performed my MSc thesis (excellent with honors / awarded with Pare Salvador Gil prize) and my PhD supported by a competitive FI grant (AGAUR). My PhD project had an interdisciplinary character (nanomaterials, organic synthesis, photophysical/photochemical studies, optics, biological experiments with bacteria, yeast or cancer cells). I assumed different responsibilities as designing experiments; managing projects; writing articles, technical proposals, reports; establishing potential collaborations; mentoring (visiting) BSc/MSc/PhD students (co-supervisor of 2 BSc theses); and doing technology transfer with BASF Grenzach GmbH. High-impact results have been obtained from my work, resulting in 12 Q1 journals publications. My PhD thesis was scored with excellent cum laude (international mention) and awarded with ̈III Prize for the best doctoral thesis in photochemistry ̈ (GRUFO; RSEQ).

Since January 2019, I joined the group of Prof. J. Hofkens (KU Leuven; Belgium), where I won a competitive FWO postdoctoral project (score 14/14; the most prestigious government-funded research grant in Flanders). I initiated and currently I am the main responsible of one of Hofkens ̈s group research lines: ̈ Optical Trapping and Microscopy of Nanoparticles: Collective Optofluidic Dynamics of Nanoparticles ̈. I have enriched my skills of autonomy, initiative, independent thought, and leadership: 1) have been involved in the preparation of two competitive projects proposals related to optical trapping, both successfully funded (W002221N and VS00721N; FWO and MOST; >200 k ̈). Currently, two other projects proposals have been submitted/prepared based only on the results obtained by myself during the 2019/21 period (Jan-2022: C1 KU Leuven internal funds-C14/22/085; Mar-2022: FWO project; >1.6 M ̈); 2) am the co-supervisor of 2 PhD students and have mentored several students (2 PhD, 2 MSc and 5 visiting MSc/PhD); 3) have organized a two-day workshop in Leuven; 4) have presented my results in several international congresses and invited lectures at different universities, expanding my international collaborators network. The obtained results have already been reported in 8 (7 as corresponding author) publications in well-recognized journals. I was invited to Prof. Masuhara laboratory (Feb/May 2020 and Apr/Jul 2021; NCTU; Taiwan) and awarded with a ̈Visiting Assistant Research Fellow ̈ position (equivalence ̈Visiting Assistant Professor ̈) in NCTU from Feb-2020 to Jan-2022 for my work about optical trapping. Currently, I have been appointed as ̈Visiting Assistant Professor ̈ at IQS-URL to teach the ̈Thermodynamics and kinetics ̈ (5 ECTS) and ̈Physical Chemistry ̈ (6 ECTS) courses at the undergraduate program of Biotechnology and Pharmacy (2021/22).

In short, I have currently published 28 peer-reviewed publications and 5 book chapters; have an h-index of 13 (>475 citations; 7 as corresponding author; source WOS 30/01/2022); have also (co)-authored 38 contributions to national or international conferences, as well as 4 invited talks in different research centers; have participated in 12 competitive projects (3 as PI).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	CASADEVALL SERRANO, CARLA
Referencia:	RYC2021-030935-I
Correo Electrónico:	carlacasadevallserrano@gmail.com
Título:	Development of catalysts for energy production: from homogeneous water oxidation, light-driven hydrogen evolution and organic reductions, to biohybrid and heterogeneous systems for solar fuels and chemicals

Resumen de la Memoria:

My long-term ambition is to master reactivity in cellular mimics for sustainable energy and chemical production and bioremediation. Therefore, I have designed my career to acquire the scientific knowledge and technical skills to accomplish this purpose. I specialized in the mechanistic study of reactions relevant to artificial photosynthesis using molecular complexes as model systems at ICIQ (Spain) where I obtained my PhD in 2019 (International mention, Excellent Cum Laude) under the guidance of Prof. J. Lloret Fillol, with whom I set up a new lab. Particularly, I developed Ru and Fe molecular complexes to study the water oxidation reaction, and a dual photocatalytic system consisting of a Co hydrogenation catalyst and Cu and Ir photoredox catalysts to study the light-driven water-to-hydrogen and organic substrate reduction reactions, which allowed me to isolate and characterize high- and low valent reactive intermediates and study their involvement in the catalytic cycles (spectroscopy, electrochemistry and DFT calculations). Those 2 main research lines laid the foundations for future PhD candidates in the group.

In September 2019 I joined the group of Prof. E. Reisner (Univ. Cambridge) as BBSRC postdoctoral researcher bringing my background in homogeneous artificial photosynthesis and mechanistic studies to develop biohybrid systems and heterogeneous photocatalysts to produce chemicals and fuels using sunlight as driving force. This allowed me to get trained in bioconjugation chemistry, chemical biology, materials and biohybrid catalysts for energy and chemical production. Since October 2020, I am a Marie Skłodowska Curie Fellow (MSCA-IF-2019, 212.933,76) in the same group expanding my research line exploring reactivity at interfaces for solar fuel production, which allowed me to develop research independently managing my own project and research budget (19.200,00) and supervise 3 PhD students working on different projects, setting the bases of my fully independent career.

Over the span of my career, I have worked in 7 research centers (UdG, ICIQ-URV, KTH, ASU, U. Groningen, MPI-CEC, U. Cambridge) in 6 countries (Spain, Sweden, US, Netherlands, Germany, UK) that have allowed me to place myself out of my comfort zone and learn new fields of research to expand my scientific knowledge and background and establish collaborations. I have performed organic and inorganic synthesis, catalytic studies investigating substrate scope and reaction mechanisms with homogeneous and heterogeneous systems as well as enzymes. I firmly believe my achievements thus far demonstrate my capacity to work on a broad variety of topics (19 publications: Nat. Chem., J. Am. Chem. Soc., Angew. Chem. Int. Ed., ACS Catal., Chem. Sci., Chem Soc. Rev. among others and 2 patents), showing my aptitude to acquire new skills.

Additionally, I have demonstrated my capability to develop independent research in the field of energy production (3 papers as corresponding author, 1 project awarded as PI (ALBA synchrotron 2021), 1 project selected for interview (Junior Leader Incoming La Caixa 2022), 1 project under evaluation (PRIMA SNSF 2022 1,5 M), supervised 2 degree, 3 master and 4 PhD students) and to secure funding in all stages of my career. Moreover, I have been part of several EU networks, managed the UK Solar Fuels Network established international collaborations.

Resumen del Currículum Vitae:

I did a BSc (2013 with honors) and master (2014 with honors) at the University of Girona (UdG). Then I moved to ICIQ to do a PhD (and set up a new lab) studying the mechanism of artificial photosynthesis reactions (2019, International PhD Excellent Cum Laude, 14 publications (+ 1 under revision), 2 patents). I did 4 stays to learn new techniques, expand my knowledge and collaborations: a) KTH Sweden (Prof. M. Ahlquist) EPR calculations; b) Arizona State University US (Prof. G. Ghirlanda) artificial metalloenzymes (Catalysts 2021 1st and corresponding author; ACS Catal 2019); c) U. Groningen Netherlands (Prof. W. R. Browne) Raman spectroscopy (Nat Chem 2021); d) MPI-CEC Germany (Prof. S. DeBeer) EPR/EXAFS (ChemElectroChem 2021), giving me high level of internationalization and scientific maturity. In September 2019 I joined Prof. E. Reisner group (U. Cambridge) as BBSRC postdoc to develop biohybrid cellular systems for solar fuels (Front. Microbiol. 2021), and heterogeneous synthetic methodology (ChemSusChem 2021; ACIE 2021). Since October 2020, I am Marie Skłodowska Curie Fellow in the same group, developing biohybrid catalysts for fuel production at interfaces (Chem. Soc. Rev. 2021). I have 19 publications (h-index 9) that reflect my multidisciplinary background, 15 in top journals: Nat Chem, Chem Soc Rev, 2 JACS, ACIE, 2 ACS Catal, 2 Chem Sci, Chem Commun, ChemElectroChem, ChemSusChem, Chem Eur J among others (8 1st and 2 co-1st author, from which 3 as corresponding author without my previous advisors); 2 patents (1 transferred to Treellum technologies spin off). I have supervised 2 degree, 3 master and 4 PhD students (3 currently at U. Cambridge). I have delivered 1 invited lecture at MPI-CEC department seminar invited by Prof. DeBeer, contributed to 4 national and 20 international conferences (10 oral communications -1 talk award at Girona Seminar 2018, 6 organization), and shortlisted for the 71st LINDAU Nobel Laureate meeting 2022. I have >7 years teaching experience (UdG, URV, U. Cambridge) in chemistry, lab practices and organic chemistry.

I have secured funding in all stages of my career: 1) degree/master (beca Xavier Gironès 2012, beca de colaboración 2013), 2) PhD (ICIQ-CELLEX 2014, FPU (FPU14/02550, MECD), CARISMA travel grant 2015 (EU COST ACTION CM1205)), 3) Postdoc (BBSRC fellowship 2019 associated to project (BB/S00159X/1), Marie Skłodowska-Curie Individual Fellowship (890745 SmArtC, 212933,76 , H2020-MSCA-IF-2019), Maria Zambrano 2021 (H2020, 72.398,00), and project as PI at ALBA synchrotron (2021025005, call 2021, 60.000,00). Moreover, I am selected for interview at La Caixa Junior Leader Incoming 2022 (305.100,00 interview 14/03/22), and applied to PRIMA SNSF (Swiss StG ERC, submitted 01/11/21 under evaluation, 1.331.548,06). I have contributed to grant writing in my group (4M).

Additionally, I am the PhD examiner of K. Michaliszyn (22/04/22, ICIQ), topic editor of Catalysts (MDPI, since 2021), I was a referee at AQU and ASIIN university quality agencies (2013-2018) and in peer-reviewed journals: ACS Catal; ChemCatChem; ChemSusChem; Theor Chem Acc, iscience, Int J Molec Sciences, and the UK Solar Fuels Network manager (Sept. 2019-Dec. 2020). I am co-PI in the outreach project Joves I Ciència 2022 and have participated in outreach activities (talks at schools, #100tifiques, Science festivals etc. since 2012).

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	MARTIN GARCIA, NURIA
Referencia:	RYC2021-033167-I
Correo Electrónico:	nuriamg74@gmail.com
Título:	SYNTHESIS OF ORDERED POROUS SOLID CATALYSTS FOR INDUSTRIAL AND ENVIRONMENTAL APPLICATIONS

Resumen de la Memoria:

My research line aimed to improve industrially relevant chemical processes in (i) bulk chemistry (e.g. synthesis of hydrocarbons from methanol or CO_2); (ii) environmental chemistry (e.g. selective catalytic reduction of NOx) and (iii) fine chemistry (e.g. C-C/C-N-bond formations), in an economic and efficient way, developing innovative heterogeneous catalytic systems based on advanced porous materials (e.g. zeolites, mesoporous silica, metal-organic frameworks MOFs , MOF-derived metal oxides and composites of them) for the clean production of fuels, rational use of raw materials and the reduction of greenhouse gases through their transformation in non-harmful compounds.

After completing a BSc (2007-2012) and MSc (2012-2013) at the University of Salamanca (co-authoring 1 article) in collaboration with the University of Franca (Brazil), I have gained close to 8 years of broad research experience (4 of them as postdoc since my PhD presentation in December 2017) in 3 prestigious institutions:

(i) ITQ, UPV-CSIC (FPI-funded PhD student, Spain, 2/2014-12/2017), where I focus on the improvement of small pore zeolite syntheses for their catalytic application in the methanol to olefins and selective catalytic reduction of NOx processes, which bridged academic and industrial research with top chemical companies (such as Haldor-Topsøe). This resulted in 8 articles (6 as 1st author), 4 conference contributions (3 oral) and 8 international patents, 4 of them transferred to Haldor-Topsøe through license agreements and the other 4 developed with the same international company.

(ii) CSCE, KU Leuven (Postdoctoral contract & Marie Curie-Individual Fellow, Belgium, 2/2018-4/2020), where I managed a MSCA-IF funded project as PI (evaluated 97.40 over 100.00, 161k), working on new synthetic chemistry of MOF-derived/zeolite hybrids and their novel applications as heterogeneous catalysts in (a) the direct hydrogenation of CO_2 into methanol combined with further C-C coupling for the (fossil-fuel independent) production of light olefins; (b) the synthesis of complex molecules through C-C/C-N bond-forming catalytic methodology, independently drafting and executing networks with researchers from KU-Leuven (Belgium) and the University of the Basque Country (Spain). This resulted in 6 conference contributions (1 oral in the ACS meeting-2019), 1 book chapter and 3 articles, with 1 as 1st author in ACS Catal. and 1 as corresponding & 1st author in ChemCatChem.

(iii) ICMOL, Universidad de Valencia (selected as nº1 in the area of chemistry of the Juan de la Cierva-Formación fellowship, 50k , Spain, 4/2020-present), where I am working on MOFs as chemical reactors for the synthesis of well-defined sub-nanometer metal clusters and their application as heterogeneous multifunctional catalysts for the synthesis of high-added value molecules. This resulted in 1 project at ALBA, 1 book chapter and 6 articles, being 1st author in 4 and corresponding author in 3, as well as being keynote speaker in one international conference.

My research career has been awarded with the extraordinary PhD thesis award of the UPV (2019), Borealis Student Innovation Award (2019), Dutch Zeolite Association award (2018) and finalist of the UMICORE Materials award (2018) and climate change in the Mediterranean arc award (2018).

Note one maternity leave in 2020.

Resumen del Currículum Vitae:

I obtained a BSc (2012) and MSc (2013) in Chemistry (University of Salamanca) and completed a PhD with Cum Laude grade in December 2017 (funded with an FPI fellowship at ITQ/CSIC-UPV), working on novel and cost-efficient synthetic methodology of small pore zeolites with isolated active sites for the methanol to olefins and selective catalytic reduction of NOx processes, which bridged academic and industrial research with top chemical companies (such as Haldor-Topsøe).

In 2018, I moved to KU Leuven (Belgium), to gain multidisciplinary experience (2 years as a Marie Curie Individual Fellow) on MOF-derived metal oxides in aluminosilicates as catalysts for the valorization of CO_2 into high-added value products in the chemical industry. In 2020, I came back to Spain (ICMOL, University of Valencia) as a Juan de la Cierva Formación Fellow (selected as n° 1 in the area of Chemistry and Chemical Technology) to work on the synthesis of high-performance MOF-based catalysts for the obtention of fine chemicals.

I have been PI in several projects funded by the Spanish Ministry of Science (JdlC-Formación grant, 50k) and European Commission (MSCA-IF grant, 161k), including access to large European scientific infrastructures (ALBA synchrotron) and participated in networks with industrial partners (Exxon Mobil and Haldor-Topsøe) to scale-up and evaluate the possible commercialization of the cost-efficient catalytic technology for treating exhaust gases (i.e. NOx) from diesel vehicles and stationary sources. At the age of 32, I am proving track record of scientific and technological contributions, being author of 8 international patents (4 of them transferred to industry) and 18 articles in peer-reviewed international journals of the 1st quartile in their respective fields, with close to 600 citations in total (h index of 11, i10 index of 12).

I am 1st author in 11 (~60%), 1st or 2nd in 15 (~80%), 1st and corresponding author in 3 (~10%) and 9 (~50%) articles correspond to my postdoctoral 2018-2022 research in Belgium & Spain (without my PhD supervisor). I am 1st author in prestigious high-impact factor journals such as Appl. Catal. B (IF=19.5), ACS Catal. (IF=13.1), 3xChem Commun. (IF= 6.2), 3xChemCatChem (IF= 5.7, corresponding author in two), Chem. Eur. J. (IF=5.2), Org. Biomol.

Chem. (IF=3.9), Catal. Commun. (IF=3.6) and 2nd author in Chem. Mater. (IF=9.8), 2xCatal. Sci. Technol. (IF= 6.1). I am also author of 2 invited book chapters (2 as 1st and 1 as corresponding author) in Elsevier and Wiley.

The results of my research have been communicated to the scientific community through oral contributions in well-known international conferences (such as CIS-2015, JJII-SECAT-2016, NCC-2017, DZA-2018, ACS meeting-2019) as well as poster contributions (ZMPC2018, HYMA2019, Young researchers of the RSEQ-2019, etc.). I have disseminated my research to a wider audience through events organized by KU-Leuven and the Spanish Scientists in Belgium Organization (Science and Pintjes in Brussels, 2018 or The Pint of Science Festival in Leuven, 2019). I have also been invited as a keynote speaker to the XLIX Meeting of the Italian Crystallographic Association (2021).

I have received the PhD extraordinary award (2019), Borealis Student Innovation Award (2019), Dutch Zeolite Association award (2018) and finalist of the UMICORE Materials award (2018).

Área Temática:	Ciencias y tecnologías químicas
Nombre:	BARREJON ARAQUE, MYRIAM
Referencia:	RYC2021-034815-I
Correo Electrónico:	myriam.barrejon@gmail.com
Título:	Chemically modified carbon-based nanomaterials for the development of advanced optoelectronic devices

Resumen de la Memoria:

During my research career, I have developed a strong background and extensive experience in the field of carbon nanostructures, dealing with the development of novel carbon-based hybrids for multidisciplinary applications. Through different studies, I showed how the chemistry of carbon nanomaterials can be used to tailor their properties, converting nanoscale properties into macroscale functionalities, and ending up in device applications. For instance, during my PhD project, I employed different covalent chemical approaches to modify the sidewall of different types of carbon nanotubes, yielding hybrid materials with potential applications in molecular electronics, thanks to their interesting optoelectronic properties. The presence of charge separation processes was studied in all the hybrid materials by femtosecond transient absorption spectroscopy, technique that I learnt during an international stay in the United States (University of North Texas). During this period in USA, I specialized in time-resolved emission and transient absorption studies, developing a deep understanding of the photophysical properties of carbon nanomaterials after their chemical modification. Similar approaches were employed also for the chemical modification of graphene and tailoring of its properties; however, in this case I explored non-conventional methods of chemical functionalization, such as microwave irradiation and phase transfer catalysis conditions. My motivation on carbon nanostructures led me to explore their application is different areas during my postdoctoral period. Then I moved to the laboratory of the well-known Prof. Maurizio Prato in Trieste (Italy), where I dealt with the functionalization of carbon nanomaterials for driving the growth and differentiation of neuronal stem cells, position that helped me to improve my previous acquired skills and extend my knowledge-base in biomedical applications of carbon nanostructures. My scientific background and experience allowed me to be awarded with a competitive Sara Borrell fellowship from Instituto de Salud Carlos III (ISCIII), and I am currently a postdoctoral researcher at the National Hospital of Paraplegics (NHP) of Toledo. Here, I am dealing with the development of neural substrates based on carbon fibres for the growth and differentiation of neural cells. The ultimate goal of my current project is the development of new electrode materials for neural interfaces able to record neural activity or stimulate neural tissue.

Resumen del Currículum Vitae:

My research career started when I was in the last stage of the Bachelor (2008), and I received a scholarship from a European program to perform my end-of-course project at the university of Vienna. There, I spent four months working in the laboratories of organometallic chemistry under the supervision of the Prof. Walter Weissensteiner. Once I completed my bachelor s degree (2010), I was awarded with a graduate scholarship for research initiation, which helped me to carry out my master s degree in sustainable chemistry at the university of Castilla La-Mancha (UCLM). In 2011, I got a Doctoral fellowship from the Spanish Ministry of Economy and Competitiveness (MICINN), which allowed me to perform my doctoral studies. During my PhD, I have been involved in collaborations with several groups all around Europe, USA, and Japan. During February-June of 2014, I visited the laboratory of Professor Francis D Souza at the University of North Texas (USA), where I gained experience in time-resolved emission and transient absorption studies, as well as photocatalysis experiments, to get a deeper understanding of the photophysical properties and behaviour of carbon-based materials. At this early stage of my career, I delivered 11 publications in high impact research journals. Once I completed my PhD in 2015 with outstanding "Cum Laude", my thesis was awarded with the prize for the best doctoral thesis by the Spanish Royal Society of Chemistry (RSEQ) (territorial section of Castilla La Mancha).

From September-2016 to September-2018, I performed a two years of post-doc position in Trieste (Italy), in the group of the very well-known professor Maurizio Prato, one of the most respected scientists worldwide in the field of carbon nanomaterials. During this period, I dealt with the functionalization of carbon nanomaterials for their application in neuroscience, position that helped me to improve my previous acquired skills and extend my knowledge-base in biomedical applications of carbon nanostructures. One of the most noteworthy things of my postdoctoral period was the development of critical thinking skills, demonstrating my ability to propose and conduct innovative research. My leadership capabilities were considerably enhanced, strengthening my competence and capacity to reach scientific independence, and I delivered 4 research articles as corresponding author.

Currently, I hold a Sara Borrell research contract from Instituto de Salud Carlos III (ISCIII), and I work as a postdoctoral researcher at the National Hospital for Paraplegics, in Toledo. Throughout this project, I have pursued my own research ideas and I have opened a new line of research at the group of Neural Repair and Biomaterials, aimed at synthesizing new materials based on carbon microfibres.

In terms of scientific production, I have published 24 scientific articles, many of them in top 10 scientific journals. Although I am at an early stage in my research career, my work has been cited up to 350 times, currently gathering an H factor of 11 (WoS) (i10-index = 12). I have presented my work to more than 30 national and international conferences and participated in 6 national and international research projects. In 2019, I received the positive accreditation from ANECA for the figure of "Profesor contratado doctor".

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	MONTEMURRO , NICOLA
Referencia:	RYC2021-031725-I
Correo Electrónico:	nmoqam@cid.csic.es
Título:	Study of attenuation of wastewater-derived organic pollutants and other persistent mobile contaminants in the environment

Resumen de la Memoria:

I am an environmental scientist. Since the early stages of my career as a researcher I have always been motivated by a strong desire to deepen my knowledge on the reuse of wastewater in agriculture. I have been particularly interested in improving water quality and evaluating the effects of wastewater-derived organic pollutants (WOPs) on humans, plants, and soil/aquatic organisms.

My goals aim at: i) to fight against water scarcity and test the effects of treated wastewater reuse in agriculture; ii) to evaluate the occurrence and fate of wastewater-derived organic pollutants in the soil-crop system and in the environment; iii) to estimate the potential risks of pharmaceutical residues in aquatic organisms; iv) the development of innovative suspect/non-target screening strategies to apply for environmental studies; v) providing support in the development of novel treatment technologies to remove emerging organic contaminants from water. This is synergistically complemented by my participation in multidisciplinary studies.

During my pre-doc stage, I compared different wastewater treatment technologies as well as the presence of fecal contamination indicators in the soil and on crops irrigated with treated wastewater in the farming conditions. I was also trained in the use of several analytical techniques and in the analysis of WOPs (mainly pharmaceuticals) in the soil-root-plant system. As a result, I established a line of research on drugs uptake by crops in the hosting group (IDAEA-CSIC). After my PhD, I extended my research focus and interests to the development of ultra-trace methods for the quantification of anthropogenic organic compounds, their transformation products/metabolites in different environmental compartments, based on liquid chromatography coupled to high-resolution mass spectrometry (HRMS). During my first postdoc at IDAEA, I have actively contributed to the main task of the AWARE project in the study of the presence of several classes of pharmaceutically active compounds and their metabolites/transformation products in crops and soil samples. In parallel to the crop uptake study, I participated in the evaluation of pharmaceutical residues that can accumulate in aquatic organisms such as river fish. In this framework, I consolidated my position at IDAEA-CSIC resulting in the principal investigator of the project entitled MixPersiRisk project funded by the Sinergia 2020 program. As part of my participation in the PRIMA INWAT project, I actively participated in the development of methodologies for suspect/non-target screening analyses in order to cover a wide range of known and unknown contaminants in water samples. My current post-doc position in the URBANWAT project aims to investigate the presence, transport, and distribution of highly polar anthropogenic chemicals during storm events. I have also participated in different studies aiming at developing novel treatment technologies to remove organic contaminants from water. During my brief scientific experience, I have acquired priceless laboratory and management skills and have established an extensive research network, and have generated highly cited scientific contributions. All these are excellent indicators of my capacity to advance in my scientific career and lead scientific research that contributes to protecting water quality and hence human health and ecosystems

Resumen del Currículum Vitae:

B.Sc. in Cellular and Molecular Biology (University of Bari, Italy) in 2009, M.Sc. in Environmental Biology (University of Bari, Italy) in 2012, Postgraduate Specialization and Advanced Professional Training Course on the treatment of wastewater for reuse in agriculture (University of Bari, Italy) in 2014, and PhD in Biodiversity, agriculture and environment (University of Bari, Italy) in 2017. My Ph.D. thesis on   The effects of treated municipal wastewater for agricultural reuse   was carried out at the Department of Agricultural and Environmental Science at University of Bari and was supported by The Italian Ministry of Education, Universities, and Research (MIUR) in the form of a 3-year predoctoral fellowship. During my PhD I did a 15-month pre-doctoral stay at the Institute of Environmental Assessment & Water Research (IDAEA-CSIC, Barcelona).

Upon PhD completion, I started a short contract (4 months) for an R&D project from IDAEA where I was tasked with evaluating drug candidates for a pharmaceutical company in a metabolic study. In 2018, I start my postdoctoral career at IDAEA-CSIC (32-month contract) working within the Water JPI AWARE project, which focused on assessing the fate of pesticides and waterborne contaminants in agricultural crops and their environmental risks. I am currently working as a contracted post-doc at the IDAEA-CSIC in the framework of Water JPI-2018 URBANWAT project until the end of 2022. My recent research is focused to assess the presence of polar organic contaminants and the impact of treated wastewater on the environment.

My H-index is 10 (source: Scopus) and my scientific record can be summarized in 30 original research articles and 5 book chapters (7 of them as first author, one of which as   Papers in Forefront , 6 as corresponding author, and 1 senior-authored paper) in journals included in the Science Citation Index (SCI) (24 out of the 30 in Q1 ranked journals. My research has been presented in 86 national and international conferences organized in the fields of Environmental Pollution and Environmental Analytical Chemistry in the form of oral communication (46 contributions, 21 as main speaker including 5 invited talks) or poster presentation (40 contributions). I am lecturer in the M.Sc. program   Environmental Engineering   of Barcelona Tech (UPC) since 2019. I have supervised 1 BSc student, 5 MSc students, and I am currently supervising 2 PhD students at the IDAEA-CSIC in collaboration with the University of Barcelona.

I have participated in 5 EU projects, 1 Spanish national project, and several research contracts with other different institutions. Furthermore, I am Principal Investigator of the MixPersiRisk project in Sinergia Program within IDAEA-CSIC Severo Ochoa Grant.

I am frequent reviewer of manuscripts for leading scientific journals of   environmental sciences   and   analytical chemistry .

I am co-editor of Volume 698 of The Handbook of Environmental Chemistry (Springer) Moreover, I am currently guest editor of the special issue   Organic Pollutant Analysis in the Environment   (MDPI Molecule Journal). As for the organization of scientific activities, I acted as chairman and organizer of the session C07-Fate and metabolism of wastewater-derived pollutants for the 31st Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC). I am a member of different scientific societies

Área Temática:	**Ciencias y tecnologías químicas**
Nombre:	INSUA LOPEZ, IGNACIO
Referencia:	RYC2021-031367-I
Correo Electrónico:	insualopez@hotmail.com
Título:	Supramolecular peptide nanomaterials for bio-technological applications

Resumen de la Memoria:

My research focuses on supramolecular peptide nanostructures and their interaction with biological systems. I investigate the self-assembly of peptides into different nanomaterials (i.e. nanoparticles, nanosheets and nanofibers) for application in 3 research lines (RL):

RL1. New-generation antimicrobial agents that tackle multidrug resistant bacteria with new nanotechnology-based mechanisms. I primarily focused on peptide nanoparticles for the targeted delivery of antibiotics upon sensing of pathogenic markers (i.e. enzymes). Alternatively, I also developed broad spectrum antimicrobial peptide polymers and contributed to the development of bacteria-capturing polymers that inhibit colonisation and virulence. 8 publications.

RL2. Two-dimensional (2D) biomaterials assembled from cyclic peptides, which can be structurally tuned to self-assemble as one-dimensional nanotubes and sequentially as 2D nanosheets with advanced self-healing and optical properties. This line sits at the very foundation of peptide folding and supramolecular chemistry, providing a new mechanism of multidimensional self-assembly. 4 publications.

RL3. Synthetic cell mimics capable of triggering life-like behaviour, such as molecular uptake, membrane fusion and chemical communication, that imitate the molecular machinery cells use to perform highly specialised tasks with very simple peptide amphiphiles. 3 publications.

I have developed these projects internationally at the Universities of Birmingham, UK (UoB, 2013-17), Melbourne, Australia (UniMelb, 2017-18) and Santiago de Compostela (USC, 2018-present), adding up to 5 years of international mobility outside Spain. These projects support one another with complementary know-how in rational peptide design, supramolecular nanofabrication and biological applications, thus defining my expertise at the Supra/Bio/Nano interface.

I am currently advancing these RLs with my own funding: Juan de la Cierva - Formación (JdC-F), Marie Curie Actions (MSCA) and Xunta de Galicia's Consolidation grant (as co-Principal Investigator). I have recently secured funding (International Exchanges Scheme 2021, UK's Royal Society) as Principal Investigator to establish a new international collaboration on supramolecular peptide hydrogels -new complementary project to my RLs. Currently supervising a PhD student working on RL2.

Overall, the progression of my scientific career is reflected in the increasing quality of my publications (JACS, Nat. Commun., Chem. Sci., etc.), attraction of highly competitive funds (MSCA, JdC-F), independent establishment of an international collaboration (Prof. D.J. Adams; Univ. of Glasgow) and senior PI and project management roles (XdG s Consolidation, IES) since the obtention of my PhD.

Resumen del Currículum Vitae:

International scientific career developed during my PhD (2013-17) at the University of Birmingham (UK), and two postdoctoral positions at the universities of Melbourne, Australia (2017-18) and Santiago de Compostela (2018-present).

17 publications, including 12 papers (JACS, Nat. Commun., Chem. Sci., etc.)   75% as first author, 3 reviews (Chem, etc.), 1 perspective article (Chem. Sci.) and 1 book chapter. Total of 325 citations (107 in 2021). H-index = 8.

Funding at national and international calls:
(1) Beca de Colaboración [MEC, 2012]; (2) Researcher Mobility Grant [UK s RSC, 2015]; (3) Juan de la Cierva-Formación [MICINN, 2017]; (4) Marie Curie individual fellowship [EC, 2018]; (5) Consolidation Grant (co-Principal Investigator) [Xunta de Galicia, 2021]; (6) International Exchanges Scheme (Principal Investigator) [UK s Royal Society, 2021].

International teaching experience (210 h in the UK + 236 h in Spain) and accredited by ANECA as Profesor Contratado Doctor (Dec 2021). Currently directing 1 PhD thesis, having supervised 2 TFG (USC) and 3 Master s projects (UoB, UK). Twice member of the examination panels of TFG projects at USC.

Responsibility roles as Community Board Member for the journal Nanoscale Horizons and as vice-director of the Spanish Researchers in the UK (SRUK) association, also participating and organising outreach activities both in the UK and Spain.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: **Cultura: filología, literatura y arte**
Nombre: PEREZ RAMOS, MARIA ISABEL
Referencia: RYC2021-031353-I
Correo Electrónico: miperezramos@gmail.com
Título: Ecocriticism and environmental humanities from an environmental justice perspective: eco-apartheids and willful eco-cosmopolitan strangers in US Southwestern literature and cli-fi

Resumen de la Memoria:

My pre-doctoral research is divided in two stages. During the first one I was based at the University of León. My research focused on finding synergies between Chicana/o literature and culture and environmental concerns, and analyzing them from an ecocritical perspective. Exploring the environmental dimension of Chicana/o literature and culture seemed necessary in order to fill a knowledge gap. It also contributed to expand the second wave of ecocriticism, mostly engaged with environmental justice issues.

During the second stage, at KTH Royal Institute of Technology (Sweden), I started to develop a project focused on Chicana/o literary representations of environmental injustices related to water (mis)management in the US Southwest. It had a transnational perspective that regarded the Southwest as an interconnected border region, and looked for parallelisms with other regions and cultures in other parts of the world. I also delved into other environmental humanities aspects more generally: from considerations of urban ecologies and discourses conceptualizing invasive species, to analyses of climate-fiction, and explorations of the concept of the Anthropocene and the use of social media in the Anthropocene.

My postdoctoral research, framed within the context of the project Strangers (RTI2018-097186-B-I00; MCIU/AEI/FEDER, UE; 2019-2021), has focused on developing the concept of the 'willful eco-cosmopolitan stranger' (key to understand environmental justice struggles in Chicana/o literature), without losing sight of cli-fi. As part of the project, I have written two articles analyzing said character type in detective fiction. Moreover, I have been invited to contribute a book chapter on the topic to an edited volume that will be published by Peter Lang (SPI nº5). I have also published an article in a Q1 journal about environmental health (2018), contributed a chapter to a cli-fi volume (2019), and co-edited a book on the environmental humanities (2021), among other things.

My research profile is innovative, transdisciplinary, and highly international. I have worked to develop, expand, and communicate knowledge on ecocriticism, environmental justice, and the environmental humanities, with a particular (but not exclusive) focus on the US Southwest and Chicana/o literature and culture. Part of this research has been facilitated by R&D projects, research stays, and competitive fellowships. I have not only presented my research at numerous conferences, primarily at international level, but have also organized numerous workshops and have been part of the organizing committee of some key events such as the first international conference in the environmental humanities held in Spain (UAH, 2018) or the multidisciplinary and experimental conference STREAMS (KTH, Sweden, 2021).

In terms of advancing research, I intend to continue developing the '(willful) eco-cosmopolitan stranger' character type. I also aim to explore further the concept of 'eco-apartheid,' and its relevance in ecocriticism and environmental humanities, particularly from an environmental justice perspective. Moreover, I plan to explore Southwestern and Chicana/o dystopian and cli-fi fiction from a posthuman and biopolitical perspective. Parallel to this, I intend to explore climate fiction literary techniques from an eco-narratological and an empirical-ecocritical approach.

Resumen del Currículum Vitae:

My academic career began at the University of León, where I obtained a BA in English Language and Literature (2007), with a distinction for the best academic record (Premio Fin de Carrera). In 2008 I became a PhD student, obtaining the Diploma de Estudios Avanzados in 2009. The competitive FPU grant allowed me to spend several extended periods conducting research abroad: University of New Mexico (2009), King s College London (2010), and University of California, Berkeley (2011).

In 2012, through the European Association for the Study of Literature, Culture and Environment (EASLCE), I learned of four openings at the newly created Environmental Humanities Laboratory (Division of History of Science, Technology and Environment; KTH, Royal Institute of Technology, Sweden). I applied, drawn by the interdisciplinary dimension of the initiative and the leading research role of the institution, which I thought would greatly enhance my research capacity and production. I was selected among more than a hundred applicants. Under this contract I expanded my international profile through participation in conferences in the US, two of which were facilitated by generous travel grants. I was also a visiting researcher at Cape Town University (2013) and Arizona State University (2016), and conducted a research trip around New Mexico and Colorado (2015). I obtained my PhD in 2017.

In 2018 I became a Juan de la Cierva-Formación fellow, and in 2021 a Juan de la Cierva-Incorporación fellow (University of Oviedo).

During my academic career I have edited a special issue for an academic journal and have published 6 academic articles (1 in a Q1 journal: MELUS; and 2 in Environmental Humanities, with a high citation rate), while 1 more is accepted for publication in a Q1 journal (IJES). I have published 6 book chapters and have co-edited a collective volume (which was awarded a 3,500 publication grant). Furthermore, I have published 1 paper in conference proceedings, 2 interviews, and 1 book review, and have contributed creative writing to an online archive on the Anthropocene.

I have presented my work at 26 international conferences, and 2 international postgraduate workshops, as well as 1 conference, 2 postgraduate workshops, and 1 seminar at national level. Moreover, I have been part of the organizing committee of 4 international conferences, 1 international workshop and 2 national workshops.

I am currently a member of two competitive research groups, Intersections: Literatures, Cultures and Contemporary Theories (University of Oviedo, since 2018); and GIECO: Grupo de Investigación en Ecocrítica (Instituto Franklin-UAH, since 2011), and was an affiliated researcher of The Seed Box: A Mistra-Formas Environmental Humanities Collaboratory in 2017 (Linköping University). Furthermore, I have been part of 4 research projects at national and international level.

I was Book Review Assistant Editor for Ecozon@: European Journal of Literature, Culture and Environment from 2018 till 2020. In 2020 I was promoted to Book Review Editor, a position I still hold.

My research has also informed my teaching duties and outreach activities, resulting in courses, lectures, and workshops in ecocriticism, environmental justice, and environmental humanities, most of which had not been offered before at (nor by) the University of Oviedo.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	Cultura: filología, literatura y arte
Nombre:	BRAMANTI , ARMANDO
Referencia:	RYC2021-032818-I
Correo Electrónico:	armando.bramanti@gmail.com
Título:	Third Millennium Sumerian Administration, Culture, and Paleography

Resumen de la Memoria:

My research interests are rooted in the field of Assyriology, i.e. the study of the history and cultures of the Ancient Near East (ANE) through the cuneiform sources. My main areas of expertise center around the Early Mesopotamian world (late 4th and 3rd millennium BCE) and include many aspects of ANE studies, such as social and economic history, administration, paleography, historical geography, language and grammar, as well as religious traditions. I define myself as a Sumerologist, as the primary sources that I use for my daily work are Sumerian texts of various nature and genres. Some of my research interests routinely call for a different approach based in historical methodology, and so I would identify myself as a Historian of the Ancient Near East as well as a Sumerologist.

The study of Sumerian administrative texts is my main research line. I devote particular attention to both text editions and to the cultural and historical information which administrative accounts can disclose. My doctoral research focused on the history and administration of the southern Mesopotamian region of Umma at the end of the Early Dynastic period (ca. 2450 2340). The administrative mechanisms connected to the management of fields and grains in the territory of Umma were analyzed in light of approximately 1,100 administrative records and threw light, among others, on the management of different sorts of land, the calculation of the harvests, and the role of temple and palace in the administration of the rural area in the Umma region. Third millennium economy and administration have also been the main focus of several other articles appeared in internationally peer reviewed journals (e.g. Journal of Cuneiform Studies) and book chapters that I published with prestigious publishers (e.g. Brill, Brepols).

Cuneiform paleography is a parallel research line which I have been pursuing for several years now. This has brought forth the publication of several peer-reviewed articles and book chapters and will lead in future to the publication of another monograph, the working title of which is "The Paleography of the Archive of Lugalzagesi   ED IIIb Zabala". Moreover, I have occasionally indulged in the exploration of different cultural milieux and edited texts from the 4th, 2nd, and 1st millennium.

In the years following my PhD I have had the opportunity to teach courses of Sumerology and ANE History in numerous research centers in Europe and Latin America, totaling more than 300 hours of classroom time. These international collaborations also arise from a form of activism aimed at creating a better and more sustainable internationalization in the academia. The same principles inspire my production in the field of popular science and my activities of public outreach.

To conclude, as a mid-term project it is my intention to commit to a new research project about the grammar and, more specifically, the syntax of Sumerian administration using as a reference the vast corpus of Neo-Sumerian texts (21st century BCE). The first goal of this project is the examination of the case system through the analysis of case-markers in the nominal chain and of dimensional infixes in the verbal chain, toward a new understanding of the written language of Sumerian bureaucracy.

Resumen del Currículum Vitae:

After a BA in Ancient History (2010) and an MA in Oriental Archeology (2012) at Sapienza   Università di Roma, I got a PhD in Assyriology (2017) in a joint program between Sapienza and Friedrich-Schiller-Universität Jena, in Germany. During the five years of the program, I developed an international scientific profile through numerous academic stays in the most prestigious European and American universities and research centers in the field of ANE Studies. These include regular short stays at CCHS   CSIC in Madrid (from 2013 to 2016), a total of 16 months at Universität Leipzig, a total of 29 months at Ludwig-Maximilian-Universität München, regular collation trips which brought me to the US for a total of 4 months (Yale University and University of Chicago), and many other shorter stays. The Italian Ministero dell Istruzione, dell Università e della Ricerca (MIUR) funded three years of my doctoral studies (40,915   + allowances). The Deutscher Akademischer Austauschdienst (DAAD) funded another year (15,000). Finally, the last year was financed through a contract at the Bayerische Akademie der Wissenschaften (BAdW, Munich) as editorial assistant at the Reallexikon der Assyriologie und Vorderasiatischen Archäologie (RlA).

Upon the completion of my doctoral studies (2017), I held four different research positions as a postdoc scholar, three of them as a PI with funds allotted on a highly competitive basis for a specific research project. The first one at CCHS   CSIC, Madrid (2018) with Italian funding (7,740), the second one at Université de Genève (2018/2019) with Swiss funding (42,300 CHF), and the third one at Istituto Svizzero di Roma (2019/2020) with Swiss funding (15,000 CHF). Since 2019 I actively collaborate with several South American universities in Brazil, Argentina, Chile, and Peru. This collaboration involved a research and teaching stay as invited professor in May and June 2019 and many more online activities in the following years. In 2020 I received the Italian habilitation as Professore Associato (Profesor Titular) in Assyriology and ANE History and Cultures. Since September 2020 I am a JdC-F fellow at CCHS   CSIC, Madrid in the research group PROA (Próximo Oriente Antiguo) of the ILC (Instituto de Lenguas y Culturas del Mediterráneo y de Oriente Próximo) and I collaborate with Universidad Complutense de Madrid as faculty of the Máster Propio en Orientalística y Egiptología (ECOE).

During the last few years, I had the opportunity to develop several research lines which granted so far 34 publications including, among others, 1 monograph, 3 edited books, 12 articles in academic journals, and 11 book chapters. I presented my research in 20 international conferences and 26 invited lectures. The great number of long international stays, fellowships, and contracts and the active participation in research projects in many

countries shape a research profile characterized by high mobility and internationality. To conclude, a strong leadership quality proportional to my current career stage is supported by the completion of five individual research projects as a PI, a total of more than 120,000 of international funding (not including contracts) in eight different countries, the independent design of courses for any level of education, and academic recognitions such as habilitations and shortlists for tenure track positions.

Área Temática: Cultura: filología, literatura y arte
Nombre: LAMAS ABRAIRA, LAURA
Referencia: RYC2021-031481-I
Correo Electrónico: abraura@gmail.com
Título: Una mirada translocal a la migración asiática y sus prácticas culturales: (dis)continuidades en el espacio de lo público y lo privado, lo físico y simbólico

Resumen de la Memoria:

Como antropóloga sociocultural y doctora en Relaciones interculturales estoy particularmente interesada en las migraciones y en la diversidad cultural. Mis investigaciones se centran en la migración asiática poniendo el foco sobre (1) dos esferas aparentemente distantes, pero interconectadas: la del ámbito privado y la pública; y (2) la de lo local y lo transnacional.

Mi tesis doctoral, defendida en 2019 y galardonada con mención internacional y premio Cum Laude, adopta un enfoque alternativo y novedoso en la investigación sobre las familias transnacionales chinas. Sin embargo, tiene implicaciones que van más allá de este contexto migratorio específico. A través de un enfoque crítico plantea la necesidad de cuestionar los modelos hegemónicos de familia, infancia y cuidados, y dar voz y visibilidad a otros actores (como los menores y los llamados 'ancianos'), superando la perspectiva adultocéntrica que domina los estudios sobre migraciones.

Reconociendo el potencial y la innovación de mi investigación, entre otros, se publicó un primer artículo en base a mi investigación doctoral en el Journal of Family Studies (SJR, Q2 Social Sciences), un segundo en la revista Migraciones (SJR, Q1 Cultural Studies) y más recientemente Routledge (SPI, Q1) ha publicado una monografía bajo el título 'Chinese Transnational Families: Care Circulation and Children's Life Paths (2021). Asimismo, a raíz de la divulgación de los resultados de mi investigación he sido invitada a colaborar en varios proyectos editoriales, entre ellos un libro sobre género y migración editado por la socióloga y Príncipe de Asturias en ciencias sociales Saskia Sassen.

He trabajado como investigadora en el proyecto 'Migración china y prácticas religiosas' (2017 RELIG 00011)
dando como resultado un artículo sobre cristianismo chino en Barcelona que se publicará próximamente en la Revista de Antropología Iberoamericana (SJR , Q2 Estudios Culturales). Este constituye el primer trabajo antropológico que explora el fenómeno del cristianismo chino en España, contribuyendo a la incipiente investigación y comprensión sobre la globalización del cristianismo chino. Asimismo, este proyecto me proporcionó una primera e interesante perspectiva de la intersección entre las prácticas culturales públicas y privadas.

En enero de 2021 me uní al proyecto FestSpace, un proyecto financiado por HERA (Humanities in the European Research Area) en el que colaboran cinco universidades europeas. Este proyecto explora los eventos culturales que se llevan a cabo en el espacio público de varias ciudades europeas y sus implicaciones en relación a la inclusión sociocultural. He realizado investigaciones sobre los festivales de las comunidades china, pakistaní y filipina en Barcelona, las he presentado en foros internacionales y he escrito varios trabajos que serán publicados a lo largo de este año y que se detallan en el currículum adjunto.

Como resultado de estos dos proyectos, mis conocimientos sobre migración asiática se han ampliado y mis intereses de investigación se han diversificado, sirviendo para ampliar y complementar mi investigación doctoral. En verano de 2021 comencé mi proyecto de investigación actual centrado en las prácticas culturales de los inmigrantes asiáticos y sus descendientes en el espacio físico y simbólico público de Barcelona.

Resumen del Currículum Vitae:

Soy antropóloga sociocultural y doctora en Relaciones Interculturales. Mi tesis doctoral, defendida en 2019 y galardonada con mención internacional y premio Cum Laude, adopta un enfoque alternativo y novedoso de la investigación sobre las familias transnacionales chinas cuyas implicaciones se extienden al ámbito más amplio de los estudios sobre familias migrantes. Reconociendo el potencial y la innovación de la investigación, entre otras publicaciones, se publicó un primer artículo en Journal of Family Studies (SJR, Q2 Social Sciences), un segundo en la revista Migraciones (SJR Q1 Cultural Studies) y más recientemente se ha publicado una monografía en Routledge (SPI, Q1), bajo el título 'Chinese Transnational Families: Care Circulation and Children's Life Paths' (2021).

Como estudiante doctoral fui becada por la Fundación Chiang Ching-Kuo de Taiwán (2018-19) y por el programa Joint Research PhD Fellowship del Confucius Studies Program de China (2016-18). He realizado varias estancias de investigación en Asia, participado en varias escuelas de verano internacionales y presentado mi investigación en prestigiosos foros internacionales tales como la East Asian Anthropology Association Conference (Hong Kong, 2017), the International Sociological Association Conference (Singapore, 2018), o the European Association for Chinese Studies conference (Glasgow, 2018).

He trabajado como investigadora en el proyecto Migración china y prácticas religiosas (2017RELIG 00011) financiado por el Departamento de Asuntos Religiosos de la Generalitat de Catalunya y escrito un artículo sobre el cristianismo chino en Barcelona que será publicado próximamente en la Revista de Antropología Iberoamericana (SJR Q2 Cultural Studies) y que supone el primer trabajo antropológico que explora el fenómeno del cristianismo chino en España. Asimismo, desde 2017 soy miembro del grupo de investigación InterAsia (GRC 2017SGR1284) de la Universitat Autónoma de Barcelona, formado parte de dos proyectos de I+D (FFI2015-70513-P; PID2019-107861GB-I00) y participando activamente en los seminarios, reuniones y publicaciones colectivas del grupo. Además, formo parte de la red CERPE (China-Europe Research Platform on Chinese Migration to and beyond Europe) y he participado en varios de sus seminarios y talleres. En 2021 fui invitada a colaborar como peer-reviewer en una revista de alto impacto (Migraciones) y a contribuir en varias publicaciones a nivel internacional, entre ellos un libro que Edward Elgar Publishing publicará

próximanemente bajo el título   A Research Agenda for Gender and Global Migration Beyond Western Research   y que está editado por la socióloga y Príncipe de Asturias en ciencias sociales Saskia Sassen y la Dra. Natalia Ribas.

En la actualidad trabajo como investigadora para FestSpace, un proyecto financiado por HERA (Humanities in the European Research Area) en el que colaboran cinco universidades europeas. Este proyecto explora los eventos culturales que se llevan a cabo en en el espacio público de varias ciudades europeas y sus implicaciones en relación a la inclusión sociocultural. A raíz de esta investigación, hay dos artículos en fase de escritura en los que participo, uno más actualmente en revisión en Annals of Leisure Journal (SJR Q1, Cultural Studies) y un capítulo sobre el Festival del Año Nuevo Chino que verá la luz en 2022 en el libro 'Chinese Migrations in Europe in the Time of the Covid-19 Pandemic' (Routledge).

Área Temática:	**Cultura: filología, literatura y arte**
Nombre:	BOLAÑOS HERRERA, ALBERTO
Referencia:	RYC2021-034945-I
Correo Electrónico:	albertobolagnos@gmail.com
Título:	Poesía epigráfica de la Antigüedad Tardía y la Edad Media latinas

Resumen de la Memoria:

Licenciado (premio extraordinario), Máster (sobresaliente) y Doctor (Sobresaliente cum laude-Mención Internacional y Premio Extraordinario) en Filología Clásica he centrado toda mi investigación en el estudio de la poesía epigráfica de época antigua y medieval. La poesía epigráfica, esto es los carmina epigraphica (en adelante CE) son en esencia poemas escritos sobre soporte epigráfico, es decir, en un soporte duro, no perecedero, habitualmente piedra, pero también otros como cerámica, metal o paredes. Este tipo de poesía, de tono muy popular, conoció durante la Antigüedad una elaboración culta, lo que se conoce propiamente como el género del epigrama literario, del que únicamente se diferenció en el medio de transmisión de los textos.

Desde que en 1964 H. Krummrey propusiera una nueva edición de los CLE en un volumen independiente de la prestigiosa colección del Corpus Inscriptionum Latinarum, la línea de investigación ha sido prolífica. La incesante aparición de nuevas piezas en excavaciones arqueológicas, así como su alto valor para el conocimiento de diversos aspectos de la vida cotidiana la han hecho un campo de estudio atractivo para la Filología Clásica. Valgan como ejemplo las 5 reuniones internacionales organizadas en torno al tema en los últimos 20 años, cuya VI edición se celebrará en Madrid en el otoño de 2022, auspiciada por el proyecto de investigación que dirige el solicitante.

Si bien la poesía de época antigua goza de abundante interés de la crítica, este es cada vez menor cuanto más avanzamos cronológicamente: los CE de época tardía se estudian en tanto a la tradición e innovación respecto a la literatura clásica, pero aquellos de época medieval apenas han levantado interés hoy día, y continúan en buena medida inéditos o mal editados.

Mis aportaciones en este campo han sido diversas: desde un monográfico dedicado a la poesía latina epigráfica toledana de la Edad Media (Carmina Latina Epigraphica Mediaevalia de la Iglesia de San Román de Toledo (ss. XII-XIV), UAM, Madrid, 2014), hasta artículos en revistas especializadas en los que he abordado la edición de piezas inéditas (Note sur un fragment métrique récemment découvert à Arles , In-Scription Deuxième livraison, 2018 [en línea]), catalogaciones métricas (Rereading CIL XII, 2164 as a Carmen , TYCHE 33, 2018, 251-253) o la caracterización literaria de personajes (Aproximación filológica al epitafio en verso de Eugenia (CLE 1447), ¿un ejemplo para las viudas cristianas de Marsella? , RPh 91/1, 2017, 7-24)

El proyecto sobre el que se fundamenta esta solicitud de ayuda tiene como objetivo el estudio transversal de la poesía epigráfica durante la Antigüedad Tardía (ss. V-VIII) y la Alta Edad Media (ss. IX-X) en su contexto histórico y sociocultural.

El resultado consistirá en la publicación de una edición completa de la poesía epigramática de este amplio periodo histórico centrada en dos ámbitos: el de la poesía epigráfica propiamente dicha y el de la poesía epigramática de autor conocido compuesta según las tópicos, motivos y formas de las inscripciones, todo ello circunscrito a la parte occidental del Imperio Romano y a la Edad Media latina. Debido al vasto material conservado en este ámbito espaciotemporal, la atención de focalizará en dos puntos: la península ibérica y los reinos germánicos asentados en el territorio de la actual Francia.

Resumen del Currículum Vitae:

My research activity began in 2012 with a Colaboration Grant of the MECD. I obtained a final grade of Summa Cum Laude in the academic year 2012/13 Bachelor s degree in Classics by the U. of Sevillle, and I passed a Master s Degree in the same field with a final grade of excellent.

My research activity has been focused on the study of Ancient and Medieval Latin Poetry, specially on carmina Latina epigraphica, popular poetry inscript on stone, metal, ceramic... My research has been focused on critical edition, metrical analysis and exegesis.

My PhD disseration was awarded the grade of excellent Cum Laude , special award of the U. of Seville (Premio extraordinario) and international mention, with a statement on the edition and commentary of Gallia Narbonensis Carmina Latina Epigraphica of the Roman Empire Age .

In this field of study I have published 20 contributions between monpgraphs, papers and book reviews in scientific journals and book chapters. My contributions are indexed in WoS main catalogue: Arts & Humanities Citation Index and/or en Scopus.

I have always wanted for a wide diffusion: my publciations are in editorial houses from 5 different countries. My publications received several citations and reviews (cf. e.g. Année Épigraphique 2019, 1053; P. Cugusi, Carmina Latina Epigraphica non-Bücheleriani delle Galliae [ISBN: 8896240867], Cesena, 2019, 61, 133, 182;) and citatiton in specilised databases: Epigraphik-Datebank Clauss/Slaby, CIL-BBAW.

I have taken part of 3 national projects; 2 national research groups; 1 international partnered group. Nowadays I am the main researcher of an international research project, POEMATA, obtained from a competitive application for young researchers.

I have been granted with a Juan de la Cierva-Incorporación fellowship (first classified for Culture: Philology and Arts 2020). At the same time, I was chosen for an Assistant position at the Autonomous University of Madrid.

Currently, I co-supervise a PhD thesis (together with J. del Hoyo): María López Castillo (FPU fellow), that will be defended at the Autonomous University of Madrid by July 2022.

At the international scope, I have taken part in several collaboration projects together with the Berlin-Brandenburgische Akademie der Wissenschaften to publish new volumes for the Corpus Inscriptionum Latinarum, the XVIIIth volume, consecrated to carmina epigraphica. I am co-author of the first instalment of this serie (the XVIIIth/2 Hispanic CLE), which will be published in 2022.

In september 2022 I will have passed 24-month stay in 6 different prestigious research centres of 4 different countries: France, Germany, Switzerland and Portugal.

In wich concern transfer to society, I have organised several stands, conferences and events concerning and participated in several other. Currently, several colleagues from the UAM together with de National Archaeological Museum we are organising some journeys on ancient writtings based on new active approaches for learning. On Digital Humanities, I have taken part in the launch of two web sites dealing with Hispania. Nowadays my works take part of a new Database using EpiDoc Unicode for transcription of Latin Epigraphy: CLEO, also specialized on anciente epigraphic poetry.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Cultura: filología, literatura y arte**
Nombre:	SANTOS DE LA MORENA, BLANCA
Referencia:	RYC2021-034856-I
Correo Electrónico:	blanca.santos1710@gmail.com
Título:	Repensar la literatura de Cervantes desde la intratextualidad

Resumen de la Memoria:

Durante mi formación predoctoral he desarrollado dos líneas de investigación principales: el estudio de la obra completa de Miguel de Cervantes y la prosa y el teatro de Lope de Vega, ambas continuadas durante la etapa posdoctoral. La obtención de una Ayuda de Formación del Personal investigador (2013-2017) de la Universidad Autónoma de Madrid me permitió realizar la tesis doctoral Presencia y tratamiento de la religión en la literatura de Miguel de Cervantes , en la que abordé temas de importancia capital en las coordenadas áureas como la relación entre fe y obras, la posibilidad de conjugar libertad y providencia, la visión del matrimonio, las implicaciones del Concilio de Trento en la literatura o la cuestión de los renegados y moriscos, con una aproximación global a partir de una metodología basada en la intratextualidad. Posteriormente, con la financiación de una Alexander von Humboldt Postdoctoral Fellowship en la Westfälische Wilhelms-Universität Münster pude continuar trabajando con este método aplicado a la cuestión de la identidad en la literatura de Cervantes. Concretamente, me he centrado en la importancia de la espiritualidad en la conformación de la identidad femenina y en otros aspectos vinculados como la noción de maternidad en Cervantes. Además, he planteado otras preguntas sobre el tratamiento de la identidad en Las novelas ejemplares, como la consideración étnica en La gitanilla y los conflictos nacionales y culturales en La española inglesa.

Sobre la obra de Lope de Vega, desde el comienzo de mis investigaciones me he interesado por la configuración moral de los personajes (el duque de Ferrara, Casandra y Federico en El castigo sin venganza; Laurencia y Frondoso en Fuenteovejuna; don Alonso en El caballero de Olmedo; el rey y doña Beatriz de Castilla en La discreta venganza). He compaginado la publicación de estos trabajos con la elaboración, en colaboración con Manuel Piqueras Flores, de la edición crítica de La discreta venganza para la Parte XX de comedias de Lope de Vega, coordinada por el prestigio grupo de investigación Prolope de la Universitat Autònoma de Barcelona. La experiencia adquirida en esta labor me ha permitido formar parte del proyecto de investigación I+d+i Edición y estudio de veinte comedias de Juan Ruiz de Alarcón , liderado por José Enrique López Martínez, en el que realizaré la edición crítica y estudio de una comedia.

Mi reciente incorporación al proyecto de investigación Catálogo de Santas Vivas, dirigido por Rebeca Sanmartín Bastida y en el que me encargo de la coordinación de la base de datos, me permitirá seguir trabajando la línea de espiritualidad femenina a la vez que profundizo en la transferencia y la divulgación del conocimiento mediante la aplicación de las humanidades digitales al estudio de los textos.

Paralelamente, me he ocupado de aspectos tangenciales a mis líneas de investigación en la literatura hispanoamericana contemporánea, analizando la idea de trascendencia en El perseguidor, de Cortázar y el problema de la identidad universitaria y la novela de campus en la obra de Guillermo Martínez.

Resumen del Currículum Vitae:

Licenciada en Filología Hispánica (2012) y Doctora en Estudios Hispánicos (Sobresaliente cum laude con Mención Internacional, 2017) por la Universidad Autónoma de Madrid. Desarrollé mi tesis doctoral con la financiación de una Ayuda Predoctoral de Formación para el Personal Investigador, en la que obtuve la tercera puntuación más alta de entre más de 230 solicitantes. Durante mi etapa posdoctoral he sido profesora en el Dpto. de Filología Española de la UAM, en el Madrid Study Center de la George Washington University, en el Dpto. de Filología Española de la Universidad de Jaén y en el Romanisches Seminar de la Westfälische Wilhelms-Universität Münster. He impartido más de 360 horas como docente en once asignaturas de tres sistemas universitarios diferentes. Hasta el momento he dirigido 11 TFMs a estudiantes de España y Latinoamérica, gracias a mi colaboración con la Universidad Internacional de la Rioja.

Entre mis publicaciones, cabe destacar la monografía "Aunque es el cielo de la tierra: lo religioso en el Persiles en diálogo con la obra cervantina" Premio Internacional Academia del Hispanismo , la edición crítica de La discreta venganza, una obra de Lope de Vega, para el Grupo Prolope (publicada en la editorial Gredos), así como 24 artículos en revistas de reconocido prestigio del hispanismo internacional, como Rilce, Revista de Literatura, Anuario Lope de Vega, Romance notes, Iberoromania, Estudios Filológicos, eHumanista, Artifara, Castilla o Dicenda, y 18 capítulos de libros (12 en Q1 del SPI y 4 en Q2), en editoriales como Reichenberger, Peter Lang, Biblioteca Nueva, EUNSA o Polifemo.

He participado en 47 congresos, en 7 de ellos por invitación, celebrados en universidades de Alemania, España, Francia, Portugal, Italia, Tailandia, Argentina, Brasil, Costa Rica y Estados Unidos. Desde mi formación académica, mi trayectoria tiene un marcado carácter internacional. Estudié durante un curso en la Università di Bologna, gracias al programa Erasmus (2010-11). En 2014 realicé una estancia en la Universidad de Buenos Aires (host: A. Parodi), en la que profundicé en la utilización de la intratextualidad como recurso metodológico y en el estudio de la alegoría; además, participé en dos congresos internacionales y fruto de ello publiqué un capítulo de libro en la editorial argentina Azul. En 2016 realicé una estancia en la Universidad de Oxford (host: J. Thacker), donde me formé sobre la interpretación de ideas religiosas en textos ambiguos, como La Numancia (cuyos resultados se han publicado en Anales cervantinos). Desde mi incorporación a la WWU Münster como Alexander von Humboldt Fellow me he integrado en el proyecto Humanistenwissen und Lebenspraktiken im Spanien der Frühen Neuzeit, que aborda las formas de autoridad vinculadas a los saberes intelectuales dirigido por C. Strosetzki. Fruto de esta colaboración, he co-editado un libro colectivo en la editorial Springer (en prensa) y un monográfico en la revista Hipogrifo.

He sido miembro del comité de redacción de Revista Historia Autónoma y de Edad de Oro. En 2014 fundé Philobiblion. Revista de Literaturas Hispánicas, que dirigí hasta el año 2018 y cuyo primer anejo en forma de libro colectivo coedité.

Área Temática: **Cultura: filología, literatura y arte**
Nombre: RAMIRO RAMIREZ, SERGIO
Referencia: RYC2021-034201-I
Correo Electrónico: sergio.ramiro.ramirez@gmail.com
Título: Patronazgo artístico en la corte hispánica del siglo XVI

Resumen de la Memoria:

Mi línea de investigación principal se centra en el estudio del patronazgo artísticos y el uso político de las obras de arte en la corte del siglo XVI, con particular atención al caso de los secretarios y consejeros de la Monarquía Hispánica. Mi trabajo trata de responder a la pregunta de hasta qué punto los servidores regios y sus familias se valieron de las redes que ponía a su disposición la administración del gobierno y la diplomacia internacional para procurarse bienes y servicios de artistas a los que encargar las señales de su nuevo estatus cortesano. Al mismo tiempo, la investigación se interesa por su papel como proveedores y facilitadores del intercambio cultural entre las distintas cortes europeas y la española. Al mismo tiempo, he desarrollado un trabajo sobre la agencia artística femenina en la Castilla del siglo XVI, prestando atención al uso de las obras de arte en la conformación de una memoria nobiliaria, pero también en la formulación de roles de género en el pasado

Resumen del Currículum Vitae:

Mis líneas de investigación se articulan en torno a los usos políticos del arte en la corte de la Edad Moderna. En concreto, me intereso por el estudio del patronazgo artístico de los funcionarios reales y la nobleza de la Monarquía Hispánica, la agencia artística femenina y la memoria, así como por los intercambio culturales y artísticos a nivel europeo. Entre mis principales aportaciones destacan mi libro sobre la figura del secretario imperial Francisco de los Cobos y Molina (CEEH, 2021), abordada por primera vez de manera monográfica desde la Historia del Arte. Además, he contribuido al conocimiento de la agencia artística femenina en la corte de la Edad Moderna con varios artículos en revistas como Archivo Español de Arte, mediante mi participación en proyectos de investigación I+D+i nacionales sobre esta temática, así como en la coedición de un libro en la prestigiosa editorial Abada.

Mis estudios se enmarcan en un ámbito internacional. Para ello, he realizado estancias de investigación, que suman 15 meses, tanto predoctorales (Fondazione di Studi di Storia dell Arte Roberto Longhi di Firenze y Escuela Española de Historia y Arqueología en Roma-CSIC) como postdoctorales (The Courtauld Institute of Art de la University of London). Estas me han permitido establecer redes internacionales que han cristalizado en mi colaboración en una exposición en Estados Unidos, así como en libros colectivos sobre intercambios culturales y artísticos en un marco europeo, con aportaciones inéditas sobre artistas y obras de relevancia internacional en editoriales como De Lucca Editori d Arte. Además, he intervenido en 25 congresos y seminarios, 13 de ellos internacionales. Asimismo, he sido miembro de la organización y dirección de 8 congresos y seminarios, 3 de ellos internacionales, siempre sobre las temáticas mencionadas.

He dedicado parte de mi labor a la formación de jóvenes investigadores a través de mi docencia y tutorización de TFM en el Máster de Historia del Arte de la Edad Moderna (UAM), con itinerario de investigación, así como en la organización de seminarios de formación en el Programa de Doctorado en Estudios Culturales de la UAM. He colaborado con el sector privado con la redacción de informes histórico-artísticos para la restauración de edificios históricos y en la traducción de libros para empresas como Artchive Portfolio. En el apartado de la divulgación, cabe destacar mis intervenciones en cursos de verano organizados por la UNED, las conferencias para centros culturales del Ayuntamiento de Madrid y colegios oficiales de la Comunidad de Madrid, así como la publicación de artículos de divulgación en revistas como Muy Arte. Además, he sido revisor de varias revistas de investigación, algunas de alto impacto como Sculpture Journal, Il Capitale Culturale, Culture&History Journal y Archivo Español de Arte.

Área Temática:	Cultura: filología, literatura y arte
Nombre:	ABENZA SORIA, VERONICA CARLA
Referencia:	RYC2021-034954-I
Correo Electrónico:	veronica-abenza@hotmail.es
Título:	Female Artistic Patronage and Cultural Exchange in the Medieval Mediterranean

Resumen de la Memoria:

Dr. Verónica Carla Abenza Soria is a young scholar in Medieval Art History, whose ground-breaking research on Female Artistic Patronage has been widely recognized for her development in the field of Romanesque and Byzantine Art and Architecture of methodologies originating in Gender Studies. Her contributions to the study of hitherto underexplored history of Medieval women s margin to exercise their power and authority through the creation and consumption of works of art and architecture, have significantly advance the state-of-art in this field. She obtained her PhD in 2018 from Universitat Autònoma de Barcelona. Her dissertation was pioneering in that it was the first doctoral thesis defended in Spain in which a wide range of medieval constructions, manuscripts and artistic artefacts from North-eastern Spain were reassessed by taking into consideration a variety of gender issues.

By virtue of her multidisciplinary and international instruction and experience as researcher, she has been invited to participate as researcher in five highly competitive research projects, while currently also collaborating in an ERC Advanced Grant Project. Currently, she holds a Juan de la Cierva-Formación postdoctoral fellowship at the Spanish National Research Council (CSIC). She has consistently proven her success in the acquisition of funds, as shown by her research fellowship at The Metropolitan Museum of Art and the several scholarships she has been awarded by The British Archaeological Association. A major step in achieving scholarly independence came when she took up a nine-months research fellowship at the Italian Fondazione di Studi di Storia dell Arte Roberto Longhi di Firenze for carrying out her first independent research project. Her postdoctoral research has been focused on cultural and artistic exchange in the Medieval Mediterranean, with particular interest in medieval art and illumination from Byzantium and the Christian Kingdoms of Iberia. Her current research deals with the reception in the West of artworks from non-Christian cultures and women's agency in their re-signification and re-use as sacred artifacts, giving special emphasis to medieval church treasuries and their importance in the creation of collective and institutional identities. The transnational outlook of her research career is further enhanced by: i) her excellent record of international refereed publications (written in English, Italian, Spanish) in leading journals of the field and collective volumes, and ii) the presentation of her research in international conferences and invited talks (Oxford, Nicosia, Batalha, Kalamazoo, Lincoln, Rome, Heidelberg, Milano). Aside from her academic service first as Art History part-time lecturer and later lecturer at the UAB, her experience has further extended by teaching and coordinating postgraduate courses at the CSIC, the Universidad Internacional Menéndez Pelayo, and the Universidad de Alcalá de Henares.

Her leadership capacity is linked to the following accomplishments: i) organization of international conferences, symposia, workshops, and colloquia; ii) her appointment as deputy editor and peer-reviewer of scientific journals, as project reviewer in programmes of predoctoral research grants, and as evaluator in master thesis commissions; iii) her regular participation in events aimed at non-academic public.

Resumen del Currículum Vitae:

Dr. Verónica C. Abenza Soria is currently Juan de la Cierva-Formación Postdoctoral Researcher at the Spanish National Research Council (CSIC, CCHS-IH, Madrid) (2021-2023). She joined the Department of Art and Musicology of the Universitat Autònoma de Barcelona as History of Art lecturer in January 2019. She received her degrees from UAB [BA, History of Art; MA, Analysis and Management of Artistic Heritage (A-grade 10/10); PhD, History of Art (Cum Laude-International Mention, Extraordinary Doctoral award)]. She completed her studies with an Erasmus Scholarship at Sapienza Università di Roma. In 2013, she was awarded a 4-year Research Fellowship within the Spanish National Programme for Training Human Resources (FPI) in support of her PhD Thesis entitled "EGO REGINA: Female Artistic Patronage in Aragon, Navarre and Catalonia (1000-1200)". The following year she began as part-time lecturer of Romanesque Art and Byzantine Art at the UAB (2014/15-2015/16). She has collaborated actively in several highly competitive Research Projects (HAR, PDI, RTI, and ERC). She has also been awarded several grants for national and international research stays: Research Fellow at Museu Episcopal de Vic (2012-13, 10 months), The Metropolitan Museum of Art (Department of Medieval Art and The Cloisters, New York, USA, 2015, 4 months), and Fondazione di Studi di Storia dell'Arte Roberto Longhi (Florence, Italy, 2017, 9 months). This last fellowship provided her an outstanding degree of scholarly maturity and independence, while being able to address her first independent research project. Aside from these grants and her highly competitive FJC current postdoctoral fellowship, she has been successively awarded with several scholarships to attend and participate in The British Archaeological Association Annual International Romanesque Conference (2016, 2018, 2020).

Her research career has been characterized by a strong international background. She has shared and discussed the results of her research at different international forums (Universität Heidelberg, The Byzantinist Society of Cyprus, University of Oxford, Sapienza Università di Roma, Universidade Nova de Lisboa, Università degli Studi di Milano, University of Western Michigan, Lincoln University). Consequently, she became one of the founding and leading members of the research group MAGISTRI CATALONIAE-Cultural Studies of the Medieval Mediterranean (11th-15th Centuries), established as Consolidated Research Group of the Generalitat de Catalunya (SGR-231). Since 2021 she has joined CSIC Research Group Networks of Power in Medieval Societies, and being involved as researcher within CSIC Interdisciplinary Research Platform Social and Cultural History of the Mediterranean. She has participated as co-editor of Pintar fa mil anys (Publicacions de la UAB, 2014), and Entre la letra y el pincel (Círculo Rojo, 2017). She has also an excellent record of international publications both in leading Art History journals and refereed collective volumes. She has extended her teaching experience by organizing and coordinating Postgraduate courses at CSIC and Universidad Internacional Menéndez Pelayo, and by giving seminars, invited talks, and lectures within the Postgraduates programmes at UAB (M.A.), Universidad de Alcalá de Henares (Título Propio), UIMP (Summer Course Leer Objetos, Materializar Textos), UCM, and CSIC.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: **Derecho**
Nombre: CASTILLO PARRILLA, JOSE ANTONIO
Referencia: RYC2021-031430-I
Correo Electrónico: ktantdigital@gmail.com
Título: Legal status of new forms of digital wealth

Resumen de la Memoria:

My main line of research focuses on the study of the legal status of new forms of digital wealth. These new forms of digital wealth are mainly computer programs, web pages, digital content, artificial intelligence tools (algorithms for big data analysis) and data (both personal and non-personal).

I have developed this line of research in two stages: pre-doctoral, focused on the formulation of a legal theory of digital goods applied to computer programs, websites, and digital contents; and post-doctoral, focused on the adaptation of this theory to data understood as an economic asset that is the object of legal traffic through onerous data exchange contracts.

The following milestones of the first phase of the career should be highlighted:
- the formulation of a legal concept of digital goods, which understands digital goods as all those meta-legal entities that are individualizable, static, and have economic value (and therefore legal relevance), provided that they have "informaticity" or a computing nature. In other words, provided that they meet the above characteristics only in the digital environment;
- Criticism of the all-encompassing concept of digital content (which also covered services) in the Proposal for Directive 634/2015, proposing a distinction between digital services and digital content, as finally done in Directive 2019/770.

The following milestones of the second phase of the career should be highlighted:
- the call for attention to the need to legally regulate the reality of the economic traffic of data, both personal and non-personal, as well as data of deceased persons;
- the proposal for a restrictive understanding of the notion of 'harm' arising from the withdrawal of consent to data processing in Recital 42 in fine GDPR, with the aim of allowing a harmonious coexistence between the legal logics of data economy and data protection.
These two milestones are contrary to the position of the EDPS and the EDPB, which are discussed in the publications where I defend the above-mentioned positions.

The Ramón y Cajal contract I am applying for aims to further develop this line, developing a sort of the third stage, which will focus on the analysis of the regulations currently under discussion within the EU (Digital Services Act, Data Governance Act, Digital Market Act, AI Act, among others), and their relevance along with others already in force (GDPR or EU Directive 2019/770) in the growing activity of data exchange markets, within the EU and between the EU and third countries. This third phase of the research line has already started with the award of a Research Project of which I am Principal Researcher and which represents a strengthening of my capacity for leadership and generation of interdisciplinary working groups.

In terms of scientific contributions, not only their quantity (34, taking into account one monograph, 3 articles published in Scopus-indexed Journals) but also their impact stands out according to the available metrics (h-index of 4 in Google Scholar and 3 in Dialnet Metrics).

Mobility and internationalization are accredited with the 12 months of international stay and my participation in relevant international projects: Joint Project ALI-ELI on "Principles for a data economy" (as Advisory Committe Member), and H2020 Projects PANELFIT and HADRIAN.

Resumen del Currículum Vitae:

I hold a European PhD in Digital Law from the University of Bologna (April 2018) and a PhD
in Civil Law from the University of Granada (January 2019). Both Doctoral Theses have been awarded in two consecutive editions with the Prize for the Best Doctoral Thesis in Private Law of the Royal Academy of Jurisprudence and Legislation of Granada (2019 and 2020). The Doctoral Thesis on the proposed legal construction of digital or computer assets, the first core of my main line of research, has also received the Hinojosa Prize for works in legal sciences (2018).
My fields of research are digital law and property law, from a European, national and comparative law perspective, particularly the legal study of new forms of digital wealth. In particular, I have studied Directive 2019/770 and its implications for data transactions, the possibility of paying with one's data or the need to deal with the reality that data (both personal and non-personal) are economic assets.

I am the author of a monograph (Bienes Digitales. Una necesidad europea, Dykinson 2018) and co-director of a collective work (El Mercado Digital en la Unión Europea, Reus, 2019), both related to my main line of research. On specific aspects of this same line of research, I have published in prestigious national and international journals such as the European Review of Private Law (1 single-authored article and 1 co-authored article), the Revista Chilena de Derecho y Tecnología (1 co-authored article), La Ley Mercantil (1 single-authored article) or the Revista Aranzadi de Derecho y Nuevas Tecnologías (1 single-authored article).

I am currently Principal Researcher of the Project entitled "Data market places. Legal situation

and technological and business challenges", which is developed within the framework of the activities of the Research Excellence Unit of the UGR "SD2. Digital society: security and protection of rights", to which I belong. I am also part of the R+D+i Project funded by the Ministry of Science and Innovation entitled "Promoting fairness and transparency in online intermediation in the tourism sector in Spain", led by Professor Albiez Dohrmann.
From June 2017 to July 2019 I have been scientific coordinator of the Young Researchers Project on the European Digital Single Market Strategy and its legal-criminal and fiscal consequences funded by the University of Malaga.

I am a member of the Chair in Law and the Human Genome at the University of the Basque Country, a member of the Advisory Committee of the Project coordinated by the American Law Institute on "Principles for a Data Economy" and of the European Law Institute's Project on "Access to Digital Assets". I am also a member of the Law and the Human Genome Journal and co-coordinator of the team of reviewers of the University of Bologna Law Review, and external evaluator of the journals "Law and Health" and "Privacy and Digital Law". I am part of the European Law Institute, where I have participated in two projects: Principles for a data economy (jointly with the American Law Institute) and Access to digital assets, both from 2018 to 2021. I have been invited to participate in H2020 Projects PANELFIT and HADRIAN.

Área Temática:	**Derecho**
Nombre:	DALLI ALMIÑANA, MARIA
Referencia:	RYC2021-033695-I
Correo Electrónico:	maria.a.dalli@uv.es
Título:	Economic, social and cultural rights: protection, enforceability and obligations from a multilevel perspective

Resumen de la Memoria:

My research is focused on the protection, enforceability and obligations that result from the recognition of fundamental and social rights, particularly with regards to the protection of vulnerable groups and those living in social exclusion. I incorporate the interdisciplinary, comparative, and multilevel perspectives to identify any incompatibilities between the distinct regulation levels in place (international, national, local) and to explore their interactions. I have mainly conducted research on the following two rights recognized in the Spanish Constitution and in international human rights treaties ratified by Spain: the right to health and the right to social protection (focused on the groups of the old people and of people with disabilities). After finishing my PhD in Law on the study and evaluation of the Royal Decree-Law 16/2021, 20th April, that restricted access to free-of-charge healthcare to some population groups living in Spain, my postdoctoral research has since then focused on the right to social protection and to long term care: first (during my first postdoctoral contract) carrying out a comparative study of the income support regulations in 4 European countries and how they relate to the EU minimum social floor; and second (during my ongoing second postdoctoral contract) evaluating the current Spanish regulations and obligations with regards to the protection of the old people and of people with disabilities needing long term care services.

Resumen del Currículum Vitae:

I have presented my research on the right to health, social rights, the entitlement to rights and the protection systems at 36 international and national conferences. I was an invited speaker at 24 of those conferences. For example, I have been a speaker in Edinburgh, Dublin, London, Groningen and Oslo, as well as in Madrid, Cádiz, Castellón, Girona and Zaragoza within Spain. I have 17 published research articles, 11 chapters and 1 book. My articles have been published in indexed peer-reviewed journals, including international journals such as: the European Journal of Social Security in 2020 (SCOPUS Q2); the Journal of Social Welfare and Family Law in 2019 (SCOPUS Q2); and the International Journal on Minority and Group Rights in 2018 (SCOPUS Q2). I have a book published by Tirant lo Blanch and I also have a large number of articles in national journals. I have conducted postdoctoral and predoctoral research stays at foreign universities for a total period of 28 months, at the University of Edinburgh, the University College of London and the University of Groningen. Throughout my academic and research training I have been awarded grants from public institutions, including my two postdoctoral contracts (the one from the Ministry of Science and Innovation as Juan de la Cierva Incorporación 2019; and the one from the Generalitat Valenciana and the European Social Fund as APOSTD 2018). During my postdoctoral career I have had supervising, examining and teaching roles at doctorate, master and undergraduate levels. I am part of the Editorial Board of the Age of Human Rights Journal and I have been a peer reviewer for many international and national journals. My doctoral thesis on the universal entitlement to the right to health was successfully defended on the 5th of June 2017 with distinctions of European or International Doctorate and Cum Laude. I also obtained the extraordinary prizes from the University of Valencia for the qualifications during my undergraduate Law Degree (2012) and the Official Master s in Human Rights, Democracy and International Justice (2013).

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Área Temática: Derecho
Nombre: JIMENEZ GARCIA-CARRIAZO, MARIA DE LOS ANGELES
Referencia: RYC2021-032348-I
Correo Electrónico: angeles.jgcarriazo@gmail.com
Título: Legal analysis of the uses of the sea, an ocean governance perspective

Resumen de la Memoria:

Ángeles Jiménez has held The Nippon Foundation Lectureship on Global Ocean Governance at the IMO International Maritime Law Institute since 1 October 2018. IMLI is an educational international organization established in Malta in 1988 under the auspices of the International Maritime Organization (IMO). She holds a nominative appointment by the Secretary-General of the IMO as an employee of an international organization for research and lecturing functions which is funded by The Nippon Foundation.

The mission of IMLI is to enhance capacity-building in all States, particularly developing States, to contribute to the fulfilment of the IMO objectives thereby promoting safe, secure, environmentally sound, efficient, and sustainable shipping through cooperation. Within the organization, she conducts research on how the law can contribute to the sustainable use of the oceans. She focuses on the interplay between the law of the sea, climate change law and the protection of the marine environment. She also teaches public international law, law of the sea, marine environmental law, ocean governance, and maritime legislation drafting. In relation to the latter, she has worked closely with over 30 students who prepared under her supervision dissertations / research projects and maritime legislation drafting projects in the abovementioned areas.

Before joining IMLI, Ángeles Jiménez conducted research on the extension of the continental shelf beyond 200 nautical miles. The purpose of her research was to analyse the grounds on which States base their claims for extended continental shelves, and accordingly, determine whether a valid interpretation of the mechanism established by UNCLOS has been made. Her research on the topic has continued and expanded to related areas. She has published several chapters in books and articles in peer-reviewed journals in different areas of the law of the sea, namely, the continental shelf, delimitation of maritime boundaries, peaceful settlement of disputes, underwater cultural heritage, common heritage of mankind as well as migration issues.

Resumen del Currículum Vitae:

Ángeles Jiménez is currently The Nippon Foundation Lecturer on Global Ocean Governance at the IMO International Maritime Law Institute.

In her capacity as lecturer, she is involved in the teaching of numerous subjects in the field of international maritime law, including, law of the sea, marine environmental law and maritime legislation drafting. In relation to the latter, she has worked closely with over 30 students who prepared under her supervision dissertations and maritime legislation drafting projects in the abovementioned areas.

Since she joined the Institute, she was entrusted with the mission of revising the syllabi to focus on ocean governance issues. In this regard, she has conducted research on how the law can contribute to the sustainable use of the oceans in order to modify the approach of all lectures, to focus not only on the substance of individual topics, but also on their relationship with global ocean governance. In this sense, she designed introductory lectures to lay the foundations for more specific topics. In her research she examined the interrelation between the Sustainable Development Goals (SDGs), especially SDG 14 and its 8 targets, and global ocean governance. In her discussions, she emphasized that achieving ocean sustainability generates co-benefits which contribute towards the realization of each of the other 161 SDG targets when ocean targets are met. In linking these discussions to other lectures within the subject matter, she was able to demonstrate that attaining sustainable benefits from the world s oceans requires reducing pollution, restoring ecosystems, minimizing ocean acidification, ending overfishing, conserving coastal and marine areas, reforming fisheries subsidies, and increasing benefits to Small Island Developing States.

During her Ph.D. studies, she conducted research on the extension of the continental shelf. The purpose of her research was to analyse the grounds on which States base their claims for extended continental shelves, and accordingly, determine whether a valid interpretation of the mechanism established by UNCLOS has been made. During her studies, she was granted a scholarship from the Doctoral School to do research at the Centre de Droit Maritime et Océanique of the Université de Nantes (France) and another scholarship from the Ministry of Science and Technology of Taiwan to pursue a research sojourn at the National Taiwan Ocean University. At the end of her research, she submitted a thesis entitled The Extension of the Continental Shelf beyond 200 nautical miles within the Framework of the United Nations Convention on the Law of the Sea -Special Reference to Spain . In 2017 she was awarded the Ph.D. Degree (summa cum laude). A monograph based on her thesis was published by Dykinson in 2018. Her research on the topic has continued and expanded to related areas. She has published several chapters in books and articles in peer-reviewed journals in different areas of the law of the sea, namely, delimitation of maritime boundaries, peaceful settlement of disputes, underwater cultural heritage, common heritage of mankind as well as migration issues.

Área Temática: Derecho
Nombre: CABANAS VEIGA, MANUEL
Referencia: RYC2021-032087-I
Correo Electrónico: manu_cabanas@hotmail.com
Título: La gestión territorial del Estado social y los derechos sociales en el Estado de excepcionalidad español

Resumen de la Memoria:

En los últimos cinco años de mi carrera he desarrollado cuatro líneas de investigación:

- Estado del bienestar y derechos sociales: Es la línea principal de toda mi trayectoria académica, ya que ha sido con la que he iniciado mi doctorado y la que siempre he mantenido presente, en mayor o menor medida, en todas mis publicaciones. En ella destaco la relevancia del Estado social y de los derechos sociales como los instrumentos imprescindibles para garantizar la Libertad y la Igualdad de todos los ciudadanos y ciudadanas en el Estado constitucional moderno. Así, relacionado con este proyecto, he publicado un libro, dos capítulos de libro y dos artículos. También he dado numerosas charlas sobre el tema, tanto en México como en España.

- Federalismo Social: Es una línea de investigación paralela a la anterior. En él, se busca captar la esencia del Estado social y como la misma se plasma en los diferentes modelos territoriales en los que se inserta. Por tanto, se trata de analizar cómo la distribución de la riqueza entre las diferentes instancias territoriales de cada Estado influye en la política de cada país. En relación a esta línea temática se han publicado cuatro artículos relacionados con este tema y un libro.

- Democracia, mecanismos de control del poder y partidos políticos: Esta línea de investigación se analiza la importancia de los mecanismos que permiten monitorear el desempeño del poder para evitar derivas autoritarias peligrosas para la el sistema democrático. Por tanto, se estudian los partidos políticos y su influencia en la política actual en toda su amplitud, tanto desde su democracia interna hasta su financiación o la influencia que los grupos de presión ejercen sobre ellos. Y es que el funcionamiento de los partidos políticos determina la efectividad de los derechos sociales. En relación con esta temática se han publicado cinco artículos y se han impartido tres ponencias en foros de diversa nacionalidad.

- Derecho de excepción: Es una continuación de la línea de investigación anterior. Analiza los mecanismos que existen en los distintos ordenamientos jurídicos para evitar la concentración de poderes o la restricción desproporcionada de derechos durante el uso de los mecanismos de excepcionalidad, cuyo objeto es gestionar situaciones peligrosas para la vida del Estado o la de sus ciudadanos con el objetivo de garantizar que, tras la finalización de dichas emergencias, se mantenga todavía vigente el Estado de Derecho. Se ha publicado un artículo y dos capítulos de libro relacionada con esta línea de investigación y se han impartido 10 charlas relacionadas con este tema, en diferentes foros, tanto nacionales como internacionales.

Todo ello pone de manifiesto que toda su producción está publicada en distintos formatos y trata de diversos temas, lo que demuestra tu capacidad para afrontar diversos retos del Derecho constitucional y adoptar diversas estrategias de divulgación de resultados. También evidencia la capacidad del aspirante para adaptar sus líneas de investigación a las necesidades sociales y políticas que la coyuntura exija, evidenciando su capacidad de resiliencia investigadora, así como sus dotes para la multidisciplinariedad. Y aunque puede abarcar nuevas líneas de investigación, siempre mantiene una conexión coherente con las iniciales y una crítica objetiva y permanente.

Resumen del Currículum Vitae:

Doctor en Derecho Constitucional por la Universidad de A Coruña con Sobresaliente CUM LAUDE y mención internacional.

Su Tesis fue galardonada con el Premio Extraordinario de Doctorado en 2019 bajo la dirección del Catedrático de Derecho Constitucional del Departamento de Derecho Público, el Profesor Dr. Javier Ruipérez Alamillo.

Es becario posdoctoral en el Instituto de Investigaciones Jurídicas de la UNAM, bajo la asesoría del Dr. Daniel Armando Barceló Rojas.

Acreditado como Contratado Doctor, Profesor de Universidad Privada y Ayudante Doctor por la Axencia para a Calidade do Sistema Universitario de Galicia.

Investigador colaborador del Proyecto de Investigación que lleva por título El Estatus jurídico-político de la oposición política en las democracias representativas (PID2020-117154GA-I00), financiado por el Ministerio de Ciencia e Innovación (convocatoria de Proyectos I+D +I de 2020).

Fue profesor de la facultad de Derecho de la UNIR y Director de Trabajos Fin de Grado en el Grado de Ciencias Políticas y Gestión Pública y Director de Trabajos Fin de Máster en el Máster para el Ejercicio de la Abogacía.

Por otro lado, realizó una estancia de investigación predoctoral en el 2015, con una beca de la Fundación INDITEX, en la Universidad Autónoma del Estado de México (Toluca, México).

Y fue beneficiario de una Bolsa de Investigación de la Diputación de A Coruña el año 2013 al 2014.

Cuenta a sus espaldas con la publicación de dos (2) monografías.

También ha publicado diversos capítulos de libro y artículos de revista, en volúmenes de diversa nacionalidad.

Además, ha impartido numerosas ponencias y seminarios en diversos foros, tanto nacionales como internacionales.

Sus principales líneas de investigación son el Estado social y los derechos sociales; el Federalismo social, Democracia, partidos políticos y mecanismos de control del poder; y el Derecho de excepcionalidad.

Área Temática:	**Economía**
Nombre:	FANELLI , PABLO SEBASTIAN
Referencia:	RYC2021-034948-I
Correo Electrónico:	fanelli@cemfi.es
Título:	International Economics

Resumen de la Memoria:

I have two main research agendas: one in macroeconomics and another one in international trade. My two most important papers in macroeconomics deal with policy questions of relevance in open economies: How should countries manage their exchange rates in response to capital flows? How can they use optimally the combination of tools at their disposal, e.g. monetary policy, macroprudential policies, balance sheet policies? One of the papers (joint with Ludwig Straub) has already been accepted by the Review of Economic Studies (2021) and is becoming a reference paper for the topic of foreign exchange interventions. The other paper is my job market paper. I presented it at important conferences, such as the NBER international finance and macroeconomics fall meeting and the Society for Economic Dynamics conference. It will be sent out for publication soon. Finally, I have a paper (joint with Martin-Gonzalez-Eiras) on balance-sheet recessions published in the Journal of Economic Dynamics and Control (2021).

My second research agenda is in international trade and focuses on understanding exporter dynamics. I study questions such as why are some exporters successful, and others are not? Why are exporters on average so unlikely to succeed? What are the implications of these facts for trade policy, e.g. the effect of trade liberalization? My first paper became a well-cited paper at the Journal of International Economics (2016). I have two other papers in the area. One of them is joint work with Juan Carlos Hallak and is a natural follow up to my published paper. The second one is more recent and was born out of my interaction with Eduardo Morales while I spent time at Princeton in the prestigious post-doc of the International Economic Section.

Going forward, I intend to keep working on these and closely related areas.

Resumen del Currículum Vitae:

Publications.

Fanelli, Sebastián, and Ludwig Straub. "A Theory of Foreign Exchange Interventions." The Review of Economic Studies 88, no. 6 (2021): 2857-2885.
Fanelli, Sebastián, and Martín Gonzalez-Eiras. "Resolution of financial crises." Journal of Economic Dynamics and Control 133 (2021): 104252.
Albornoz, Facundo, Sebastián Fanelli, and Juan Carlos Hallak. "Survival in export markets." Journal of International Economics 102 (2016): 262-281.
Fanelli, Pablo Sebastián. "Reglas fiscales, ciclo y volatilidad macroeconómica." Revista de Economía Política de Buenos Aires 9, 10 (2012).

Working papers.

  Export Survival with Uncertainty and Experimentation   (with Juan Carlos Hallak)
  Firm Export Dynamics in Interdependent Markets   (with Alonso Alfaro, Eduardo Morales, and Juan Manuel Castro Vincenzi)
  Monetary Policy, Capital Controls, and International Portfolios .

Fellowship, honours, and awards.

Juan de la Cierva fellowship, Spanish government (2018), Merit fellowship, Universidad de San Andres (2010), First prize Premio Investigador Joven Asociación Argentina de Economía Política (2010).

Teaching.

Topics in Macroeconomics (CEMFI, Ph.D.-Master course).

Advising activity.

María Clara Arroyo (main), Utso Pal Mustafi (main), Esteban Tisnés (main), Maximiliano San Millán (secondary), Yongkun Yin (secondary).

Discussions. Collateral-Constraint Models Ready for Macroprudential Policy Design?   by Pablo Ottonello, Diego Perez and Paolo Varraso (2021);   Q-Monetary Transmission   by Priit Jeenas and Ricardo Lagos (2020).

Refereeing activity.

AEJ: Macro, American Economic Review, Econometrica, Economica, IMF Economic Review, International Journal of Central Banking, Journal of International Economics, Journal of Monetary Economics, Quarterly Journal of Economics, Review of Economic Studies, Review of International Economics, The Economic Journal.

Seminars and Conferences.

CREI (2021), Society for Economic Dynamics (2021, 2018, 2017), European Winter Meeting of the Econometric Society (2019), RIDGE RIDGE International Macro Workshop (2019), New Economic School (2019), Bank of Spain-CEMFI workshop (2019), Princeton University, (2019), Dynamic Trade Workshop, Federal Reserve Board (2019), University of Illinois at Urbana-Champaign (2018), Rutgers University (2018), International Finance and Macroeconomics NBER Fall Meeting (2018), Federal Reserve Bank of Atlanta (2018), International Finance and Macroeconomics NBER Summer Institute (2018), Macroeconomics Across and Within Borders NBER Summer Institute (2018), Central Bank of Argentina (2018), International Capital Flows Workshop (2018), Junior Scholar Conference at the Federal Reserve Bank of Minneapolis (2017),   Foreign Exchange Market Intervention: Conventional or Unconventional Policy? , CEPR, Israel Central Bank and Swiss National Bank (2017),   Financial Volatility and Foreign Exchange Intervention , Central Bank of Peru and IADB (2017), Federal Reserve Bank of Minneapolis (2017), Instituto Interdisciplinario de Economía Política de Buenos Aires (2016), International Macro Workshop (2015), Copenhagen University (2015), Annual Meeting of the Asociación Argentina de Economía Política (2010).

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Área Temática: **Economía**
Nombre: PIAZZAI , MICHELE
Referencia: RYC2021-032325-I
Correo Electrónico: michele.piazzai@uc3m.es
Título: Categorization in Markets: Cognitive Foundations and Strategic Consequences

Resumen de la Memoria:

I am a management scientist interested in problems of organization, strategy, and decision-making. My research aims to explain how people use categorization to make better decisions in markets. To that end, my work weaves together ideas from organizational sociology, cognitive psychology, behavioral economics, and computer science. My methods are primarily quantitative, ranging from statistical to computational modeling, agent-based simulation, mathematical logic, and deep learning techniques such as neural networks. As I strongly believe in the value of interdisciplinary research, I take advantage of my unconventional background to build new connections between management scholarship and other fields of study. The peculiar blend of social and mathematical science I pursue in my projects makes my personal contributions to the discipline of management unique.

My research agenda revolves around categories as informational structures that boundedly rational agents use to sort and evaluate objects, such as products or firms in a market. My projects are both theoretical and empirical: on the theory side, I examine the most fundamental aspects of categorization processes by mobilizing insights from cognitive science and building formal models of categorization decisions based on logical and/or probabilistic approaches. I then use these models to develop empirically testable hypotheses about how categorization occurs and what consequences it has for market interactions. I test these hypotheses using big data from online music platforms, which allow me to observe not only how consumers categorize products but also which products they listen to, when, and in what sequence. I leverage this exceptionally rich information to analyze (a) the cognitive and social determinants of consumers categorization decisions, (b) the consequences of these decisions for product sampling, purchase, and evaluation, and (c) the optimal strategies of record companies as they vie for control of particular categories by reallocating their product offer within or across categorical boundaries.

This research contributes to management science because categorization has important effects on the performance and behavior of firms in a market. In addition, explaining the evolution of categories, including the emergence of new categories from existing ones, is necessary to understand how markets and industries change. At the same time, my research is relevant to management practitioners because considerable advantages accrue to predicting the evolution of categories and entering emerging categories at the right time.

Resumen del Currículum Vitae:

I am an Assistant Professor in the Department of Business Administration at Universidad Carlos III de Madrid. Before taking this position in 2020, I was Assistant Professor at the Amsterdam Business School, which is part of the Faculty of Economics and Business at the University of Amsterdam. I obtained my PhD in the Applied Logic Group at Delft University of Technology (2018) with a thesis focusing on applications of mathematical logic to organization theory. Thanks to its highly interdisciplinary character, my thesis was awarded the Cum Laude distinction, which is reserved for the top five-percent of doctoral degrees granted by the University.

My research primarily concerns formal models of cognition and decision-making in market environments. Through the use of quantitative methods, including machine learning, neural networks, agent-based modeling and simulation, modal logic, and statistics, I aim to characterize and predict the behavior of boundedly rational agents as they make inferences about products or firms. The central theme of my work is the process whereby market agents, such as consumers, make sense of complex domains by sorting products into categories. My research on this topic can be classified in two streams: first, I investigate the most fundamental aspects of categorization, drawing on cognitive theory to build mathematical models of consumers' decision-making; second, I study the consequences of consumers' categorization decisions for the structure of markets, the strategic behavior of organizations, and the sampling and purchase behavior of consumers themselves.

In my empirical projects, I like to use big data generated by consumers as they sample, review, and categorize products online. While most researchers interested in categorization processes choose to collect experimental data, asking questions to subjects in the laboratory, I prefer to observe categorization decisions as they occur in the real world, e.g., on websites where consumers tag and evaluate products like music, movies, books, and software applications. This kind of data allows me to train neural networks that replicate consumers' categorization decisions, hence obtaining information that is comparable in quality to what can be collected in the laboratory, but at a much greater scale and with the added possibility to observe longitudinal changes in patterns of decision-making.

So far, my research on categorization has been published in the Strategic Management Journal (IF: 8.641) and a follow-up project is currently under review at Organization Science. Two projects are being prepared for submission to Strategic Management Journal and the Academy of Management Journal. All of these are counted among the top five journals in my discipline. In addition to these outlets, my research has been presented at top-tier conferences in management and applied logic, including the International Conference of the Strategic Management Society; the Workshop on Logic, Language, Information, and Computation; and the Annual Meeting of the Academy of Management, where it was twice invited for publication in the Best Papers Proceedings.

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Área Temática: **Economía**
Nombre: GROEGER , ANDRE
Referencia: RYC2021-033208-I
Correo Electrónico: andre.groeger@uab.es
Título: Applied Microeconomics of Development, Migration, and Political Economy

Resumen de la Memoria:

My research agenda can be best categorized into three different lines of research, which I plan to pursue in the next couple of years: (1) The Economics of Migration, (2) The Political Economy of Violent Conflict, and (3) Rural Development and Structural Change. My work often combines innovative micro data with geospatial or environmental shocks, the latter partly obtained through remote sensing and/or machine learning approaches. My work has been published in prestigious journals such as PNAS, AEJ: Applied, JDE, and JIE.

My main scientific achievements are reflected in the following publications. In Groeger and Zylberberg (2016) we show how that domestic labor migration was the major shock coping in for rural household affected by a catastrophic typhoon in the rural areas of Vietnam. This article has been published in the AEJ: Applied and has become widely cited in economics with around 140 citations . In this project, I was responsible for all major production steps including research design, primary data collection, data construction, analysis, and writing of the manuscript.

In Boehme, Groeger and Stoehr (2020) we show how online search intensities in migrant origin countries can be used to predict bilateral migration flows and to measure migration intentions globally. This approach holds promise for alleviating the general lack of migration data and suggests this data to be useful for policy predictions. The article was published in the JDE and has already received 50 citations from different disciplines. In this project, I was Co-PI with T. Stoehr and responsible for all major production steps. In ongoing work, which has received funding from EU Horizon 2020 program, we implement this approach for migration forecasting.

In Groeger (2021), I analyzes the effects of exogenous income shocks on household migration decisions, relying on migrant household panel data partly collected by me. The main novelty of this article, which was published in the JIE, is to provide first evidence that households optimize domestic and international migration decisions strategically to maximize household welfare.

In Mueller et al. (2021), we combine computer vision techniques with satellite imagery to measure building destruction during the civil war in Syria. Our classification model is capable of generating objective destruction panel data from war zones. The article was published in PNAS and has received widespread media attention. In this project, I was Co-PI with H. Mueller and responsible for all major production steps. As a result of this publication, I have started a collaboration with the research department of the United Nations Satellite Centre (UNOSAT) to deploy our approach to the benefit of UN humanitarian operations.

Resumen del Currículum Vitae:

I received my doctoral degree from Goethe University Frankfurt (12/2016), one of the top departments in Germany and ranked among the top 30 in Europe (RePEc; 01/22). Since I joined Universitat Autonoma de Barcelona in 2017, I have expanded my research agenda across a range of topics at the frontier between the fields of development, environmental, and labor economics.

My research agenda can be best categorized into three different lines of research, which I plan to pursue in the next couple of years: (1) The Economics of Migration, (2) The Political Economy of Violent Conflict, and (3) Rural Development and Structural Change. My work often combines innovative micro data with geospatial or environmental shocks, the latter partly obtained through remote sensing and/or machine learning approaches. My work has been published in prestigious journals such as PNAS, AEJ: Applied, JDE, and JIE.
I have been regularly invited to present my work at top academic international conferences, and economics departments. I have also provided referee services to more than 30 top academic journals (e.g., PNAS, EJ, AEJ: Macro) and research institutions (e.g., ERC and AEI). I have received several research awards for my work, e.g., the Young Researcher Prize (1st) for the best doctoral thesis in development economics from the Research Group on Development Economics of the German Economic Association.

My track-record over the last years in terms of publications, citations, and grants clearly documents a strong upward trend in my research trajectory and a high impact: according to Google Scholar, my work has been cited 196 times (02/22). My research projects have received funding totaling 65,000 EUR (as PI or Co-PI) and I have participated in collaborative projects receiving more than 5.6m EUR in grants (as researcher or task leader). This funding originated from a wide variety of sources including international institutions such as the World Bank and the European Commission, as well as national institutions, incl. the Ministry of Economy and Competitiveness (Spain), Ministry of Science and Innovation (Spain), or   La Caixa   Research Foundation (Spain).

Área Temática: **Economía**
Nombre: GHADERI , MOHAMMAD
Referencia: RYC2021-034981-I
Correo Electrónico: mohammad.ghaderi@upf.edu
Título: Choices, Preferences, and Decisions

Resumen de la Memoria:

My research is at the intersection of Operations Research and Quantitative Marketing, particularly developing data-driven decision frameworks and choice models. My approach is holistic and inclusive, bringing together, synthesizing and contrasting perspectives from different disciplines to address the fundamental questions of how decisions are made and how they could possibly be improved. My theoretical contributions are primarily in decision analysis and decision support systems literatures in operations research, preference modeling in artificial intelligence, nonparametric choice modeling and conjoint analysis in marketing, and decision theory at the intersection of economics and operations research. My methodological contributions are in convex optimization, robust and nonparametric statistics, computational experiments, and simulation techniques. The frameworks that I develop rely heavily on behavioral economics, economic theory, machine learning, and mathematical programming. My objective is to develop a unified theory of human decisions with prescriptive appeals, on the one hand, to aid individuals and policy-makers decisions, and descriptive capabilities to enhance our understanding of the decisions made by humans and perhaps machines.

My current publications include seven paper in the first quartile and/or ABS 4 ranked journals, demonstrate the remarkable advantages of the interdisciplinary approach to address the core challenges concerning choice predictions and decision supports. The rigorous mathematical programming and stochastic modeling languages in these contributions have enabled a coherent treatment of the previously scattered insights in order to study preferences from multiple points of view simultaneously. Thus, they address challenges ranging from capturing complex and potentially non-monotonic preferences with a limited prior knowledge, data-driven detection of contingency patterns in human judgments, a deductive-inductive approach for policy decisions in uncertain and complex environments, and data augmentation techniques for making robust inferences with limited data. Some other contributions have focused on applications such as logo design and questions pertinent to firms collaboration strategy with competitors. The above contributions, even though recent, have prompted vibrant discussions in the community and motivated various additional works which I had the opportunity to act as a reviewer for more than thirty of them in the past three years.

My other activities include coordinating the Operations and Marketing Seminar Series at UPF; invited speaker in the Erasmus School of Economics, the International Conference on Multiple Criteria Decision Making, the European Law Students' Association summer, European Doctoral Association in Management & Business Administration, and University of Cologne. I have acted as a reviewer for more than twelve journals, with continuous contributions to those listed in my resume, e.g., more than 15 reviews for EJOR; Organizing Committee of the 83rd EURO Working Group meeting on Multiple Criteria Decision Aiding; supervising three graduate and five undergraduate theses. I am a member of the INFORMS Society for Marketing Science, INFORMS Multiple Criteria Decision Making, European Working Groups on Multiple Criteria Decision Aiding the European Marketing Academy.

Resumen del Currículum Vitae:

My research is at the intersection of Operations Research and Quantitative Marketing, particularly developing data-driven decision frameworks and choice models. I take a highly interdisciplinary approach and synthesize insights from behavioral research into rigorous mathematical programming language in order to develop models constructed on the solid theoretical ground of economic theory and based on techniques from machine learning and statistical learning theory. My objective is to develop a unified theory of human decisions. My approach is holistic and inclusive, bringing together perspectives from various disciplines to develop analytical tools equipped with robust inference engines that could be tested by a variety of data. I focus on two essential qualities in constructing such frameworks.
On the one hand, I emphasize such models' descriptive and predictive abilities to enhance our understanding of the human decision-making process. On the other hand, I highlight their prescriptive appeal to help individuals and policymakers to make better decisions. I use a diverse portfolio of tools, including convex optimization and mathematical programming, econometric methods, machine learning techniques, simulations, and computational experiments. I am also interested in online consumer search, social interactions, and network theory, particularly understanding macroscale dynamics that emerge from the microscale interactions in a complex system, e.g., my single-author 2022 publication in EJOR.

My research portfolio as of today includes seven journal publications in the first quartile and highly ranked leading journals of the field. Even though published very recently, some of these articles have promoted vibrant dialogues in the field and motivated several research works. In addition to the theoretical and modeling components of my publications, the applications cover diverse areas such as healthcare (EJOR 2021), open innovation (EJOR 2022), and consumer choice (Omega 2021), which has received the Best Paper Award from this highly respected journal in management science (JCR ranked 3/83, impact factor 7.084). My current working papers, at advanced stage, primarily focus on robust discrete choice models (co-authored with M. Bielraire at EPFL, Switzerland) and data-driven identification of systematic biases in decisions made by humans or machines (co-authored with B. Donkers at Erasmus University, the Netherlands). They are targeted to Management Science (working paper [1] in my resume), Marketing Science (working paper [2]), and Operations Research (working paper [3]) journals.

My other activities include coordinating the Operations and Marketing Seminar Series at Pompeu Fabra University, invited speaker in various universities and international events such as the Erasmus School of Economics, Rotterdam, the International Conference on Multiple Criteria Decision Making, European Law Students' Association summer school on Creative Law and Business, European Doctoral Association in Management & Business Administration, University of Cologne, Organizing Committee of the EURO Working Group meeting on Multiple Criteria Decision Aiding. I have also acted as a reviewer for more than twelve journals, with continuous contributions to those listed in my resume, e.g., more than 15 reviews for EJOR. In addition, I have supervised three graduate and five undergraduate theses.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Economía**
Nombre:	FACCHINI PALMA, GABRIEL
Referencia:	RYC2021-033032-I
Correo Electrónico:	gabriel.facchini@uab.cat
Título:	Essays in health and development economics

Resumen de la Memoria:

I am a postdoctoral researcher at the Applied Economics Department (DEA) at the Universidad Autónoma de Barcelona (UAB). I received my PhD in Economics from the European University Institute (EUI) in 2017 under the supervision of Andrea Ichino and Jérôme Adda.

I am an applied microeconomist interested in public economics and the economics of health and development. In my research I use different techniques to obtain causal estimates, from difference-in-difference to instrumental variables and exploiting quasi-natural experiments. My research is primarily focused on the optimal design of health care systems and the interaction of health shocks, labor markets and public policy. Recently, I started developing research agenda at the intersection of political economy and development, more specifically, on the role of migration and inter-group contact as a moderator for human beliefs and behavior.

Since obtaining my PhD, I have published three articles in top economic journals: the Journal of Public Economics, the European Economic Review, and Health Economics. I am the main corresponding author of the first two, and solo author of the latter. A fourth article (single author) is now conditionally accepted at the Journal of Economic Behavior and Organization. This last article has received two awards to best paper: the 2018 Best Paper Award for Young Researchers from the Centro Einaudi (Italy) and the 2015 Young Researcher Best Paper Award from the Italian Health Economics Association.

In 2018 I spent six months as a visiting fellow at the Institute for Social and Economic Research of the University of Essex under the supervision of Professor Sonia Bhalotra. As a result of my time there, we have a working paper together with Brazilian co-authors Aline Menezes and Rudi Rocha looking at the labor market effects of dengue outbreaks in metropolitan areas of Brazil. The findings from this work draw important parallels with the current COVID-19 pandemic and therefore are particularly relevant and timely.

I am regular participant at national and international conferences, where I usually play an active role by acting as a discussant, chairing sessions or as a member of the scientific committee. I have been a referee for the Review of Economic Studies, Economic Policy, and the European Journal of Population.

I actively participate in the activities of the department. I have been a co-organizer of our DEA Seminar series since 2018, organizing 35 departmental seminars of external speakers and 34 seminars for internal speakers. Furthermore, llast year we launched a Reading Group on Political Economy and Development (REGROUPED) with the main objective of giving PhD and Master students a space to present work in progress or recent papers in the field.

I am currently involved in two national research projects. I am part of the research team in the Oportunidades, desigualdad y bienestar (PID2019-104619RB-C43) funded by the Spanish Ministry of Science and Innovation under the direction of Professor Xavier Ramos Morilla. I am also part of the research team in the Grup de Recerca en Economia Aplicada (GEAP) (SGR2017-1301) funded by the Secretaria General de Recerca of the Generalitat de Catalunya under the direction of Professor Anna Matas.

I have supervised two master s theses and I am supervising one PhD thesis.

Resumen del Currículum Vitae:

I am a postdoctoral researcher at the Applied Economics Department at the Universitat Autónoma de Barcelona. I received my PhD in Economics from the European University Institute in 2017.

Since obtaining my PhD, I have published three articles in top economic journals: the Journal of Public Economics, the European Economic Review, and Health Economics. I am the main corresponding author of the first two, and solo author of the latter. A fourth article (single author) is now conditionally accepted at the Journal of Economic Behavior and Organization. This article has received two awards to best paper: the 2018 Best Paper Award for Young Researchers from the Centro Einaudi and the 2015 Young Researcher Best Paper Award from the Italian Health Economics Association.

In 2018 I spent six months as a visiting fellow at the Institute for Social and Economic Research of the University of Essex, under the supervision of Professor Sonia Bhalotra. As a result of my time there, we have a working paper together with co-authors Aline Menezes and Rudi Rocha looking at the labour market effects of dengue outbreaks in metropolitan areas of Brazil.

I am a regular participant at national and international conferences. Besides presenting my own work, I usually play an active role in these conferences by acting as a discussant and chairing sessions. Furthermore, I was part of the scientific committee of the 2020 meeting of the LACEA s Health Economics Network.

In addition, I actively participate in the activities of the department. I have been a co-organizer of our Departmental Seminar series since 2018, and last year we launched a Reading Group on Political Economy and Development (REGROUPED) with the main objective of giving PhD and Master

students a space to present (early) own work or recent papers in the field. I have also provided referee assistance for Economic Policy, The Review of Economic Studies and the European Journal of Population.

I have considerable teaching experience. I have taught Econometrics and Advanced Econometrics at the postgraduate level in English at the UAB, an undergraduate course in Labor Economics in Spanish at the UAB, an undergraduate course in Econometrics in English at ESADE, and I was teaching assistant of Econometrics II at the PhD level at the EUI. I have supervised eight BA theses and two MA theses, and I am currently supervising a PhD thesis.

I am part of the research team in the   Oportunidades, desigualdad y bienestar   funded by the Spanish government under the direction of Professor Xavier Ramos Morilla. I am also part of the research team in the Grup de Recerca en Economia Aplicada (GEAP) funded by the the Generalitat de Catalunya under the direction of Professor Anna Matas. I have also won a Salvador de Madariaga Doctoral Scholarship, funded by the Spanish Ministry of Education, Culture and Sports, to develop my PhD studies. During my master studies in Argentina, I was awarded the Red Mercosur 2009 Young Economist Prize to develop my research proposal on the presence of xenophobia in the labour markets of the four permanent members of the Mercosur agreement.

Prior to doing my PhD I worked for two years as a consultant for the Poverty and Gender unit for Latin America and the Caribbean of The World Bank developing the agenda of equality of opportunity in the region.

Área Temática:	**Economía**
Nombre:	CUEVAS GARCIA-DORADO, SOLEDAD
Referencia:	RYC2021-034011-I
Correo Electrónico:	soledadcuevas1@gmail.com
Título:	The economics and political economy of food and nutrition

Resumen de la Memoria:

Research focus
Having trained in health economics, my research has mainly focussed on food and nutrition economics and food policy. A specific area of focus has been around agricultural trade policy and health. As a related interest, I have published on the economics of One Health. More recently, I have started work on the economics of climate and health, specifically on carbon pricing and health, in collaboration with OECD.

Methodology
My research is highly interdisciplinary, and uses mixed-methods approaches to complex systems analysis such as value chain analysis political economy and participatory systems mapping, as well as more traditional methodologies for economic analysis.

Empirical contributions to the study of:
    Palm oil value chains and trade policy in South and South East Asia (refs 6-8 in CVA), identifying opportunities for policy coherence and assessing and the impact of palm oil trade policy on nutrition and sustainability.
    African broiler value chains (refs 2,3), identifying and modelling interlinked challenges for smallholder farmers, related to economies of scale, underutilized capacity and liquidity traps
    Inter-state food trade in India and water flows (4), making innovative use of linear optimization and gravity models
    UK food industry inter-firm dynamics and their implications for public health, (1).
Methodological contributions
    Adapting a classical political economy framework to the analysis of commodity value chains and sustainable food systems
    Creation of macro-nutritional models explicitly accounting for food processing, the innovative application of participatory systems modelling to dual commodity value chains (where vertically integrated corporate actors coexist with very small producers)
    adaptation of industrial economics and marketing theory to the analysis of food industry strategy and its public health implications
    Two book chapters on the One Health Economics (5), which considers the interactions between human, environmental and animal health.
International experience and collaborations in:
    University of London, various centres
    University of Copenhagen, department of food and resource economics (4 month stay, work on palm oil policy modelling, joint publications)
    University of Rutgers in the US (collaboration and joint publication)
    Public Health Foundation of India (PHFI) (research visit and joint publication)
    University of Durban in South Africa. Research visits, joint field work and joint publications)

Research leadership
    Lead on discrete choice experiment sub-project in South Africa, including budgeting, hiring local data collection agency, organising preliminary field work, survey design, pilot data analysis and supervision of data collection. Final analysis will be carried out on my return from maternity leave.
    Lead on the carbon pricing sub-project within Pathfinder, in collaboration with OECD.
    PI on a shortlisted grant application: Developing a policy index for food system transformation. (with University of Durban in South Africa, National Nutrition Agency in The Gambia (IMMANA Grants round 4, 2021-pending resolution; grants have been put on hold due to UK government funding cuts)
    Successful bid on a project on the costs of improved chicken welfare in UK. Animal Welfare Foundation (advisory role)

Resumen del Currículum Vitae:

Education
I have a strong background in economics and policy analysis including:
    Undergraduate degree in economics (specialization in quantitative tools)
    MSc in Health economics and policy
    PhD at London School of Hygiene and Tropical Medicine, on The economic and nutritional impacts of Palm oil trade liberalization in India . (#3 worldwide Shanghai ranking, #1 UK)

Relevant postgraduate level research experience
Participation in externally funded projects
    POSHE: Palm oil sustainability, health and economics (in parallel with PhD, contribution to value chain analysis and modelling).
    SHEFS (sustainable and healthy food systems)- Analysis of broiler chicken value chains in South Africa. Field work (stakeholder interviews), liaison with South African team, model building. Currently responsible for the health-related drivers of meat consumption project (discrete choice experiment), Analysis of UK food industry.
    Pathfinder: Responsible for the work sub-stream around carbon pricing and health, in collaboration with OECD

Research contributions:

Analysis of palm oil value chains in South and South-East Asia to identify policy options and interactions between trade and other areas of policy (PHN)

Simulation of the economic, nutritional and environmental impacts of palm oil trade policy (Food policy, SSM population health, other)

Analysis of broiler chicken value chains in South Africa and participatory system dynamics morel formulation

An analysis of inter-firm dynamics in the UK food industry and its their implications for public health policy

A study of cross-state trade flows, trade policy and embedded water flows in India

The first review of quantitative associations between economic globalization, nutrition and health

Two co-authored book chapters on One Health Economics.

Publication metrics

H-index of 5 according to google scholar (4 on Scopus, but at least one contribution is missing/not updated here), with 97 citations, 91 of which since 2019.

International experience

As part of these projects, I have gained extensive experience working internationally, in UK, Denmark, India and South Africa, including research visits, field work and direct collaborations.

Social contributions

The applied and interdisciplinary nature of my research has allowed me to carry out advocacy and collaborate with non-profit institutions. For example:

Presenting my work on palm oil at a young researchers event in the climate conference, (COP21, 2015)

Advising on the development of a campaign around food poverty in London (Medact, 2018)

Writing policy brief on trade and nutrition for GloPan (full first draft, underlying data analysis)

Writing a report on market-based solutions to childhood obesity in London, to inform the creation of a social purpose start-up accelerator, established by Big Society Capital

Contributions to the development of young researchers

Co-creation and delivery of a session on economics for interdisciplinary early career researchers in the fields of Agriculture, Nutrition and Health (ANH). (International conferences in London, Addis Ababa)

Years of experience teaching health economics and the economics of global health policy to MSc students from a diverse range of disciplinary backgrounds

Supervision of two successful MSc projects

Lecturing on food systems analysis

Área Temática: **Economía**
Nombre: DE MATTOS NASCIMENTO, DANIEL LUIZ
Referencia: RYC2021-033365-I
Correo Electrónico: dmattos@ujaen.es
Título: Tecnologías Digitales Emergentes en Sistemas de Gestión Lean para Implantar la Economía Circular en las Cadenas de Suministro Sostenibles

Resumen de la Memoria:

Personal Investigador Postdoctoral de la Universidad de Jaén (UJA) por la Junta de Andalucía con carácter temporal (2021-2023). Fue Profesor de la Universidad Federal Fluminense (UFF) desde 2017, considerando su actividad docente en los últimos dos años como profesor permanente en los programas de Máster en Sistemas de Gestión, Máster en Ensamblaje Industrial y Doctorado en Sistemas de Gestión Sostenibles. También fue el fundador y coordinador del grupo de investigación en BIM y Lean 4.0 del instituto CERTI de I+D+i, siendo Investigador Principal (IP) de tres proyectos competitivos de investigación a nivel internacional y nacional (2019-2021). Además, fue consultor de investigación del Instituto Tecgraf de la PUC-Rio con participación en cinco proyectos de naturaleza competitiva a nivel internacional y nacional, siendo en cuatro de ellos el IP (2015-2019). Vale la pena resaltar su capacidad para liderar grupos de investigación y proyectos, siendo el IP de siete proyectos e investigador participante en otros tres en los últimos seis años.

Su producción se ha centrado en tres líneas de investigación que han girado en Sistemas de Gestión Sostenibles, en Tecnologías Digitales Emergentes y en la Cadena de Suministro Lean-Agile Digital. A través de estas líneas ha publicado 22 artículos en revistas de alto impacto, tales como Journal of Cleaner Production (JCR - Q1); Production Planning and Control (JCR - Q1); Journal of Manufacturing Technology Management (JCR - Q1); IEEE Transactions on Visualization and Computer Graphics (JCR - Q1); International Journal of Production Economics (JCR - Q1) y Technological and Economic Development of Economy (JCR - Q1). La mayoría de los artículos científicos y registros de softwares abiertos se generaron a través de proyectos. Es Editor Asociado del Journal of Lean Systems y Editor Asociado del Brazilian Journal of Operations & Production Management (indexado en Emerging Sources Citation Index).

Resumen del Currículum Vitae:

Su trayectoria investigadora le han permitido registrar tres softwares de código abierto y publicar en revistas de alto impacto. Siendo 7 artículos Q1 y 7 artículos Q2 del JCR, también la mayoría de ellos publicados en 2018, 2019, 2020 y 2021, alcanzando 22 aportaciones y un índice h de 11 con 657 citas en Scopus, 51 publicaciones y índice h de 14 con 1103 citas en Google Scholar, 39 aportaciones y índice h de 10 con 547 citas en Publons/WoS. Vale la pena señalar que el 45% de los artículos publicados en la base de datos Scopus, siendo esto, 10 artículos del total de 22 artículos publicados se realizaron a través de colaboraciones internacionales con investigadores de renombre mundial en Sostenibilidad y Gestión del Impacto Climático, Walter Leal Filho (Hamburg University - Alemania). Asimismo, en Lean Management (LM) e Industria 4.0 (I4.0), Guilherme Luz Tortorella (University of Melbourne - Australia), Alberto Portioli Staudacher (Politecnico di Milano - Italia) y Rapinder S. Sawhney (The University of Tennessee - Estados Unidos). También en la integración de Cadenas de Suministro Sostenibles y Tecnologías Digitales Emergentes, Luis Rocha-Lona (Instituto Politecnico Nacional del Méjico) y José Arturo Garza-Reyes (University of Derby - Inglaterra).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: **Energía y transporte**
Nombre: REMON NUÑEZ, JAVIER
Referencia: RYC2021-033368-I
Correo Electrónico: javier_t28@hotmail.com
Título: Energy-efficient biorefinery processes to produce biofuels and value-added chemicals from biomass

Resumen de la Memoria:

Dr Javier Remón research interests fall within the scope of the valorisation of biomass, wastes and industrial by-products for the Sustainable production of biofuels, energy carriers and platform molecules. He started his research career (2011-16) at the University of Zaragoza. His predoctoral research focused on producing biofuels and value-added chemicals from lignocellulosic industrial by-products through a FPI predoctoral grant and 2 mobility grants to conduct part of his PhD (8 months) at Imperial College London (UK). He participated in 7 Research Projects (0.9M), and his PhD work resulted in 14 JCR-Q1 articles (100% first author, 36% in international cooperation, 80% within the 25% most cited and 1 highlighted as Highly Cited by the WoS), 2 book chapters, 6 proceedings, 1 Know-How Technology and 22 presentations at conferences. His thesis (Sobresaliente Cum Laude with International Doctor Mention) was awarded 3 prizes. He supervised 5 MSc theses, collaborated in teaching activities, tutored students in the Tutor-Mentor Programme, supervised 1 Industrial Internship and was the PI of 2 pedagogical research grants (1.2k). Then, he joined the Green Chemistry of Excellence (GCCE) at the University of York (UK) as a Research Associate for 2 years (2016-18). He led pioneering research addressing high-pressure, microwave-assisted hydrothermal processes to convert biomass into biofuels. He was responsible for coordinating one 4M International Project and participated in 3 (1.5 M) more (1 co-PI). He was the PI of 3 internal research projects (£6k), supervised 3 PhD research stays, 3 MSc theses and co-guided 1 PhD student. He taught several BSc courses and an energy divulgation course. This period resulted in 14 highly-cited (80% within the top 25% most cited) JCR-Q1 articles (65% in international collaboration, 70% as the first and/or corresponding author) and 9 presentations at international conferences. Subsequently, he was awarded a JdC-F (2018-2020) and a JdC-I (2020-present) at the Instituto de Caboquimica (ICB-CSIC). He leads research on sustainable strategies for biofuels and value-added chemicals production from biomass. He has participated as a team member in 5 Research Projects (470k), in 1 international project (26k) as research responsible, co-PI in 1 international project (88k) and PI in 2 national (143k) and 1 international (£4k) projects. He has obtained 2 international scholarship funds as the PI for research projects (21k). He has supervised 3 MSc and 2 BSc theses, 3 PhD projects, 5 practicum internships and is currently supervising 1 MSc and 2 PhD theses. He has participated in many divulgation activities, co-designed a dedicated escape room activity to awake scientific vocations, collaborates in teaching activities at the University of Zaragoza and is a tutor in Tutor-Mentor Programme. He also leads an international pedagogical network being the co-PI of 3 projects (2.5k). This step has featured 16 highly cited (80% within the 25% most cited and 1 highlighted as 1 of the hottest Green Chem Articles 2019) JCR-Q1 articles and 2 covers (68% first and/or corresponding author and 78% in international collaboration) and 17 conference presentations. He pictures his short-term/future research on sustainable energy production for the transport sector from waste biomass, using synergistic approaches following the UN-SDGs.

Resumen del Currículum Vitae:

Dr Javier Remón is BSc and a MSc in Chemical Engineering from the University of Zaragoza (Spain), with his BSc Thesis developed at Lappeenranta University of Technology (Finland). He gained his PhD in 2016 from the University of Zaragoza (FPI grant), conducting 8 months of PhD (2 mobility grants) at Imperial College London (UK). Then, he worked in the Green Chemistry Centre of Excellence at the University of York (UK) as a Research Associate for 2 years (2016-18). Subsequently, he joined the Instituto de Carboquímica (ICB-CSIC), first as a JdC-F (2018-20) and then as a JdC-I (2020-present). He specialises in valorising biomass and waste to produce biofuels, energy carriers and chemicals. In a very short period (2013-present), his work has featured +50 peer-reviewed publications: 45 JCR papers (100%Q1, +85%D1), 2 JCR-Q1 journal covers, 4 monographic book chapters; 6 proceedings and 1 Know-How Technology. He is the first and/or corresponding author of 80% of these publications. He has established an international network with researchers from different institutions worldwide, which has allowed him to publish +50% of his articles in international cooperation (+75 co-authors from +20 institutions). His research has had a remarkable impact in less than 9 years (H-index = 19, +215 citations in 2021). 80% of his articles are within the 25% most cited, one was highlighted as WoS highly cited (2016) and another was selected as one of the hottest Green Chemistry articles (2019). He has presented at 20 National (11 orals/9 posters) and 28 International (4 invited talks/14 orals/10 posters) conferences. This track record is supported by active participation in 22 research projects: 4 National (1M), 4 Regional (120k) and 4 International (1.7M) as TM; 1 International (120k) as RR; 1 International (4M) as WP-Co; 2 International (721k) as co-PI; 3 Internal (7k) as PI; and 2 National (143k) and 1 International (4.2k) as PI. He has participated in 2 R+D Transfer Contracts (57k), in 7 dissemination activities, co-designed an Escape Room on sustainable energy and created and taught a Biofuels pedagogical course (20h) for the Centre for Live Long Learning (UK). He lectures at high Education (450h), has tutored students in the Tutor-Mentor Program (5 courses) and supervised 1 Industrial and 5 Practicum internships. He was PI of 2 pedagogical projects (1.2k) to enhance the student learning process and currently is the co-PI of a pedagogical project (0.9k) to boost teamwork. He leads an international pedagogical network to promote biorefinery, being the co-PI of 2 grants (2.5k). He is currently co-supervising 1 MSc and 2 PhD theses. He has supervised 2 BSc and 11 MSc theses and 3 PhD-international research stays, co-guided 1 PhD student and overseen 3 PhD projects. He was a member of the University of York MSc Evaluation Panel (2016-18). He is a reviewer for +20 journals, Guest Editor of 2 Special issues for Processes (MDPI), Editorial Board Member of Current Research in Green and Sustainable Chemistry (Elsevier) and Associate Editor of Processes (MDPI) and Frontiers in Plant Science (Frontiers). He has co-organised 2 workshops and contributed to 1 WREN conference co-chairing. He is a member of the RSC, ACS, WREN and SECAT, his research has been awarded 5 distinction prizes and the ANECA has accredited him for Assistant and Associate Professorships.

Área Temática:	**Energía y transporte**
Nombre:	IBARRA MOLLA, MERCEDES
Referencia:	RYC2021-033499-I
Correo Electrónico:	mibarramolla@gmail.com
Título:	Advanced Applications of Concentrating Solar Thermal Technologies

Resumen de la Memoria:

Dr Mercedes Ibarra has been working for more than 10 years in solar thermal topics. She has built her scientific career contributing to the research in solar thermal technologies and their role in the decarbonization process. After spending several years abroad (Chile, UAE), last year she joined the Energy Engineering Department of Universidad Nacional de Educacion a Distancia (UNED).

The main line of research along her career has been the evolution of advanced applications of concentrating solar thermal technologies, both for power generation and heat applications. She aimed to the improvement of the efficiency of solar thermal technologies and the reduction of their cost for a better market application of solar thermal technologies. She has focused her work on applied research, with an understanding of industry needs and a compromise with knowledge and technology transfer. This research has been done in three branches:

- Modelling and simulation of thermal cycles, being most of the work carried out during her PhD. However, she has recently began applying that knowledge on advanced CSP power cycles.
- Optimization and modelling of intermediate temperature applications, and particularly, the integration of solar heat in industrial processes.
- Evaluation of the relationship between the techno-economic performance of CSP plants and the environment characteristics, with a focus on geographic analysis.

As a result of her intense scientific activity, Dr. Ibarra has reported a total of 29 publications, including 14 scientific articles in JCR peer-reviewed high impact international journals, and 15 contributions to conference proceedings. Her work has received a total of 520 citations, with a h index of 9 to date (Scopus), in a short period of time, which indicate the potential of the candidate. Dr. Ibarra has additional spread her research results in more than 40 international conferences. The applicant has participated in 18 projects and contracts with companies, of which she coordinated eight. The ten projects carried out with companies show her commitment to the scientific outreach towards the industry, enforcing the knowledge transfer from academia to the industry environment. She has demonstrated strong capacities to lead research projects and contracts and to manage a team of researchers, assuming critical tasks in the design, development, coordination, and scientific output delivery.

Resumen del Currículum Vitae:

Dr Mercedes Ibarra has been working for more than 10 years in solar thermal topics. She received her PhD from the Universidad Nacional de Educación a Distancia (UNED) in 2016 on co-generation systems based on organic rankine cycle and solar thermal technologies, while the experimental work was carried out at Plataforma Solar de Almería, where she was working for 5 years (2008-2014) as part of the Solar Desalination group. During that time, she contributed to several R&D projects related to intermediate temperature solar energy applications.

Then, she worked at Masdar Institute, Abu Dhabi as a research engineer for two years. She was in charge of the research and the development of solar thermal models for their performance evaluation in the region. The main challenges addressed were the adaptation of the technology models region conditions and the reduction of the computing time, so they to be integrated in the WebGIS UAE Solar Simulator.

In April 2017 she joined Fraunhofer Chile Research and its Center for Solar Technologies in Chile, where she led the Research Line Solar Thermal Technologies group (3-8 engineers), aiming to identify the energy needs of the industry, and to promote the R+I of solar thermal systems as a solution for those needs. During all that time, she worked in several contracts with industries which wanted to reduce their carbon footprint through solar thermal technologies, but also participated in the creation of the Association for Concentrated Solar Power in Chile, leading its technical committee during the year 2019 and participating and organizing outreach activities. Last but not least, she kept in contact with the international and Chilean academic network on solar energy. For example, she was part of the SERC project, which unites more than 80 scientists with the join objective to impulse and develop the solar energy. Among these collaborations, she codirected four Chilean student thesis.

In November 2020, after an eight month maternity leave, she joined UNED as postdoctoral researcher of the group Thermal Systems and Renewable Energy (STER) of the Energy Engineering Department, to work on the simulation and optimization of solar system, within the frame of research projects as ASTEP, a H2020 project where she is contributing with the daily and yearly optimization of the operation of a solar system to provide heat and cooling to two industries, and she is also collaborating in the design of the pilots.

In summary, she has participated in 18 projects and contracts with companies, and coordinated eight of them. She has published 29 journal publication, 14 are JCR indexed, and more that 40 congress communications, obtaining 520 cites and a H index of 9 (by Scopus). Her activity as a researcher has covered several topics on the energy engineering such as organic Rankine cycles, solar thermal technologies, solar desalination, simulation of solar thermal electricity plants, and application of solar thermal systems for industrial processes. She is an active supporter of solar thermal technologies and their role they may have in decarbonizing the industrial sector.

Área Temática:	**Energía y transporte**
Nombre:	SAEZ BLAZQUEZ, CRISTINA
Referencia:	RYC2021-034720-I
Correo Electrónico:	csaeb@unileon.es
Título:	Optimization and efficient management of geothermal energy systems

Resumen de la Memoria:

Dr. Cristina Sáez started her doctoral studies in the Universidad de Salamanca in 2015, under the topic Analysis and Development of new Techniques and Possibilities of using Geothermal Energy . During the predoctoral period she won a FPU contract and was research fellow at the different international institutions. At the postdoc stage, she won a position as postdoctoral researcher under the program Juan de la Cierva-Formación at the Universidad de Vigo and a competitive postdoctoral contract from the Junta de Castilla y León.

The research line is focused on the optimization of geothermal resources and can be summarized as follows:

- Part 1 predoctoral stage:

This first period is characterized by the global evaluation of a shallow geothermal system. Thus, the solicitant performs the thermal characterization of the ground in a ground source heat pump system, the analysis and quantification of the thermal conductivity parameter of the ground through different methods and procedures, from in situ measurements in the laboratory with newly developed equipment to the creation of predictive models based on geophysical prospecting campaigns. It also includes the technical evaluation of the geothermal design, constituting a great advance in the knowledge of the parameters that affect the correct operation of a shallow geothermal installation, from the working fluid to the grouting material, heat exchangers etc. Finally, this part finally involves the evaluation of district heating systems aided by geothermal energy.

Results included in the doctoral thesis in the form of scientific articles have meant a highly relevant contribution to advancing in the characterization of shallow geothermal systems, especially in relation to: (i) the thermal evaluation of the subsoil, developing; (ii) the determination of the most suitable operating conditions of a low enthalpy geothermal system; and (iii) the development of geothermal district networks with optimized schemes.

- Part 2 postdoctoral stage:

The postdoctoral period allowed progress in the same research line, contributing to: (i) the geospatial analysis of geothermal heat pump systems in Europe; (ii) the improvement of subsurface thermal characterization methodologies; and (iii) the optimization of the design parameters of district groundwater heat pumps systems. This last research line was especially influenced by the stays in international universities.

Cristina Sáez also advanced in (i) new energy sources to supply geothermal heat pumps; (ii) inclusion of new techniques in the characterization of the ground, GPR, TIR camera measurements, etc. and (iii) analysis of the potential of a new geothermal use in pig farms, the so-called slurry technology . The results of this period have significantly contributed to the knowledge of thermal processes and the inclusion of the slurry technology in farms whose energy consumption was unfeasible.

- Part 3 currently:

The position as professor in the Universidad de León and the collaboration in the TIDOP Research Group is opening up a new line of research regarding the integration of green hydrogen as an energy vector. In this sense, strong progress is being made in the development of competitive proposals in which the solicitant is actively participating.

Resumen del Currículum Vitae:

Scientific contributions & international leadership:

In 2019 she obtained her Phd with International Mention and CUM LAUDE. She holds the equivalent of a six-year research period (CNEAI) and is accredited to be Prof. Contr. Doctor since 2020. Author of more than 45 publications (31 JCR articles, 17 Q1), including 2 book chapters and 12 conference proceedings (h index = 9, Scopus). Editor of 3 Special Issues in JCR journals. Inventor of an intellectual property registry.

Her predoctoral research was awarded by relevant mentions, the "EDP University Challenge", the "TCUE Foundation" or the "Hueco Energy Starter" in recognition of her activity research in the energy field.

Researcher in 14 competitive projects: 2 H2020 (DRYADS, AVATAR), 1 COST Actions, 2 Italian, 1 international and 8 national (4,5 MEUR).

Main Researcher in a regional project of the Institution Gran Duque de Alba (ÁVILA GEOENERGIZED) (2020-2021) and postdoctoral researcher in an EXCELLENCE Project (GEO-DISTRICT 3.0, Junta de Castilla y León) (2021-2023).

Management Committee Member of International Congresses, CIPA 2019, ICSC-CITIES 2018, 2019, 2020, 2021 and national research conferences.

As postdoc researcher, she has been with the Polytechnic of Turin (11 months in 2019 and 2020), the Universidad de Vigo with a research fellow Juan de la Cierva Formación (4 months in 2021), the Universidad de Salamanca with a postdoc contract of Junta de Castilla y León (4 months in 2021), and the Universidad de León as Assistant Professor (currently). As predoc researcher, she has been research fellow at the Universidad de Salamanca with a FPU (Formación de Profesorado Universitario) Contract (2015, 4 years) and has been in the the Polytechnic of Turin (3 months in 2017) the University of Padua (2 months in 2018), and the Universidad de León (3 months in 2018).

She shares article co-authorship with foreign authors from international institutions and holds more than 12 contributions in international conferences.

Contributions to Society, training of young researchers and evaluation activities:

Researcher in 2 national project contracts (SENTINEL, FaTIMA). Main postdoc researcher in a project from the Junta de Castilla y León.

Regarding the teaching career, she holds more than 350 teaching hours in Bachelor University degrees. She has supervised 3 PhD theses (resulting in 6 JCR articles, 3 Q1) and 1/2 Master/Degree final projects. She was member of 1 Doctoral Dissertation Committees and 6 Degree Final Project Committees. She was assistant professor at the predoc period (FPU; 4 years; Universidad de Salamanca;) assistant professor as postdoc researcher (Juan de la Cierva; 4 months; Universidad de Vigo) and assistant professor (part-time contract; 4 months; Universidad de Salamanca).

Reviewer in numerous JCR International Journals and Guest Editor of 3 Special Issues.

Coordinator and supervisor of 5 Innovation Projects within the formation activities of the Excellence High School level initiative (Junta de CyL; 2013-2021).

In September 2021 she won a position as Assistant Professor (Profesor Ayudante Doctor) at the Polytechnic School of Engineering (Universidad de León). The R&D at this University is aligned with the strategy of clean energy systems and economy electrification. She also belongs to the TIDOP Research Unit since her beginning at the predoc period.

Área Temática:	**Energía y transporte**
Nombre:	GUILLEN LAMBEA, SILVIA
Referencia:	RYC2021-034265-I
Correo Electrónico:	sguillen@unizar.es
Título:	Energy efficiency in buildings

Resumen de la Memoria:

I am an industrial engineer from the University of Zaragoza (1998) and a mechanical engineer from the University of Technology of Compiegne (France, 1998). I worked for 15 years in private companies, always in Research and development teams. During this period, I published 12 patents and participated in more than 16 research projects as a project leader and worked in highly reputable private research centers such as Electrolux research center in Stockholm (six months) and Valeo R&D center in La Verrière, France (twenty months). My research work was focused on heat exchangers (evaporators, condensers, exhaust gas recirculating coolers and oil coolers).

I received my doctorate from the University of Zaragoza in July 2017 with the PhD dissertation on energy efficiency in buildings, defended under the mention of International Doctorate, obtaining Extraordinary Doctorate Award from the University of Zaragoza. I made a predoctoral three month research stay at the University of Guanajuato (Mexico).

From October 2013 up to date, I am working at the University Center of Defense as full time Professor, combining teaching and researching tasks. I am developing my research within the Research Group of Thermal Engineering and Energy Systems (GITSE) from Zaragoza University, which is a Reference Research Group (Ref. T55_20R) since 2008. I have participated in 3 research projects (528m) from the National research program, 5 research projects (26m) from competitive calls and in 2 R+D transfer contracts (5m). I am passionate about research projects aimed at developing and implementing actions to mitigate climate change and minimize environmental impact. In my case, I participate in actions focused on efficient energy management and new models of clean energy production.

My main research line focus on energy efficiency in buildings, the lines of research included are the following:
- Reduction of the energy demand of buildings taking into account the constructive implications that affect their energy performance, such as, among others, orientation, design, envelope and permeability.
- Reduction of the energy consumption of buildings, acting on air conditioning equipment, ventilation and heat recovery. It also includes the integration of new, cleaner and more environmentally friendly forms of energy generation based on renewable energy sources.
- Evaluation of the environmental impact of each and every one of the actions investigated using tools such as life cycle assessment (LCA), with the aim of integrating and generalizing the use and knowledge of these environmental tools in any development and/or research.

I have published 10 articles in JCR journals (8 Q1 and 2 Q2), 1 book and I have participated in 7 international conferences (in two of them as invited speaker), 4 national conferences and I have also been a member of the organizing committee of the 6th International Conference on Polygeneration (ICP 2021).

In the near future, I consider of key importance the research into the integration of buildings in Smart Cities, i.e. management of the necessary energy flows by creating strategies at district and city level to optimize energy performance.

Resumen del Currículum Vitae:

I am an industrial engineer, I worked for 15 years in private companies, always in Research and development teams. During this period, I contributed in the publication of 12 patents and participated in more than 16 research projects as project leader. I was the principal Investigator in one project from competitive calls (110m). I worked in highly reputable private research centers such as Electrolux research center in Stockholm (six months) and Valeo R&D center in La Verrière, France (twenty months). My research work was focused on heat exchangers (evaporators, condensers, exhaust gas recirculating coolers and oil coolers). In addition to developing my scientific interests, this period in which I worked as a project manager enabled me to learn to work with multinational and multifunctional teams and developed my leadership skills. It also allowed me to work in an international environment as clients were spread all over the world, such as PSA (France), Ford (England), Toyota (Belgium), Nast (China). I consider that I contributed to the development and improvement of a product, the EGRC, which led to a reduction in the polluting emissions of diesel vehicles (European norms from EURO3 to EURO6).

From October 2013 up to date, I am full time professor at the University Center of Defense in Bachelor's Degree in Industrial Organizational Engineering, where I have taught to date more than 1700 hours. I have directed 15 Final Degree Projects in the CUD and codirected 1 project in the University of Zaragoza. I m jury Member of Final Degree Projects, I have evaluated more than 40 student s projects. I am combining my teaching task with my research within the Research Group of Thermal Engineering and Energy Systems (GITSE) from University of Zaragoza, which is a Reference Research Group (Ref. T55_20R) since 2008.

I received my doctorate from the University of Zaragoza in July 2017 with the PhD dissertation on energy efficiency in buildings, defended under the mention of International Doctorate, obtaining Extraordinary Doctorate Award from the University of Zaragoza. I made a predoctoral three-month research stay at the University of Guanajuato (Mexico).

I have obtained the accreditation of professor Contratado doctor by ANECA and two six-year period of research from 2002 to 2007 and for the years 2009-2010-2011-2014-2015-2016 granted by the ACPUA.

Currently, my main research line is focus on energy efficiency in buildings. I have published 8 high-impact journal papers (Q1), 2 impact journal papers (Q2) and 1 book. I have received a total of 133 citations according Web of Science and 157 according to Scopus. The results of my research has been presented in 7 international conferences in two of them as invited speaker and in 4 national conferences. I have participated as Organizing Committee Member on the 6th International Conference on Polygeneration (ICP 2021) held virtually in October 2021 (more than 200 participants from more than 30 countries on 5 continents).

I have participated in 3 research projects (528m) from the National research program, 5 research projects (26m) from competitive calls and in 2 R+D transfer contracts (5m).

I really like science divulgation activities, I have participated during the last years in the 11F initiative around the international day of women and girls in science in activities and talks to visualize the work of women and help to create close feminine referents among the youngest.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	**Energía y transporte**
Nombre:	SABATO , ANTONIO GIANFRANCO
Referencia:	RYC2021-034470-I
Correo Electrónico:	antoniogianfrancosabato@gmail.com
Título:	Next generation solid state energy devices

Resumen de la Memoria:

My research path is focused on solid state devices for energy production and storage. I dedicated my efforts on research and development of materials, manufacturing techniques, design and testing of whole devices and systems at laboratory and industrial levels.

I applied my experience on advanced ceramics to Solid Oxide Cells (SOCs) and All Solid State Lithium Batteries (ASSLBs). These are both considered strategic technologies for the future decarbonisation of our society.

My interdisciplinary background and my pioneering attitude, generated the project 3D-PRESS (MSCA-IF), where I am integrating my knowledge on glasses and ceramics to ASSLBs manufacturing, thus opening my research activity to a key topic in the energy storage scenario. In this project I am exploring the application of 3D printing techniques to glass-based solid state electrolytes for ASSLBs. This represented a complete new research line, led by me, at IREC (Institut de Recerca en Energia de Catalunya).

My main research line is oriented to approaching of the next generation of solid state devices. It is based on the synergic combination of 3D printing of advanced ceramics together with investigation of innovative sintering techniques and engineering of advanced interfaces. These completely new and original approaches, interconnected together, will lead to the development of high performing solid state devices with functionalized geometries, stable interfaces and produced by ultra-fast processing technique. In this regard, the activity on Ultra-fast High temperature Sintering (UHS) was initiated by me at IREC, leading to the building of a completely new experimental apparatus that will lead to new possibilities in terms of processing of solid state devices at IREC.

During my previous experience as PhD and as post-doc researcher at Politecnico di Torino (PoliTO), I focused on advanced glass sealants and ceramics coatings for SOCs stacks. I had the possibility to expand my research from the base laboratory investigations of these materials, to the testing in real operating conditions in SOCs commercial stacks and to the up-scaling of the processing techniques on real dimension components. This also thanks to my involvement in the EU funded project GrInHy, where I worked in tight contact with Sunfire GmbH, the main industrial player in the field of solid oxide electrolysers. During this period at PoliTO, I launched the new research line on electrophoretic deposition of ceramics for SOCs, that resulted in many significant scientific outputs in the following years and opened the door to future projects for my former group.

Concerning SOCs technology, my interest was not limited to my period at PoliTO and my activity continued at my current institution (IREC). Here I am co-leading the development of cells and interconnects for SOCs stacks in collaboration with Spanish industrial organizations (AMES and FAE) with the main objective to build the first SOCs stack prototype based on proprietary technologies.

My strong interconnection with an international network, including industrial partners, is allowing me to act as catalyst for the formation of new collaborations and the creation of joint proposals with various institutions. Thus opening new possibilities for further developing of SOCs and ASSLBs and facing the future energy-related challenges of our society.

Resumen del Currículum Vitae:

I successfully obtained my PhD in Material Science and Technology at Politecnico di Torino (PoliTO) in 2017. I continued my research activity there as post-doc for two years (EU funded project GrInHy #700300). After one year in the industry (at Glenair S.p.a), as process engineer and department supervisor, I moved to Catalunia Institute for Energy Research (IREC) where I am acting as principal investigator in a Marie Curie individual fellowship (3D-PRESS, H2020-MSCA-IF #841937).

My career is dedicated to the study of solid state energy production and conversion technologies: Solid Oxide Cells (SOCs) and All Solid State Lithium Batteries (ASSLBs).

My studies started with advanced ceramic materials and components for SOCs applications, during my PhD and during the first two years as post-doc at Politecnico di Torino. Here I developed a deep knowledge of glass and ceramic science and technology applied to SOCs devices. I was continuously expanding my own horizon connecting the experience gained on these materials to innovative processing techniques (such as electrophoretic deposition or 3D printing).

Thanks to this interdisciplinary view I am currently acting as Principal Investigator in the 3D-PRESS project. In 3D-PRESS I am pioneering the application of 3D printing techniques to solid state electrolytes for lithium batteries, a cutting edge approach in the field of ASSLBs.

I am co-author of more than 25 publications (400+ citations and 13+ h-index) in high level peer-reviewed journals (i.e. J. Power Sources or J. Eur. Ceram. Soc.). This in addition to my participation to different prestigious international conference (i.e. EMRS, ECERS, ICACC, ICC), including one invited talk. Furthermore, I always participated to the dissemination towards a non-scientific audience through the use of social networks and the participation to dedicated events.

I also acted as mentor for 3 PhD students and 9 master s students. Many of them are now young researchers in the field of energy production and storage in both academy and industry.

During my career I always worked to build my own international network of collaborations with prestigious institutions and recognized scientists especially thanks to my secondments abroad (some of them founded by competitive calls such as KMM-VIN, ESTEEM2 or the MSCA-IF itself). My international dimension and my tendency to approach unexplored fields, led to the opening of complete new research lines in my hosting groups: electrophoretic deposition at PoliTO and Ultra-fast High temperature Sintering (UHS) at IREC, both stimulated by international collaborations led by me.

I had the opportunity to work in contact with the two most important European industrial leaders in the field of SOC technology: Sunfire GmbH (DE) and Solid Power S.p.a (IT/CH). I am also collaborating with consolidated industrial Spanish organizations (AMES and FAE) to build proprietary SOCs components for green hydrogen generation.

My research is strongly product-oriented, thus bridging the gap between academic and industrial worlds. This, in addition to my transversal background in SOCs and ASSLBs, set the stage for my role as young leader for the future research on these key topics.

Área Temática:	**Energía y transporte**
Nombre:	LARRAÑETA GOMEZ-CAMINERO, MIGUEL
Referencia:	RYC2021-032300-I
Correo Electrónico:	mlarraneta@gter.es
Título:	Solar resource assessment and modelling of solar harnessing systems

Resumen de la Memoria:

I began my research activity maintaining and upgrading a meteorological station. I developed a tool to calibrate the pyrheliometers and pyranometers of the meteorological station that overtime have brought several transfer contacts to my research group (GTER) since 3 solar plants in operation (Arenales solar, Andasol, Soleval) periodically request the calibration of their radiometers. In the following years, my main activity was focused on the solar resource assessment at the feasibility stage of CSP projects, but I also started working on optics and modelling solar plants components. Once plants began to operate, I then performed operational resource assessment activities in several solar plants both CSP and PV visiting the solar plants to monitor and control their solar radiation measurements. In the next stage of my career I shifted to an emphasis into R&D. Departing from a demand of Andasol solar plant for 1-day ahead solar radiation forecasts at high resolution. I started researching on synthetically downscale solar radiation from 1-hour to 1-minute. I eventually developed a forecast tool that has been used by several solar plants. I became an expert on the synthetic generation of solar data. I was then invited to be a member of the International Energy Agency Solar resource for high penetration and large-scale applications task XVI. At that time, I was still reporting solar resource assessments for solar plants and found that the common approach to long-term forecasting through the TMY was becoming obsolete. I then immersed myself more deeply in the synthetic generation of plausible solar years (PSYs). I have developed a tool for the synthetic generation of PSYs that has great potential. It shall be upgraded to include other relevant meteorological data such as air temperature and relative humidity. The tool could be used for the long-term evaluation of climate change impact on solar radiation. A research line of great potential in the near-future. I have performed several transfer activities for private companies in the field of solar systems modelling and optics evaluation. I am the principal researcher of a project funded by the Andalusia call of R&D projects for the society challenges PAIDI2020. The project main objective is the evaluation of retrofitting CSP plants with PV integrating both fields outputs in the thermal storage system. We are developing a tool for the dynamic simulation of non-compact integrated hybrid CSP+PV systems that will place us in a leading position for the assessment of near-future solar power plants. The study of spectral irradiance is also a promising research line in which I will be working in the next years. The synthetic generation of spectral solar irradiance for any location where no spectral data is available will be also interesting for compacted hybrid solar systems. Having spectral irradiance measurements is expensive and highly complex. I will use GTER meteorological station spectral data I that I have put into service to characterize its relations to other simpler and more available meteorological data such as relative humidity, ambient temperature or even aerosol data. I would then generate non-dimensional profiles of spectral solar data and use it to generate synthetic daily profiles in locations where only simpler meteorological data sets are available.

Resumen del Currículum Vitae:

My research activity focuses on the field of solar energy (thermoelectric and photovoltaic), an area that is considered a priority of both for the Spanish Energy Policy and the European Union Agenda 2030. I have over ten years of experience actively dedicated to conducting high impact research and transferring this knowledge to industry and R&D communities. My research contributions to the field are evidenced in more than 10 articles in the last 5 years (in JCR indexed journals), a book chapter and more than one annual oral communication in the main international conferences of the sector. Notably are my publications in Solar Energy journal where I have presented several methods for the synthetic generation of solar data. In addition, my contributions to the industry are demonstrated in more than 20 knowledge transfer contracts, mainly in the evaluation, design and optimization of solar harnessing systems and specifically in solar thermal systems. Among these contracts, I have been the principal researcher of a 19500 contract in for the solar resource assessment of several solar plants in Spain and Portugal. This high scientific production is due to my active participation in research projects with public and private funding. I have participated in the preparation of several regional, national and international proposals for whose projects I am or have been a team member. Moreover, I am exerting a leadership role as principal researcher of a competitive regional project currently in execution. I am very active and connected to the international community of researchers in the field of solar energy. Especially, I am a member of the expert committee of the International Energy Agency in the program for photovoltaic energy production (IEA -PVPS task XVI) where I collaborate with the most prestigious researchers in the field and present my scientific advances every six months. Also, I have gone on research visits to some of the most prestigious international institutions such as ENEA in Italy and the Cyprus Institute in Cyprus. Finally, I regularly participate as a reviewer in the most prestigious international journals of the field. In terms of teaching experience, I am currently a part-time interim substitute professor in the Department of Energy Engineering, from which I am co-supervisor of a doctoral thesis and have co-supervised two final master's projects and more than ten final bachelor s degree projects. In 2013 I was awarded the Young European Associated Researchers Network award for the best research proposal (10,000 prize). Overall, these are high scientific achievements that show leadership and international projection in a relatively short period of time.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	**Estudios del pasado: historia y arqueología**
Nombre:	GARCIA-GRANERO FOS, JUAN JOSE
Referencia:	RYC2021-033891-I
Correo Electrónico:	jjgarciagranero@yahoo.es
Título:	Prehistoric plant food acquisition and transformation practices

Resumen de la Memoria:

I am an archaeobotanist interested in how late prehistoric societies interacted with their environment in terms of plant food acquisition and transformation practices, particularly between the Neolithic and the Bronze Age. To address these issues I analyse mainly starch grains and phytoliths. My current research focuses mostly on South Asia and the Mediterranean basin, but I have also conducted archaeobotanical research in Mongolia, Denmark, Bulgaria, the Amazon rainforest, Scandinavia, Sudan and the Arabian Peninsula. I currently collaborate in archaeological projects worldwide with researchers from multiple institutions in the UK, the USA, Greece, Bulgaria, Cyprus and India, and I co-direct the Kachchh Archaeological Project (India).

Initially, my research interests focused on the study of plant cultivation, domestication and dispersion processes in semi-arid regions and the analysis of plant food preparation and consumption practices. In parallel, throughout my career I have greatly contributed to the methodological development of my field, particularly in regards to the integration of multiple archaeological proxies and the improvement of analytical tools for the identification of plant resources in archaeological samples. Moreover, I have published seminal work regarding the analysis and interpretation of starch grains and phytoliths in the archaeological record. Lately, my interests have diversified beyond the specificities of archaeobotany as a discipline to address the value of my research to society, including the contributions of archaeology to sustainable land-use strategies in arid lands and the study of culinary practices as an expression of cultural resilience. I believe that archaeology can and should play a pivotal role in understanding and facing present-day societal challenges, including human adaptation to aridification processes, the sustainability of agrifood systems and the loss of biocultural heritage.

Resumen del Currículum Vitae:

After completing a BA in History at the University of Barcelona in 2010 (extraordinary degree prize), I obtained funding from the UCL Santander Master s Scholarship and the Obra Scocial de Caja España to undertake an MSc in Environmental Archaeology at the University College London (completed in 2011 and awarded with the Jonathan Row Prize for Work in Human Paleoecology). I then undertook a PhD at IMF-CSIC fully funded by a JAE Predoc scholarship to investigate the transition from gathering to farming in northern Gujarat (India) through the integrated analysis of starch grains, phytoliths and carpological remains. My thesis, completed cum laude at the University of Barcelona in 2015, merited a second prize (Accèssit) at the XXI Premi del Claustre de Doctors de la Universitat de Barcelona.

After working as a postdoctoral research assistant at the University Pompeu Fabra (2016) and IMF-CSIC (2016-2017) I was granted a Marie Sklodowska-Curie Individual Fellowship at the School of Archaeology, University of Oxford (2017-2019) to explore culinary practices in the Neolithic/Bronze Age Aegean through experimental and microbotanical research. In 2019 I was granted a Juan de la Cierva Incorporación Fellowship at IMF-CSIC, which I have held since February 2020. I currently collaborate in archaeological projects worldwide with researchers from multiple institutions, and I co-direct the Kachchh Archaeological Project (India).

I have published 22 articles in journals indexed in Scopus (+ two under review), four articles not indexed in Scopus, five book chapters (+ one in press) and seven scientific reports, which have been cited over 500 times according to Google Scholar (h-index: 13). Moreover, I have organised international conferences and workshops, sessions in renown conferences and multiple seminar series; I have delivered 46 oral presentations/invited talks and nine posters in international conferences; and I have delivered 14 invited seminars in international advanced schools. I am currently the PI of two research projects to conduct archaeological research in India and a co-Investigator in three international projects. In recognition of the excellence of my postdoctoral research, in 2021 I was awarded the Acreditació de Recerca de la Agència per a la Qualitat del Sistema Universitari de Catalunya (AQU), equivalent to ANECA s Evaluació́n de Profesor Contratado Doctor.

Since 2017, I have taught specialised courses to post-graduate students in the UK, Greece, India and Spain regarding the sampling, analysis and interpretation of plant remains in archaeological contexts. I have acted as mentor for research stays within the Erasmus+ programme for both under- and post-graduate students, I have supervised three undergraduate theses and I am currently supervising one master s thesis and co-supervising three PhD theses. I am also supervising a Margarita Salas postdoctoral fellow at IMF-CSIC (2022-2023).

Finally, I have conducted several public engagement activities using food as a means to disseminate archaeological research, including talks in libraries, museums and primary schools discussing the origins of modern-day culinary practices and prehistoric cooking workshops in collaboration with the Alícia Foundation. I have also recorded outreach podcasts and written science popularisation articles for National Geographic Historia.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	DOMPER LASUS, CARLOS
Referencia:	RYC2021-034912-I
Correo Electrónico:	carlosdomper82@gmail.com
Título:	Iberian dictatorships in post-1945 Europe. An interdisciplinary approach.

Resumen de la Memoria:

I am an early career historian whose academic trajectory has been characterized by internationalization, interdisciplinarity, and a good record of publications and academic events organization. Having obtained a bachelor in history and a DEA in Contemporary History at the University of Zaragoza, I began my Ph.D. in "Political Theory, Political Science and Political History" at the Libera Università Internazionale degli Studi Sociali (LUISS) "Guido Carli" (Rome) in October 2014 (LUISS competitive fellowship). After receiving my Ph.D. in June 2018 (Excellent Cum Laude, International Mention), I got a Juan de la Cierva Formación fellowship (2018 call) at the History Department of the University of Zaragoza (starting January 2020).

Having been awarded said highly competitive contracts in different countries, carried out stays as a visiting researcher in prestigious international centers for 15 months (Spain, United States, Portugal, Italy), and got a funded research project (2020-2023) have allowed me to develop my line of research during the last seven years (2014-2021). I have focused my work on overcoming the main accounts of post-WWII European history, according to which the Portuguese New State and Francoism became isolated from the main political phenomena that affected postwar Western Europe.

To do so, I have approached both regimes' post-1945 history from two intertwined perspectives. On the one hand, by focusing on historical phenomena that affected the entire continent instead of considering issues connected with both regimes' internal dynamics. On the other hand, by combining political history's capacity to interpret archival sources and integrate specific events into long-lasting phenomena with some political science tools especially adequate to delve into the state action mechanisms.

By disseminating these research outputs nationally and internationally over the last seven years, I have gained a foothold in my area of knowledge and woven a dense international network of collaborations. When it comes to the former (dissemination), I have got 29 publications (12 articles -all as a single author, 4 JCR, 4 SCOPUS-, 6 books -4 as a single author; 3 in SPI-, 10 book chapters -9 as a single author, 5 in SPI-, and 3 book reviews -1 WOS, 1 SCOPUS). In addition, I have presented my work at 17 conferences and workshops (9 internationals, 8 nationals) and organized 12 academic events (2 conferences -1 international and 1 national-, 3 seminars -all international- and 6 panels -4 international, 2 national). Moreover, I have taught 190 hours (80 hours master; 110 hours bachelor).

Regarding the latter (gaining a foothold in my area of knowledge), I have been invited to deliver 11 presentations at conferences and workshops (5 international, 6 national). I have also been a principal investigator of a research project and a team member of 7 research projects (1 international, 5 nationals, and 1 regional). Apart from this, I have been an invited professor at the University of the Republic of Uruguay, a peer-reviewer of high-impact journals and publishers as the European Contemporary History or Routledge, as well as a promoter and coordinator of a permanent seminar (University of Zaragoza/Grenoble University/Casa Velázquez). In addition, I have won a Spanish national award (AHC).

Resumen del Currículum Vitae:

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	CHAPINAL HERAS, DIEGO
Referencia:	RYC2021-031612-I
Correo Electrónico:	chapinalheras@gmail.com
Título:	Dion in Macedon: A Study of the Territory of Pieria and its Sacred City

Resumen de la Memoria:

With a PhD focused on the development of the sanctuary of Dodona, in connection to the political dynamics of the region where it is located, Epirus, my postdoctoral research aims to analyze the sacred city of Dion in Macedon with a similar approach, that is, to examine the evolution of the site linked to the territory where it is placed. My main line of research, therefore, is the study of religious centers in their geopolitical context. This research, begun with a postdoctoral fellowship at Harvard University and Complutense University of Madrid, is expected to continue, with a wider perspective, by means of the Ramón y Cajal fellowship.

Starting my PhD in 2012, I have combined my research with a variety of activities. The main ones are a second degree, in Sciences and Languages of Antiquity (Classics); the participation in more than twenty conferences, both national and international, in more than ten different countries; the publication of a monograph in English focused on Dodona with De Gruyter (2021) and several papers, chapters of books and proceedings; the organization of academic events and innovative teaching seminars; the management of an innovative teaching project; teaching several courses in the degrees of History and Archaeology, as well as two monographic courses in University of the Elder (Universidad para los Mayores); and last, but not least, the experience of research stays as PhD student in Oxford University (three months), Ioannina University (three months), Aarhus University (three months) and the postdoctoral stay at Harvard University (two years).

Resumen del Currículum Vitae:

Graduated in History (UCM, 2011) and Sciences and Languages of Antiquity (UAM, 2016), plus Master in History and Sciences of Antiquity (UAM-UCM, 2012) and Teaching Training for High School (UNED, 2018). PhD accomplished at Complutense University of Madrid (2017) with Sobresaliente Cum Laude. Two years of postdoctoral research at Harvard University (2018-2020) and currently postdoctoral researcher at Complutense University (2020-2022).

My PhD Thesis was entitled Epirus and Dodona. Paths and Communications through the Sanctuary , and supervised by Prof. Domingo Plácido Suárez and Prof. Miriam A. Valdés Guía. Published with De Gruyter in 2021 (Experiencing Dodona: The Development of the Epirote Sanctuary from Archaic to Hellenistic Times). PhD done through a four-year fellowship FPU-MECD, affiliated to the Department of Ancient History at Complutense University of Madrid (2013-2017), combining both researching and teaching activities. During that time, I was Visitor Scholar at Oxford University (United Kingdom, 2014, three months), Ioannina University (Greece, 2015, three months) and Aarhus University (Denmark, 2016, three months). I have been team member of several research projects focused on Ancient Greece.

Participation in international congresses in Spain, Greece, United States, United Kingdom, Belgium, Sweden, Hungary, Turkey and Canada, among others. Moreover, I have taken part in the organization of research events, primarily the Encounter for Young Researchers in Ancient History, UCM, held every year (2014-2017) and two editions of the Postdoctoral Seminar in Innovative Teaching, Harvard University (2018-2020). My works cover a wide variety of papers, proceedings, reviews and a book chapter, in both Spanish and English languages. Since 2013, I am member of the research group Eschatia: Delimitación Territorial y Fronteras: el Papel de la Religión en los Conflictos entre Poleis, directed by Prof. Miriam A. Valdés Guía and based at the Department of Ancient History of Complutense University of Madrid.

My teaching experience includes several courses in the degrees of History and Archaeology in 2015-2016, 2016-2017, 2020-2021 and 2022. Moreover, I have improved my teaching skills by means of two projects focused on innovative education, and I conduct as PI a new project (2021-2022). I have also taught two monographic courses at University for the Elder (Universidad para los Mayores), an institution linked to UCM, together with Prof. Manuel Parada.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	PESCINI , VALENTINA
Referencia:	RYC2021-034621-I
Correo Electrónico:	valpes87@gmail.com
Título:	Environmental Archaeology research for the historical characterisation of rural landscapes

Resumen de la Memoria:

Dr. Valentina Pescini is a Juan de la Cierva post-doctoral Environmental Archaeologist (2020) at the Catalan Institute of Classical Archaeology (ICAC) of Tarragona (Spain) and a European PhD Historical Geographer (2018) at the University of Genoa (Italy). Between 2018 and 2020 she received 1-year post-doctoral research grant at the University of Genoa and 2-months post-doctoral research grant at the Catalan Institute of Classical Archaeology (ICAC). Since 2019 she is a non-salaried teaching assistant in Archaeobotany and in Botany applied to Cultural Heritage at the University of Genoa.

Her training as a researcher and the involvement in several research projects have consolidated her professional experience in the field of Archaeology, Historical Geography and Environmental Science, with specific skill in carpology, anthracology, pedo-anthracology, dendro-anthracology, xilology and dendroecology.

The overall aim of Dr Pescini research is the study of environmental management systems and their effects on the ecosystems over time. Specifically, her scientific contribution focus on the study of agro-sylvo-pastoral management practices through the approaches and tools of Environmental Archaeology and Archaeobotany. Agro-sylvo-pastoral practices leave specific geo and bio-markers archaeologically identifiable in soils and in sedimentary archives. These markers are the archaeological legacy of historical (and pre-historical) uses of environmental resources and testify to the environmental effects that these management systems have had on the ecosystem.

Although she focuses on the study of botanical remains (in particular seeds, charcoal, wood), her research projects are grounded on a cross-disciplinary approach, linking Archaeology, Historical Geography, Historical Ecology, Ethnography, History and Environmental Sciences. Environment and the history of its management is a complex topic that must be addressed by examining all the different traces, signals and sources unearthed by different expertise. Through her interdisciplinary research she has strongly contributed to breaking the boundary between human and environmental science. The environmental effects of historical management systems are not exhausted in the past but continue to the present day. Dr Pescini has often demonstrated how the current increase in the risk of uncontrolled fire and the loss of biodiversity are due to changes in environmental management systems or to the abandonment of specific agro-sylvo-pastoral practices occurred in the last centuries. Untangling the trajectory of environmental formation and transformation processes over time contributes to a more complete understanding of current environmental changes. Consequently, during her career she has made research results work for society, particularly in the field of 1) environmental management policies improvement 2) bio-cultural heritage enhancement and 3) local gastronomic heritage re-discovery.

Resumen del Currículum Vitae:

I received my Bachelor and Master degree in Medieval Archaeology (2010) and in Archaeobotany (2013) at the University of Siena (Italy); Between 2006 and 2013 I have also been enrolled as research assistant and manager of sectors in 6 different archaeological excavations and surveys for a total of more than 14 months of work.

From 2014 to 2018 I carried out my doctoral researcher in Historical Geography at the University of Genoa (Italy). I acquired a complete and accurate training in anthracology and xilology, Historical Geography, Local and Micro-History and in Historical Ecology. During this time, I have participated in internships in different European Laboratories and Research Centres thus obtaining the European Doctorate Degree. During these internships I received training in dendro-anthracology, pedo-anthracology, dendroecology, Landscape Archaeology and Rural Archaeology; furthermore, this experience abroad allowed me to be able to work in different geographical contexts and within international research groups.

In September 2018, I started a 1-year Post-doc within the 5T.ERA (5 Terre Environmental Resource Archaeology) project at the University of Genoa.

At the beginning of 2020, I obtained a two-months post-doctoral grant from the Catalan Institute of Classical Archaeology (ICAC) of Tarragona (Spain) as researcher in charge of anthracological and dendro-anthracological analysis in the framework of TransLand project (Transported Mediterranean Landscapes: an integrated analysis of longterm land-use dynamics at both sides of the Mediterranean - PGC2018-093734-B-I00).

At the end of 2020 I was awarded with a Juan de la Cierva (formation) scholarship at the ICAC, starting as PI the Transeant project - Landscape of Transhumance: Environmental Archaeology research between the Eastern Pyrenees (Spain) and the Maritime Alps (Italy).

I participated as a researcher in charge of Anthracology in 11 competitive projects with the coordination of the botanical remains analyses of more than 13 archaeological sites distributed in the Mediterranean area. Since 2014 I actively work in the Laboratory of Environmental Archaeology and History (LASA) of the University of Genoa and since 2020 I collaborate with the Landscape Archaeology Research Group (GIAP) of the ICAC. Within these research groups I carry out the following main tasks: researcher in charge of anthracology, writing reports and applications, management of people, time and budget.

I published my research results in 34 contributions of which 3 books editorial care, 5 journal articles with peer review, 19 book chapters of which 10 with peer review, 3 abstract in conference book, 3 posters and 1 PhD thesis. I have also participated as author or co-author on 28 contributions in National and International conferences, organized and joined several communication events to non-scientific audience, including an international conference (for which I received an award CASSINI junior from the Institut français Italia) and an exhibition.

I have teaching experience at different levels: graduate, undergraduate, master degree and PhD students. I participated as invited teacher (teaching talks) in 9 national and international teaching courses and since 2019 I m a non-salaried teaching assistant in Archaeobotany and in Botany applied to Cultural Heritage at the University of Genoa.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Estudios del pasado: historia y arqueología
Nombre: MANZANARES MILEO, MARTA
Referencia: RYC2021-032106-I
Correo Electrónico: martamanzanares123@gmail.com
Título: Mujeres y azúcar en el mundo hispánico: género, raza y trabajo, 1650-1800

Resumen de la Memoria:

In 2018, I completed a PhD in History at the University of Barcelona under the supervision of María Ángeles Pérez Samper, which was awarded with Excellent Cum laude and international distinction. My doctoral research examined the confectionery trade in early modern Barcelona drawing on rich and newly discovered guild documentation. I showed the important role of recipes in the making of craft knowledge and the strategies adopted by confectioners to meet changing consumers   tastes in a major European city. This case study shifted the focus of recent scholarship away from courtly circles and Atlantic colonial trade towards a Mediterranean and non-courtly urban area, providing not only a new geographical area of study, but also a distinct scale and context in the substantial historiography on global commodities. I published these research results in my first monograph (Eumo Editoral), various book chapters in prestigious national and international publishers and peer-reviewed journals including in the impact journal 'Historical Journal'.

In 2020, I was awarded a prestigious Marie Curie Individual Fellowship with the project SWEET- The Sweetest Gender: Feminine Subjectivities and the Gendering of Sweets in Barcelona (1650-1800) at the University of Cambridge (nº 891543) funded by the European Commission s Horizon 2020. My current research explores material and symbolic intersections between sweetness and femininity, again using Barcelona as case study. Substantial scholarship on sugar plantations, slavery and colonial imperialism has shown the ways in which sugar was racialised and hierarchized in its production and consumption. However, the gender dimension has been comparatively little explored. Using a wide range of underexplored archival sources, this project expands our understanding of women s agency in sugar marketing, while addressing the tensions between cultural representations and women s experiences in the crucial period when sugar was becoming a more affordable commodity.

While historians of sugar have traditionally concentrated on the British Empire, the Spanish case presents us with a distinct context as it was characterized by the lack of a large sugar plantation economy until the very late of the eighteenth-century. An exploration of the distinct Spanish case is a crucial complement of the existing historiography and invites us to change the research focus from macro-historical analyses of export-oriented sugar plantation systems to the everyday work of thousands of women in sugar processing. To date, one article has been accepted in the impact journal 'Gender & History' and two book chapters are in preparation (and accepted) for two different collective volumes.

My aim is to expand my research by providing a comparative study of the central role of women of different class, background and occupation in the production and social use of sweets in Spain and colonial Latin America during the seventeenth and eighteenth centuries, moving from a local level analysis to a comparative and global study.

Resumen del Currículum Vitae:

Dr M. Manzanares is a scholar of the social and cultural history of food in early modern Spain, with a focus on sugar and their social and cultural implications. Since 2020, Dr. Manzanares is a Marie Sklodowska Curie Individual European Fellow with her project   The Sweetest Gender: Feminine Subjectivities and the Gendering of Sweets in Barcelona (1650-1800)   (Nº 891543) funded by the European Commission s Horizon 2020 at the Faculty of History, University of Cambridge.

Dr. Manzanares obtained a Licenciatura in History at the University of Barcelona (2009) and a European Masters in History and Culture of Food and Diet (2012) from the University of Barcelona, University François Rabelais in Tours and University of Bologna. Her MA dissertation was awarded by the Associació Catalana de Ciències de l'Alimentació (ACCA), Institut d Estudis Catalans, and was published as a journal article (2014). In 2018, she completed a PhD in History at the University of Barcelona, awarded with Excellent cum Laude and PhD International Mention, under the supervision of María de los Ángeles Pérez Samper.

Manzanares has published extensively on the cultural history of sweets and confectionery trade in early modern Spain. Her publications include 2 monographs, 4 journal articles, and 8 book chapters (of which 3 forthcoming). She has published in impact journals such as   Historical Journal   (Scimago: H-Index 39; Q1, SJR 2020: 0.34) and, forthcoming, in   Gender & History   (Scimago: H-Index 30; Q2: SJR 2020: 0.15). She authored a book review in   Gastronomica: The Journal of Critical Food Studies   (Scimago: H-Index 6). In 2021, she published her first monograph in Eumo Editorial (EUMO (SPI 95, ICEE 15)and she co-authors another book in Penguin Random House (forthcoming, 2022). She published book chapters in prestigious national publishers such as Editorial Universidad de Sevilla (Historia: SPI 11, ICEE 95), Pagès editors S.L.((Historia, SPI 43, ICEE, 8), and international publishers including Coimbra University Press (SPI 82, ICEE 15) and Routledge (SPI 3, ICEE 1153) (forthcoming).

Dr. Manzanares has a strong and highly international research profile. She was Visiting Graduate Student at the University of Cambridge (2018) and Visiting Research Fellow at the Northrop Frye Centre (Victoria College, University of Toronto) (2019-20). Since 2015, Manzanares has participated in 32 national and international conferences, seminars and workshops in Spain, France, Italy, Portugal, United Kingdom, Canada and the United States of America. Along with Dr Melissa Calaresu, she co-organizes an international online series of seminars and hybrid conference   Beyond Cooking: Global Histories of Food-Making and Gender across the Early Modern World   funded by the Centre for Research in the Arts, Social Sciences and Humanities (CRASSH) and the GM Trevelyan Fund. She has also been a member in 4 research groups funded by the Spanish Government (MINECO) and the Generalitat de Catalunya. She actively engages in the organization and participation of outreach activities to disseminate her research including public talks, broadcast, photography exhibition, blog post and talks in schools. She has also worked in research projects with private and public institutions in Barcelona and Lyon. She prepares semester-long Lesson plan in Bloomsbury Food Library (Bloomsbury; SPI 55; ICEE 47).

Área Temática: **Estudios del pasado: historia y arqueología**
Nombre: DE LA TORRE GONZALO, SANDRA
Referencia: RYC2021-031060-I
Correo Electrónico: storregonzalo@gmail.com
Título: «THINK GLOBAL, ACT LOCAL». Market integration and regional development in the Iberian Peninsula before the First Global Age (1325-1525)

Resumen de la Memoria:

Mi campo de estudio es la historia económica de la Edad Media. Actualmente, mi línea principal de investigación es el análisis de las redes de mercaderes en la configuración de un mercado interior hispano en el tercio norte de la Península Ibérica. Mi trabajo se define por combinar una aproximación empírica asentada en fuentes primarias inéditas con métodos interpretativos innovadores. Busco una perspectiva renovada del comercio a través de la incorporación de metodologías (p. ej. análisis espacial, prosopografía) y propuestas teóricas de otras disciplinas (p. ej. premisas de la sociología de la economía). A través de publicaciones y presentaciones con un perfil internacional, he participado de los principales debates de la disciplina, tales como la mercantilización de la sociedad medieval o la construcción del Estado Moderno, y he hecho importantes aportaciones a la redefinición de la historia de las elites urbanas con la descripción de un grupo de poder a escala regional compuesto por mercaderes y hombres de estado.

He desarrollado mi carrera (comencé con un contrato FPI en la U. de Zaragoza) en contextos académicos que favorecían aproximaciones multidisciplinares a la historia medieval y que mantenían una colaboración científica sostenida en el tiempo con equipos italianos y franceses. Tres estancias internacionales me permitieron introducir un fuerte elemento comparativo en mis estudios, que he ampliado durante mi etapa postdoctoral. Gracias a dos contratos competitivos (UPV/EHU y U. de Valladolid), me he introducido en otros ámbitos historiográficos, lo que me ha permitido plantear nuevas hipótesis y preguntas que pudieran extrapolarse al caso. Me he involucrado en la actividad docente y científica de las instituciones de acogida con la organización de encuentros científicos, actividades de transferencia y labores de mentoría, además de ahondar en mi capacidad de liderazgo con la gestión de varios proyectos.

Los resultados de mi investigación atestiguan un interés por crear espacios de discusión y fructíferas colaboraciones. Estoy comprometida con el trabajo de calidad (estudios amplios y sopesados) y la transferencia de conocimiento a la comunidad académica y a la sociedad. He participado en publicaciones corales que constituyen obras de referencia sobre la integración de mercados, la revolución del consumo o la historia de las mujeres en la Corona de Aragón. El contacto con una diversidad de equipos científicos y sus métodos de trabajo me ha permitido extraer un enorme rendimiento a un corpus documental fragmentario y muy diverso procedente principalmente de fuentes notariales, contables y fiscales. La definición del objeto de estudio de mi tesis doctoral, la elite mercantil y financiera de Zaragoza hacia 1400, me llevó a preguntarme sobre la construcción de la desigualdad socio-económica y su justificación, así como por el papel de las mujeres y la importancia del género. Estas perspectivas se han mantenido como transversales a mi investigación. Por otro lado, una cuestión que he desarrollado y ampliado de manera regular es la de la relación entre élites económicas, cambio político y transformación institucional, lo que me ha situado como una experta reconocida a nivel internacional. En definitiva, he construido una sólida línea principal de investigación sobre la que dar el salto para consolidarme como investigadora.

Resumen del Currículum Vitae:

Licenciada en Hª del Arte e Historia (U. de Zaragoza), mi producción científica se define por una búsqueda de la interdisciplinariedad, progresando desde el estudio de la cultura material hasta el análisis de la economía medieval desde un punto social y cultural (comercio y elites urbanas, financiación de las instituciones bajomedievales y difusión del conocimiento técnico). Además, he prestado atención a la edición de fuentes históricas (un cartulario templario y las actas de los parlamentos aragoneses son buenos ejemplos). La riqueza de fuentes disponibles me ha permitido centrarme en el reino de Aragón durante los siglos XIV-XV en muchos de mis trabajos, siempre con una mirada comparativa. Mi proyecto en curso (que ya ha dado sus frutos) sobre mercados interiores experimenta con las Humanidades Digitales (bases de datos colaborativas y visualización espacial de redes), adquiere una escala suprarregional (el espacio entre el Golfo de Vizcaya y el Delta del Ebro) y cronológicamente se introduce en el siglo XVI.

Los resultados de mis investigaciones (31) se han publicado por editoriales universitarias e instituciones bien consideradas, en muchas ocasiones junto a contribuciones de los investigadores más relevantes en sus campos. Las tres monografías individuales han sido reseñados en varias ocasiones en las más prestigiosas revistas españolas, francesas e italianas del campo, prueba de la difusión internacional de mi trabajo. Es de destacar que en varias de ellas he usado el inglés y el francés, como en las propuestas enviadas a iniciativa propia o por invitación (27) en cursos y sesiones de encuentros científicos de primer nivel (European Social Science History Congress, World Economic History Congress, Study Week. Istituto Internazionale di Storia Economica).

Gracias a tres contratos de investigación obtenidos en concurrencia competitiva en instituciones públicas (FPI y postdoctorales de la UPV/EHU y U. de Valladolid) he podido integrarme en equipos de investigación internacionalizados. He forjado contactos profesionales que se han materializado en fructíferas cooperaciones y me he esforzado por promover el debate y la transferencia de conocimiento con la organización de cursos, coloquios y sesiones en congresos. Un creciente liderazgo puede observarse en la gestión de proyectos de transferencia, la supervisión de trabajos final de máster (1 en 2019) y grado (4 en 2019-2020, 3 más en curso), y la tutorización de estudiantes (una beca de introducción a la investigación en 2019). Mi investigación ha despertado interés entre colegas, que me han invitado a participar en las publicaciones de resultados de sus proyectos de investigación. He ejercido como revisora para varias revistas científicas. En los últimos años he coeditado tres libros y soy coautora de un libro de divulgación.

He combinado este trabajo con tareas docentes en la universidad (24 ECTS) y de divulgación. Además de lograr captar financiación para llevar a cabo mis actividades científicas y docentes, prueba del reconocimiento de mi trayectoria y potencial académico son el Premio Extraordinario de Doctorado (2017) y las acreditaciones de ANECA como profesora Ayudante Doctora (2016) y Contratada Doctora (2020). Como complemento a mi perfil académico, cuento con una notable experiencia en la educación no universitaria y como técnica de archivo.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	CAMAROS PEREZ, EDGARD
Referencia:	RYC2021-031120-I
Correo Electrónico:	Edgard.Camaros@gmail.com
Título:	Evolución humana y el estudio osteoarqueológico de restos humanos prehistóricos

Resumen de la Memoria:

The focus of my research is the study of human evolution through the taphonomic analysis of human prehistoric bone remains, covering aspects such as human-environmental interaction, traumatic mortality and funerary behaviour, mainly during the Middle to the Upper Palaeolithic. I am highly interested in the development of new methods and my research is characteristically transdisciplinary (e.g., transfer of knowledge between Archaeology and Forensic Sciences), but also transchronological by implementing my workflow to other periods of the human history.

During my predoctoral (2013-2016) and postdoctoral phase (2016-2022), my research has implemented new perspectives and methodologies to face key questions in human evolution, providing advancement in the field materialized by publications (including edited special volumes, books, and highly cited papers), invited talks to top institutions, seminars and conference sessions organized, and funding attracted.

I am currently a Marie Curie Researcher at the Department of Archaeology of the University of Cambridge in the United Kingdom, and previously worked as a Juan de la Cierva - Formación Postdoctoral Researcher at the Instituto Internacional de Investigaciones Prehistóricas de Cantabria (IIIPC - Universidad de Cantabria) in Spain. During my predoctoral phase I was trained on the osteoarchaeological analysis through a PhD Fellowship (FI AGAUR-Generalitat de Catalunya) at the Institut Català de Paleoecologia Humana i Evolució Social (IPHES), in addition to an eight month research stay at the University of Tübingen (Germany).

Specific achievements of particular satisfaction are my recent election as a life College Research Associate (CRA) at King s College (Cambridge), the coordination of the international network TapHomo (CNRS, France), and the direction of the fieldwork excavations at the Palaeolithic site of El Pendo Cave (Cantabria, Spain), a site listed World Heritage by UNESCO.

The development of outreach activities for the public at large is also an aspect of my research that I am interested in.

Resumen del Currículum Vitae:

I am an archaeologist and biological anthropologist specialized in the taphonomic analysis of human remains from prehistoric contexts. My main focus of study is human evolution, covering aspects such as hominin-environmental interactions, conflict and funerary behaviour mainly among hunter-gatherer societies from the Middle to the Upper Palaeolithic. I am also interested in the development of analytical and experimental methods, reason why I am currently working on other chronological prehistoric and historic periods, to implement my methodological workflow (e.g., bone surface analysis, archaeothanatology, microtaphonomic analysis).

I am currently a Marie Curie Researcher at the Dept. of Archaeology of the University of Cambridge, conducting the project The role of traumatic mortality in late human evolution from an integrated non-invasive bioarchaeological and taphonomic perspective, which aims to explore how traumatic mortality shaped and influenced human behaviour by analysing human fossil from Lake Turkana (Africa) combining an osteoarchaeological analysis with forensic science and taphonomic experiments.

Alongside my research at Cambridge, I am leading as Principal Investigator an archaeological project at El Pendo Cave (Spain), listed World Heritage by UNESCO, since 2016. At this site, outstanding evidences dating from the Middle to the Upper Palaeolithic are being excavated to contribute to the understanding of human evolution in collaboration with a multidisciplinary research team.

I hold a MA in Prehistoric Archaeology (UAB), a MSc in Forensic Sciences (UV), and a PhD in Human Evolution (URV) after being awarded an FI-AGAUR predoctoral Fellowship at the Institut Català de Paleoecologia Humana i Evolució Social (IPHES, 2013-2016) to research on hominin-carnivore interactions. I also completed my education with courses and seminars on complementary skills such as photogrammetric analysis, palaeopathological studies and biomedical imaging.

Before moving to the United Kingdom, I researched and lectured on Biological Anthropology and Prehistoric Archaeology at the Instituto Internacional de Investigaciones Prehistóricas de Cantabria of the Universidad de Cantabria (Spain, 2017-2020). I was awarded a Juan de la Cierva Formación postdoctoral contract the last two years to conduct research on the taphonomic analysis of prehistoric and historic human remains, with a strong emphasis on the development of analytical methods.

I am currently co-coordinator of the TapHomo International Working Group (Taphen, CNRS, France), College Research Associate at King s College (Cambridge, UK), Affiliated Researcher at the Turkana Basin Institute (Kenya) and Fellow of the Institut für Naturwissenschaftliche Archäologie (Universität Tübingen, Germany).

Resumen de la Memoria:

I am a Spanish cultural historian and anthropologist currently working as Postdoctoral Research Fellow at the University of Flensburg (Germany). My research interests demonstrate genuine interdisciplinary orientation going beyond history in direction of cultural anthropology and sociology. Broadly interested in the History of the Book and the Reading, my scholarship provides, however, a distinctive approach within the state-of-the-art literature in the field, encouraging new perspectives and border crossing analyses. In this regard, going beyond the traditional Literary Studies and Philological approaches, I reframed Book Studies in Spain within a broader Science and Technology Studies (STS) oriented approach. Likewise, due to my expertise in anthropological methods I also set my own field of research as a study of national and international book fairs within the global publishing industry in an innovative way. Hence, after a decade of researching and writing about the History of the Book and the Reading in Spain and the global publishing industry in the Twenty-First Century, I am currently conducting research on Memory Studies and Textbooks in European School Teaching (co-PI of the BMBF-project Antisemitism as a Subject of European School Education (2021-2025) (1,1M Euros)) and preparing a new project on Scientific Translation, National Identity and Print Culture in the Twentieth Century.

I have a growing track record in publications and teaching, active participation at international conferences, independent thinking, and leadership qualities. Before, during and after my PhD, I secured highly competitive funding from public institutions such as the Complutense University of Madrid (Collaboration Grant (2007-2008)), the Spanish Ministry of Economy, Industry and Competitiveness (FPI-Research Fellowship (2012-2016)), the German Research Foundation (DFG) (Postdoctoral Research Fellowship (2017-2020)) and the German Federal Ministry of Education and Research (BMBF) (Postdoctoral Research Fellowship (2021-2025)). I have been Visiting Scholar in prestigious international institutions such as the School of Philosophy, Religion and History of Science (University of Leeds, UK) (2014), the Center for Science and Innovation Studies (UC Davis, USA) (2015), the Center for the History of Science (Autonomous University of Barcelona, Catalonia) (2016), the Center for Publishing Studies (Autonomous Metropolitan University of Mexico, MX) (2017), the Department of Communication (Carlos III University of Madrid (UC3M), Spain) and the Department of Contemporary History (Complutense University of Madrid, Spain) (2021). My scholarship's multilingualism (English, German, Spanish) is also a value added in the outreach to wider audiences.

Resumen del Currículum Vitae:

I am a Spanish cultural historian and anthropologist currently working as Postdoctoral Research Fellow at the University of Flensburg (Germany). I earned a BA in history (2008) and a BA in cultural anthropology (2012) at the Complutense University of Madrid, where I also completed an inter-university MA in contemporary history (2009) and a MA in social and cultural analysis of communication and knowledge (2014). During my graduate studies I was awarded with a Collaboration Grant (UCM) (2007-2008) and then I pursued my doctoral studies in Contemporary History holding a competitive FPI-predoctoral Research Fellowship (Spanish Ministry of Economy, Industry and Competitiveness) (2012-2016) within the project Book Policy and Publishing Industry in Spain (1939-1975) (14.883 Euros). I received my PhD from Complutense University of Madrid in 2017 (summa cum laude doctor internacional). Since then, I moved to Germany where I have been holding several research fellowships in the University of Flensburg. I was a Postdoctoral Research Fellow in the highly competitive German Research Foundation project Book Fairs as Spaces of Cultural and Economic Negotiation. Cultural Policies of International Book Fairs and Their Guests of Honour (2017-2020) (539.655 Euros) and at present I am the co-PI of the German Federal Ministry of Education and Research project Antisemitism as a Subject of European School Education (2021-2025) (1,1M Euros), that aims to induce improvements in the way how Antisemitism is dealt with in School Teaching in European countries.

I have been Visiting Scholar in prestigious international institutions such as the University of Leeds (2014), the University of California Davis (2015), the Autonomous University of Barcelona (2016), the Autonomous Metropolitan University of Mexico (2017), the Carlos III University of Madrid and the Complutense University of Madrid (2021). Throughout my career, I have developed four main areas of research: History of the Book and the Reading, Science and Technology Studies, Cultural Diplomacy, and Memory Studies. Up to date I have written widely on these topics: 2 monographs (CSIC, SPI 6) (PUZ, SPI 12) (+ 1 forthcoming Habilitation monograph), 1 co-edited volume (Iberoamericana/Vervuert, SPI 13), 1 co-edited journal Special issue (+ 1 edited journal Special issue Under review), 10 articles in refereed journals (8 single-authored), and 10 book chapters in publishers like Marcial Pons, De Gruyter and Palgrave. Since 2020 I am also part of the Editorial Advisory Board of CIAN. Journal of the History of the University, where I also performed as Editorial Assistant (2017-2019). I have also co-organized 2 international symposiums in Germany and Spain (+ 1 forthcoming international workshop in Düsseldorf) and 2 international meetings in Spain and Buenos Aires. I presented in 30 international conferences, and I was invited for giving talks in prestigious institutions such as the University of Köln, the Autonomous National University of Mexico, or the Max Planck Institute for the History of Science. In this regard, my international experience and expertise in teaching and research was recognized by the National Agency for Quality Assessment and Accreditation of Spain (ANECA), accrediting me as PhD Lecturer (Prof. Contratado Doctor) (2019).

Área Temática:	**Estudios del pasado: historia y arqueología**
Nombre:	AGUILAR LAZAGABASTER, IGNACIO
Referencia:	RYC2021-034991-I
Correo Electrónico:	ignacio.aguilar.lazagabaster@gmail.com
Título:	Unveiling historic and prehistoric human-environment interactions from faunal assemblages

Resumen de la Memoria:

My research examines the ecological responses of ancient and present-day mammal faunas to changes in climate, physical environments, community composition, and historical human impacts, with a focus on eastern Africa and the Middle East. The overarching goal of my investigation is to provide environmental context to archaeological finds, ultimately uncovering the key drivers that shaped human biological and cultural history. My research agenda builds on a series of research avenues I have been developing over the last several years that focused on investigating mammal assemblages from historic and prehistoric sites using an integrative approach. To that end, I have incorporated a diverse array of methodologies into my research toolkit, including the description and taxonomic assessment of faunal remains, stable isotopes, dental microwear, geometric morphometrics, 3D micro-CT data analyses, radiocarbon dating, and species distribution modeling. I am actively involved in multiple ongoing projects investigating early human origins, paleoenvironmental and paleoecological reconstructions, historical human-environment interactions, human paleoecology, and faunal biogeography. Throughout my academic career (Fig 1), I have weaved a large international collaborative network and established the layout of large-scale multidisciplinary projects, many of which promise high-impact publications and remarkable discoveries soon. My hybrid scientific approach to historical issues, extensive experience in various archaeological settings, well-rounded world view combining humanist and naturalist perspectives, and research and teaching background, provide an excellent ground for securing research funds, leading research endeavors, collaborating with international partners, and teaching and mentoring students. Thus, I believe that the strongest trait of my research portfolio is not only my past scientific output but the solid foundations I have forged to continue developing my future professional career.

My main research and scientific contributions can be summarized in four research themes:
Theme 1) Paleoenvironmental context of human evolution
Theme 2) Mammal taxonomy, paleoecology, and biogeography
Theme 3) Historical human-environment interactions
Theme 4) Zooarchaeological and taphonomical analyses of prehistoric mammal assemblages

Resumen del Currículum Vitae:

I am a broadly trained zooarchaeologist studying faunal assemblages and zooarchaeological records to examine historical human-environment interactions and uncover the key drivers that shaped human biological and cultural history. What were the biological and behavioral responses of ancient societies and the faunal components of the ecosystems they occupied in connection to climate change? Are these changes temporally and causally correlated with cultural changes observed in the archaeological record? What influence did humans have on natural environments in the past, and how could it have fed back to impact society? To answer these questions, it is fundamental to understand not only how human societies changed through time but also how their natural surroundings transformed. My research agenda builds on a foundation of work I have been developing over the last several years that focused on investigating mammal assemblages from historic and prehistoric sites. My fieldwork and research in Spain (e.g., Atapuerca, Orce, Teixoneres-Toll), Gibraltar (Vanguard Cave), Ethiopia (e.g., Hadar, Ledi-Geraru, Woranso-Mille), Kenya (Lothagam, Koobi Fora, Lomewki), South Africa (Malapa), Morocco (Oued el Hai), Israel (Tel Goren, Cave of the Skulls), and Sudan (Upper Atbara) have allowed me to become well versed in the anatomy of Quaternary mammals. During my PhD, I studied the taxonomy and paleoecology of extinct suids in the context of eastern African Plio-Pleistocene climate change and hominin evolution. I applied state-of-the-art methods of paleodietary reconstruction, such as stable isotopes and three-dimensional dental microwear texture analyses, and co-led the development of a 3D technique to infer diet in mammals. As a teaching assistant in the US, I helped to develop and teach large courses on human evolution and clinical human anatomy. In addition to my teaching and mentorship in the US, Israel, and Germany, I have been heavily involved in training students in Kenya and Ethiopia. My postdoctoral research in an ERC project in Israel impelled me to apply ecological theory and species distribution modeling in combination with radiocarbon dating to the study of historical human-environment interactions in the Middle East. During my postdoctoral stay in Germany, I have expanded my methodological toolkit by incorporating geometric morphometrics and 3D micro-CT data analyses into my work. In my new position at the University of Liverpool, I will use mathematical models to examine changes in the geographical distribution of large mammals (including domesticates) in relation to historical societal transitions in Egypt. My hybrid scientific approach to historical issues, my extensive experience in various archaeological settings, and my research and teaching background provide an excellent foundation for securing research funds, leading research endeavors, collaborating with international partners, and teaching and mentoring students.

The key points of my CV are my productive scientific output; successful research fund-raising; high international mobility; various research awards; participation in international projects (several funded with >1 million euros) and archaeological/paleontological sites; strong collaborative network; multidisciplinary and integrative approach; large teaching experience; and my committed academic service and outreach.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	AMOROS RUIZ, VICTORIA ENCARNACION
Referencia:	RYC2021-033153-I
Correo Electrónico:	victoria.amoros@ua.es
Título:	Arqueóloga especializada en el estudio de la transición entre Antigüedad Tardía y la Alta Edad Media.

Resumen de la Memoria:

Victoria Amorós Ruiz es arqueóloga especializada en el estudio de la transición entre la Antigüedad Tardía y la Alta Edad Media. Su principal línea de investigación es la documentación y contextualización del material arqueológico y sus implicaciones sociales, económicas y culturales. Su trabajo con materiales arqueológicos, especialmente la cerámica, se ha centrado en estudiar su papel dentro de los sistemas de producción, distribución y consumo y sus repercusiones culturales, económicas y sociales. Sus aportaciones a la contextualización de materiales de la Alta Edad Media y al conocimiento del proceso de islamización, especialmente del siglo VIII, le han llevado a ser reconocida como una destacada experta en la contextualización de conjuntos cerámicos de la Alta Edad Media en Marruecos y la Península Ibérica. Pero su trabajo también se ha visto reforzado por líneas y herramientas de investigación originales como el uso de SIG para el análisis y visualización de información cronoestratificada.

Actualmente dirige el proyecto "Cerámica y Alimentos. PALEOECOMÍA de la Alta Edad Media en el sureste peninsular", con el objetivo de analizar la relación entre la producción cerámica y los recursos alimentarios, y como estos se interrelacionan en sistemas económicos complejos.

Además, desarrolla diferentes líneas de trabajo, que se derivan de su principal línea de investigación en torno a la documentación y contextualización de materiales arqueológicos: contextualización estratigráfica y arqueométrica de los vidrios y cerámica vidriada de El Tolmo De Minateda, y como se relacionan estas tecnologías. Y lidera un grupo de trabajo con el objetivo de comprender la evolución de la cerámica de cocina desde la época romana hasta la Alta Edad Media en el sureste de la Península Ibérica, a partir de la contextualización estratigráfica, el desarrollo de formas y recursos alimentarios, el cambio en la tecnología de producción y las variaciones en la distribución de objetos y productos a lo largo del tiempo. El objetivo es reconocer cambios en los sistemas de producción, distribución y consumo desde un punto de vista diacrónico en una misma área de estudio.

Resumen del Currículum Vitae:

Arqueóloga con una amplia experiencia en el sector privado, en arqueología de campo y gestión del patrimonio cultural. Su perfil intersectorial con una amplia formación, le ha permitido colaborar con diferentes equipos en numerosos proyectos nacionales e internacionales (36). Mención especial merece su trabajo en el proyecto "El Tolmo de Minateda", vinculada desde 1998, siendo actualmente una de sus codirectoras. Además de su Tesis Doctoral en septiembre de 2017 dedicada al repertorio cerámico del yacimiento, desde 2014 lidera la gestión de datos espaciales del proyecto (GIS y SIA) y los estudios de catalogación, estudio, análisis contextual y arqueometría de cultura material. En 2014 lanzó el proyecto SIG-Tolmo de Minateda, colaborando con el Instituto de Desarrollo Regional de la Universidad de Castilla La Mancha, donde trabajó como investigadora entre 2016 y 2017. Continúa colaborando con ellos para desarrollar un plugin en código abierto software QGIS para realizar una herramienta de registro y documentación arqueológica.

Trabaja en el "Proyecto Volubilis" (desde 2001 hasta la actualidad), dirigido por la University College of London (UCL) y el Institut National des Sciences de l'Archéologie (INSAP) de Marruecos, donde es responsable de la línea de investigación sobre cerámica, diseñando la estrategia analítica y el sistema de registro. Forma parte del equipo del proyecto europeo Becoming Muslim: Cultural Change, Everyday Life and State Formation in early Islamic North Africa (600-1000) (UCL), y ha colaborado en los proyectos The transform of the Moroccan Landscape in Early Islamic Period, coordinado por UCL-Qatar (2017-18), y Proyecto Utica en Túnez con la Universidad de Oxford (2018). Está vinculada a la Universidad de Jaén ya la Universidad de Almería para el estudio del inicio del proceso de islamización. Actualmente, codirige y coordina cuatro proyectos. Es Investigadora Principal del proyecto "Cerámica y Alimentos. Paleoeconomía de la alta Edad Media en el Sureste peninsular", este proyecto se desarrolla en colaboración entre el INAPH y el Instituto de Historia del CSIC en Madrid.

Desde 2014 coordina la formación de alumnos en el marco del proyecto El Tolmo de Minateda, y desde 2017 en el proyecto Domus-La Alcudia con la colaboración de la Fundación La Alcudia (Universidad de Alicante). Y ha dado clase en la Universidad de Alicante en los cursos 2020-21 y 2021-22, además de codirigir 1 TFG, 2 TFM y 1 Tesis Doctoral.

Área Temática:	Estudios del pasado: historia y arqueología
Nombre:	MALLART ROMERO, LUCILA
Referencia:	RYC2021-034908-I
Correo Electrónico:	lucila.mallart@gmail.com
Título:	Role of visual culture, urban planning and art history writing in the creation of modern national identities

Resumen de la Memoria:

I am a cultural historian of modern Spain with a solid international and interdisciplinary career and scientific production. I have often worked at the intersection of Modern History, Art History, the History of Science and the History of Archaeology. Throughout my academic career I have developed three main research lines.

In my first line of research, I looked at the interplay between visual culture, urban planning, art history writing and the construction of modern national identities in modern Catalonia. In my doctoral thesis (submitted in 2016) I explored the making of a modern Catalan imagination through the works of the architect, politician, and art historian Josep Puig i Cadafalch (1867-1956). The complex spatial dynamics of Catalonia (which crosses traditional historiographical conceptions of regionalism and nationalism) as well as Puig's multifaceted work, traversing culture and politics, offered an excellent case study to rethink the construction of national identity narratives in twentieth-century Europe.

In my second line of research, I explored the transnational creation of knowledge across the European periphery in the interwar period. Looking at case studies in the Iberian Peninsula, the Balkans and the Nordic countries, I have been concerned with the creation and circulation of knowledge from periphery to periphery, outside of cultural cores, and with the transnational making of nationalist-driven historiographies.

My third line of research deals with the role of photo archives in nation-building processes in early-twentieth-century Spain. In particular, I study the Iconographic Repertoire of Spain, a visual archive that aimed at cataloguing the whole of Spain's artistic wealth between 1915 and 1923. This project seeks to make three main contributions to scholarship. Firstly, it will re-evaluate the epistemological nature of photo archives in modern Europe, analysing them in relation to both non-photographical visual media and textual data. Secondly, it will re-assess the role of visual archives in the setting up of symbolic national boundaries in modern Europe. Thirdly, it will place art history writing practices at the centre of identity politics in early-twentieth-century Spain.

Resumen del Currículum Vitae:

I am a cultural historian of modern Spain with a solid international and interdisciplinary career and scientific production.

My thesis offered the first truly interdisciplinary study of modern Catalan nationalism, looking at the interplay between visual culture, urban planning, art history writing in the works of the architect and politician Josep Puig i Cadafalch. This research produced articles and chapters featured in high-ranking international journals and publishers such as Cultural History (2015) and Routledge (2018 & 2020). The two edited collections with Routledge were the result of a long-term collaboration with historians of science. My increasing prestige as a cultural historian of modern Spain is shown by the fact that I have recently received the commission to co-edit a Handbook of the History of Barcelona for Routledge. In addition to that, a Catalan version of my doctoral monograph is currently under discussion with Eumo Editorial.

In my postdoctoral research, I have approached these processes using a transnational perspective. I have shown that, in the early twentieth century, architectural and art historical knowledge was constructed transnationally across the Iberian Peninsula, the Balkans and the Nordic countries, and that this creation of knowledge was embedded within nation-building processes. I undertook this research as a Juan de la Cierva-Formación Postdoctoral Research Fellow at Universitat Pompeu Fabra, Barcelona (2018-2021). In this period, I also carried out short research stays in Romania (August 2019) and Finland (April 2019). My stay in Romania produced two articles, including a piece published in the Q1 journal Nations and Nationalism (2021). In turn, my collaboration with scholars in Finland produced two published inputs, including a book chapter with Peter Lang (forthcoming in 2022).

My next research project deals with the Iconographic Repertoire of Spain, a virtually unknown photo archive of Spanish art set up in Barcelona between 1915 and 1923. Preliminary work on the Repertoire has led to a chapter with Oxford University Press and an article in Nuncius (both forthcoming in 2022). This research has been part of the AEI-funded project Prehistories of the Installation. I have also been able to secure a number of individual grants from national and international, academic and non-academic funding bodies to pursue my research.

I am especially interested in the dissemination of my research to a wide audience. In 2017 I curated the exhibition and catalogue Josep Puig i Cadafalch: Vision, Identities, Cosmopolitism (Museu de Mataró), which drew on my doctoral thesis and was object of attention from the press.

I have supervised a total of 7 masters dissertations at the Master in the History of the Contemporary World (Universitat Oberta de Catalunya) and 5 undergraduate dissertations at the Bachelor in Global Studies (Universitat Pompeu Fabra). Recently, I co-organised the international symposium Citizen gazes. Connections between urban experience, spectatorship, class struggle and visuality in the Hispanic world (1870 1930) (Universitat Pompeu Fabra, 16-17 December 2021). I have done peer review for the high-ranking journals Historia y política, Ayer and Centaurus: Journal of the History of Science, and I have also reviewed books for Q1 journals such as Hispanic Research Journal and Urban History.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Estudios del pasado: historia y arqueología
Nombre: ALCOLEA GRACIA, MARTA
Referencia: RYC2021-031196-I
Correo Electrónico: martaalcoleagracia@gmail.com
Título: Archaeology of plants, landscape and human interactions

Resumen de la Memoria:

I am an archaeologist and palaeobotanist interested in human-plant-environment interactions in a diachronic perspective from Palaeolithic to present day. The main tools I employ are wood and charcoal analysis by botanical identification and dendrometric tools. Different human uses of ligneous parts of plants, as fuel for fire, tree fodder, timber for building, and raw material for wooden crafts, are key to understanding the material culture of past societies.

My scientific research has been mainly focused on the middle Ebro valley, a region affected by the important data gap touching inner areas of NE Iberia linked to the lack of specialists in the study of plant macro-remains in the R&D institutions as the UZ and IPE-CSIC. The archaeobotanical studies I conducted includes mainly charcoals in archaeological and natural contexts, but also wooden crafts, fibres, seeds and fruits mainly from Aragón, but also from La Rioja, Catalonia, Galicia, Asturias and Madrid, from Middle Palaeolithic to Middle Ages.

I have participated in the fieldwork as a specialist in sediment processing and sampling strategies related to the recovery of archaeobotanical remains in dozens of archaeological campaigns including academic institutions, local museums and private companies. I carried out wood and charcoal analyses in more than 50 archaeological sites, many of them have been published (ORCID 000-0003-4280-3971) and other remains as unpublished reports, quickly becoming the reference specialist in archaeobotanical studies in the middle Ebro valley (Aragón).

I held my PhD at the University of Zaragoza in November 2017 with Cum Laude and International mentions awarded by the Extraordinary Doctorate Award in Art and Humanities. I won 2 postdoctoral fellowships in competitive programmes funded by the government of Galicia (Spain) and Ministry of Science (Spain) held in the University of Santiago de Compostela and Autonomous University of Barcelona.

My transversal training in bioarcheology and environmental archaeology has allowed me to integrate into varied national and international multidisciplinary research teams. My skills include analytical methods related to plant remains analysis by image analysis, statistics, geometric morphometrics, quantitative eco-anatomy and anthraco-isotopy, obtained at the UAB (Barcelona, Spain), La Sapienza (Rome, Italy), CNRS-MNHN (Paris, France) and CNRS-ISEM (Montpellier, France) during predoctoral (12 moths) and postdoctoral (41 months) stages outside the University of Zaragoza.

Among the most relevant achievements of my scientific career it can be highlighted: 1) the systematization and consolidation of archaeobotanical studies in the middle Ebro valley; 2) the characterization of forest management by late hunter gatherers and first farmers, 3) the contribution to methodological development of wood charcoal analysis in archaeological contexts by the creation of innovative tools; 4) the reconstruction of the history of settlement and environment in the central north face of the Iberian Range; 5) the positioning of the middle Ebro valley as an emerging territory in the study of wooden crafts and basketry; and 6) the value enhancement of plant macro-remains in the knowledge of palaeodistribution of plants and the role of the Ebro valley as a glacial refugium.

These research lines are active and have great prospects for future.

Resumen del Currículum Vitae:

Since obtaining Graduate Degree in History (2010) and Master Degree in Archaeology (2011) at the University of Zaragoza (UZ), I developed a complete and brilliant CV following all the steps of the research career. I obtained a 4-year competitive fellowship from the Ministry of Science (Spain) to conduct the anthracological in the middle Ebro valley (NE Spain) filling an important data gap. I also obtained 3 mobility fellowships to carry out short training stays in R&D centres of Spain (UAB), France (CNRS UMR 5059) and Italy (La Sapienza).

After occupying different positions as Junior and Senior (PhD) researcher at the UZ during 17 months, I obtained a 3-year postdoctoral competitive fellowship funded by the government of Galicia (Spain) associated to the University of Santiago de Compostela (USC) to expand and consolidate my career developing my research abroad (France). I stayed at the National History Museum of Paris (12 months) and the Institute of Evolutionary Sciences of Montpellier (10 months and 15 days until my resignation). It allowed me to acquire new skills in analytical methods related to wood charcoal analyses and to contribute to French projects as GDR 3644 BioArchéoDat and work in Nôtre-Dame burned carpentry. After that, I won a 2-year postdoctoral competitive contract Juan de la Cierva Formación funded by the Ministry of Science (Spain) (FJC2018) at the Autonomous University of Barcelona (UAB). In September 2020, I joined up a new research group compound by researchers from the UAB, IMF-CSIC and MAC. In summary, at the end of this call I have 44 months of provable postdoctoral experience at different R+D centres in my field of expertise in Spain (UZ, UAB, USC) and abroad (MNHN, ISEM).

Since 2014, I maintain a high rate of scientific production and leadership of publications. I have authored 57 publications: 2 books, 26 book chapters and 29 articles (19 in JCR, 16 in Q1). I am the first author in 17 of them (6 in JCR, 5 in Q1) and one of three main authors in 42 (13 in JCR, 11 in Q1). My publications have a total of 280/128 citations and h index 9/7 (source: GoogleScholar/WoS). I have contributed to scientific congresses in 66 occasions, 31 of them international. I m the first author in 28 and one of the three main authors in 53.

I also contributed to a high amount of scientific research projects in Spain and abroad, being part of 27 projects, 20 of them at postdoctoral stage, 7 of them international and 2 of them related to knowledge transfer. I have been PI or co-PI in 5 research projects.

My official teaching experience includes 255 hours of official teaching at Degree and Master levels (UZ and UAB) and 2 Master thesis co-supervised (1 more in progress) (UZ). In May 2018 I obtained recognition of ANECA as Profesor Ayudante and Profesor Contratado Doctor by the Humanities committee, only 6 months after my PhD.

My experience in my research field of is recognized at national and international level as supported by my recurrent activity as referee in JCR journals and international projects and participation in scientific committees.

My track-record includes first authoring of publications in international journals and congresses, experience in applying for competitive funds and capacity to work independently and in a team. All this makes me a potentially independent researcher despite early career.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Estudios del pasado: historia y arqueología**
Nombre:	CASTRO GARCIA, MARIA DEL MAR
Referencia:	RYC2021-033387-I
Correo Electrónico:	mariadelmar.castro@uca.es
Título:	Gestión del agua e interacción sociedad-medio ambiente en época romana

Resumen de la Memoria:

I have mainly carried out my scientific career in Ancient History at three institutions: the University of Cádiz (UCA; Spain), the Université Laval (ULaval; Canada), and the Università degli Studi di Siena (UniSI; Italy). Furthermore, I have accomplished research stays at the University of Southampton (UK) and the Università Cattolica di Milano (IT).

I hold a Phd in History from the ULaval and a Phd in Historical and Archaeological Heritage from the UCA. I was awarded a predoctoral fellowship at the ULaval (2009-2010), in addition to one at the UCA (2011-2015). Also I gained an Excellence Campus mobility grant at the University of Jaen (UJA, 2013) and a postdoctoral contract at the UCA (2017). After a period of maternity leave (2018), I was awarded highly competitive postdoctoral fellowships: Marie Skolodowska Curie Individual Fellowship-2017 (MSC IF-2017; 2019-2021) in the Laboratory of Landscape Archaeology and Remote Sensing (LAP&T, UniSI) and a Post-Doctoral contract funded by Junta de Andalucía at the UCA (2021-currently).

I am an expert researcher in the study of water management and water culture in Roman times and in the analysis of the interaction between the society and riparian environments in Antiquity. Also I am a specialist in the application of GIS in Ancient History. In recent years I specialised in the applications of new techniques of remote sensing to the landscape archaeology. My MSC IF allowed me to lead an innovative research Project in southern Spain, the LiguSTAR project. I applied the concept of "archaeological continiuum" as a paradigm in order to study the lacus Ligustinus (current Marismas de Doñana and its surrounding area). I investigated the historic settlements, usages, and perceptions of this highly transformed area, focusing on Roman times.

Also I have participated as a researcher in national projects of MINECO (HAR2016-77724-P and HAR2012-36008) and in a Excellence Project of Junta de Andalucía (P06-HUM-02409). I am author of 23 publications, underlining a monography and 5 peer reviewed journal articles, some of them international and Q1. I organised two sessions at international conferences and I was involved in 22 conferences, workshops and courses. I have also been involved in activities relating to the transfer of knowledge to society, participating in outreach activities, gaining a prize for a business idea for Humanities, and collaborating with a spin-off enterprise at the UniSI.

I gained experience in teaching BA of History, Humanities and Master at the UCA. I collaborated with teaching activities in the BA and the Magistrale in Archeology at the UniSI, and tutoring students in their different degrees.

Resumen del Currículum Vitae:

I have eleven years of professional experience in Ancient History and Archaeology. The jointly awarded PhD at Université Laval (Quebec, Canada) and UCA (Spain) has allowed me to specialise in the study of water management in Baetica through the conceptual and research approach of the New Environmental History. I has analysed the Roman Empire using the concepts of the society-environment interaction, natural resources management, and integrated water management. On the other hand, I am also interested in the study of Roman waterscapes such as wetlands, lakes or marshes areas. I have specialised in the use of GIS methodology and remote sensing techniques applications to the Archaeology. I obtained a Marie Curie-IF carrying out it in the Laboratory of Landscape Archaeology and Remote Sensing (University of Siena, 2019-2021) and I was IP of the Marie Curie project LiguSTAR. New Survey Techniques for an Ancient Riparian Landscape. LiguSTAR project focused on the study of the ancient settlements on the banks of the lacus Ligustinus (mouth of the Guadalquivir River) in a diachronic perspective. In addition, the project applied a combination of remote sensing techniques (mainly GPR, magnetometer and UAV flights applications) and environmental studies (paleo-environment, geoarchaeology) in the study area of the ancient Ligustinus. I have also obtained a postdoctoral contract in UCA (Spain) (funded by Junta de Andalucía, 2021-currently) to continue the research line about the studies of the Roman settlement in ancient marshlands. I set up an international research network between Italy, UK, Canada and Spain. I took up a year of maternity leave (2018). Previously, I had obtained a predoctoral fellowship at UCA (four years) and another one (one year) at the ULaval (Canada) which allowed me to pursue the doctoral program studies and obtain the Phd degree. I also obtained another research contracts such as: a mobility allowance of CEI Patrimonio, Universidad de Jaén (2013); Juan de la Cierva-Formación 2017; and Postdoctoral contract in School of Archaeology and History of Rome CSIC (declined both because I obtained MSC fellowship at the same time). In addition, I have done international stays in research centers in Italy (Università Cattolica di Milano; UniSI) and the UK (Computing Archaeological Group, University of Southampton).

My scientific production includes one monography, several peer-review journal articles (TRAJ, SPAL, ETF), and book chapters in international editions. I have also participated in numerous international conferences, seminaries, and workshops. I have worked as a researcher and collaborator in National and Regional Projects, such as Riparia and Riparia II, oriented to investigate the Roman settlements, uses, and perceptions of wetlands and water banks in Baetica. I have also participated in projects oriented to analyzing Roman water management in the same province. In addition, I have worked as an archaeologist in different excavations and prospecting. I have also developed other skills like teaching, project design, management, and speech and languages capabilities. I edit the journal Riparia (UCA) and participate in different journals as a review (ETF, Munibe). I have the accreditation of Ayudante Doctor ANECA, and I am teaching in different courses of the BA of History, BA of Humanities, and MA (UCA).

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	GOLUB , CAMIL
Referencia:	RYC2021-030839-I
Correo Electrónico:	camilgolub@gmail.com
Título:	(1) Expressivism and Normative Realism; (2) The Ethics of Imperfection

Resumen de la Memoria:

My main research project aims to reconcile expressivism and realism about normativity, and to explore the benefits of this result. I first pursued this project in my PhD thesis, Expressivism and Normative Realism (2017), supervised by Hartry Field, Thomas Nagel, and Sharon Street, which led to my first publications: Expressivism and realist explanations (Philosophical Studies, 2017) and Expressivism and the reliability challenge (Ethical Theory and Moral Practice, 2017).

In recent years, I have come to defend a view that I call 'normative quasi-naturalism', which combines expressivism and naturalist realism about normative discourse, and I have published three other articles in this area (Is there a good moral argument against moral realism? , Ethical Theory and Moral Practice, 2021; Representation, deflationism, and the question of realism , Ergo, 2021; and Quasi-naturalism and the problem of alternative normative concepts , forthcoming in Journal of Moral Philosophy), as well as a related exegetical paper on Thomas Reid s metaethical views: Reid on moral sentimentalism , Res Philosophica, 2019.

I also have two papers on quasi-naturalist answers to epistemological challenges and questions about normative reference that are currently under review, and three working papers on issues about normative explanation, the authority of morality, and normative error.

I am planning to turn this project into a book proposal on quasi-naturalism and its virtues, which I will submit to publishers like Oxford University Press and Cambridge University Press within the next two years.

My secondary project aims to make sense of our attachments to various forms of imperfection in our lives. For instance, how can we affirm our actual lives when comparing them to better lives we could have had? Or how can we make peace with our past moral failings while committing to improve ourselves in the future?

I have published two articles on these topics: Personal value, biographical identity, and retrospective attitudes (Australasian Journal of Philosophy, 2019) and Making peace with moral imperfection (Journal of Ethics and Social Philosophy, 2019). I also have two working papers, on loving people for who they are and the relation between meaning in life and value.

My paper on making peace with moral imperfection was selected for the Young Philosophers Lecture Series at DePauw University (Indiana, USA) in 2018, where I was also invited to give a public talk on regret, attachment and identity to an audience of undergraduate students and other members of the local community. I continue to seek opportunities for public engagement in connection with this project, and I am planning to write a trade book on the ethics of imperfection that would be accessible to the wider public.

Resumen del Currículum Vitae:

I have been an assistant professor of philosophy at Rutgers University Newark since completing my Ph.D. at New York University in 2017. Between 2019 and 2021, I was also a Marie Curie fellow at the University of Leeds.

I specialize in ethics, metaethics, and moral psychology. My main research project on expressivism and normative realism has yielded so far six publications, two papers that are under review, and three working papers. I am planning to turn this project into a book proposal on quasi-naturalism and its virtues within the next two years.

One of the articles that arose from this project, Expressivism and realist explanations (Philosophical Studies, 2017), has been my most impactful publication so far: it has been cited 17 times, and an anonymous referee for the Conference of the British Society for Ethical Theory called it the best paper on expressivism and realism along with [James] Dreier s famous paper on expressivism and creeping minimalism .

It is also in connection with this project that I gained significant experience in project management and attracting external funding. My Marie Curie grant proposal on Expressivism and Normative Realism received a score of 92.60%, easily meeting the threshold for funding. As sole investigator on the Marie Curie grant, I produced the research deliverables (publications, presentations, videos, and blog posts) well ahead of schedule, and wrote the final grant report.

I also organized two international workshops in connection with my Marie Curie project: Workshop on the Metasemantics of Normative Discourse in February 2020, and Workshop on New Directions for Normative Naturalism in July 2021, with speakers from the universities of Oxford, Edinburgh, and Syracuse, among others.

My secondary research project on the ethics of imperfection (see above) has yielded so far two publications and two working papers.

I have given more than 30 professional presentations on my two research projects, including invited talks at Trinity College, the University of Warwick, and Universitat de Barcelona, among others, and peer-reviewed talks at highly selective conferences such as the British Society for Ethical Theory, the Northwestern University Society for the Theory of Ethics and Politics, and the Symposium section of the American Philosophical Association.

Aside from my research and teaching, I have also contributed in other capacities to the departments where I have worked, including in leadership positions. At Rutgers, for instance, I have evaluated the promotion and reappointment files of fixed-term teaching staff, and have written the Philosophy Department s yearly assessment report with the input of my colleagues.

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	TANTIMONACO , SILVIA
Referencia:	RYC2021-030987-I
Correo Electrónico:	silvia.tantimonaco@gmail.com
Título:	Latin Epigraphy and Linguistics

Resumen de la Memoria:

My main research interests are Latin Epigraphy (especially funerary inscriptions and the epigraphic corpus of Hispania) and Latin Linguistics (especially Vulgar Latin, with focus on the Iberian Peninsula). I study the Latin language to access the Roman culture, and I consider inscriptions as a primary source of knowledge of the language itself. Thanks to my rigorous education as a Classical Philologist and my advanced experience in Latin Epigraphy, with specialized trainings in several other disciplines, I am able to approach research topics from an interdisciplinary perspective. My previous work can be synthetized as follows:

a. Funerary Epigraphy, a research line I started with my MA thesis (published as a monograph): I have principally focused on the funerary formula Dis Manibus (sacrum), deepening into the Roman cult of the dead; I have also extensively dealt with funerary formulas referring to pietas   a central value in the Roman society   particularly with funerary epithets (piissimus/pientissimus), some of which are characteristic of certain areas of Hispania (pius in suis/pius in suos); I have analyzed the formulas expressing the causes of funerary and votive dedications (ex testamento, ex visu, ob merita, pietatis causa,   ) and the contamination between funerary and votive formulas;

b. Epigraphy of Hispania, a research line initiated during my stay as a predoctoral research Fellow at the CIL II Centre: I have (co-)published unedited inscriptions of Hispania, either transmitted in manuscripts or still preserved, in this case doing the autopsy of the original monuments; I have collaborated at the updating of the archives of the CIL II Centre for the new edition of the Corpus Inscriptionum Latinarum, and I have taken part into epigraphic trips in Portugal and Spain in the frame of several research projects;

c. Vulgar Latin, a research line inaugurated by my PhD Dissertation: In order to update Carnoy s work Le latin d Espagne d après les inscriptions. Étude linguistique   (Bruxelles, 1906, 2nd ed.), I have performed a systematic collection of mistakes from the inscriptions of Lusitania, Hispania Citerior and part of Baetica (1st 8th c. AD) into the Computerized Historical Linguistic Database of Latin Inscriptions of the Imperial Age (http://lldb.elte.hu/en/database/). I have described and commented such linguistic data in my Dissertation (Vulgar Latin of Lusitania) and in several papers, and I have compared the linguistic situation of the Iberian Peninsula with that of other territories of the Roman Empire through the elaboration of statistical calculations and geo-linguistic maps, following the principles of the modern discipline of Computational Latin Dialectology, created by the Hungarian scholars. In this frame, I have developed a general interest towards the origin of writing mistakes and their typological classification.

My principal achievements so far have been:

1. Publishing the first monograph on the Di Manes;
2. Becoming an expert on Roman Funerary Epigraphy and Roman Funerary Culture in general;
3. Updating the state-of-the-art on Hispanic Latin;
4. Implementing the methodology of Computational Latin Dialectology;
5. Promoting the role of Epigraphy in the domain of Classical Philology;
6. Promoting scientific investigation at international level.

Resumen del Currículum Vitae:

I was educated in Italy (Ca   Foscari University of Venice), with a long period of study at the University of Münster (Germany). I have achieved my PhD at the University of Barcelona (2017) and I have carried out my investigations in other distinguished institutions of Germany (Heidelberg University, Commission for Ancient History and Epigraphy of the German Archaeological Institute of Munich), Spain (CIL II Centre at the University of Alcalá), Hungary (Hungarian Academy of Sciences, Eötvös Loránd University) and Portugal (Centre for Classical Studies of the University of Lisbon). My international presence has provided me with a direct experience of different research and teaching approaches and a rich intellectual and cultural background. I have a proven expertise in leading postdoctoral research projects as well as in organizing and managing scientific events, dissemination and teaching activities at both academic and extra-academic level. During my predoctoral and postdoctoral career, I have been awarded with several prestigious prizes, grants and competitive fellowships, including one DAAD 1-Year Grant at the Department of Classical Philology of the University of Heidelberg, and one Marie Sklodowska-Curie IF at the Research Institute for Linguistics of the Hungarian Academy of Sciences, a leading center for linguistic research. I am the author of 1 monograph and of ca. 20 papers in international journals or books as well as of 16 book reviews. I have delivered 6 invited lectures in prominent European venues, including the Spanish National Research Council (CSIC) and the Heidelberg University, 11 invited talks, 2 poster and 8 paper presentations at international colloquia, such as the 13th International Colloquium on Late and Vulgar Latin (Budapest, 2018) and the 20th International Colloquium on Latin Linguistics (Las Palmas de Gran Canaria, 2019), chairing a Panel at both events, or the 15th International Conference in Greek and Latin Epigraphy (Vienna, 2017). I am also a standing invited speaker of the yearly International Workshop on Computational Latin Dialectology (Budapest, 2016-). I have taught in international summer schools in Italy and Spain (2019 & 2020) and I have been myself the creator and co-organizer of the first online International Summer School: Epigraphy for the Study of the Latin Language (Lisbon, 2021). I have organized 2 international series of lectures on Epigraphy & Linguistics in Budapest (2019), and co-organized 1 international workshop on ancient votives in Munich and 1 international conference on ancient supernatural beliefs in Heidelberg. I am a member of the international research groups HPRT3-Epigraphica (Epigrafia e Linguística) (University of Lisbon, 2021-) and LITTERA (University of Barcelona, 2014-), and a former member of the Lendület (Momentum) Research Group for Computational Latin Dialectology (Research Institute for Linguistics, Budapest, 2018-2021). I also participate in several research projects in Spain and abroad. Beside academic work, I have organized workshops for children and high-school students in Germany, Spain and Portugal. I have worked as a peer reviewer for prestigious international journals, and I have experience in the evaluation of postdoctoral projects on behalf of the European Commission. I am fluent in Italian, Spanish, English, German, Portuguese and French.

Área Temática:	Mente, lenguaje y pensamiento
Nombre:	UGOLINI , SARA
Referencia:	RYC2021-032670-I
Correo Electrónico:	sara@iiia.csic.es
Título:	Algebraic study of quantifiers in substructural logics

Resumen de la Memoria:

The investigation of correct reasoning, in other words the study of logic, has played a key role in the development of both philosophy and the sciences in most cultures. This holds true in recent times, where the rapid development of artificial intelligence reveals a new need for formal systems capable of interpreting the multiple facets of reasoning. The role of algebra has been pivotal in the formalization and understanding of reasoning, and modern logic flourishes with the rise of the formal methods of mathematical logic, which uses the language of algebra to formalize how sentences connect together via logical connectives.

My studies mainly concern non-classical logics, meant to interpret aspects of reasoning with respect to which classical logic is inadequate. In this context, semantical methods in general, and algebraic semantics in particular, have proved to be extremely effective.

I ground my work in the framework of substructural logics, a large container of algebraizable logics including many of the interesting non-classical logics, besides including classical logic as a limit case.

The substructural logics framework is particularly powerful for its comparative potential.

My work is twofold:

1) I study formal methods capable of capturing large classes of substructural logics, establishing bridge theorems capable of translating relevant properties of the logics into algebraic features and vice versa.

2) I apply such formal methods to the study of the foundations of uncertain reasoning. In particular, I focused on the foundations of the probability theory of events that have a non-classical nature.

My research work started in the framework of Mathematical Fuzzy Logic (MFL), a class of interesting logical systems meant to formalize predicates that cannot be reduced to be either fully true nor false, but true to some degree . I have significantly contributed to the current understanding of MFL, introducing, together with my coauthors, a novel approach to study large classes of fuzzy logics based on algebraic constructions and category-theoretical methods.

Moreover, I successfully applied this approach to the study of the foundations of the probability theory of many-valued events, i.e., events that can be true to some degree (e.g., It is cold , I am tall). Later on, I extended my work to the wider framework of substructural logics, of which MFL is a special subclass, developing new constructions and techniques.

My current and future research plan focuses on two directions:

1) The foundations of reasoning under uncertainty in the unifiying framework of substructural logics, via the use of modalities interpreting a measure-theoretic quantifier, such as a probability operator, or different kinds of measures commonly present in natural language, such as necessity or possibility.

2) The study of first-order (universal and existential) quantifiers in substructural logics, in particular studying the infinitary versions of resource-sensitive connectives. The investigation starts with one-variable fragments, which can be studied as modal substructural logics.

The relevance of my work is recognized by the scientific community, as testified by my first-level publications, the competitive position I won at the end of my PhD, the funding of my MSCA project, and by the invitation to international conferences and workshops.

Resumen del Currículum Vitae:

I started my research career at the University of Siena, Italy, working on my master thesis in mathematical logic together with late Prof. Franco Montagna, utmost researcher in various areas of logic. My master thesis won the prize for the best master thesis in logic by AILA, the Italian Association of Logic and its Applications.

I started my PhD at the Department of Computer Science of the University of Pisa, under the supervision of Montagna, and after he passed, I continued my work under the supervision of Tommaso Flaminio. I developed my PhD thesis during several research visits conducted across the world, working together with leading experts in my research area.

Right at the end of my PhD, in 2018, I won a competitive position of Visiting Assistant Professor at the Department of Mathematics of the University of Denver, Colorado, USA, which is now a top institution (R1) in the Carnegie Classification of Research Universities. Here, besides conducting research with the group of Nikolaos Galatos, main worldwide expert in algebraic logic, I taught five undergraduate courses in mathematics per year, and organized the Department s weekly Nonclassical Logic Seminar.

In 2019 I won a prestigious Marie Sklodowska-Curie Fellowship, and I now work with the research group of Lluís Godo, world renowned expert in fuzzy logics and reasoning, at the IIIA-CSIC.

My research line has proven to be impactful and fruitful. Indeed, I have published 11 papers (9 in peer-reviewed journals, 2 in peer-reviewed proceedings of international conferences) and I have 5 manuscripts awaiting peer-review. 7 of the papers are in Q1 in their publication year. I have 81 citations on Google Scholar, 32 on Scopus, 25 on WoS. My H-index is 6 on Google Scholar, 4 on WoS and Scopus.

During my research career, I have visited several researchers and research groups initiating ongoing fruitful collaborations. Overall, I have published papers with 8 different coauthors from more than 5 different research groups.

My work has been increasingly recognized by the scientific community. In particular, I was selected as invited speaker for 7 international conferences and workshops in the last three years. Moreover, I have spoken at other 15 international conferences relevant for my research area, and organized two conferences and one international workshop.

After the pandemic started, starting in April 2020, I pursued the effort of connecting the community by turning the Denver department s Nonclassical Logic Seminar into a weekly online webinar which grew to involve many important research groups in non-classical logics from all over the world. The webinar has been extremely successful, and has played an important role of keeping the community together, share new ideas, prompt new research.

At a personal level, I curated the website, made contacts with the speakers, and chaired the talks, highly increasing my visibility and central position in my research area.

Moreover, I have co-supervised one BSc thesis, and I am currently co-supervising one BSc thesis and a MSc thesis. I have used the opportunities given by my MSCA for communication activities, such as an outreach project with a high school on my hometown, and an outreach video distributed on the main social media for the International Day of Women and Girls in Science, realized with the women researchers at the IIIA-CSIC.

Área Temática: Mente, lenguaje y pensamiento
Nombre: PAGLIARINI , ELENA
Referencia: RYC2021-033969-I
Correo Electrónico: elenapagliarini2@gmail.com
Título: The growth of language

Resumen de la Memoria:

My research predominantly focuses on language acquisition and is mainly experimental, so besides having a thorough grasp of the field of language acquisition and its outstanding questions, I have an up-to-date knowledge of experimental design and analysis. My profile has been enriched by many international stays in prestigious universities in Australia, Germany, Spain and Italy allowing me to build a strong international network and to develop original and critical thought. Throughout my career, I obtained several grants and awards to finance my research projects. Indeed, I have participated as a PI and collaborator in several research projects funded by national (MIUR) and international (NWO, H2020) funding bodies.

I learned formal linguistics during my Bachelor in Communication Science and my Master in Linguistics (both Summa cum laude, University of Verona). During my PhD, which I obtained in 2016 from the Università degli Studi di Milano-Bicocca, I gained expertise in experimental methods and in clinical aspects of Developmental Dyslexia thanks to several interactions with speech-language therapists. My pre and postdoctoral experiences allowed me to strengthen my knowledge in different fields of linguistics and language acquisition.

My work lies at the intersection between linguistics and cognitive science. I lead two main productive research lines: (i) the acquisition of logical operators with a cross-linguistic edge; (ii) the linguistic and extra-linguistic profiles of children with dyslexia and language impairment. These two topics are apparently disconnected   but both shed light on the complex and fascinating processes involved in the acquisition of language.

The goal of my research agenda is to shed light on the interplay between syntax and semantics on one side, and semantics and pragmatics on the other side, during the first years of language development. I study how children face the challenge of mapping word forms/sentences into meaning through investigations in two domains of compositional semantics: disjunction in negative sentences and semantically plural arguments. I conducted a series of studies which show the limits of previous suggested explanations of the acquisition of these operators and call for the proposal of new general principles that can account for the acquisition of semantic concepts. In the near future I plan to investigate the developmental path of the computational process proposed for the derivation of pragmatic and semantic inferences in very young toddlers.

Alongside, I widely contribute to the field of language disorders, adding remarkable findings both on the side of linguistic and cognitive science. My works show that children with dyslexia experience language and handwriting difficulties in addition to the known reading difficulties.

Recently, these two lines are converging in the investigation of semantic and pragmatic abilities in children with language impairment.

In short, during my career, I built a strong linguistic background and experimental expertise which make me a total independent researcher, with the required theoretical, applied and communicative skills to successfully attract competitive funding, lead research groups and international projects.

Resumen del Currículum Vitae:

Since 2019 I am an Assistant Professor at the Università degli Studi di Padova, after less than 4 years of total postdoctoral experience: 3 years as a Marie Sklodowska-Curie research fellow (Project 'PredictAble , Universitat Pompeu Fabra) and 9 months as a postdoc with Prof. Adriana Belletti (University of Siena). In addition, I had three funded visiting periods in international research centers: 15 months at Macquarie University (Sydney); 7 months at the University of Potsdam (Germany) and 1 month at the Universitat Autonóma de Barcelona. I obtained my PhD in 2016 from the Università degli Studi di Milano-Bicocca with a dissertation on the linguistic and cognitive profiles of children with dyslexia. My other line of investigation concerns the acquisition of the syntax-semantics interface.

I am an established researcher in language acquisition, as shown by the metrics of my works: h Index: 6 (WoS) and i10-index: 7. My research record is impressive having published in some of the most prestigious journals in language acquisition and linguistics: 13 peer-reviewed articles in international journals 9 of which are first quartile plus 3 book chapters and one peer-reviewed proceeding. I highlight among my publications, two times a Nature Scientific Reports (IF 4.576), one Cognition (IF 3.843), one Language Acquisition (IF 1.233), two Language Learning and Development (IF 1.651) papers.

My works have received a lot of attention in terms of citations (94 (WoS); 172 (Google Scholar)), media coverage including El Periódico, La Repubblica, il Corriere della Sera and several authors have published articles in reply to my work.

I won over 365.000 euro in personal funds through several competitive grant schemas: María Zambrano para la atracción de talento internacional 2023-2024; Juan de la Cierva Incorporación 2018 (declined for incompatibility with the current position); Marie Curie INT-ETN Fellowship 2015-2018; postdoc fellowship funding by the University of Siena (2019); 4 years PhD scholarship funding by the Italian Ministry of University and Research (2012-2015); two travel grants. As PI, I recently won competitive funding for two projects, one funded by the University of Padua and one funded by the Italian Ministry of University and Research.

I received 10 invitations for talks from universities across Europe, I gave 19 oral presentations and 29 poster presentations at prominent international conferences (all with selection of abstracts a.o., BUCLD, GALA, Going Romance).

Since 2015, I have been external reviewer for many international journals (including Cognition, Language Acquisition, Glossa); evaluator of one grant proposal for the NSF; member of scientific committees of international conferences (a.o. IGG46; XPrag 2019, XPrag 2017) and organizer of many international conferences and workshops.

I have also extensive experience with teaching, both at undergraduate and master level for which I have always received excellent teaching evaluation. Moreover, I have successfully supervised one PhD thesis (Irene Canudas Grabolosa, Universitat Pompeu Fabra, 2021), 15 master theses (plus two currently), 5 BA thesis and I am currently supervising a postdoctoral researcher working for my project on quantifiers. In addition, I have been the external member for 2 PhD committees (University of Milan and University of Oslo).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	CHILOVI , SAMUELE
Referencia:	RYC2021-032064-I
Correo Electrónico:	samuele.chilovi@gmail.com
Título:	The Metaphysical Structure of Normative Explanation

Resumen de la Memoria:

I currently hold a postdoctoral fellowship at UCLA Department of Philosophy and School of Law (2021). Before joining UCLA, I was employed as a postdoctoral fellow at Pompeu Fabra University (2019 20), and as a research fellow at Glasgow University (2017 18). I received my Ph.D. in Philosophy (cum laude, mención internacional) in June 2019 from the University of Barcelona, where I was a member of the research group LOGOS. During my doctoral training, I have held visiting positions at the Philosophy Department at Rutgers University, at the Department of Logic and Theoretical Philosophy at Complutense University of Madrid, and at the Department of Public Law and Legal Philosophy at Autonomous University of Madrid.

My doctoral dissertation investigated the relation between metaphysical grounding and modality, and brought the notion of grounding to bear on key concepts and arguments in philosophy of law and metaethics. Every chapter of my dissertation has been published in Q1 philosophy journals: three of them were published in top-tier (D1) generalist journals   Philosophical Studies (x2) and Synthese   and another was published in Legal Theory, the top journal in the field of legal philosophy.

My current and recent work lies in metaphysics, metaethics, legal and social philosophy. A unifying theme of my research concerns the structure of normative explanation and the metaphysical status of normative reality, focusing on the way in which normative facts   including moral, social, and legal facts   arise from more fundamental elements of reality.

This main line of investigation is developed in two interrelated strands of research.

(i) The first research thread investigates the nature of the dependence relation that underlies the metaphysical explanation of normative   moral, social and legal   facts. To do so, it examines the structural features that the relevant notion of dependence must possess in order to underwrite normative explanations, and it investigates the relation that metaphysical dependence bears to cognate notions of philosophical interest: metaphysical necessity, logical entailment, epistemic reasons, a priori entailment, and reduction.

The research output of this line of inquiry so far consists of articles published in Philosophical Studies, Pacific Philosophical Quarterly, and Synthese.

(ii) The second strand of my research draws on a range of related notions in metaphysics   grounding, essence, reduction, and analysis   to shed light on the nature of normative reality and on the structure of normative explanation. Specifically, it deploys such notions to accomplish a set of interrelated goals: (a) reconfiguring central debates on the metaphysics of normativity, in areas including ethics, metaethics, legal and social philosophy; (b) redefining core theoretical options and views within these debates (e.g., ethical (non)naturalism and legal (non)positivism), and illuminating neglected options therein; (c) clarifying key notions at play within such views (e.g., social construction); and (d) evaluating the strengths and weaknesses of argumentative strategies relevant to their proper evaluation.

The research output generated by this line of research so far includes articles published in Philosophical Studies and Legal Theory, seven book chapters in volumes, and a book for Cambridge University Press forthcoming in 2022.

Resumen del Currículum Vitae:

I hold a postdoctoral position at UCLA Department of Philosophy and School of Law (2021). Prior to this, I was employed as a postdoctoral fellow at Pompeu Fabra University (2019 20), and as a research fellow at Glasgow University (2017 18). I received my Ph.D. in Philosophy (cum laude) in June 2019 from the University of Barcelona, where I was a member of the research group LOGOS.

In 2020, I was awarded the Juan de la Cierva   Formación postdoctoral fellowship and the Portuguese FCT   Junior postdoctoral fellowship, ranking first and third respectively in philosophy at my first year of eligibility. I am the first, among the fourteen postdocs who have had my current post at UCLA, without a Ph.D. from a US university, Oxford or Toronto.

I work primarily in metaphysics, metaethics, legal and social philosophy. A unifying theme of my research concerns the metaphysical structure of normative explanation, and focuses on the way in which normative reality   including moral, social, and legal reality   fits into reality overall.

I have published 12 papers   including every chapter of my dissertation   in prestigious edited volumes and journals, such as Philosophical Studies (x2), Pacific Philosophical Quarterly, Synthese, and Legal Theory. 5 of them are published in Q1 journals (SJR ranking), 4 of which in the first decile (D1). 4 book chapters are in volumes with publishers ranked in top 5 SPI positions.

I have a book (called   Metaphysical Relations in Law) under contract with Cambridge University Press (SPI General: 2/425) for the Elements Series, forthcoming in 2022.

I have delivered 63 talks across North America (Rutgers, UCLA, Cornell, UNC Chapel Hill, CUNY, ITAM, Portland, York and McMaster), Latin America (National U. of Colombia), and Europe (e.g., Edinburgh, Glasgow, Surrey, Helsinki, Valencia, UAM, and UNED). Of these, 23 talks were by invitation,

including at UCLA, Chapel Hill, and Edinburgh. Following peer-review selection, I presented my work at the Metaphysical Mayhem Workshop at Rutgers University, one of the most prestigious metaphysics graduate conferences in the US.

My work has received over 50 citations (Google Scholar), including in influential venues such as the Stanford Encyclopedia of Philosophy, Noûs, Philosophical Issues, Harvard Law Review, Oxford Journal of Legal Studies, and the Routledge Handbook of Metaphysical Grounding. My PhilPeople Citation Score (over the past five years) falls within the top 2% in philosophy of law, and within the top 3% in metaphysics.

Witnessing my commitment to collaborative research and ability to attract funding, I have contributed to 4 successful research grant applications; I ve been a member of 1 international project, 3 national projects, 7 research networks; and I ve contributed to the organization of 8 research activities and events (conferences, seminars, workshops) at Barcelona, UPF and Glasgow. Since I obtained my Ph.D. in 2019, I have attracted funding for over 370.000,00 .

I have served as a referee for over 20 article manuscripts, for journals such as the Australasian Journal of Philosophy, Philosophical Studies, Canadian Journal of Philosophy, and Synthese. In 2021, I was awarded the prize   Reviewer of the Year   by Legal Theory, the top journal in one of my fields of specialization.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	ARANTZETA PEREZ, MIREN
Referencia:	RYC2021-033222-I
Correo Electrónico:	miren.arantzeta@ehu.eus
Título:	Lenguaje y bilingüismo en el envejecimiento saludable

Resumen de la Memoria:

Soy experta en investigación clínicamente orientada sobre el envejecimiento, las alteraciones del lenguaje y el bilingüismo. Soy Diplomada en Logopedia (Universidad Autónoma de Barcelona. UAB) y Licenciada en Lingüística (Universidad de Barcelona. UB). En 2013 completé el Máster Erasmus Mundus en Lingüística Clínica (Universidad de Potsdam y Universidad de Groningen), e inicié mi doctorado en el Doctorado Internacional para Enfoques Experimentales del Cerebro y el Lenguaje (IDEALAB. Erasmus Mundus). Mi tesis doctoral estudia los déficits de comprensión de oraciones en afasia en hablantes bilingües y monolingües de euskera y español, el cual defendí en la Universidad de Groningen en 2017.

Actualmente, soy investigadora postdoctoral en el grupo Bilingual Mind (www.ehu.eus/HEB/) dirigido por el Prof. Laka en la Universidad del País Vasco (UPV/EHU). Recientemente, he ganado una beca Leonardo para Investigadores y Creadores Culturales (2021) de la Fundación BBVA. Como investigador principal, dirijo un grupo de investigadores interdisciplinarios que trabajan en la identificación de las variables explicativas que impulsan el deterioro no patológico del conocimiento semántico en términos de organización y activación mental del vocabulario a lo largo de la vida. Además, examino en el valor neuroprotector potencial del bilingüismo. Aparte de este proyecto, trabajo en dos estudios estrechamente relacionados: (i) deficiencias anómicas y control del lenguaje en personas con afasia, y (ii) metanálisis del efecto translingüístico de la terapia dirigida en una sola lengua en la afasia bilingüe.

Mi investigación une la investigación experimental y los enfoques clínicos relacionados con el deterioro, la patología o la pérdida del lenguaje. Busco comprender los procesos y mecanismos que guían las habilidades lingüísticas desde la edad adulta hasta la vejez. Este conocimiento, a su vez, mejorará los criterios de evaluación y diagnóstico de las discapacidades del lenguaje y, en última instancia, la calidad de la atención a pacientes y personas mayores.

Resumen del Currículum Vitae:

Me licencié en Logopedia en 2003 por la Universitat Autònoma de Barcelona (UAB) y me licencié en Lingüística por la Universitat de Barcelona (UB) en 2007. En 2013 completé el Máster Erasmus Mundus en Lingüística Clínica en la Universidad de Potsdam y la Universidad de Groningen. Me formé en métodos de investigación, procesamiento del lenguaje en afasia, trastornos del desarrollo del lenguaje, dislexia y alexia, así como en técnicas de neuroimagen y seguimiento ocular. El mismo año obtuve una beca de la Unión Europea para realizar mi tesis doctoral en el Doctorado Internacional para Enfoques Experimentales del Cerebro y el Lenguaje (IDEALAB) (Erasmus Mundus). Participé en cinco escuelas de invierno y verano organizadas por el programa en las universidades de Potsdam, Trento y Macquarie, donde me capacité en neuroimagen, modelado de datos, estadística avanzada, codificación y programación experimental, así como en escritura académica. Investigué sobre los déficits de comprensión de oraciones, la conciencia de error y el bilingüismo en afasia, bajo la supervisión de reconocidos expertos en la materia; Prof. Bastiaanse y Prof. Howard. Los resultados de esta investigación fueron el núcleo de mi tesis doctoral titulada 'Comprensión de oraciones en afasia monolingüe y bilingüe: evidencia de métodos de seguimiento ocular y de comportamiento' defendida en la Universidad de Groningen en 2017.

Actualmente, soy investigador postdoctoral en el grupo Mente Bilingüe liderado por la Prof. Laka en la Universidad del País Vasco (UPV/EHU).

Entre los principales logros obtenidos durante este período:
(a)   He desarrollado un proyecto sobre alteraciones anómicas en población bilingüe en colaboración con el instituto de investigación sanitaria Biodonostia ubicado en el Hospital Universitario de Donostia. Desafortunadamente, la recopilación de datos tuvo que pausarse debido a las restricciones del SARS-CoV2 y actualmente estamos esperando recibir el permiso para acceder al hospital y recopilar los datos necesarios para completar el estudio.
(b)   He meta-analizado una extensa revisión de la literatura científica para averiguar cómo la elección del idioma interfiere con la eficacia de la terapia del habla en población bilingüe, y en qué circunstancias se maximiza el beneficio potencial del lenguaje tratado y no tratado. Los resultados de este trabajo se publicarán próximamente siguiendo revisión por pares.
(c)   He ganado una beca Leonardo de la Fundación BBVA para realizar un proyecto sobre envejecimiento saludable, almacenamiento léxico y bilingüismo. Coordino un grupo interdisciplinario de investigadores en el estudio de la degradación del conocimiento semántico a lo largo de la vida.

Soy una investigadora de gran talento y altamente cualificada a nivel internacional. Los resultados de mi trabajo han sido difundidos en varios congresos internacionales y publicaciones de máximo impacto. También trabajo para acercar la ciencia y la sociedad participando en actividades de divulgación, charlas y entrevistas en tv/radio. Participo activamente en la tutoría de estudiantes de posgrado e imparto anualmente un seminario de investigación sobre neurocognición del lenguaje en nuestro programa de maestría.

Área Temática: Mente, lenguaje y pensamiento
Nombre: SEGUNDO ORTIN, MIGUEL
Referencia: RYC2021-031242-I
Correo Electrónico: miguel.segundo.ortin@gmail.com
Título: Embodied, situated and comparative cognition

Resumen de la Memoria:

My main area of research is the philosophy of psychology. Even though my approach is primarily philosophical, I draw freely upon other empirical disciplines, including cognitive psychology, comparative psychology, and cognitive neuroscience. My research has focused on examining three interrelated issues:

(1) Embodied and situated cognition: My main research interest focuses on analyzing both the philosophical foundations and the scientific credentials of embodied and situated theories of cognition. Regarding the first aim, I am interested in elucidating the theoretical and conceptual commitments of major schools of thought in Enactivism, Ecological Psychology, and the Extended Mind Thesis. The goal is to explore their complementarities, overlaps, and applications to other theoretical debates e.g., the nature of agency, the use of intentional vocabulary in cognitive science, etc. Secondly, I am interested in evaluating the explanatory power of these theoretical frameworks, either individually or combined, vis-à-vis other approaches to cognitive science. To carry out this second project, I pay special attention to the empirical literature on perceptual psychology, cognitive neuroscience, and skilled action.

(2) Comparative cognition. Part of my research focuses on studying the applicability of cognitive predicates to organisms without a Central Nervous System. I approach this from the perspective of an empirically informed philosophy of psychology, and my research has mainly focused on studying the behavior of so-called organisms (plants and bacteria). This work has been conducted in collaboration with the Minimal Intelligence (MINT) Lab at Universidad de Murcia (Spain). In the future, I seek to apply my current knowledge and expertise in the embodied and situated theory of cognition to the current debates in comparative cognition. My driving hypothesis is that an embodied and situated understanding of cognition better prepares us to understand how different species may have evolved different toolkits (e.g., perceptual systems, signaling systems, foraging strategies, etc.) to achieve similar results cognitive functions. Moreover, I hold such an embodied and situated approach may cast new light on the role that the brain plays in the evolution of cognition.

(3) Self-control: As part of my current research project, I study the philosophy and empirical science of self-control, with a special emphasis on cognitive explanations of delay gratification. In short, I hold that the psychology of self-control has been trapped by a dichotomous approach: either we assume that self-control is a matter of the individual exclusively, or we take it for granted that it is the result of environmental nudges. Instead, I try to approach self-control from the perspective of situated theories of cognition. My main goal is to understand self-control from a relational perspective, emphasizing the active relationship between organism and environment (including the cultural environment) but conceding the organism some autonomy in regulating this relation. To do so, I draw primarily from the theory of behavior settings, originally developed by Roger Barker.

Resumen del Currículum Vitae:

*SUMMARY OF MY CAREER:

I coursed my BA in Philosophy at Universidad de Murcia (Spain). After this, I completed two MA degrees at Universidad de Granada and Universidad Miguel Hernandez (both in Spain): M. A. in Contemporary (finished in 2014); and M. A. in Secondary Education Teaching, Vocational Training and Language Teaching   Specialization in History and Philosophy (finished in 2016).

In July 2015, I was granted two different scholarships to do my Ph.D. at the University of Wollongong (UOW), under the main supervision of Professor Daniel D. Hutto and Dr. Michael Kirchhoff. My thesis, entitled Toward a Radical Enactive Cognitive Science was approved with no revisions and special commendations for an outstanding thesis by both external examiners (Professor Louise Barrett, and Professor Tobias Schlicht). Three chapters of the thesis were published in top-ranked philosophy journals. While I was doing my Ph.D., I published three more papers, organized two international workshops about Minimal Cognition at UOW, and edited a special issue about the same topic.

Upon completion of my Ph.D., I was awarded a post-doctoral position at UOW, to work on a research project about skilled action. Even though I was only six months in the post (January to July 2020), I managed to organize an international conference and published three articles and two book reviews. In September 2020, I was granted a 3-year post-doctoral position at Utrecht University (UU) to study agency and self-control from an embodied and situated perspective. Since I joined UU, I have had two book chapters and one article accepted, three papers currently under review, one book contract with Routledge, and 1 international conference organized. Finally, I have set a long-term research collaboration between UU and the Universidad de Granada, and I have created a series of monthly lectures (ULTIMA) at UU.

*RESEARCH OUTPUTS:

In total, I have 18 publications. These include 11 research articles, 2 book chapters, 3 book reviews, and 2 edited special issues. These research articles have been published in top-ranked philosophy and psychology journals, including Synthese (x2), Philosophical Psychology (x2), Consciousness & Cognition (x2), Philosophical Explorations (x1), Frontiers in Psychology (x1), Teorema (x1), Wiley Interdisciplinary Reviews (WIREs): Cognitive Science (x1), Studies in History and Philosophy of Science, Part A (x1), Adaptive Behavior (x1), and Journal of Consciousness Studies (x1). 100% of my research articles are published in Q1 journals (SJR/JCR). I have 139 citations (Source: Google Scholar).

I have edited 2 special issues in Adaptive Behavior (2019) and Journal of Consciousness Studies (2021).

I have 4 papers under review in Synthese (submitted minor revisions - pending final approval by the editor), Phenomenology and the Cognitive Sciences (submitted minor revisions - pending final approval by the editor), Nous, and Review of Philosophy and Psychology.

I have a contract to edit a book with Routledge (Resources in Ecological Psychology). The expected date of publication is 2023.

I have organized 5 international conferences in 2017, 2018 (x2), 2020, and 2021. I am also the organizer and coordinator of the Utrecht Lectures on Topics In Mind and Action (ULTIMA), at Utrecht University, and the co-coordinator of the Utrecht-Granada Philosophy Hub.

Área Temática:	**Mente, lenguaje y pensamiento**
Nombre:	KEELING , SOPHIE
Referencia:	RYC2021-032452-I
Correo Electrónico:	sophie.keeling@ub.edu
Título:	Controlling our Reasons

Resumen de la Memoria:

My primary research combines normativity, epistemology, and empirically-informed philosophy of mind and psychology.

More specifically, it centres around why we act the way we act and think the way we do, and one kind of explanation in particular. Suppose I visit the shop because I´ve run out of snacks or believe it will rain because the weather forecast says that it will. Or more weightly, perhaps I believe that a political party is the best because of certain policies and vote accordingly. These are the reasons for which we believe and act, and are at the heart of rationality, responsibility, and agency. My doctoral project considered the way in which we come to know our reasons and whether we have a special way of doing so that others lack. My postdoctoral research has examined two further topics. First, I have considered in more depth the constitutive connections between self-awareness and what it is to believe and act for a reason, and the related question of how we might be said to exercise agency over our beliefs. Second, I am interested in the kind of awareness that this consists in. I argue that we can become aware of our reasoning processes in a way that grounds our knowledge of them and in particular, that we have a form of experiential awareness of them. One growing interest which will provide the basis for my future research is whether we can exercise agency and control over believing and acting for a particular reason. I am starting to defend and develop the position that we do, something which I take to be fundamental for fully understanding control and responsibility as a whole.

Three core values underpin my research: (1) Quality. I have papers (either published or accepted) in Erkenntnis, Philosophy and Phenomenological Research, Analysis, Philosophical Psychology, and an invited book review in The Philosophical Quarterly. PPR in particular is regarded as one of the best 5 generalist journals in philosophy; a publication in this venue exhibits my ability to produce world class quality research even as a junior academic. (2) Interconnectivity. I combine different subfields in philosophy (and indeed also psychology) in order to better understand a core topic so as to avoid hyper-specialisation in just one area. (3) Intellectual ambition. Related to the above, my research trajectory is ambitious and, as I will discuss, follows an underlying thread. I hope to draw a detailed picture of aspects of human agency, control, and self-knowledge as opposed to simply making small moves.

Resumen del Currículum Vitae:

I am currently a Juan de la Cierva-formacion research fellow in the LOGOS group at the University of Barcelona. I was previously at the University of Edinburgh as a visiting research fellow with an Analysis studentship (2019-20) and as a teaching fellow (2018-19), and completed my PhD at the University of Southampton in 2018.

Even at this early stage, I have exhibited the ability to work at the highest level. I have published sole-authored papers in Philosophy and Phenomenological Research, Erkenntnis, Analysis, and Philosophical Psychology. These are all Q1 and well regarded in the discipline. Most notably, Philosophical and Phenomenological Research is widely regarded to be in the very highest tier of generalist journals in philosophy (the top 5). This publication in particular therefore exhibits my ability to produce significant and exceptionally high-quality research by the standards of philosophy as an entire discipline. And according to the Leiter rankings (based on votes by other philosophers: https://leiterreports.typepad.com/blog/2018/11/best-general-journals-of-philosophy-2018.html), Analysis is #10 and Erkenntnis is #13. I have also published an invited book review in The Philosophical Quarterly (#9), thus continuing my trend for working at the very highest levels. My reviewing credits also include two top 5 journals Nous and Mind (as well as Episteme, The Philosophical Quarterly, Episteme, Topoi, Analysis, Philosophy Compass, Philosophical Psychology, and Synthese). Further, I have also presented my work in a number of national and international venues, both invited and peer-reviewed. Most recently, I have presented at Tilburg, Tubingen, and given invited presentations/pre-read papers at the University of Nantes, Glasgow, Austin (Texas), and Dublin (some online due to the pandemic).

I also have a track record in acquiring research funding in both Spain and the UK: a Juan de la Cierva-formación research fellowship (50,000), an Analysis Studentship from the Analysis Trust (£15,009), a Royal Institute of Philosophy bursary (£3000), and an Arts and Humanities Research Council scholarship with the South, West, and Wales Doctoral Training (Fees and full maintenance grant for 3 years, adjusted yearly).

In addition to research, I also possess extensive teaching experience for my career stage. Most notably, during my year as a teaching fellow at Edinburgh I worked independently and with others to run modules in a range of subjects at both honours and masters level: empirically-informed philosophy of mind, epistemology, and philosophy of language. I also supervised dissertations at both undergraduate and masters level. In addition to preparing me for all aspects of an academic career, this will be invaluable as I start mentoring and leading research groups in the future.

Other notable leadership experience include collaborating with my colleague Joshua Shepherd at the University of Barcelona to organise a 3 day online international workshop on the topic of my current research (Reasons, Reasoning, and Self-Awareness, 12-14 July 2021). And while at the University of Edinburgh, I organised a series of public engagement events entitled Drinking Coffee, Thinking Coffee in conjunction with a local specialty coffee chain. This involved co-ordinating both academics and an outside organisation to run a series of interactive sessions.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	DE CORATO , MARCO
Referencia:	RYC2021-030948-I
Correo Electrónico:	ma.decorato@gmail.com
Título:	Fluctuating hydrodynamics of bio-nanoreactors and eukaryotic cells

Resumen de la Memoria:

I obtained my Bachelor s degree (2010), Master s degree cum laude (2013) and PhD (2016) in chemical engineering from the University of Naples (Italy). In 2016, I joined the department of chemical engineering of the Imperial College London (UK) where I have been a postdoctoral researcher for 30 months. In 2018, after a brief postdoc at the University of Barcelona, I joined the Institute of Bioengineering of Catalonia as a Marie-Curie Fellow. Since 2020, I am a Juan de la Cierva Incorporación fellow at the Institute of Engineering Research (I3A) of the University of Zaragoza.

In my career, I worked on different research projects broadly belonging to the area of microscale transport phenomena. Each time I joined a new group, I slightly changed the focus compared to my previous position. Moving through different countries and institutions also allowed me to establish several independent collaborations with different research groups.

During my PhD, I developed finite element methods and theoretical models to study the dynamics of micro and nanoparticles in complex fluids, with application in biomedicine and industrial processing of fluids. Specifically, I studied the hydrodynamic coupling of colloidal particles with confining boundaries and external flows, in Newtonian and non-Newtonian fluids.

In Prof. Garbin s group at the Imperial College London, I worked on the extreme and ultrafast deformation of structured fluids and fluid-gas interfaces. I used numerical simulations and analytical theory to understand and predict how viscoelastic, yield-stress fluids and particle-laden fluid interfaces react to fast deformation, such as that experienced during industrial processing or induced by cavitating bubbles. The theoretical results that I provided complemented and guided the experimental investigation performed by my colleagues, who used micron-sized bubbles driven by ultrasound waves as a model system for imparting high-speed controlled deformation to fluids and fluid interfaces.

As a Marie-Curie fellow at IBEC, I investigated the mechanisms of autonomous propulsion of nano- and micro-robots used in biological environments for biomedical applications. These functionalized colloidal particles harness a chemical reaction to perform simple tasks such as moving through a viscous fluid. They represent potential candidates for targeted drug delivery and microsurgery.

At the University of Zaragoza, I lead a research line focusing on chemo-hydrodynamics at the microscale. I am the PI of two projects obtained through competitive calls for a total of 200k . The goal of this research line is to shed light on the phenomena that arise at the microscale whereby chemistry is strongly coupled with hydrodynamics. At small scales, the thermal fluctuations of solvent and solute molecules are relevant and cannot be ignored. Even in situations where one can average over many molecules, quantities like mass, temperature and momentum fluctuate around their mean value. These fluctuations can impact the efficiency and the behavior of nanoreactors and might play an important role in living systems, possibly impacting the self-organization of macromolecules and enzymes inside eukaryotic cells.

Resumen del Currículum Vitae:

I am a Juan de la Cierva Incorporación postdoctoral fellow at the university of Zaragoza. In my research, I leverage theoretical and numerical tools to study microscale phenomena coupling fluid mechanics, rheology and chemical reactions. I obtained my PhD from the University of Napoli Federico II in 2016, where I worked on the hydrodynamic coupling of passive and active colloidal particles with confining boundaries and external flows, in Newtonian and non-Newtonian fluids. During my PhD, I performed a 5-months research stay at the department of mechanical engineering of the TU/e. In 2016, I joined the group of Prof. Valeria Garbin at the Imperial College London where I have been a postdoc for 30 months. During this period, I worked on the extreme deformation of structured fluids and fluid-gas interfaces. We used micron-sized bubbles driven by ultrasound waves as a model system for imparting high-speed controlled deformation to fluids and fluid interfaces.

In 2018, after a brief postdoc at the University of Barcelona, I accepted a Marie-Curie fellowship to join the Institute for Bioengineering of Catalonia (IBEC), under the supervision of Prof. Marino Arroyo. At IBEC, I worked on a theoretical-experimental project trying to unravel the mechanism of motion of self-propelled micro and nanorobots in biological environments. During the academic year 2019/2020, I have been a part-time lecturer (profesor asociado) at the Polytechnic University of Catalonia teaching advanced fluid mechanics and introduction to the finite element method to master s students.

In 2020, I accepted a Juan de la Cierva Incorporacion fellowship to join the group of Prof. Norberto Fueyo at the University of Zaragoza. Here, I investigate the phenomena emerging at the microscale due to the interplay of hydrodynamics, chemical reaction and fluctuations. My research represents a new line for the group that is hosting me and I am responsible for its progress, for attracting funding and for supervising students. In 2021, I was awarded two grants as Principal Investigator (PI) for a total amount of 200k .

I co-supervised 7 master students during their final projects, helping them progress with weekly meetings and motivating them. One of these master students decided to pursue and complete a PhD degree. I have mentored two PhD students. In 2022, I will supervise 4 master students and one predoctoral researcher, who will work on the projects that I am leading.

I have published 20 articles in international journals, with 4 published in prestigious journals like Nature Communications, Physical Review Letters and Science Robotics and 12 as the first author. I am the corresponding author in 9 articles, including one published in Physical Review Letters. Two of my first-author papers have been selected as the editor s choice. I was invited to contribute to the Outstanding early career researchers special issue by Physics of Fluids. To date, my papers have been cited more than 250 times resulting in an h-index of 10. I gave 22 oral presentations at international conferences and invited departmental seminars. I was invited to chair a session at the 2021 APS Division of Fluid Dynamics (DFD) meeting. I am a reviewer for several international journals and project evaluator for the Partnership for Advanced Computing in Europe (PRACE).

Resumen de la Memoria:

La presente trayectoria investigadora se ha focalizado en el desarrollo y validación de materiales, aplicaciones y estrategias de actuación para el almacenamiento y la gestión de la energía térmica en edificación, con el objetivo de hacer frente al objetivo de descarbonización de la calefacción y refrigeración, responsables de casi el 50% del consumo de energía final, siendo el 75% todavía basado en combustibles fósiles. La trayectoria se ha centrado en 4 áreas de investigación principales: MATERIALES, SISTEMAS, EDIFICACIÓN Y PLANIFICACIÓN ESTRATÉGICA.

En el área de investigación MATERIAL, la investigación se ha centrado en la identificación, caracterización, desarrollo y validación de nuevos materiales para el almacenamiento térmico a través de técnicas experimentales en laboratorio. En el área de SISTEMAS, la investigación se ha focalizado en la evaluación de técnicas de integración de las soluciones de almacenamiento e intercambio de calor en edificios a través de modelos numéricos (evaluaciones bottom-up). En EDIFICACIÓN, la investigación se ha centrado en la evaluación de las necesidades y demandas del parque edificado a través de estudios de campo. Y en PLANIFICACIÓN ESTRATÉGICA, los trabajos se han centrado en la identificación de planes de acción según las estrategias óptimas de implementación a escala local y/o nacional. a través de modelos numéricos de análisis (evaluaciones top-down). Dicha línea de investigación ha derivado en la siguiente trayectoria:

Como contribuciones científico-técnicas, la línea abarca 24 artículos en revistas científicas JCR, 4 capítulos de libro y 26 comunicaciones a congresos internacionales, obteniendo un índice h14 y 757 citas. La investigación ha sido financiada a través de 10 ayudas y contratos de excelencia obtenidos en convocatorias públicas competitivas, englobando una Juan de la Cierva en el CSIC y una Marie Curie en la Universidad de Oxford. El candidato ha contribuido a 13 proyectos de i+D (2 internacionales, 3 europeos y 8 nacionales), siendo en la actualidad IP del proyecto H2020 MSCA ResCool en Oxford. Participa con regularidad en actividades de divulgación y gestión. Su trayectoria ha sido ampliamente reconocida, destacando el 1er Premio nacional a la mejor tesis doctoral por el Grupo GECAT, 1er Premio Joven a la Cultura Científica 2018; y 1er Premio Internacional YEAR AWARD 2018.

En cuanto a Movilidad e internacionalización, ha desarrollado 3 estancias predoctorales de 3 meses en The University of Edinburgh, Technical University of Munich, Universidade de Lisboa; y 3 estancias postdoctorales en la Universidad de Sevilla, el CSIC y la University of Oxford. Resultado de dichas estancias, junto con la participación en 2 proyectos internacionales y 3 europeos, han publicado 11 artículos JCR en colaboración internacional y 1 patente.

En relación con actividades de Liderazgo, el candidato es en la actualidad Investigador Principal del proyecto H2020 MSCA ResCool, dirige estudiantes de doctorado y es líder de un equipo de trabajo en el programa Future of Cooling de la Universidad de Oxford. Además, es miembro del consejo editorial de las revistas Sustainable Cities and Society (JCR, Q1, IF: 7.58) y Frontiers in Built Environment (JCR, Q2), chair de congresos internacionales, y revisor de proyectos europeos.

Resumen del Currículum Vitae:

El Dr. Jesús Lizana es experto en ingeniería térmica en edificación y simulación avanzada. Dr. Lizana es licenciado en Arquitectura por la Universidad de Sevilla (2013), Master Universitario en Peritación y Reparación de Edificios (2015) y Doctor por la misma universidad (2019). Su investigación ha sido financiada a través de 10 ayudas y contratos de excelencia obtenidas en convocatorias públicas competitivas, lo que le ha permitido desarrollar su doctorado a través de un contrato de Formación del Personal Universitario (FPU), consolidar su etapa postdoctoral con un contrato Juan de la Cierva (JdC-F) en el Instituto de Ciencia de Materiales del CSIC y una Marie Curie Individual Fellowship (MSCA) en la University of Oxford, y abordar investigaciones interdisciplinares a través de estancias internacionales en la University of Edinburgh, la Technical University of Munich y Universidade de Lisboa. Cuenta con acreditación Prof. Contratado Doctor.

En la actualidad, Dr. Lizana es IP del proyecto europeo ResCool (Resilient cooling towards climate change adaptation of cities and buildings) en la Universidad de Oxford, y responsable de un grupo de trabajo dentro del programa The Future of Cooling .

Dr. Lizana ha contribuido a 13 proyectos de i+D (2 internacionales, 3 europeos y 8 nacionales), cuenta con 24 artículos en revistas científicas JCR, 4 capítulos de libro y 26 comunicaciones a congresos internacionales, obteniendo un índice h14 y 757 citas, estando uno de sus trabajos en la categoría de highly cited . Además,11 de sus publicaciones son resultado de colaboraciones internacionales.

Es revisor frecuente de revistas científicas y congresos internacionales, miembro del comité científico-técnico de congresos internacionales (CICSE, SDEWES), y editor de las revistas Sustainable Cities and Society (JCR, Q1, IF: 7.58) y Frontiers in Built Environment (JCR, Q2).

Destaca su capacidad de transferencia y aportación a la sociedad a través del desarrollo de una patente, la participación en 5 proyectos de I+D financiados por empresas, y la colaboración en proyectos de arquitectura en España (Sevilla, Málaga, Barcelona), Marruecos y Arabia Saudí (Yidda y Dubái), algunos de los cuales han obtenido reconocimientos internacionales, como el Prototipo de vivienda Patio 2.12, galardonado con el 2º Premio Internacional Solar Decathlon Europe 2012. Además, desarrolla actividades de divulgación en medios cómo TheConversation, Cadenaser o Housing Matters, participa en actividades institucionales (TESIS EN 3 MINUTOS o Noche Europea de los Investigadores) y colabora con frecuencia en programas de promoción de la investigación en escuelas cómo Science is Wanderful (2022) o Jóvenes con Investigadores (2016-19).

Su trabajo investigador ha sido reconocido en numerosas ocasiones, destacando el 1er Premio nacional a la mejor tesis doctoral por el Grupo GECAT de la Real Sociedad Española de Química y la Real Sociedad Española de Física (1000); 1er Premio Joven a la Cultura Científica 2018 del Ayuntamiento

de Sevilla y el CSIC (4000); el 1er Premio Internacional YEAR AWARD 2018 por la Asociación Europea de Jóvenes Investigadores; y accésit en la competición Tu tesis en 3 minutos . Además, 4 de sus publicaciones han sido reconocidas con premios a la mejor publicación científica de su área, por el Instituto Universitario de Arquitectura y Ciencias de la Construcción (IUACC), y el Consejo Superior de Investigaciones Científicas (CSIC).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	TOIMIL SILVA, ALEXANDRA
Referencia:	RYC2021-030873-I
Correo Electrónico:	alexandra.toimil@unican.es
Título:	Coastal impacts of climate change and adaptation under uncertainty

Resumen de la Memoria:

Dr. Alexandra Toimil (AT hereinafter) has always been interested in climate change (CC) and its effects on coastal areas. The challenges associated with CC impacts and risks, especially those of coastal flooding and erosion, their consequences on socioeconomic and natural systems, adaptation planning, and uncertainty analysis have always driven her research activity.

In 2014, AT started her PhD in Coastal Engineering (Universidad de Cantabria) under the supervision of Iñigo J. Losada and Pedro Díaz-Simal. During her predoc, AT advanced significant knowledge on coastal flood and erosion process-based modelling, socioeconomic risk assessment, as well as adaptation planning, as she contributed to the drafting of the Spanish Strategy for Coastal Adaptation to CC.

In 2018, AT accomplished the PhD thesis entitled "A framework for multisectoral assessment of climate change risks in coastal areas". The methodology developed for CC risk assessment became a reference in the field and was adopted by the MITECO to have homogeneous results along the Spanish coast. Her thesis received the first-prize Modesto Vigueras Award 2020 and the XXth Juan Mª Parés Research Award 2020; and it also resulted in 3 Q1 papers, on coastal flood risk assessment, coastal erosion modelling, and the analysis of the risk of loss of beach recreation due to erosion. One of these (from 2017) has >60 citations (Scopus) and has been cited in 2019 & 2021 IPCC reports.

Soon after finishing her PhD, AT joined the CC and Energy Group at the School of Engineering of the University of Southampton (UK) as a visiting postdoctoral research fellow for 1 year. Under the supervision of RJ Nicholls, she was involved in teaching and mentoring and also advanced her research. AT worked on 2Q1 papers, on CC risk-related challenges for coastal engineers (1 of the 8 most cited papers in Coast. Eng. since 2018), and uncertainty treatment in CC-driven coastal erosion modelling (Highly cited and Research Front paper). At the end of 2018, AT was awarded one of the 7 competitive 1-year grants for postdoctoral fellowships at the Universidad de Cantabria. During 2018-2019, she collaborated with many international researchers in 1 book chapter and several papers on coastal flooding, coastal erosion and adaptation to CC.

At the end of 2019, AT started supervising 1 PhD thesis on shoreline change modelling that is near completion and so far it has resulted in 2Q1. In 2021, she took on the supervision of 2 additional PhD theses, 1 on compound fluvial-coastal flooding and 1 on CC-driven changes in ecosystems services and their influence on coastal erosion. Since 2022, AT is supervising a postdoc researcher focused on broad-scale coastal impact assessments. In total, she has supervised 6 MSc theses (2 ongoing).

From 2020-onwards, AT has increased collaborations and advanced significant knowledge in dynamic adaptation planning, the characterisation of the uncertainty cascade in coastal impact projections, and the coupled modelling of coastal flooding and erosion (2Q1, 1 under review, +1Q2). Since 2022, AT has been a visiting postdoctoral research fellow at the Coastal Risks and CC Unit of BRGM (France), the French Geological Survey. She is working with G Le Cozannet to further her research on the joint impact of flooding-erosion and the analysis of the uncertainty cascade.

Resumen del Currículum Vitae:

Dr. Alexandra Toimil is a postdoctoral research fellow at IHCantabria. Dr Toimil research focuses on the assessment of climate change-driven coastal impacts and risks in coastal areas, climate-change adaptation and uncertainty analysis, fields in which she has made significant scientific and knowledge-transfer contributions.

She graduated as MSc in Civil Engineering (Universidad Alfonso X El Sabio, 2012) and earned a MSc in Coastal and Port Engineering (Universidad de Cantabria, 2014) and a PhD in Costal Engineering (Universidad de Cantabria, 2018). Her PhD thesis, entitled "A framework for multisectoral assessment of climate change risks in coastal areas" and supervised by Iñigo J. Losada and Pedro Díaz Simal, was awarded with first-prize Modesto Vigueras Award 2020 (Spanish Technical Association of Ports and Coasts) and the XXth Juan Mª Parés Research Award 2020 (Social Council of the Universidad de Cantabria). Modesto Vigueras is the most important award in Spain for young engineers in the area of ports and coasts, and it has been awarded by the Spanish Technical Association of Ports and Coasts (Spanish section of PIANC) for > 25 years. The Juan Mª Parés Research Award was awarded by the Social Council of the Universidad de Cantabria to the best PhD thesis in engineering over 2018-2020.

During 2018-2019, Toimil was a visiting Postdoctoral Fellow in the Climate Change and Energy Group at the School of Engineering at the University of Southampton, cited as the UK's leading university for Engineering, for a 1-year period. Southampton, she was supervised by Prof. Robert J. Nicholls, one of the world's leading experts on coastal engineering and CC. At the end 2018, Toimil was awarded one of the 7 competitive 1-year grants for postdoctoral fellowships (from all areas) at the Universidad de Cantabria (BOC 201, October 15, 2018). Since 2022, she has been a visiting postdoctoral research fellow at the Coastal Risks and Climate Change Unit of BRGM (France), the French Geological Survey and France's leading public institution for Earth Science applications. At BGRM, Toimil works with Gonéri Le Cozannet, world-lead expert in CC coastal impacts and coordinator of the most important European project in sea-level rise impacts.

Since 2017, her research activity comprises 15 JCR-indexed published papers (11Q1 & 4Q2; 7 as first author of which 6Q1; first JCR article in 2017; 5 JCR articles are from 2021), which have 264 citations (183 first-author papers; 142 in 2021) (Scopus); 23 presentations (17 as speaker & 6 as invited speaker); and 4 invited seminars. Toimil (h-index 9 in Scopus; and 10 in GS) has collaborated with >30 researchers and published in the highest-impact journals in ocean engineering (Coast. Eng.1/16); geophysics/multidisciplinary (Earth-Sci. Rev. 3/199), and environmental studies (Tour Manag. 1/124). Since 2019, Toimil is supervising 3 PhD theses and 1 postdoc researcher. She has supervised 6 MSc theses (2 ongoing).

Dr. Toimil has participated as researcher in 2 European projects, 4 National Plan projects (2 as Research Team member) and >15 R+D+i contracts for different companies and institutions including MITECO, United Nations ECLAC and The Nature Conservancy. Since 2019, she has led 1 European project as co-PI & co-WP leader (516,625.00), 1 Regional project as PI (70,000.00), and 4 R+D+i contracts as PI or co-PI (460,812.00).

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	RAMIREZ GARCIA, JULIA
Referencia:	RYC2021-031413-I
Correo Electrónico:	juliaramirezgarcia@gmail.com
Título:	Biomedical signal processing, genetics and data science tools for cardiovascular risk prediction

Resumen de la Memoria:

The utmost goal of my research career is to develop tools based on a solid physiological foundation using signal processing, statistical genetics or artificial intelligence, and translate them into the clinical practice to improve cardiovascular risk prediction.

In March 2017, I obtained my international Ph.D. in Biomedical Engineering at the University of Zaragoza (UNIZAR, summa cum laude), supervised by world-leading experts in electrocardiogram (ECG) signal processing, Prof Pablo Laguna and Dr Esther Pueyo. ECG-derived sudden cardiac death (SCD) predictors were only based on temporal or amplitude intervals at that time, neglecting the information contained in the overall morphology. I was the first to propose a methodology to quantify morphological variations in the ECG by leading a collaboration with Dr Derek Tucker (University of Florida) to adapt his methodology from mathematics and statistics to the ECG. After this, and driven by the electrophysiological fact that the dynamic changes of the heart are those indicating higher SCD risk, I led the proposal of the T-wave morphology restitution (TMR) index, quantifying T-wave morphology variations with heart rate, demonstrating it is a stronger SCD predictor than standard clinical indices in ~700 patients with chronic heart failure.

After my PhD, I was interested in understanding the biological mechanisms underlying TMR. Therefore, I moved to Queen Mary University of London (QMUL) to work with a world-leading geneticist, Prof Patricia Munroe. This was a highlight in my research career, as I expanded my skillset by gaining expertise in genetics and bioinformatics. I analysed ~100,000 ECGs from the UK Biobank study to extract multiple markers, including TMR, and I was a pioneer studying their genetic contribution for the first time, which led to discover >100 novel candidate genes and to unravel their underlying mechanisms. I was awarded two postdoctoral fellowships by the European Commission, a WHRI-ACADEMY COFUND International Fellowship (2017) and a Marie Sklodowska-Curie Individual Fellowship (2018). Thanks to these fellowships, I validated the value of TMR, being the strongest ECG marker of ventricular arrhythmic risk in ~60,000 individuals from the general population, I showed the main associated genes are involved in ventricular repolarization potassium channels, and I studied the predictive value of risk scores combining ECG and genetic markers. In April 2020, QMUL appointed me Lecturer in Cardiovascular Data Science and Genetics in recognition for my work.

In 2021, I took a 4-month maternity leave and, since January 2022, I am back at UNIZAR thanks to a María Zambrano Fellowship. This year I was also awarded the highly competitive Atracción de Talento Modalidad 2 from the Comunidad de Madrid, and I received an excellent score in my Juan de la Cierva Incorporacion application (86.9/100, 1st in the waiting list).

My research can be summarised in the following strands:
1.   ECG signal processing to extract information for cardiovascular risk stratification
2.   Genetics and bioinformatics to understand the biology of cardiovascular risk factors
3.   Investigation of the causal relationship between different cardiovascular risk factors
4.   Statistics and machine learning to optimise risk stratification
5.   Non-invasive monitoring of blood electrolyte levels during haemodialysis

Resumen del Currículum Vitae:

In March 2017, I obtained my international Ph.D. in Biomedical Engineering at the University of Zaragoza (UNIZAR, summa cum laude). I spent 3 months visiting the FIFA-Medical Assessment and Research Centre at the University Hospital in Zurich (2013). Then, in 2015, I spent 3 months visiting the Institute of Cardiovascular Science at University College London.

From April 2017 to January 2022, I developed my scientific career at Queen Mary University of London (QMUL), during which I was awarded 2 postdoctoral fellowships by the European Commission, a WHRI-ACADEMY COFUND International Fellowship (2017), and a Marie Sklodowska-Curie Individual Fellowship (2018). In April 2020, QMUL appointed me Lecturer in Cardiovascular Data Science and Genetics in recognition for my work.

In 2021, I took a 4-month maternity leave and, since January 2022, I am back at UNIZAR thanks to a María Zambrano Fellowship. This year I was also awarded the highly competitive Atracción de Talento Modalidad 2 from the Comunidad de Madrid, and I received an excellent score in my Juan de la Cierva Incorporacion application (86.9/100, 1st in the waiting list).

I have contributed with 25 publications in different fields, including bioengineering, cardiology and genetics (11 as lead or joint first author, 1 as last author, 19 in Q1 journals, 7 as corresponding author), 2 invited editorials (1 in a Q1 journal and 1 in a Q2 journal) and 25 conference proceedings (13 as first author, 5 as last author). The impact has been excellent, with a total number of 254 citations (Scopus) and 12 awards, including 3 Young Investigator Awards, 2 Clinical Translational Awards, 3 mobility grants, 2 poster awards, and 2 best abstract awards. Moreover, I have been invited to deliver 11 talks to applied seminars and workshops.

I have applied for a Spanish National Proyecto de Generación de Conocimiento grant in the 2021 call as a co-PI for the first time. Moreover, I am currently part of the research team in a private project with Soleno Therapeutics Inc, investigating the genetics of individuals with Prader-Willi Syndrome. I am also the co-PI in a project submitted to the Global Obesity ASPIRE Competitive Grant Program by Pfizer. Finally, I have been a research or working team member in 10 national and 3 regional research projects at UNIZAR, QMUL and Universidad San Jorge.

I am or have supervised a postdoctoral researcher, 2 PhD students, 1 visiting PhD student, 8 research projects and 9 MSc students across UNIZAR and QMUL, leading to 8 publications where I have had senior or last authorship. In January 2022, I received a positive evaluation for Profesor Contratado Doctor by ANECA.

I have organised scientific events, including Computing in Cardiology (CINC), a Mini-Symposium at QMUL, and a special session at CINC (which I also chaired). Since 2020, I am the topic editor of 3 important journals in my research field, as well as member of 3 grant review boards. Finally, I am a member of crucial international consortia.

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I have a personal website where I disseminate my results and research activities (https://juliaramirez.net). To target the public, I have participated in QMUL s Science Festival   and   Festival of Communities . To target students, I took part in the   I am a scientist, get me out of here   initiative. To target patients, I was invited to participate in the   Let s Talk Hearts   event. My research has been reviewed 9 times in the news and specialized media.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	SOILAN RODRIGUEZ, MARIO
Referencia:	RYC2021-033560-I
Correo Electrónico:	mariosoilan@gmail.com
Título:	Advanced geospatial data processing methods for the digitalization and modelling of transport

infrastructure

Resumen de la Memoria:

My research career began in 2014, with a contract related to a national research project at the University of Vigo. Since then, it has been funded by a FPI contract in the predoctoral and postdoctoral orientation periods (2015-2019), a H2020 European project (2019-2020) and by a Juan de la Cierva - Formación contract at the University of Salamanca (2020-2022). The main line of my research was initially focused on the automation of geomatic information treatment processes for the inspection and maintenance of road and railway infrastructures. During my postdoctoral period I moved towards a more ambitious, necessary for the society approach, focusing on the digitalization and generation of information models and services for the implementation of digital twins of the transport infrastructure, standardization in projects in this field, and the use of artificial intelligence and Deep Learning with remote sensing and mapping technologies for applications with a direct impact on the transfer of knowledge to infrastructure management companies.

I present a strong profile across all the dimensions of the research career. I have published 27 peer reviewed documents (16 as first author), presented 12 contributions in congresses (11 international), and participated in the organization of 4 congresses (3 international), being session chair in two of them. I have participated in 14 R&D projects (7 international) funded with more than 30 million through competitive public calls.

My leadership skills are recognized with an internationally awarded PhD thesis by one of the most relevant organizations in the domain of infrastructure management, and contrasted experience leading technical work, experimental campaigns and knowledge transfer activities of R&D projects. Specifically, I have led technical work packages in 4 R&D projects (2 international), supervising a total of 13 researchers. I am currently leading 1 R&D contract with a private company as Principal Investigator to transfer some of the results obtained during my postdoctal research. I have co-directed and/or supervised 15 academic works including 5 PhD students and 10 MSc/BSc theses.

My research career is characterized by a strong international character, thanks to my active participation in 7 R&D international projects with multidisciplinary and multisectorial consortiums. In addition, all my publications are in international journals of impact. The international mobility is also ensured, with research stays in recognized research centres of the field such as University College Dublin (Ireland, 4 mos. funded by the Programa Internacional de becas en el extranjero, from Fundación Barrié, obtained in a competitive selection process), ETH Zürich (Switzerland, 4 mos.) and TU Delft (The Netherlands, 4 mos.).

Resumen del Currículum Vitae:

I obtained my PhD in 2018 with the thesis entitled Object recognition in road and urban environments from massive datasets collected by mobile mapping sensors , from the University of Vigo with distinctions Cum Laude , International Mention and Extraordinary Award . My thesis also won the Abertis XVI International Award in the category of Road Safety. This prize, granted by an international jury in competition with other PhD theses recognizes the international relevance and leadership of my research.

My research was funded by competitive national grants: First, by the FPI (Contratos predoctorales para la formación de doctores 2014) program, and currently by the Juan de la Cierva Formación (2018) program.

I present a strong profile across all the dimensions of the research career. I have published 27 peer reviewed documents (16 as first author) in international impact journals, with 539 citations (136 average citations per postdoctoral year), h index 13 and i10 index 14.

I have presented 12 contributions in congresses (11 international), most of them through oral presentations. I have participated in the organization of 4 congresses (3 international), being part of the organizing committee in 3 of them (2 international), and session chair in 2 international congresses.

I have participated in 14 R&D projects (7 international), funded with more than 30 million (25M from international projects) through competitive public calls. I present a strong international R&D profile as the participation in international projects involve 68 partners (private and public companies and Universities) from 23 countries. Currently, I participate in the proposal of 7 R&D projects (3 international). I also present a strong R&D leadership profile, leading technical work, experimental campaigns, and knowledge transfer, leading the project proposal, and also supervising PhD students from the research team of the projects. I have been also leading knowledge transfer through both R&D contracts with private companies (total worth 10K) and software patents.

The international experience is strengthened with research stays abroad in recognized research centers on the field: University College Dublin (Ireland, 4 mos., funded by the Programa Internacional de becas en el extranjero, from Fundación Barrié, obtained in a competitive selection process), ETH Zürich (Switzerland, 4 mos.) and TU Delft (The Netherlands, 4 mos.). International collaborations through research stays have been interrupted since 2020 due to the Covid-19 pandemic. They are resuming in 2022.

I am part of the Advisory Panel of the JCR Q1 journal Remote Sensing and have been guest editor of 6 special issues in 2 international journals. I have reviewed 30+ research papers for several international journals. Since October 2021, I serve as an expert for evaluations, for the Agencia Estatal de Investigación (Spain).

I have delivered more than 300 h of teaching in 3 bachelor degrees and 4 Master degrees (1 international) subjects in University of Vigo and University of Salamanca, and 2 international courses (linked to a Marie Curie ETN). I have supervised 15 academic works, including 5 PhD students and 10 MSc/BSc theses. I have the accreditations to Profesor Ayudante Doctor and Profesor Contratado Doctor (05/2019) from the National Agency for Quality Assessment and Accreditation (ANECA).

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	DE SIMONE , SILVIA
Referencia:	RYC2021-032780-I
Correo Electrónico:	silviadesi@gmail.com
Título:	Coupled processes in geo-energies

Resumen de la Memoria:

My research contributes to the urgent societal challenge of reducing carbon emissions, by generating knowledge and innovative tools that support the safe performance of activities aimed at the production of clean energy, such as high-enthalpy (deep) geothermal resource exploitation and geologic carbon storage.

During my PhD in the Hydrogeology Group (Barcelona, Spain), a joint unit involving the Polytechnic University of Catalonia (UPC) and the IDAEA Institute of the Spanish National Research Council (CSIC), I have furthered the understanding of coupled Thermo-Hydro-Mechanical (THM) processes occurring in subsurface formations as a consequence of deep fluid injection. I have explained how they act as triggers for induced seismicity and proposed strategies for mitigating this seismicity. Moreover, I have developed mathematical models and tools for the fast assessment of rock deformation and stress variation caused by fluid injection/extraction operations.

During this time, I also collaborated on CO2 sequestration projects. Motivated by my interest in this topic, I joined the Subsurface CO2 group of Imperial College London (ICL, UK). During this postdoc, I have developed mathematical models, workflows, and a software tool for the evaluation and optimization of the reservoir CO2 storage capacity, which are currently being used by the group.

In 2019, I decided to expand my knowledge of flow and transport in heterogeneous fractured media with application to geothermal systems. Thus, I joined the Geosciences Rennes Institute (France), where I am currently part of the Fractory, a joint laboratory between the French National Research Centre (CNRS) and the private company ITASCA. At Fractory, combining my experience in THM processes with the group s in fractured media, I have developed innovative strategies for efficient numerical simulation of heat transport in fracture networks subject to thermo-mechanical deformations. Maintaining an active collaboration with both the Barcelona and ICL groups, I have continued proposing strategies for mitigating induced seismicity and for assessing injection-driven rock deformation, which help improve management and decision-making in energy-related activities. Recently, I have unravelled the causes of the high-magnitude earthquakes at the controversial case of Castor UGS (Spain), which received a large exposure in the local media.

As a result of this research, I have co-authored 13 papers (7 of them as first author) in high-impact indexed journals (10 in Q1 and D1 journals), 2 book chapters, 6 non-indexed publications, 30 scientific/technical reports, and 39 conference contributions.

I have participated in 7 competitive-call research projects (being coordinator of two EU-funded) and 4 R&D contracts (being co-PI of one). These projects gave me the opportunity to develop a collaborative network with international institutions and companies.

Additionally, I have collaborated at the development and testing of two numerical simulators for subsurface processes and at the Technological Development Plant for CO2 geological storage at Hontomín (Spain).

I am currently co-supervising a PhD student at the UPC and I have co-supervised 2 Master s Thesis at ICL.

Resumen del Currículum Vitae:

I got my Bachelor s and Master s degrees (Civil and Environmental Engineering) in my home town, Naples (Italy), and my PhD Degree in Barcelona (Spain). During my PhD, I benefit of a 3-year grant funded by the Generalitat de Catalunya (AGAUR) through the competitive call FI-DGR 2012.

With my research, I have contributed to furthering the understanding of the interactions between injection of fluids into deep reservoirs and the occurring of earthquakes. I have proposed strategies for mitigating such induced seismicity. I have developed mathematical models and workflows for the fast assessment of rock deformation and stressing caused by fluid injection/extraction operations, and for the evaluation of the reservoir CO2 storage capacity. I have proposed innovative approaches for the efficient numerical simulation of heat transport in discrete fracture networks subject to thermo-mechanical deformations. I have provided modeling tools in the form of spreadsheets, scripts and software (open-source), and I have collaborated at the development and testing of two numerical simulators for subsurface processes.

In a relatively short period of time (PhD obtained in March 2017), my research has impacted the scientific community in the field of rock mechanics, groundwater hydrology and geo-energies. I have co-authored 13 papers (7 of them as first author) in high-impact SJR peer-reviewed international journals (10 in Q1 and D1 journals), which attracted 229 (298) citations according to Scopus (Scholar) with h-index 6 (7). For one paper, I received the Water Resources Research Editors Choice Award 2017. I have also co-authored 2 book chapters, 6 non-indexed publications, 23 scientific reports and 7 technical reports. My work has been presented in national and international conferences with a total of 39 contributions (22 as first author), divided in 16 oral (2 invited) and 23 poster presentations. I have delivered 7 invited talks at group seminars in Spain, UK and Germany.

I have been actively involved in 7 national/international research projects (competitive calls) focusing on hydraulic fracturing, inducing seismicity and geological carbon storage. For two of them, besides being part of the research team, I have also coordinated the activity of my institution. I have also collaborated in 4 R&D projects with private or public entities. For one of them, I am the co-PI and lead responsible of the scientific development.

The participation in the Technological Development Plant for CO2 geological storage at Hontomín (Spain) gave me further opportunity to collaborate with industrial entities.

To date, I have just under 5 years of postdoctoral experience, most spent in recognized international research institutions. After 1 year in the Hydrogeology Group (IDAEA CSIC+UPC) in Barcelona (Spain), I was enrolled in the Subsurface CO2 group at the prestigious Imperial College London (UK) for 15 months. Since June 2019 (32 months), I am employed by the National Centre for Scientific Research (CNRS) in the Geosciences Rennes institute (France), and specifically in the Fractory Group, a joint laboratory between CNRS and the private company ITASCA.

I am currently co-supervising 1 PhD student (since February 2021). I have co-supervised 2 Master s Thesis and mentored 3 PhD students.

I regularly serve as a reviewer for indexed scientific journals and this year I am the first convener of a session in the EGU General Assembly.

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Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	VITALE , RAFFAELE
Referencia:	RYC2021-034676-I
Correo Electrónico:	rvitale86@gmail.com
Título:	Integration of machine learning and multivariate statistics in process and bioprocess industry

Resumen de la Memoria:

Raffaele Vitale is a chemometrician, i.e., an expert in the statistical analysis of data of chemical, biological and biomedical nature. Recently, this discipline has significantly emerged especially in the domain of manufacturing control where more and more often advanced analytical techniques are exploited to produce in an extremely short time massive amounts of information (Big Data) useful for the characterisation and monitoring of complex systems and processes typical of the environment of the so-called Industry 4.0. In this sense, all over the past 10 years, Raffaele Vitale s work was mainly focused on a research subarea of strong scientific interest as well as of potentially high social impact: the integration of machine learning and multivariate statistics in process and bioprocess industry. Nowadays, in fact, Europe s economic future largely rests on the production of renewable resources and their conversion into food and energy via extremely innovative and efficient technologies. Nevertheless, the state-of-the-art of the design of industrial processes is still governed by trial-and-error approaches and traditional manufacturing strategies, which commonly lead to considerable start-up delays and failures, and, thus, to relevant financial losses. In this regard, much effort has been lately put into trying to eliminate such a bottleneck through the implementation of three fundamental methodologies: mathematical modelling, computational optimisation, and analysis and interpretation of large amounts of data by statistical analytic tools. Especially this last aspect has become crucial in recent years, as modern Big Data environments, characteristic of the novel framework of Industry 4.0, usually generate intriguing challenges in the industrial process domain, which can be successfully coped with only combining a more theoretical knowledge on chemistry, biology and physics with a technical expertise on data analytics, optimisation tools and programming. These challenges primarily encompass:
- multi-objective sensor optimization to speed up the adjustment of the process parameters needed to guarantee a desired or optimal output;
- spectroscopy- and microscopy-based process monitoring by fusing purely deterministic and fully data-driven strategies;
- process monitoring model updating to minimise the detection of false alarms produced by nuisance faults;
- production transfer or scaling-up, i.e., the estimation of the process parameters to be set in a target bioreactor so as to obtain a final product with the same ensemble of properties resulting from process runs performed in a lab source flask or a smaller bioreactor.
In order to tackle them, the integration of machine learning and multivariate statistical methods is of paramount importance. Coupling, in fact, the remarkable predictive power of the former with the unique interpretability properties of empirical models yielded by, e.g., latent variable-based techniques allows the aforementioned tasks to be easily and rapidly addressed while rendering useful and meaningful insights for process mechanism understanding. It is then strictly necessary, that a person involved in this particular research line is capable of simultaneously analysing/processing and comprehend instrumental measurements collected on real-world samples, an inherent feature of Raffaele Vitale s hybrid profile.

Resumen del Currículum Vitae:

Raffaele Vitale holds a M.Sc. title in Analytical Chemistry and a Ph.D. title in Statistics and Optimization. He is currently employed as Associate Professor at the University of Lille in France.
His Ph.D. thesis, entitled "Novel chemometric proposals for advanced multivariate data analysis, processing and interpretation", was primarily conceived to support and reinforce the relation between academic and industrial worlds and was developed in collaboration with Shell Global Solutions (Amsterdam, The Netherlands). His Ph.D. research work resulted in the successful application and extension of several multivariate statistical approaches for complex problem solving in various application scenarios, from chemical process troubleshooting to calibration transfer in spectroscopy, image processing, real-time modelling of streaming flows of information, and analysis of mixture designs of experiments and multi-set/multi-block data structures. During his doctoral studies, Raffaele Vitale published 13 papers in international peer-reviewed journals in cooperation with different universities in France, the Netherlands, Brazil and Norway, with research institutions in Spain and several worldwide manufacturing companies. Afterwards, Raffaele Vitale was appointed as Postdoctoral Associate at KU Leuven in Belgium in the framework of the Horizon 2020 European project ADGut (http://adgut.eu/). Here, he designed together with a consortium of experts from the EPFL in Switzerland an innovative statistical approach for the identification of microbiome species by single-molecule fluorescence microscopy (patent application GB1817786.5), which might be of groundbreaking relevance in the quest for understanding the progression mechanisms of Alzheimer s disease.
Raffaele Vitale s interests mainly relate to all the applications of data analysis in life sciences, industry and technology: his hybrid profile of chemist/statistician allows him to combine both theoretical and practical skills that are ideal for addressing tasks simultaneously aiming at the analysis and interpretation of instrumental measurements collected on real-world samples. This unique mix of interwoven competencies has the potential of guaranteeing a very important short- and long-time impact. In this regard, Raffaele Vitale's background and his recently acquired expertise in biology, biomedicine and biochemistry would particularly fit the work-packages of the research area on machine learning and multivariate statistics integration in Big Data Science that Prof. Alberto Ferrer's group (Raffaele Vitale's destination of choice) is exploring at the moment together with multiple public and private partners. Such an integration is, in fact, of paramount importance to tackle the challenges that Big Data environments generate especially in the industrial field (e.g., scaling-up, data fusion, spectroscopic and imaging sensor optimization, etc.), which requires the combination of knowledge acquired from chemistry, biology and physics to a more technical one on data analytics tools and programming. Raffaele Vitale is author of 38 peer-reviewed publications and 2 book chapters, has attended as presenter more than 35 international conferences, has been awarded 8 research prizes and has been visiting scientist at 5 European R&D institutes between 2012 and 2019.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	MANDRACCHIA , BIAGIO
Referencia:	RYC2021-032084-I
Correo Electrónico:	biagio.mandracchia@gmail.com
Título:	Advanced imaging tools for the study of fast cellular dynamics

Resumen de la Memoria:

Any microscopy image is only a representation of a reality that needs to be carefully examined and interpreted to reach valid conclusions, and any analysis can only be as good as the original data. My goal is promoting the advancement of imaging as a reliable and quantitative tool for cell biology while training the next generation of optical engineers. Overall, I aim to develop broadly accessible, user-friendly optical systems and computational solutions to facilitate the study of cellular dynamics with sub-millisecond temporal resolution.

During my PhD, I designed label-free imaging methods to study thin films and live biological samples at high speed and low phototoxicity. This included a microfluidic chip that integrates digital holography for high-throughput diagnostics. This research was highlighted in several news outlets, including the Italian national television.

As a postdoc, I kept on pursuing my interest in high-speed imaging exploring different approaches and applications. This led me to the USA, where I have designed and tested the first system for super-resolution imaging flowcytometry. Here, I started tackling the issues of high-speed imaging working also on image processing and camera physics. This way, I have implemented a software to correct CMOS noise grounded in the physics of the experimental system. This work was highlighted in Nature Methods and one of the top downloaded articles in Nature Communications of 2020. I have further expanded this idea by developing a broader, more efficient approach that involved the design of new hybrid physically informed deep neural networks. Also, I have developed a fiber-based sCMOS camera system to achieve sub-millisecond temporal resolution (25-100 kHz) compatible with fluorescence microscopy for the study of neuronal activity.

Instead of following the same route started during my PhD, which would have generated more papers, I assumed the risk of dipping into new fields at each stage of my career. Yet, this multidisciplinary background helped me to carry out challenging projects allowing me to approach problem solving from different points of view. Capitalizing on my diversified expertise, I have proposed, in collaboration with the Complutense University of Madrid (UCM) and the Carlos III Health Institute (ISCIII), a project for the study of cell infection using multiscale multimodal microscopy, for which I have been awarded the Maria Zambrano fellowship. This study aims to push the limits of correlative light and electron microscopy (CLEM) to better understand mechanisms of virus infection at different spatial and temporal scales.

Despite several recent significant advances in microscopy, temporal resolution remains a relatively unexplored frontier full of untapped potential. I am convinced that the background I have acquired over these years has built an ideal foundation for me to provide a significant contribution to the field as an independent group leader.

Resumen del Currículum Vitae:

My long-term research interests involve the development of advanced optical systems for biomedical applications using a multi-disciplinary approach to system design that embraces physics, engineering, image processing, and microfluidics.

As an undergraduate and during my early career, I worked in several projects at the University of Naples (Italy), at ICFO (Spain), and at the National Research Council (Italy) where I had hands-on experience with several optical techniques.

In 2014, I was awarded a PhD scholarship in Engineering of Industrial Products and Processes by the National Institute of Optics. Here, I dedicated my research to develop label-free imaging setups for biomedical research, namely:

- a microscope for artifact-free Surface Plasmon Resonance imaging with precision comparable to a commercial profilometer (Anal. Chem., 2015).
- the first microscope for holography in total internal reflection. Its negligible phototoxicity allowed to perform a long-term study of cell adhesion to assess the biocompatibility of different substrates (J. Biophotonics, 2017; J. Biophotonics, 2018).
- a user-friendly Fourier ptychography microscope robust against misalignment (IEEE J. Sel. Top. Quantum Electron., 2020).
- a pocket module integrating all imaging functions of holography on-chip with unprecedented detail (Light Sci. Appl., 2017; Lab on a Chip, 2017). This research was highlighted in several news outlets, including the Italian national television.

As a postdoc, I developed a system for high-speed holographic imaging of free-standing films. We could provide quantitative imaging of film retraction during bubble rupture (Light Sci. Appl., 2019). In 2018, I moved to the USA where I have :
- designed and tested the first microscope for microfluidic-based high-throughput super-resolution microscopy (Lab on a Chip, 2021).
- collaborated at the development of miniaturized microscopy platforms for live-cell imaging (Opt. Express., 2019; Biomed. Opt. Express., 2020).
- implemented a software for the automatic correction of CMOS noise to help scientists tackle the issue of biotoxicity and enhance image quality in high-speed imaging (Nat. Comm., 2020). This work was highlighted in Nature Methods and featured in the collection 2020 Top 50 Physics Articles of Nature Communication.
- built a camera system for the study of neural signaling at the microsecond-scale temporal resolution (writing).
- conceived and implemented a hybrid, physically informed deep convolutional network based on optimal sparsity and system calibration microscopy data restoration (under submission).

Last year, I was awarded the Maria Zambrano fellowship for a project about multiscale multimodal microscopy. This project aims to push the limits of correlative light electron microscopy to better understand mechanisms of cell infection at different spatial and temporal scales.

I am inventor in two patents, authored 20 articles in internationally renowned journals (17 in Q1, of which 10 in D1) and 45 conference proceedings. I have given 16 conference talks, including an invited talk at the OSA conference in Orlando (USA). I am topic editor for Micromachines (MDPI), participated in several outreach activities, organized an international school on microscopy and been president of an OSA chapter. I spent plenty of time teaching (>200 hr) and mentoring undergraduate and graduate students (>10).

Resumen de la Memoria:

My research activity has been mainly focused on advancements in engineering design via Computational Fluid Dynamics (CFD). In 2013 I joined to UoGreenwich thanks to a FP7 Marie Curie Fellowship, where I developed a multidisciplinary Uncertainty Quantification (UQ) framework for CFD-based jet designs. This work was in collaboration with international academic institutions and industries and the outcome framework was implemented in General Electric. From October 2016-January 2020 I had a research break to work in industry and gain skills in Machine Learning, but I continued doing research in parallel. During that time, I finished the PhD thesis, developed global sensitivity methods to turbulent&experimental inaccuracies in jet instability, and the first quantification of mixed aleatoric and epistemic uncertainty in CFD. I also published relevant improvements in heat transfer, outlining UQ and modelling techniques for reliable simulation of complex impinging jet.

In 2020 I joined to UoMálaga, and since January 2021 I hold a three-year PAIDI2020 postdoctoral fellowship. Since then, I mainly focused on methodologies for design of novel micromixers. I created two different passive oscillation-based micromixers, one of them optimised via Machine Learning-Aided Design Optimisation (MLADO), an optimisation method that I created. This was Editor s Pick publication in Physics of Fluids, and it has been protected under patent application together with the micromixer design. I am also linking this method to fluid topology optimisation and I have published recently research on analytical 3D porosity estimations in insect-proof screens as initial step to their design optimisation using MLADO under uncertainty.

During my research career I prioritised quality& leadership by: 17 peer-reviewed publications (14 Q1/Q2,1st author in 15 papers and 2nd author in 2), 19 conferences (16 international, 6 with congress paper proceeding), and most activity in international collaboration. I hold the Contratado Doctor accreditation by the ANECA. I also taught at university and supervised BSc/MSc students, whose work got published in 3 Q1/Q2 journals and one obtained a 2000 accessit prize at XVIII Certamen Nacional Arquimedes.

Resumen del Currículum Vitae:

I am Industrial Engineer by the UoMálaga and PhD by the UoGreenwich (UK). My research activity has been mainly focused on the development of advancements and applications in engineering design via Computational Fluid Dynamics (CFD). After working as intern at Abengoa Solar in Spring 2013, I joined in Summer 2013 to the UoGreenwich (UK) as Early Stage Researcher within the international project FP7 AeroTraNet 2 Marie Curie Action. From October 2016-January 2020 I had a break in research to work as data scientist in industry (but I kept doing some research, obtained the PhD award and supervised BSc thesis students during my free time). During this journey in a private company, I developed skills in Machine Learning and risk quantification. In January 2020 I started to work at the UoMálaga. I currently hold a three-year PAIDI2020 postdoctoral fellowship at the UoMálaga. During my research career, I have always prioritised quality and leadership. This is demonstrated by 17 peer-reviewed publications, being almost all of them Q1/Q2 (1st autor in 15 papers and 2nd author in 2). I have also disseminated my work in 16 international and 3 national conferences. I have been Invited speaker and Keynote speaker in 2 conferences and organised a symposium. Most of the research activity has taken place in international collaboration: I studied my PhD in the UK in an international project, I made research stays in 7 different institutions in Europe, I have collaborated with researchers at UoStanford (USA), Imperial College (UK) and the company TOffeeAM (UK), I have 7 peer-reviewed papers with colleague affiliations from at least two countries, and I have been guest editor in two special issues in the Micromachines journal, one of them internationally co-edited. In addition, I have also attended to first-class international courses, pointing out the world-famous Particle Image Velocimetry course at DLR (Germany), courses on Uncertainty Quantification in CFD at von Karman Institute for fluid dynamics (Belgium) and CERFACS (France), or an experimental aerodynamics course at UoRome Tor Vergata (Italy), amongst many more.

Regarding knowledge transfer, I have a patent under protection application for a design optimisation method and a micromixer design, and I have developed the intellectually protected software Poro3D. I also created an uncertainty quantification framework implemented in General Electric UK workflows. I have been part of the organising committee of several workshops/conferences and a public address. I am one of the chair organisers of scientific local meetings DataBeers Almería and NASA Space Apps Challenge Almería chapter.

I have also carried out teaching activity at the UoGreenwich and UoMálaga, where I continue my teaching activity at the Engineering School. I have supervised 3 BSc thesis students, and 1 MSc thesis student, who was also part of the research team in the UMA18-FEDERJA-184 project. I currently supervise 4 BSc students and 1 MSc thesis student. I have obtained the Prof. Ayudante Doctor and Contratado Doctor Spanish accreditations by the ANECA.

Área Temática:	**Producción industrial, ingeniería civil e ingenierías para la sociedad**
Nombre:	FELE , FILIBERTO
Referencia:	RYC2021-033960-I
Correo Electrónico:	filiberto.fele@eng.ox.ac.uk
Título:	Enabling local energy systems: Facing uncertainty and complexity at the grid edge.

Resumen de la Memoria:

My main research focus is on enabling the demand-side flexibility of the future energy systems for the integration of low carbon technologies into the grid. A major role in this process is played by the rapid diffusion of innovations such as electric vehicles, photovoltaic panels, battery storages and heat pumps. Thus, millions of businesses and homes, which were traditionally passive energy consumers, will become energy prosumers that can generate, store and/or convert energy enabling them to be active service providers.

Harnessing the future population of prosumers has the potential to substantially reduce grid balancing and upgrading costs under high renewables penetration. As a Research Associate of the Department of Engineering Science, University of Oxford, I am committed to tackling the management of such a heterogeneous population of energy actors through the design of articulated coordination mechanisms, capable of compensating the prosumers by contributing to the value of their assets.

Facilitating the transition to a grid architecture revolving around local energy systems is pivotal for meeting the EU Green Deal decarbonization targets. My engagement with the energy revolution and the interaction with domain experts and stakeholders, led me to appreciate the necessity of control engineering tools that extend beyond traditional network optimisation and encompass economic and social factors. My goal is to build novel tools that can effectively deal with uncertainty arising not only from exogenous factors, but from stakeholders choices in a system moving toward decentralisation and deregulation. I was supported in this endeavour by a seed fund for Low/Zero Carbon Energy Projects, whose proposal I curated and co-authored involving partners from TU Berlin and Siemens. Within the Local Energy Oxford (LEO) project, I currently work in synergy with the public sector to enable energy flexibility services from city-based organisations and lead by example the formation of functional energy communities.

Resumen del Currículum Vitae:

My track record exhibits a versatile collection of peer-reviewed publications in control theory, game theory and machine learning, as well as applications of interest in energy systems and water distribution.

I joined the Control Group at the Department of Engineering Science, University of Oxford, in 2018, and the Energy and Power Group, at the same department, in 2019, where I am Research Associate, while I serve as Lecturer in Mathematics and Information Engineering at St Edmund Hall College. I obtained a PhD degree from Universidad de Sevilla in 2017, with a thesis that was awarded the "Premio extraordinario de doctorado 2016/2017". My PhD studies were concerned with the design of mechanisms for the coordination of multiple control agents in environments characterised by misaligned interests and potentially emerging unstable behaviours.

In the year 2017-2018 I held a first postdoctoral appointment at the Electrical and Electronic Engineering Dept., Imperial College London, where I specialised my interest in the energy distribution infrastructure. My work yielded a novel class of receding-horizon noncooperative games and the design of efficient decentralised coordination mechanisms for the inclusion of flexible demand in the intra-day energy market.

Since joining the University of Oxford, I broadened the scope of my research to consider the immunisation of distributed coordination algorithms against uncertainty, under a learning theoretic lens. My work led to important findings in the analysis and solution of robust Nash equilibrium problems within the framework of PAC learning, providing novel data-based robustness certificates to equilibrium seeking algorithms.

I translate these results into a practical context within the demonstrator project LEO (Local Energy Oxfordshire), working on the formation of functional local energy communities, capable of supporting the distribution grid in achieving the net-zero goal. I assist in the design of flexibility markets for balancing services, and in enabling demand side response from city-based organisations, by personally coordinating a fruitful collaboration with the public sector.

The biggest technical challenge I face is the complexity and uncertainty of the supply-demand interplay at the grid edge. While these drive the adoption of learning-based control techniques, it is critical to ensure that these are accompanied by rigorous certificates regarding their performance in presence of unobserved behaviours. I co-authored the proposal of and co-chaired two invited sessions on "Learning with Guarantees in Control and Decision-Making", included in the programme of the 2021 IEEE Conference on Decision and Control, which gathered the views of twelve international research teams. I am invited guest editor for the special issue "Game Theory and Its Application in Energy Management and Power Systems", hosted by the journal Games.

Besides teaching fundamental mathematics and control engineering courses to 2nd year students, I designed and delivered personalised master and doctoral level courses on topics closely related to my research, both at Oxford and Seville Universities. Equally important is my experience in advising DPhil students: I feel honoured to support three of them on their ambitious projects, and to be able to make a difference to their academic and personal development.

Resumen de la Memoria:

Dr. M.Á.M.G. obtained his PhD in 2017 under the topic "Implications of photogrammetry and laser techniques in the identification and characterization of anthropic traces on bone remains in Pleistocene archaeological sites". During his predoctoral and postdoctoral periods, he worked as researcher in the Universidad Complutense de Madrid, the Universidad de Salamanca, and the Poltecnico di Torino. Currently he is researcher and professor at the Universidad Politécnica de Madrid.

The candidate's main line of research is oriented to the protection and management of Cultural Heritage, through the application of different methods, techniques, and tools of Geoinformation. This line can be summarized as follows:

Part 1   predoctoral stage:

The methodology of this period allows to obtain information on the behavior of our ancestors, through the analysis of the faunal fossil in the archaeological sites of the Pleistocene. It enables to know the raw material that caused the cut marks present in the fossilized bones. For this, it has been necessary to advance in: a) creating the largest experimental sample of cut marks made with different raw materials; b) the 3D documentation of the millimeter cutting marks through a low-cost methodology based on macro-photogrammetric techniques; c) the application of geometric morphometry techniques; d) the advanced statistical analysis of obtained data; e) and the validation of the methodology. For the validation of the methodology, samples from the Pleistocene archaeological sites, belonging to BK and FLK-West of Olduvai Gorge, Tanzania, were used. The methodology was successfully adapted to another type of Bone Surface Modification (BSM) and validated at the paleontological site   The modern Olduvai Carnivore Site   (Olduvai Gorge, Tanzania).

Part 2   postdoctoral stage:

On the one hand, the candidate continued improving and refining the methodology developed in the doctoral thesis. In this way, he: a) expanded the experimental sample of BSM; b) improved the methodology to identify the lithic tool; c) generated a complementary methodology based on laser techniques for the 3D documentation of the BSM; d) collaborated in the development of new codes in RStudio, for the advanced statistical analysis of the data obtained by geometric morphometry, implementing artificial intelligence tools; e) and collaborated with archaeologists applying the refined methodology to the fossil record. New hypotheses have been corroborated and proposed about the BK, FLK-Zinj and FLK NN3 deposits in Olduvai Gorge (Tanzania) and Sterkfontein (South Africa) in Africa and Coimbre and La Lluera in Spain.

On the other hand, Dr. M.ÁM.G. as MR of a Marie Curie in the Politecnico di Torino and as participant of other research projects, developed different methodologies that make it possible to reduce the deterioration of the architectural heritage subjected to the risk of disappearance, destruction, or alteration. A multidisciplinary and disruptive approach was used, introducing the latest technological and methodological advances, allowing to make a prescription of the damages of a heritage architectural asset.

Part 3   Currently, he continues with the development of the above research lines as well as other additional lines related to the implementation of alternative techniques in the efficient management of heritage assets.

Resumen del Currículum Vitae:

M.Á.M.-G. obtained his PhD in Geotechnologies applied to Construction, Energy and Industry 2017, with CUM LAUDE mention. The applicant s doctoral Thesis titled "Implications of photogrammetry and laser techniques in the identification and characterization of anthropic traces on bone remains in Pleistocene archaeological sites", was awarded with the Extraordinary Award by the Universidad de Salamanca (2018).

The new methodology developed in the PhD has provided competitive projects and has been successfully applied in relevant Pleistocene archaeological sites, providing new data on human evolution at international and national level.

Technical and scientific contributions: During his pre-doctoral formation, the applicant was awarded with a Promoción de Empleo Joven e Implantación de la Garantía juvenil en I+D+i.

As member of the GESyP (Universidad Politécnica de Madrid   UPM-) and TIDOP (Universidad de Salamanca -USAL-) Research Groups, he is co-author of 50 scientific publications, (Scopus: 44 JCR; corresponding author of 10 of them; 28 Q1   5 first decile; 83 co-authors - 16 co-authors from international institutions -; 724 citations in 224 documents; H index of 16). He holds the equivalent of a six-year research period (CNEAI). He has participated in International Conferences (12) and is co-author of 3 book chapters.

The applicant has participated in 2 European projects (AVATAR   as Main Researcher / MR - and HeritageCARE), and 5 National and 8 Regional projects (2 as MR). He has developed a software patent derived from a National Project (CHT2).

The candidate has also collaborated in the organization of scientific activities, as organization committee of the International Symposium CIPA Ávila, workshops, dissemination courses in the scientific week, reviewing manuscripts (31-Publons) as well as being Editor 4 of a Special Issue of JCR international journals.

Mobility: As for International Activity, the applicant obtained and executed for 6 months a Marie Curie Individual Fellowships, H2020-MSCA-IF-2019 in the Politecnico di Torino in Italy (3 JCR). In addition, he participated in another European INTERREG/SUDOE project (HeritageCARE), enjoyed a 3-month postdoctoral stay at the Università degli Studi di Salerno in Italy (2 JCR), and carried out a field campaign in Olduvai Gorge, Tanzania, in 2018 (9 JCR). Regarding the National Activity, he spent 8 months (in 3 periods) at the Universidad Complutense de Madrid and 2 months at the Museo Arqueológico Regional de la Comunidad de Madrid (5 JCR).

Leadership: The candidate worked for two and a half years at the USAL, overseeing projects in different fields of engineering, in the TIDOP Research Group. He participated in transfer contracts with public administration. In this period, the applicant also improved his formation through 13 months of post-doctoral stays in International and National Institutions.

Now he is professor at the UPM (Profesor Ayudante Doctor) with more than 200 teaching hours, is accredited as Prof. Contr. Doctor and continues developing the research lines (10 JCR) and others related to the SDGs of the 2030 agenda (4 JCR) in the GESyP Research Group. During this period, thanks to an unpaid period at the UPM, he was the MR for 6 months in a Marie Curie Individual Fellowships, H2020-MSCA-IF-2019, in the Politecnico di Torino.

Área Temática:	**Psicología**
Nombre:	ESTEVEZ LOPEZ, FERNANDO
Referencia:	RYC2021-034311-I
Correo Electrónico:	festevez@ugr.es
Título:	Towards preventing the consequences of chronic pain in young people: from epi to clinic!

Resumen de la Memoria:

My own independent research line focuses on disentangling the temporality of the associations between chronic pain and important aspects of health in young people. My long-term goal is to prevent the long-lasting consequences that suffering chronic pain has in young people's brain development and (positive and negative) mental health outcomes (i.e., life satisfaction, symptoms of anxiety and symptoms of depression).

In the period 2015-2018 (3 years) and awarded with a FPI Fellowship, I carried out two independent PhDs: PhD in Health Psychology at Utrecht University (the Netherlands) and PhD in Biomedicine at University of Granada (Spain). All my postdoctoral period is abroad -Ulster University (UK), Erasmus MC (the Netherlands), Wilhelmina Children's Hospital (the Netherlands) and Harvard University (USA)- and supported by highly competitive personal grants (e.g., Marie Sklodowska-Curie Actions). I have conducted the first population neuroimaging study in the field of chronic pain in young people. I demonstrated that higher levels of pain are associated with a smaller surface area in regions of the prefrontal cortex, anterior cingulate cortex and insula, among others. Currently, I am a postdoc at Harvard University (USA), where I am disentangling the temporality of the longitudinal association between chronic pain and brain structure.

During my Ramón y Cajal Fellowship, I will uncover the potential biopsychosocial mechanisms through which chronic pain impacts on young people's brain development and (positive and negative) mental health outcomes (i.e., life satisfaction, symptoms of anxiety and symptoms of depression). Using this knowledge, I will design and test evidence-based interventions, on population (public health interventions) and an individual (personalised interventions) basis, to prevent the long-lasting consequences that suffering chronic pain has in young people's health. Award of the present Ramón y Cajal proposal will pave the way for equipping me with the necessary resources and protected time to kick-start my ambitious and interdisciplinary research program in Spain. This award will be an important step towards securing my own research group and consolidating myself as influential research leader in the field. My social commitment is to improve the care of young people with chronic pain, ensuring a timely translation of the knowledge gained by this scientifically sound Ramón y Cajal proposal.

Resumen del Currículum Vitae:

In 2015, I was awarded with a FPI fellowship and successfully performed two independent PhDs: PhD in Health Psychology at Utrecht University (the Netherlands) and PhD in Biomedicine at University of Granada (Spain). All my postdoc career is abroad, in highly prestigious Hospitals (e.g., Erasmus MC, which is the largest Hospital in Europe) and Universities (e.g., Harvard University, which is the most prestigious University in the world). I lead my own independent research line thanks to securing funding from highly competitive personal grants; e.g., Marie Sklodowska-Curie Actions. Currently, I am a postdoc at Harvard University, where I am disentangling the temporality of the associations between chronic pain and brain structure in young people using data from the international flagship cohorts Generation R and Adolescent Brain Cognitive Development (ABCD) studies.

I have published 70 scientific articles in peer-review journals (average 11 citations/publication). In Web of Science (WOS), my h-index is 17, i10-index is 34 and have 1,010 citations. In Google Scholar, my h-index is 23, i10-index is 50 and have 1,867 citations. I have published 23 works as an independent postdoc; i.e., without involving my former PhD advisors. These publications are the result of a fruitful network of international collaborators from 27 countries all around the world; e.g., England (10 publications), New Zealand (2), USA (2) and Chile (1).

Currently, I am the principal investigator (PI) of two international projects (funding: 60,000). I am often an invited speaker or session chair at international conferences. For instance, in 2020, I provided the inaugural keynote lecture of the International Conference on common strategy of research of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome in Riga (Latvia). I have also organised several international symposiums.

During my career, I have taken important international responsibilities; e.g., I am part of the Health Professionals Committee of the European Alliance of Associations for Rheumatology (EULAR), which is the most prestigious European organisation in its field. I am the leading author of the module "Non-pharmacological approaches for pain management in rheumatic and musculoskeletal diseases" of the European School of Rheumatology. I am the leader of the Working Group in Epidemiology of the European Network on Chronic Fatigue Syndrome (EUROMENE), where I lead the development of guidelines for harmonising population-based research. In this line, I had the honour of being invited to consultation by the Ministry of Health, Welfare and Sport of the Government of the Netherlands in order to develop the Dutch research agenda for chronic fatigue syndrome. I am the leader of the EULAR Knowledge Translation Sub-committee, which aims at fostering the quick and effective implementation of evidence-based guidelines into practice to improve the care of people with rheumatic and musculoskeletal diseases in Europe. Additionally, I have extensive mentoring experience (e.g., I currently supervise 3 postdocs and 6 PhD students).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: Psicología
Nombre: CHEVANCE , GUILLAUME
Referencia: RYC2021-033537-I
Correo Electrónico: guillaume.chevance@isglobal.org
Título: Health Behavior Change

Resumen de la Memoria:

I am a multidisciplinary behavioral scientist with a background in health psychology (PhD) and digital health applied to health behavior change (Postdoc). My work mostly focuses on physical activity, sleep, eating behaviors and in a lesser extent addictive behaviors.

My most recent research focuses on understanding the dynamics of health behaviors mostly in a context of climate change. I am interested in how environmental conditions shape human behaviors and, in return, how human behaviors can help mitigate and adapt to climate change.

My research is inspired by innovative methods from the field of digital health and complex systems theory. Digital health methods allow me to collect data at high spatiotemporal resolution, for instance, via smartphone-based ecological momentary assessments or continuous monitoring with wearables. Complex system theory offers a generic framework for the statistical analyses of the time-series collected and the interpretation of behavior changes over time and contexts.

Central in my research are (1) a strong focus on the behavioral component of health (i.e., how individuals eat, sleep, move and engage in protective or harmful behaviors) and (2) the utilization of digital tools, mainly smartphones and wearables to collect data at high spatiotemporal resolution and set-up agile behavior change experimentations.

My main scientific contributions so far include:

(1) In the field of health psychology, my work about the psychological determinants of physical activity, and notably the role of implicit attitudes, published between 2017 and 2019 and illustrated by my publication in the leading journal Health Psychology Review in 2019.

(2) In the field of digital health methods applied to health behavior change, my application of innovative study designs, such as application of an open-loop experimentation to goal setting for walking (published in the journal Health Psychology in 2020) or my methodological viewpoint (published in Translational Behavioral Medicine in 2020). Methods are crucial in my work. I am currently working on several statistical and methodological tutorials aiming at facilitating the application of these innovative tools in the field of behavior change. My goal is to become a recognized leader in digital health methods applied to the field of behavior change in the next few years.

(3) More recently, in the field of behavioral medicine, my work about the bi-directional relationships between health behaviors and climate change (see my review under a last round of minor revisions in Annals of Behavioral Medicine as of January 2022). This last article is the first review offering an explicit framework to the behavioral medicine community for studying climate change and its effect on behavioral health markers. With this paper and my recent ongoing work as part of ISGlobal, I aim to establish myself as one of the most important actors in this new field of research bridging climate change and health behaviors.

My current blend of skills makes me a unique researcher in my field. I am among the first to establish clear bridges between the field of health behaviors and climate change, which is more than crucial given the increasing impact that climate change will have on our life and behaviors in the upcoming years (e.g., heat extremes in Spain).

Resumen del Currículum Vitae:

So far, my research carrier follows a rapid and exponential path marked by 3 distinct periods:

A PhD in France (2014-2017, Université de Montpellier) where I got trained in motivational psychology applied to health behavior in a context of chronic diseases.

A postdoc in digital health completed in the US (2018-2020, University of California San Diego) where I participated to the development of apps and other online interventions supporting health behavior change.

A position of tenure-track Assistant Research Professor in Spain (from October 2020, Barcelona Institute for Global Health, ISGlobal) where I am developing a new group focused on digital health, with applications related to Global Health topics.

Illustrating my multidisciplinary profile in behavioral science, I publish in top-ranked journals from different scientific disciplines such as Health Psychology, Annals of Behavioral Medicine, but also The Lancet Digital Health or Sports Medicine and Sleep Medicine Reviews. As of 25th January 2021, and from 2016, I published 22 first or second author articles (including 3 second-author articles and 2 preprints under a last round of minor revisions); of which 17 out of 22 (80%) in Q1 journals.

Beyond quantitative indicators, I have a very diverse set of publications from commentaries and viewpoints, to systematic reviews and meta-analyses as well as observational and interventional studies. I am also particularly attached to the open science movement, as illustrated by my activities on the

Open Science Framework platform from 2018 (see: https://osf.io/egwd5/). In terms of dissemination, my work has been highlighted in The New York Times and Le Monde and I am increasingly invited to present my research in prestigious groups in and outside Europe.

I have a strong mobility background. I have experienced research stays in 4 countries so far: in France (5 years), in Canada (one month at the Université du Québec à Montreal, for a training in meta-analyses), in The United States (2 years) and from October 2020 as an assistant research professor in Spain. Outside of Spain, I have active collaborations with renown colleagues (both early career fellows and established researchers) in The United Kingdom, in Switzerland, in The Netherlands and in the past institutions where I studied, in France, in Canada, and in The United States.

Despite my young age, 31 years-old, I am now managing a team composed of 2 postdoctoral researchers and 2 predoctoral students, as well as a part-time statistician. In one year, and considering the pandemic and a paternity leave, I have been able to both (i) establish fruitful collaborations with many various senior colleagues, (ii) drawing my own research line mixing-up my skills with the ones from my institution in regards of climate change and planetary health as well as (iii) securing funds for my team (4 fellowships obtained).

I am currently work-package leader for a national project interested in health behaviors and mental health related to the COVID-19 pandemic (package budget: 20 000), as well as task leader for a Horizon Europe project (in process of signing grant agreement) where my role is to identify early warning signals of disease exacerbations from physical activity behavior time series (package budget: 430 000).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	Psicología
Nombre:	VIDAL-RIBAS BELIL, PABLO
Referencia:	RYC2021-033369-I
Correo Electrónico:	pauvrb@gmail.com
Título:	Risk factors of child and adolescent psychopathology: depression, irritability, and suicide

Resumen de la Memoria:

I earned my two Master s degrees, in Child and Adolescent and in Adult psychopathology, during my 4-year training as a Clinical Psychologist (PIR) in Barcelona, Spain. Later, in 2012, I joined Dr. Argyris Stringaris Mood and Development Lab at the Institute of Psychiatry, Psychology, and Neuroscience (IoPPN) at King s College London (KCL) in the United Kingdom thanks to a 2-year Advanced Training Fellowship awarded by the Alicia Koplowitz Foundation. Here, I completed my PhD in Child and Adolescent Psychiatry thanks to a NIHR-BRC IoPPN Excellence PhD Studentship. In 2016, during my PhD, I moved to the United States to continue my work with Dr. Stringaris at the National Institute of Mental Health s (NIMH). Since 2019, I am a Postdoctoral Visiting Fellow at the Social and Behavioral Science Branch, National Institute of Child Health and Human Development (NICHD), led by Dr Stephen E. Gilman.

My research focuses on identifying risk factors of psychopathology in children and adolescents to inform treatment and prevention strategies, with an emphasis on depression, irritability, and suicidal thoughts and behaviors. Bearing in mind that these conditions are multicausal, I examine these risk factors using clinical, neuroimaging, and epidemiological approaches.

I have contributed to landmark studies in the neuroscience of depression showing that neural reward processing is specifically linked to anhedonia, rather than low mood, and more importantly, precedes the development of depression. Moreover, I have demonstrated that stressful experiences and stress reactivity impact, and are impacted by, alterations in neural reward processing. This suggests that altered reward processing could lead to a stress-diathesis state facilitating the development of depression.

My awarded PhD thesis showed that severe chronic irritability is longitudinally associated with the development of depression and anxiety in youth, as opposed to bipolar disorder and other disruptive disorders, as previously suggested. Alterations in emotion discrimination might partly explain this transition, though many other mechanisms play a role in it. Based on these findings we reported the results of a randomized controlled trial showing the benefits of adding antidepressants to stimulant medication in the treatment of chronic severe irritability in youth.

In an awarded study using a large population-based sample, I have shown that suicidality has no brain signature in young children. It is therefore possible that neural correlates of suicidality emerge in adolescence. Currently, I am investigating the developmental origins of suicide mortality with the largest pregnancy cohort in the USA. We have identified several prenatal sociodemographic factors and pregnancy complications as being risk factors of suicide death through middle adulthood. We are now examining childhood neurocognition as risk factor.

After 10 years abroad, I am planning to move back to Spain and establish myself as independent investigator. My aim is to create a research program on child and adolescent mental health that encompasses etiological and clinical research. I bring with me expertise to work with several types of data and bridge the gap across distinct levels of analysis, as well as an extensive international network of potential collaborators.

Resumen del Currículum Vitae:

I am a clinical psychologist (PIR) and researcher that has gained expertise in clinical, neuroimaging, and epidemiological methods and aims to identify risk and protective factors of psychopathology in young people, with an emphasis on alterations of mood - including depression, irritability, and anxiety and suicidal thoughts and behaviors. To date, I have authored 25 publications, 14 as first author, that have accumulated over 1000 citations, as well as two book chapters.

As described in detail in my research line, I have published landmark studies in the field of depression (Stringaris, Vidal-Ribas et al. 2015 Am J Psych) and irritability (Vidal-Ribas et al 2016 JAACAP) that have accumulated over 200 citations each, as well as studies that have changed current clinical guidelines for the treatment of chronic severe irritability (Towbin, Vidal-Ribas et al 2020 JAACAP). Currently, I am leading a project to investigate the developmental origins of suicide mortality using data from the largest prospective pregnancy cohort in the US, the Collaborative Perinatal Project. We have already identified several prenatal sociodemographic factors and pregnancy complications as being risk factors of suicide death extending through middle adulthood (Vidal-Ribas et al., 2022 Transl Psych). I am now examining the role of children s neurocognitive development and sociodemographic adversity in relation to suicide.

Given my expertise on depression and irritability, I have been invited to give lectures in national and international conferences (see list attached), universities (e.g., King s College London, Autonomous University of Barcelona), and health providers (e.g., Basque Association of Primary Care Pediatrics). I have formal training in science communication and teaching. I have also collaborated with international leaders in the field of depression (e.g., Dr Argyris Stringaris), irritability (e.g., Drs Argyris Stringaris, Ellen Leibenluft, and Gabrielle A. Carlson), suicide (Drs Stephen E. Gilman, and Roy H. Perlis), and anxiety in youth (Drs. David Mataix- Cols, Amita Jassi and Benedetta Monzani).

During my career, I have been involved in active individual mentoring and supervision of undergraduate students and researchers. In addition, I currently provide service through my role as Joint Editor in the Journal of Child Psychology & Psychiatry Advances (JCPP Advances) from the Association for Child and Adolescent Mental Health (ACAMH), and as an ad-hoc reviewer of nearly 20 journals in the top rank of psychiatry/epidemiology research.

I have also served as a member of three theses defense committees, and I am a member of the Association of Scientists in Child and Adolescent Mental Health of the Alicia Koplowitz Foundation.

For my PhD thesis, I was awarded a King s College London Outstanding PhD Thesis Prize in 2019; only 15 prizes are given annually across all faculties in King s College London. In 2020, I received a Society of Biological Psychiatry (SOBP) Travel Fellowship Award The same year, a paper of mine received the Elaine Schlosser Lewis Memorial Award by the AACAP (Towbin, Vidal-Ribas et al., 2020 JAACAP). In 2021, I received the Fellows Award for Research Excellence (FARE) by the NIH, and more recently, the Alicia Koplowitz Research Award for the best paper published in the previous year (Vidal-Ribas et al., 2021b Am J Psych).

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática: Psicología
Nombre: PICO PEREZ, MARIA
Referencia: RYC2021-031228-I
Correo Electrónico: mariapico231@hotmail.com
Título: Neuroimaging and mental health: from vulnerability factors to the development of novel prevention and treatment strategies

Resumen de la Memoria:

Despite major advances in the methods and findings of neuroscience research in recent years, limited progress has been made in the prevention and treatment of mental illness. For most psychiatric disorders there is still a relatively high percentage of patients that remain treatment-resistant with conventional treatments. Moreover, brain abnormalities measured with magnetic resonance imaging (MRI) have been long proposed as potential biomarkers of specific mental disorders but this is not yet a reality. Reasons for this limited success may be the use of small samples, the potential confounding effects of comorbidities and medication, and potential interactions with other sources of variability such as age and sex/gender.

In order to tackle these issues, improvements can be applied at different levels, from more conceptual aspects to methodological aspects, and into the development of innovative treatments. Thus, the general aim of my research lines is to make use of cutting-edge neuroimaging techniques, applied to original data as well as to meta-analysis and in collaboration with international consortia, in order to advance the knowledge regarding mental health treatment and prevention, ultimately improving the lives of those suffering from mental health-related problems. One of my main lines or research is related to the neurobiology of emotion regulation, and on how we can use this knowledge to develop novel intervention techniques such as neurofeedback (a non-invasive neuromodulation technique). I also have a particular interest in obsessive-compulsive disorder, and I am involved in a number of projects aimed at identifying multimodal neuroimaging biomarkers of treatment response, and at developing alternative interventions for those patients resistant to first-line treatments. Moreover, not only people with a psychiatric diagnosis suffers from mental health-related issues, which became even more obvious in the context of global crisis such as the COVID-19 pandemic. I believe projects focused at early stages of mental suffering are also of utmost importance, since early detection and prevention are critical to improve both the population s quality of life and the socioeconomic costs associated with mental health problems. Thus, I have also been more recently involved in a project exploring mental health vulnerability and protective factors during the COVID-19 pandemic, and I am Principal Investigator (PI) of a project focused at studying sex- and gender-related variables in the stress response, attempting to expand on the binary framework of sex differences in order to improve personalized healthcare. Finally, I also believe a critical component of research is related to our ability to pass on our knowledge, both in terms of student s formation and of science dissemination to the general population. For that reason, during my research career I have always attempted to provide as much support to students as possible, and to bring my science outside the lab. I consider that I have become an independent clinical and cognitive neuroscientist with the required research and leadership skills. Getting a Ramón y Cajal contract will allow me to consolidate my research career and to stablish a strong research line in a national institution, while keeping a close collaboration with my network of national and international collaborators.

Resumen del Currículum Vitae:

I performed my PhD in the Neuroimage Laboratory led by Dr. Carles Soriano-Mas, in the Psychiatry Department of Bellvitge University Hospital. I was provided with a predoctoral grant from the Generalitat de Catalunya (FI-AGAUR), and my research work during my thesis was focused on the use of neuroimaging tools to study the neurobiological correlates of emotion regulation in psychiatric disorders, including the use of meta-analytical techniques.

During that time, thanks to an international research stay grant, I spent two months doing a research stay in the Groote Schuur Hospital (University of Cape Town, South Africa), where I received training in structural connectivity neuroimaging techniques (DTI) and multimodal analyses, which resulted in one publication in the journal Depression and Anxiety. Later, I obtained another international research stay grant to do an international research stay at the Health and Life Sciences Research Institute (University of Minho, Portugal), where I learned to acquire and analyze electroencephalography (EEG) data as well as to combine it with functional magnetic resonance imaging data (fMRI). Moreover, I received several awards during those years. Specifically, I received two oral communication awards at national congresses (the National Congress of Psychology Students and the Conference of the Catalan Society of Neuropsychology), and three travel awards to attend international congresses (two from the European College of Neuropsychopharmacology and one from the Society of Biological Psychiatry).

In October 2018 I successfully defended my PhD thesis with International Mention, obtaining an Excellent Cum Laude. As a result of my previous collaboration, I started working as a postdoctoral researcher in the University of Minho. There, my main lines of research have been focused in the use of neuroimaging and meta-analytical techniques in order to disentangle the differences and commonalities in the neurobiological correlates of different psychiatric disorders, and to develop new treatments such as neurofeedback. I also had a focus in obsessive-compulsive disorder research, collaborating with the international consortia ENIGMA. During this time as a postdoctoral researcher I had the chance to consolidate my supervising and examiner skills by being the co-director of 4 master thesis and 4 laboratory rotations, being part of the jury of one master thesis, the external evaluator of one PhD thesis, and performing ad-hoc peer-reviewing for several journals as well as becoming a review editor for Frontiers in Psychiatry. Importantly, I got funding for two projects as Principal Investigator so far, and I started supervising my first three PhD students. Finally, during this period I was also involved in the postdoctoral committee in charge of organizing the annual retreat of the institution, and participated in pop-science activities.

Recently, I was awarded with a María Zambrano contract from the Ayudas para la recualificación del sistema universitario español , to start working in the Neuropsychology and Functional Neuroimaging group from the Jaume I University.

From a scientific production perspective, the 17 publications registered in Scopus since 2016 have generated 299 citations and an h-index of 10. The 10 publications with available IF are all Q1, and 5 of them are D1.

Área Temática:	**Psicología**
Nombre:	GONZALEZ GARCIA, CARLOS
Referencia:	RYC2021-033536-I
Correo Electrónico:	cgonzalez@ugr.es
Título:	Neurocognitive signatures of instruction following

Resumen de la Memoria:

My scientific career takes place at the intersection of cognitive and computational neuroscience, primarily concerning the mechanisms involved in complex, flexible behavior. Predictions come in many shapes and forms: from low-level perceptual expectations, up to high-level representations defined by abstract goals. Despite how different these situations might be, they all reflect a basic principle, namely, the constant generation and updating of predictions that are matched against incoming information to support flexible behavior. My main research line focuses on a striking instance of such flexibility: our ability to form and follow novel instructions. During my predoctoral training, I developed a paradigm to study novel task preparation and implementation using multivariate analyses of functional resonance imaging data. Additionally, I started a parallel line of research regarding the neural signatures of another instance of one-shot learning, namely, prior-guided visual perception. The main outcomes of my predoctoral stage have been reflected in several publications in top-ranked journals such as Elife and NeuroImage. Throughout my postdoctoral years, I have continued pushing forward both lines of research, with the overarching goal of establishing a prediction-based framework to characterize these and other forms of one-shot learning. The work during my postdoctoral period has been reflected in 12 publications (3 as first author, 6 as second author, and 1 as senior author), in journals such as Journal of Neuroscience, Cerebral Cortex, Cognition, and NeuroImage. These outcomes highlight three main aspects of my career. First, a high-mobility profile, having been trained at the University of Granada and National Institutes of Health (USA), and carrying out most of my postdoctoral work at Ghent University (Belgium). Second, my drive to obtain funding in competitive, international calls, such as the Fulbright and Marie Skłodowska-Curie fellowships, to lead timely projects in the field and to build a strong international network of collaborations. Last, my motivation to support and train younger researchers interested in extending this line of research. As such, a Ramón y Cajal grant would be a great opportunity to achieve my long-term career goal of establishing a cognitive neuroscience laboratory in Spain.

Resumen del Currículum Vitae:

International Doctor in Psychology (University of Granada, 2017; Outstanding doctorate award), I am currently a Juan de la Cierva-Incorporación fellow at the University of Granada. Previously, I was a Fulbright predoctoral fellow at the National Institutes of Health (USA), and a Marie Sklodowska-Curie postdoctoral fellow at Ghent University (Belgium). My research interests concern the neurocognitive mechanisms underlying perception, attention, and control processes. I combine different neuroimaging data modalities to resolve in time and space how the brain drives flexible behavior.

During my PhD, I developed an experimental paradigm to study the implementation of novel tasks with multivariate analyses of fMRI data that led the way for important contributions in the field, published in journals such as Journal of Neuroscience, Cerebral Cortex and NeuroImage. In this stage, I was first awarded a Research Collaboration Grant by the Spanish Government, and a Fulbright grant to explore the neural mechanisms of prior-guided perception. This collaborative project generated influential contributions, reflected in 3 articles in prestigious journals in the field (two in eLife, one in Journal of Neuroscience).

I started my postdoctoral experience at Prof. Brass lab at Ghent University, one of the leading hubs on instruction following. The collaboration with Prof. Brass eventually led to a Marie Sklodowska-Curie fellowship, awarded in a competitive call by the European Commission. This project was inspired by my predoctoral work as well as by work independent of my thesis supervisors and has already resulted in important contributions to the field. After this first postdoctoral stage, I returned to Granada with a Juan de la Cierva-Incoporación fellowship, where I am currently a co-PI of a national project funded by the Spanish Ministry of Science and Innovation. I currently have 24 publications in JCR journals, being first author in 10 of these works, second in 9 more, and senior author in an additional publication. Before my current appointment, I participated in 3 additional research projects. I have reviewed for 9 JCR journals, and I am a member of different societies.

I am committed to the dissemination of knowledge. Since 2013, I have participated in several conferences and have been invited to one expert meeting (held at Brown University). I have received several awards, including best oral presentation and best article of the year (awarded by the SEPEX). I am committed as well to an open and replicable science and I actively participate in such initiatives: I am first author of a Registered Report published in Royal Society Open Science, and I am coauthor in a large-scale collaborative neuroimaging project (published in Nature). I also have four publications in journals for the popularization of science. I was awarded a Dissemination Award by the University of Granada (2018).

I have or am currently co-supervising 6 MSc theses and 1 PhD thesis. I have been heavily involved in the supervision of students extending some of my original work, and who now have successfully transitioned to their postdoctoral stages. I have created stable connections with relevant authors and helped in establishing Granada as an important hub in our field. I hold the accreditation for Profesor Ayudante Doctor and teach several training courses for graduate students.

Área Temática:	**Psicología**
Nombre:	LINDE DOMINGO, JUAN
Referencia:	RYC2021-033940-I
Correo Electrónico:	lindedomingo@gmail.com
Título:	The format and temporal dynamics of human memory representations in neural signal and behaviour

Resumen de la Memoria:

I am currently a postdoctoral fellow at the Max Planck Institute for Human Development (Adaptive Memory and Decision Making, Center for Adaptive Rationality, Berlin). My main research line is the study of human memory representations. Specifically, I am focused on understanding the format and temporal dynamics of short and long-term memories during encoding, maintenance and retrieval. To that end I have been using a variety of high-temporal resolution neuroimaging techniques as electroencephalography (EEG) or intracranial EEG together with cutting-edge multivariate analyses as machine-learning or representational similarity analyses, among others. The combination of neuroimaging and advance decoding techniques has allowed me to read-out the memory contents from neural activity and study the nature of these representations. My theoretical and technical expertise has been key in the production of high-quality and high-impact research and all my first authorships articles and collaborations have been published in top ranked journals (Q1, percentile >=95 in their respective fields), including Nature Human Behaviour, Nature Communications or Current Biology. In my young career I have demonstrated a high mobility and a collaborative approach, working on a variety of scientific groups in different prestigious institutions that included the universities of Birmingham, Leicester, Granada and the Max Planck Institute. I am being committed to the career of young scientists, representing PhD students, having an active role co-supervising and mentoring bachelor, master and doctoral students and being a member of the organization committee of online courses and workshops. All these achievements in my career naturally lead me to become a young independent researcher in the near future. I believe that my excellent scientific contributions, high expertise in the field and leadership make me an excellent candidate to be awarded with a Ramon y Cajal grant for young researchers, which would be the best opportunity to be formed as independent investigator and contribute significantly to the Spanish scientific community.

Resumen del Currículum Vitae:

I am a postdoctoral fellow at the Max Planck Institute for Human Development (Berlin). My research interests concern understanding the temporal dynamics of long and short-term memory in humans and the malleability of memory representations reflected in neural activity. My doctoral thesis (University of Birmingham, UK, 2019) focused on how memory representations are retrieved compared to visual perception and on the oscillatory neural pattern of memory reactivation. During my PhD I worked with a broad variety of neuroscientific techniques and methods (e.g. EEG, intracranial EEG, machine learning, time-frequency analyses or source reconstruction) which resulted in 2 first author publications in Q1 journals (both in percentile 98) with a high online attention (1 publication is in percentile 99 according to Altmetric). In my scientific career, I am trying to comprehend the dynamics of the human memory system(s) from a holistic point of view, investigating other relevant processes like transitive inference (1 article in a Q1 journal, percentile 98) or working memory representations reflected in gaze (in preparation). My expertise in designing novel experimental paradigms and my technical knowledge have been key in multiple collaborations that resulted in publications in high impact journals (3 articles, Q1 journals, percentile >=95). As a pre-doctoral student and a postdoctoral fellow I had a pivotal role in preparing two successful European Research Council grants, including my collaboration in designing, collecting data and analyzing pilot experiments. In both projects I have been involved as a researcher. I have been working with different international groups from multiple institutions, including the University of Granada (Spain), the University of Leicester (UK), the University of Birmingham (UK) and the Max Planck Institute for Human Development (Germany). I have presented my scientific achievements in several prestigious international conferences (>10) including the Annual Meeting of the Society for Neuroscience (SfN) in the USA or the International Conference for Cognitive Neuroscience (ICON). I have contributed to open, transparent and replicable science. Data and code of all my first-author papers are available and 4 publications where I have been involved have been published in open access journals. All of these publications had pre-print versions available. I have took part as a reviewer in different scientific journals including Nature Communications, NeuroImage and Journal of Experimental Social Psychology. In my career, I have an active role supporting young investigators, being elected PhD Student representative (University of Granada, 2013-2014), taking part in a selection committees (Max Planck Institute for Human Development, 2020-2022), co-supervising 2 bachelor theses, mentoring postgraduate and PhD students and training research assistants in lab activities such as EEG recording. In my endeavor to train young scientists, I have been a member of the organization committee of the Multivariate EEG Analysis Online Course (University of Granada, Spain, 2020) and the International CIMCYC Workshop on Brain and Cognition (University of Granada, Spain, 2017). I received a Midlands Integrative Bioscience Training Partnership (MIBTP) PhD scholarship, a doctoral training program between the universities of Birmingham, Leicester and Warwick.

Área Temática:	Psicología
Nombre:	MUÑOZ FERNANDEZ, NOELIA
Referencia:	RYC2021-034977-I
Correo Electrónico:	noelia.munfer@gmail.com
Título:	Prevención de la violencia en parejas adolescentes

Resumen de la Memoria:

Mi línea de investigación es la prevención de la violencia en parejas adolescentes. Con el objetivo de prevenir la violencia en parejas jóvenes he trabajado activamente en tres direcciones complementarias.

En primer lugar, he liderado el desarrollo, implementación y evaluación de un programa de prevención de violencia en parejas adolescentes (Dat-e Adolescence). Se trata de una intervención desarrollada en el marco de las Intervenciones basadas en la Evidencia (EBI) siguiendo las recomendaciones de la Prevention Science y la Traslational Research. Este programa ha tenido un alto impacto social, se ha implementado con más de 2000 adolescentes y ha resultado ser eficaz en el cambio de factores de riesgo cognitivos y socio-afectivos asociados a la violencia, así como en la reducción del comportamiento violento. Gracias a esta intervención hemos comprobado que intervenciones diseñadas para prevenir la violencia en la pareja también reducen otras formas de violencia interpersonal, como el bullying. Esta intervención me ha permitido trabajar con agentes como el profesorado y equipos de orientación, con los que se ha establecido una estrecha colaboración.

En segundo lugar, he liderado el desarrollo de nuevos instrumentos para analizar nuevas formas de violencia a través de las nuevas tecnologías, como la violencia online en pareja o la cibervictimización sexual entre iguales. Además, he liderado la adaptación de instrumentos utilizados ampliamente a nivel internacional para medir violencia en pareja en persona y online. Estos instrumentos nos han permitido evaluar de forma más ajustada el tópico de estudio y poder comparar los resultados de la intervención con estudios internacionales. La evaluación ajustada, que cuente con buenas propiedades psciométricas, es central dentro del desarrollo de intervenciones basadas en la evidencia, pues proporciona información válida y fiable sobre los resultados de las intervenciones. A este respecto he liderado la adaptación de medidas para evaluar la violencia online (Cyber Dating Abuse del Dr. Zweig), y la violencia psicológica y sexual (a partir de la adaptación de medidas desarrolladas por la Dra. Foshee). Además, del desarrollo, adaptación y validación de instrumentos, he desarrollado experimentos para evaluar la comprensión de los adolescentes sobre la violencia online. A través de estos experimentos, en los que hemos utilizados conversaciones ficticias de Whatsapp hemos estudiado qué formas de violencia online se encuentran más normalizadas entre los jóvenes, con el riesgo que ello supone. Además, hemos evaluado el impacto de la audiencia o la agresión pública en la violencia online, así como el efecto de variables claves como el sexo y la desconexión moral. Además, los resultados de estos estudios nos han permitido ofrecer datos sobre la prevalencia de estos comportamientos entre adolescentes en nuestro país.

En tercer lugar, he liderado el estudio de factores asociados a la violencia en pareja a través de diseños y análisis longitudinales. En estos estudios hemos identificado componentes claves para la prevención conjunta e individual de la violencia online y en persona. Además, hemos elaborado perfiles de jóvenes en riesgo para comprender que combinación de contenidos deben ser abordados en una intervención para la correcta prevención de cada manifestación de comportamiento violento.

Resumen del Currículum Vitae:

Durante mi joven carrera científica he publicado 14 artículos en revistas de alto impacto científico en la violencia interpersonal (9 JCR Q1/Q2) y 7 capítulos de libro, algunos en editoriales de reconocido prestigio como Routlegde, Wiley, Dyckinson y Pirámide. Estos trabajos se han desarrollado dentro de 4 proyectos de investigación del Plan Nacional I+D, 2 proyectos autonómicos, un proyecto europeo, y un proyecto financiado por la fundación la Caixa. En 2014 obtuve un contrato FPU del Ministerio de Educación para realizar mi tesis doctoral. En 2015 obtuve una mención especial en el premio joven a la cultura científica del Ayuntamiento de Sevilla, en 2021 el Premio Extraordinario de Doctorado de la US y dos premios a la mejor investigación de la US, financiado por el plan propio de investigación de la US. Soy la primera autora/autora de correspondencia en 5 publicaciones (JCR Q1) y un capítulo de libro. Según google scholar mi investigación ha sido citada 248 veces (índice H de 9). Esta línea de investigación se ha visto fortalecida gracias a la continua colaboración internacional. Esta se expresa en tres aspectos: 1) realización de estancias internacionales con referentes en el tópico de estudio (Dra. Menesini y Dra. Nocentini) y en diseños y análisis longitudinales (Dr. Voelkle), tutores de mis estancias realizadas con financiación competitiva dentro del programa Estancias Breves del Ministerio de Educación; 2) colaboración estrecha y continuada en cuatro proyectos investigación competitivos desde 2014 hasta la actualidad; y 3) colaboración en publicaciones con referentes internacionales en revistas científicas y congresos internacionales. En términos de difusión internacional, esta investigación ha sido diseminada en más de 30 trabajos que hemos llevado a congresos internacionales de reconocido prestigio dentro del área (como ECDP, EARA, ISSBD, etc.). Actualmente estoy dirigiendo una tesis doctoral sobre la prevención de la violencia sexual en adolescentes diseñando aplicaciones de realidad virtual, en el marco de un proyecto de investigación financiado por la Fundación la Caixa y de un proyecto de investigación del plan nacional que ha comenzado este mismo año. Además, he supervisado diversos trabajos de fin de máster y fin de grado. Como méritos de transferencia he participado en diversos contratos 68/83 con instituciones y empresas, validando instrumentos para la evaluación psicoeducativa, evaluando los resultados de un programa de prevención de violencia de género y diseñando un plan contra el absentismo escolar. También he trasladado mis competencias como investigadora al ámbito empresarial, en 2013 fundé mi propia empresa (Metodik S.C), que recibió el premio a mejor idea de negocio de la US, para la formación y el asesoramiento psicoeducativo y metodológico.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	FERNANDEZ RUIZ, MARIA DEL ROSARIO
Referencia:	RYC2021-032167-I
Correo Electrónico:	rosariofr85@gmail.com
Título:	Optical fibers beyond signal transmission: signal processing and ubiquitous sensing

Resumen de la Memoria:

My research career is focused on the conception, development and fabrication of disruptive optical fiber-based photonic systems designed for application in numerous fields including signal processing for optical communications, and distributed optical sensing for infrastructure monitoring, transport security, seismology, among others.

I obtained my M.Eng in Telecommunications and M.Sc in Electronics and Signal processing in the University of Seville (Spain) in 2009 and 2011, respectively. Afterwards, I moved to Montreal (Canada) to conduct my PhD studies in the Ultrafast Optical Processing Group of the Institut National de la Recherche Scientifique. I developed world-class optical signal processors with unprecedented operation bandwidths and reduced power consumption, fostering a baseline for future on-chip optical devices. In 2016, I attained my PhD with Honours from the University of Quebec and was awarded the Ericsson Best Thesis Award of the Spanish Telecommunication Engineering Order.

The same year I moved back to Spain to join the cutting-edge Photonics Engineering Group of the University of Alcalá as a postdoc researcher to work on the development of distributed optical fiber sensors and their application to new research fields through an ERC Starting Grant. Since 2018, my work has been funded by 2 postdoctoral Juan de la Cierva grants (Formación and Incorporación). During this period, I have strongly contributed to the performance boost of distributed optical fiber sensors, promoting in first person the transfer of this technology to the specialized industry, resulting in a top-class system that is currently commercialized by two relevant manufacturers in the world. Moreover, I am currently leader of a group of 6 researchers in the development of a novel strategic research line based on distributed optical sensors with ultra-high resolution and high-energy efficiency. This development has led to a patent in exploitation, of which I am co-author.

In summary, I am author of 34 scientific journal publications (28 JCR-Q1, 3 JCR-Q2; 16 as first author), including a Nature Communications and Light: Science and Applications , one book chapter, 62 publications in national and international conferences (36 oral and 13 invited talks), and several seminars in prestigious research groups. I have been principal investigator of the Juan de la Cierva associated project, a competitive project funded by the University of Alcalá, and an industrial contract with the INESC-TEC in Portugal (~10 k in total). Besides, I have been researcher of 13 competitive projects including 3 Canadian, 4 European (1 ERC-SG, 1 ERC-PoC, 1 MSCA-ITN, 1 ERA-NET Cofund), 2 Spanish, 2 regional and 2 local; and 8 contracts with industry. I am co-director of 5 Master Theses (2 underway) and 2 PhD Thesis (1 underway) at the University of Alcalá.

I regularly perform scientific dissemination activities to society, gaining the Scientific Dissemination Award 2019 by the University of Alcalá. I am reviewer of high-impact indexed journals. I was Guest Editor in a Special Issue of Applied Optics, and I am Junior Editor of the IEEE Photonics Journal.

Resumen del Currículum Vitae:

I received the M.Eng in Telecommunications and M.Sc in Electronics and Signal Processing from the University of Seville (Spain) in 2009 and 2011, respectively. I pursued my PhD in the Institut National de la Recherche Scientifque (INRS), in Montreal (Canada). I worked on world-class ultrafast optical signal processors for communications and computing. In 2016, I received my PhD in Telecommunications with Honours from the University of Quebec. I was recognized with the Ericsson Best Thesis Award granted by the Spanish Telecommunication Engineering Order, the "Tableau d'honneur du vice-recteur" distinction by the INRS and I was selected as Canada Governor General Gold Medal finalist & Excellence award in graduate studies 2016.

After that, I joined the University of Alcalá (UAH), Spain, as postdoctoral researcher. My work encompassed new developments and applications of disruptive distributed optical fiber sensors. I was awarded two highly competitive Juan de la Cierva grants (Formación 2016 and Incorporación 2018). My contributions to the improvement of the technology have been directly implemented in a system currently commercialized by two companies (Aragon Photonics Labs in Spain and Omnisens in Switzerland), and one patent in exploitation.

Along my career, I have authored 34 peer-reviewed journal publications (16 as first author, 4 as supervising (last) author), including a Nature Communications (second author) and a Light: Science and Applications (supervising author); 1 book chapter; >60 conference publications (13 invited talks, 2 received the Best Student Paper Award). My publications have accumulated >640 citations, having an h-index of 13 (per Google Scholar). I have been principal investigator of the Juan de la Cierva associated project, a competitive project funded by the UAH, and an industrial contract with the INESC-TEC in Portugal (~10 k in total). I have participated in 13 competitive projects (3 Canadian, 4 European and 6 national or regional), and in 8 industrial contracts. I have a vast collaboration network worldwide, including researchers from the University of Laval (Canada), Caltech (USA), University of Padova (Italy), University of Federico Santa María (Chile), the Spanish Research Council, etc. I have (co-)directed 3 Master Theses and 1 PhD Thesis (Cum Laude mention).

Regarding my teaching and dissemination activity, I taught a post-graduate course in the INRS in 2016. Since 2018, I am lecturer in B.Sc courses about electronics in the UAH. I have been lecturer of an UAH technical course addressed to the company Indra in 2021. I have given talks about Science for high school students and I have been organizer and speaker in the annual dissemination activity "Science Week" for 4 years. I received a Scientific Dissemination Award UAH 2019 for this task.

I was chairperson in the Photonics in Switching Conference 2015. I am reviewer in WoS-indexed journals. I was Guest Editor in the Special Issue Bragg Gratings for Optical Signal Processing of the journal Applied Optics, and I am Junior Editor of the IEEE Photonics Journal.

I complete my professional experience with 2 years working in the private sector (from 2008 to 2010). I have worked as Development Engineer for the technology-consulting firm Everis Spain, and as R&D Engineer for the company Militärtecnologie, Dienst und Überwachung.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	TEIJEIRO CAMPO, TOMAS
Referencia:	RYC2021-032853-I
Correo Electrónico:	tomas.teijeiro@gmail.com
Título:	Artificial Intelligence for Efficient and Personalized Monitoring of Health Conditions in the IoT Era

Resumen de la Memoria:

My research from my computer engineering background has always been committed to improving the healthcare paradigm by exploiting the opportunities given by information and communication technologies. During my PhD, I focused on developing novel Artificial Intelligence (AI) techniques for automatic time series analysis and abstraction. As a main result, I developed a knowledge-based framework for time series interpretation, grounded on the initial hypothesis that abduction provides the best reasoning paradigm to overcome the major limitations of traditional classification-based approaches, and inspired by how humans identify and characterize the patterns appearing in a time series. My PhD Thesis, entitled Pattern recognition beyond classification: An abductive framework for time series interpretation , received the maximum grade (Outstanding Cum Laude) with Extraordinary Prize in the area of Engineering and Architecture from the University of Santiago de Compostela.

As a paradigmatic example of a time series interpretation application, my proposed framework was applied to some problems in the electrocardiogram (ECG) analysis domain. In this sense, the main result was the first prize obtained in the Physionet/Computing in Cardiology (CinC) Challenge 2017, in which I led the team who developed the best algorithm independently evaluated to date in classifying short single-lead ECG signals. Primary due to this result, I got an invitation to give a Keynote talk in the CinC 2020 conference about how to exploit expert knowledge to build better machine learning models in biomedical applications.

Then, in 2018 I joined as a postdoc researcher the Embedded Systems Laboratory (ESL) of the EPFL, in Switzerland. This is a highly transversal lab, focused on designing and developing hardware-software codesign strategies for energy optimization in embedded devices such as wearables. This allowed me to greatly broaden the scope of my research, but also to improve my managing and supervision skills, as I was responsible for the daily supervision and guidance of 10 PhD students, and I participated in 5 international projects, being the main responsible from the ESL for preparing 2 of the grant proposals.

From the research perspective, I gained experience in low-level optimization of algorithms and sensors, and also worked on new problems and with new types of signals. Specifically, in the field of sensing optimization I contributed to the development of new strategies for combining domain knowledge with event-based sampling to reduce the volume of data captured by biosensors by more than an order of magnitude without affecting the performance of the target applications. Moreover, I continued working on efficient AI algorithms for different problems in biomedical signal processing. Most of my efforts these last years were devoted to the problem of real-time detection of epileptic seizures from ECG and electroencephalogram (EEG) signals, but I also explored the cough characterization of patients with COVID-19 in my COUGHVID initiative, the robust measure of heart rhythm changes on the ECG during high-intensity exercises, or the assessment of joint knee status using audio, kinematic, and thermal data.

Resumen del Currículum Vitae:

I did my PhD in the area of Artificial Intelligence and Computer Science at the University of Santiago de Compostela (USC), with the support of a competitive FPU fellowship from the Spanish Ministry of Education. My PhD work focused on the development of artificial intelligence techniques for time series analysis and abstraction applied to biomedical signal monitoring, and specifically to the interpretation of electrocardiogram (ECG) signals. In 2015, I did a research stay in the Laboratory for Biomedical Informatics of the University of Pavia in Italy, in which I could apply the methods I was developing to several datasets. My PhD thesis was defended in 2017 and obtained the maximum grade of Outstanding Cum Laude and the Extraordinary Prize. During my PhD, I published 5 articles in high-rated journals and international conferences.

After my PhD, I stayed one year as a postdoc in the CiTIUS research centre of the USC, in which I focused on translating the theoretical framework developed during my PhD into relevant applied results. The main achievement was the first prize in the Physionet Challenge 2017, aimed at arrhythmia detection from short single-lead ECG signals. Our algorithm was the best-performing among more than 80 participants, and this performance has not yet been matched. As a result of this postdoc stage, I published 2 of my most cited articles (114 combined citations).

In 2018 I joined the Embedded Systems Laboratory (ESL) of the EPFL, in Switzerland. My research has been oriented to improve the performance and energy efficiency of machine learning methods for personalized monitoring of health conditions using wearable devices. For this, I worked at different levels, including data acquisition, storage, transmission and processing, following the "near-sensor computing" approach embedded in the "Edge Computing" paradigm. The targeted applications were also in the biomedical domain, with special mention to the continuous monitoring of epilepsy patients, in collaboration with the University Hospital of Lausanne. I would also like to highlight my initiative to start the COUGHVID project in 2020 with a team of students, in which we investigated the potential of cough sounds to screen patients with COVID-19. As a main result we published the largest open dataset of labeled cough recordings.

Since I joined the EPFL, I published 12 research articles and I was invited to give 3 talks (1 keynote) at international conferences. Also, I performed 31 peer-reviews for renowned journals and conferences, which puts me in the top 5% of reviewers according to the Publons website. I also daily supervised 10 PhD students and participated in 5 international research projects in different roles, including Technical Coordinator and Work Package Leader. I participated in the preparation of 2 project proposals which provided direct funding to EPFL for more than 1.200.000 , and I contributed to the creation of the Sensemodi start-up by preparing a proposal to the Innosuisse call of the Swiss Innovation Agency granted with 443.000 .

Finally, I underline my commitment with open research and dissemination of science. All my papers include the software required to reproduce the experimental results as open-source, and I am one of the authors of "CiTIUS Invaders", an open-source game for introducing kids to artificial intelligence and genetic algorithms.

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
Turno de Jóvenes Investigadores

Área Temática: Tecnologías de la información y de las comunicaciones
Nombre: BARREDA GOMEZ, ANGELA INMACULADA
Referencia: RYC2021-030880-I
Correo Electrónico: angela_91b@hotmail.com
Título: Electromagnetic Behaviour of Hybrid Metal-Dielectric Nanostructures: Applications to Environment, Communications and Quantum Information

Resumen de la Memoria:

Ángela Barreda is a researcher dedicated to the study of the electromagnetic behaviour of high-refractive-index dielectric and hybrid (metal-dielectric) nanostructures for their use in different applications, including single-photon sources, solar cells, and optical switches.

Dr. Barreda completed her doctoral studies in Physics with distinction (cum laude) at Universidad de Cantabria in 2019, having been awarded the Extraordinary Doctorate Prize for the best dissertation in a scientific domain of the university and the Research Prize of the Juan Maria Parés Social Council. The dissertation was given International Mention due to the research stays spent at Imperial College (London, UK) and Institut Fresnel (Marseille, France).

Ángela Barreda has been a postdoctoral researcher at the Friedrich-Schiller-Universität (Jena, Germany) since January 2020, first under an Alexander von Humboldt scholarship (24 months) and currently hired by the university as an associate researcher. Dr. Barreda leads a project within the context of the school of photonics created as a consortium between Friedrich-Schiller-Universität Jena and The Australian National University. The overarching goal of this project is to develop hybrid metasurfaces to enhance the emission of quantum emitters. Prior to her move to Jena, Dr. Barreda was a postdoctoral researcher at Universitat Politècnica de València as part of an European project (May   December 2019). Dr. Barreda has designed hybrid structures of photonic and plasmonic cavities that combine high Q-factors with extremely low mode volumes, resulting in high Purcell factors. Despite having moved to Jena, Ángela Barreda is still actively involved in this European project.

The Humboldt scholarship awarded to Ángela Barreda allowed her to undertake her own research project on the design of single-photon sources for quantum communication. Dr. Barreda designed, fabricated and performed the experimental characterization of dielectric and hybrid nanoantennas to intensify the spontaneous emission of semiconducting quantum dots, both isolated and in small clusters. Through this project Dr. Barreda deepened her theoretical and numerical skills and gained experience in experimental research. The two highlights of this project are:

- The isolation of a single quantum dot;
- The design of photonic-plasmonic cavities exhibiting an order-of-magnitude increase in the Purcell factor relative to the state of the art.

Of the 9 projects in which Ángela Barreda has participated, as far as the transfer of knowledge to society is concerned, a landmark achievement was the design and fabrication of a plasmonic device that detects and counts the number of cancer cells in the blood stream within the context of a multidisciplinary project. The device is currently at the   laboratory prototype   stage, having already been validated with samples of patients with colorectal cancer. This project was awarded the Medical Engineering and Science Prize by the Massachusetts Institute of Technology.

Resumen del Currículum Vitae:

Ángela Barreda is a researcher dedicated to the design of hybrid (metal-dielectric) nanostructures, which find a wide range of applications in communications, quantum computation, health, and environment.
Dr. Barreda s research has generated 23 publications in high-impact scientific journals (Science, Nature Communications), 13 proceedings, 46 contributions at conferences (8 upon invitation) and 5 invited seminar talks. Dr. Barreda is co-inventor of 2 European patents. Her h-index is 12.
Ángela Barreda was granted 5 postdoctoral scholarships, including 3 financed by the Marie Sklodowska-Curie Foundation and 1 by the Alexander von Humboldt Foundation. Dr. Barreda accepted the latter, which allowed her to strengthen her leadership skills as an independent researcher at the Friedrich-Schiller-Universität (Jena, Germany). Prior to her move to Jena, Dr. Barreda took part in a European project as a postdoc at the Universitat Politècnica de València. Dr. Barreda is currently involved in the project   Tailored metasurfaces-generating, programming and detecting light , in collaboration with The Australian National University.
Ángela Barreda has been involved in 9 interdisciplinary international projects financed by the European Research Council (1), the Government of Spain (1), the Iberdrola Foundation (2), the Regional Government of Cantabria (2), the US Army International Technology Center (1), the Alexander von Humboldt Foundation (1), and the Deutsche Forschungsgemeinschaft (1). It should be noted that Dr. Barreda was a principal investigator in 3 projects. Regarding internationalization, Dr. Barreda undertook her research at the Friedrich-Schiller-Universität Jena for 24 months under a Humboldt scholarship. She is currently splitting her time between Jena and The Australian National University, both of which are world-class centers in photonics. During her doctoral studies, Dr. Barreda completed research stays at prestigious research institutions like Imperial College (London, UK) and Institut Fresnel (Marseille, France), obtaining the International Mention in her doctorate. Her dissertation was awarded the Social Council Prize and the Extraordinary Doctorate Prize of the Universidad de Cantabria.
Ángela Barreda has taken teaching duties (27.5 ECTS) in Physics, Mathematics, and Engineering degrees. Dr. Barreda has co-supervised 2 bachelor s degree research projects and 4 master s degree research projects. She obtained the teaching training and innovation certificates. Dr. Barreda is a reviewer for 8 JCR journals, has been a chairperson in international conferences, and was accredited by ANECA for the positions of Profesor Ayudante Doctor, Contratado Doctor and Profesor de Universidad Privada.

Dr. Barreda has also participated in scientific outreach events: radio programs, university open days, and seminars on the   International Women s Day in Science . She has co-written a children s book about climate change. Dr. Barreda has also written articles for the Atlas of Science.

Dr. Barreda has been recognized with other awards:

- Assistance 66 Lindau Nobel Laureate Meeting
- Assistance 10 Research Opportunities week organized by the Technical University of Munich
- 2nd Prize Sciathon Lindau Nobel Laureate 2020
- Assistance "Humboldt meets Leibniz". Event organized by the Leibniz University Hannover and the Volkswagen Foundation.

Resumen de la Memoria:

Asier Erramuzpe Aliaga, Ph.D. is a lecturer and researcher member of the Department of Biomedical Engineering at Mondragon Unibertsitatea - Mondragon Goi Eskola Politeknikoa. Technical and Superior Engineer in Computer Science (2007-2012) and MSc. in Biomedical Engineering by the Public University of Navarra (2013) (UPNa). MSc. in Biomedical Engineering (2014) and Ph.D. in Biomedical Research (2018) at the University of the Basque Country (EHU-UPV).

During his pre-doctoral stage at the Biocruces HRI Biomedical Research Center (Osakidetza/UPV-EHU), he specialized in the acquisition, pre-processing, and analysis of Magnetic Resonance Imaging (MRI), as well as in the processing and analysis of medical data (Data-Mining and Machine-Learning). He worked on the characterization of the Central Nervous System s diseases affecting the brain, such as Alzheimer s Disease, Parkinson's, and Epilepsy. Among the MRI modalities, he worked with structural, functional, and diffusion modalities and participated in the development of world-class open-source pre-processing pipelines.

After obtaining his Ph.D., he moved to the Hebrew University of Jerusalem, to the Quantitative Imaging Lab at the Edmond and Lily Safra Center for Brain Sciences (ELSC) to deepen his knowledge of the novel qMRI (Quantitative) technique, with which it is possible to obtain information about the microstructural composition of tissues. Among his collaborators, he was able to define and model healthy age brain trajectories for microstructural measurements such as T1 relaxation, a proxy of myelination of the brain. In the study, the model was able to predict aberrant trajectories of Multiple Sclerosis patients.

His research interests focus on computational neuroimaging, age prediction, medical image analysis, graph theory, artificial intelligence, and data mining. In recent years, he is centered in the characterization and modeling of healthy lifespan trajectories, interested in biomarkers able to modify positive or negatively such trajectories. He has contributed to more than 25 scientific articles in high-impact indexed journals such as Nature Methods, Cerebral Cortex, and Human Brain Mapping and several communications to international conferences.

Currently, he is part of the coordination team of the degree in Biomedical Engineering and the Master in Biomedical Technologies at Mondragon Unibertsitatea, in which he teaches subjects related to signal and image processing, biomedical imaging, and artificial intelligence. He also collaborates in ongoing research projects with companies and research centers of the Basque Country in cooperation with the Mondragon Corporation.

Resumen del Currículum Vitae:

With Majors in Computer Science and Biomedical Engineering, the candidate obtained his Ph.D. in Biomedical Research in May 2018. He conducted his training under the supervision of Ikerbasque Full Professor Dr. Jesus Cortés, head of the Computational Neuroimaging Lab at BioCruces Health Research Institute (Viscay, Spain). He obtained the Magna Cum Laude, an International Mention (due to a research stay of 3 months at the Epilepsiezentrum am Universitätsklinikum Freiburg, Germany) and won the Ph.D. Extraordinary Price in 2020 (first position of the Medicine Faculty candidates).

He s been granted with the Basque Government's predoctoral and postdoctoral fellowships and the prestigious Edmond and Lilly Safra Center for Brain Science Centre s Postdoctoral Fellowship (ELSC, Hebrew University of Jerusalem - HUJI), under the supervision of Dr. Aviv Mezer, Associate Professor and Head of the Human Brain Biophysics lab at ESLC.

The candidate has published more than 25 JCR indexed publications in high-impact indexed journals such as Nature Methods, Cerebral Cortex, and Human Brain Mapping (6 first-author and 2 last-author). He is been involved in cutting-edge open-source neuroimaging software and web-projects development like C-PAC, Neurovault, or fMRIPrep.

Additionally, he has contributed to more than 20 written or oral communications to international congresses and workshops, 3 of them as invited-speaker. He has been involved in several research projects valued at over 400.000 s, in national and international public competitive calls. And nowadays collaborates at industry-level projects with the Mondragon Corporation in projects valued over 250.000 s.

He has been involved in the organizing committee of 4 international conferences/workshops and he is the founder, administrator, or organizer of several Scientific Dissemination Activities such as The Science Bridge (International East-West Collaboration Action), Neurolagun (Founder; Local Scientific dissemination activities for general public), and Neurokafe meetings (Founder and organizer; Scientific talks for scientists). He is the main moderator of the Connectionists Mailing List since 2016, created by Dave Touretzky in the 80 s, with +7000 subscribed scientists.

In relation to international research stays, besides his +2 years of Postdoctoral Fellowship at Jerusalem, he made minor stays at Ghent University, Freiburg Univ. Hospital and UW eScience Institute in Seattle. He has been granted many travel awards in order to attend workshops, hackathons, and summer schools like the 13th Advanced Comp. Neuro. Summer School in Gottingen; BrainHack Vienna, and the 2nd NeuroHack Week Summer School in Seattle.

Due to his coding abilities, he won 2 consecutively Google Summer of Code positions in 2015 (C-PAC, Cameron Craddock) and 2016 (Neurovault, Chris Gorgolewski) to participate as a student and he was a mentor in 2018 (rsHRF, co-mentoring with Daniele Marinazzo). In 2021 he helped a student of Mondragon University to win a position to participate in DiPy development (Eleftherios Garyfallidis).

Since his incorporation to Mondragon University in 2020, he is actively teaching different subjects, he coordinates the first semester of the MSc. in Biomedical Technologies and has supervised 2 MSc. and 6 BSc. student s thesis.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MARTINEZ MURCIA, FRANCISCO JESUS
Referencia:	RYC2021-030875-I
Correo Electrónico:	pakitochus@gmail.com
Título:	Interpretable machine learning for biomedical signal and data analysis

Resumen de la Memoria:

My main research line is focused on the application of signal processing and machine learning to biological data, aimed primarily at computer-assisted diagnosis (CAD) of neurological conditions (e.g. Alzheimer s or Parkinson s Disease), and lately to interpretability and disease progression models. In this context, the research has largely focused on latent spaces under the manifold hypothesis and representation learning, using statistical and/or deep learning models.

I participated in 43 articles published in international journals (30 Q1 / 11 Q2), leading 15 as corresponding author and 13 as first author. Contributed to 44 works presented at international conferences. I have been invited speaker at 2 national conferences and co-author of 5 book chapters. These works are cited (January 2022) 1325/778 times (Google Scholar/Web of Science), with 228 citations/year in the last 5 years (2017-2021, GS), achieving a H-index of 21/18 (GS/WoS) and a category-normalized citation index of 1.27 in the category (WoS).

Fruitful international collaborations with researchers at institutions in UK, Germany, Belgium, and USA demonstrated by co-authorship in publications (13 with Univ. Cambridge, 10 with Florida State University, 4 with Universität Regensburg, 2 with Université de Liège and 2 with LMU München), research projects and short stays. Participation in international initiatives for neural disorders (ADNI, DIAN, PPMI or GENFI). Also intersectoral collaborations and technology transfer with private companies in the software, medicine and energy sectors, including the PASTORA project with ENDESA, where I supervise an industrial PhD Thesis.

Leadership and fundraising: more than 280,000 in public competitive calls. Principal Investigator of one regional project (E‐TIC‐92‐UGR20) and one mobility project (CAS19/00352). More than 450 hours of teaching at undergraduate level. Supervision of 5 final degree projects, 2 master theses and currently co-supervisor of 2 PhD thesis. Received the extraordinary doctorate award, best final project and some science communication awards (FAMELAB, 3Minute Thesis).

Resumen del Currículum Vitae:

Dr. Martinez-Murcia is Telecommunications Engineer by the University of Granada, and PhD cum laude by the University of Granada, with international mention and extraordinary PhD award. Since then he has been granted very competitive contracts and projects such as Juan de la Cierva formación and incorporación, Jose Castillejo for international mobility and a regional andalusian FEDER project as principal investigator. This career is continuously enriched with international collaborations, including one 4-month mobility stay at the LM University Munich, and ongoing participation on international projects and publications, among them 13 publications with researchers of Univ. Cambridge, 10 with Florida State University, 4 with Universität Regensburg, 2 with Université de Liège and 2 with LMU München and many others with 1 publication. Participation in the international Alzheimer s Disease Neuroimaging Initiative (ADNI), Parkinson s Progression Markers Initiative (PPMI) and the Dominantly-Inherited Alzheimer s Initiative (DIAN), and currently two manuscripts in revision within the Genetic Frontotemporal Initiative (GENFI) in collaboration with researchers all around the globe.

Multidisciplinary spirit, bringing together biology, medicine, signal processing and machine learning, and lately applying the acquired knowledge to the energy distribution sector, as demonstrated by training and subsequent collaborations and stays with hospitals and other clinical settings (Dept. of Psychiatry of the University of Cambridge, Dept. of Neurology, LMU Munich, Virgen de las Nieves, Virgen de la Victoria and Virgen del Rocío Hospitals in Granada, Malaga an Sevilla), and Endesa (where he directs an industrial PhD). Lately, added a new primary research objective: the analysis and early diagnosis of Developmental Dyslexia, in collaboration with the LEEDUCA evolutive psychology research group at the University of Malaga, where the candidate is currently directing a PhD thesis on signal processing of Electroencefalographic signals.
In this international, intersectorial collaboration, he has contributed to 43 articles, leading 15 as corresponding author, and participated in 45 works presented at international conferences and 5 book chapters. These works have been cited 1325 times, achieving a H-index of 21 (Google Scholar) or 18 (WOS).

He shows maturity and leadership in the research line (more than 280,000 raised in public competitive calls in the postdoctoral stage, including the funding received for researcher costs). Strong experience in supervision, with more than 450h of undergraduate teaching, supervision of 7 final degree/master projects, and currently supervising 2 PhD theses. Associate Editor of Journal of Alzheimer s Disease and Review Editor for MedTech Data Analytics (Frontiers in Medical Technology).

Committed to science communication, including participation in radio, podcasts, and science communication events (3-Minute Thesis, won by the candidate, Famelab Spain 2018, European Researcher s Night, Pint of Sicience, Desgranando Ciencia, among others). Member of the outreach and communication committee of the Andalusian Institute of Data Science and Computational Intelligence DaSCI since 2020. Founder of Barber's Science, a vocal quartet for scientific communication, awarded in Spain TV show Got Talent.

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	GUARNIERI , MARCO
Referencia:	RYC2021-032614-I
Correo Electrónico:	marco.guarnieri@imdea.org
Título:	Principled foundations for hardware/software co-design for secure microarchitectures

Resumen de la Memoria:

Our society is interconnected and data-driven. It relies on information systems that generate, process, and store massive amounts of (potentially sensitive) data. Protecting and regulating the access to this growing collection of data is one of the main challenges faced by today s information systems.

In my research, I address this challenge by developing tools and techniques that facilitate the design of practical, secure systems that provide precise, certified security guarantees. That is, these systems come with security proofs clearly stating the provided security guarantees and what attacks they are designed to prevent. Concretely, my research focuses on three main lines of work: (1) microarchitectural attacks and defenses, (2) database security, and (3) probabilistic reasoning for security.

I am an Assistant Research Professor at IMDEA Software (Spain), which I joined as a postdoctoral researcher in July 2018. Before that, I worked as a postdoctoral researcher (Feb-May 2018) at ETH Zurich (Switzerland), where I also completed a PhD in the Information Security group (Oct 2012-Jan 2018). Before that, I completed my bachelor's and master's degrees in computer engineering at Università degli Studi di Bergamo (Italy), and I also worked as a research intern at SAP Labs (France).

In my research career, I have published 23 papers in international peer-reviewed conferences, journals, and workshops (19 without my PhD advisor) in the fields of computer security, programming languages, databases, and testing. My papers appeared in top-tier venues like S&P, CCS, CSF, PLDI, VLDB, ISSTA, and ICST. According to Google Scholar, my papers have attracted 312 citations and result in an h-index of 10. I have published 1 paper in Q1 journals, 5 papers in A*-rank conferences (top 5% of all CS conferences according to the CORE ranking) and 3 papers in A-rank conferences (top 20% of all CS conferences).

Resumen del Currículum Vitae:

I am an Ass. Res. Prof. at IMDEA Software, which I joined in 2018. Before that, I worked as a postdoctoral researcher (Feb-May 2018) at ETH Zurich, where I also completed a PhD in the Information Security group (2012-2018). Before that, I completed my bachelor's and master's degrees in computer engineering at U. degli Studi di Bergamo, I also worked as a research intern at SAP Labs (France).

Research: My research lies at the intersection of computer security and program verification. Specifically, I focus on the design, analysis, and implementation of practical systems for securely storing and processing sensitive data. I apply my research to the analysis of micro-architectural side-channel attacks (and countermeasures) and to database security. I have published 23 papers in international peer-reviewed conferences, journals, and workshops (19 without my PhD advisor) in the fields of computer security, programming languages, databases, and testing. My papers appeared in top-tier venues like S&P, CCS, CSF, PLDI, VLDB, ISSTA, and ICST. According to Google Scholar, I have attracted 309 citations and result in an h-index of 10. I have published 1 paper in Q1 journals (PVLDB), 5 papers in A*-rank conferences (top 5% of all CS conferences according to the CORE ranking; 2 S&P, 2 CCS, and 1 PLDI) and 3 papers in A-rank conferences (top 20% of all CS conferences; 1 CSF, 1 ISSTA, 1 ICST).

Awards: I received a best paper award at the IEEE Symposium on Security and Privacy 2021. I also received the Intel 2021 Outstanding Researcher award. Additionally, I received a Facebook research award for privacy enhancing technologies (together with Musard Balliu from KTH). I also received an award as best student in the School of Engineering from Università degli Studi di Bergamo.

Funding and projects: Overall, I have attracted funding for more than 1M$. I am the PI for the HascoSec project (2021-2024; 300K$) funded by Intel Corp., and I have been a PI in the Information Flow Tracking across the Hardware-Software Boundary project funded by Intel Corp. (2018-2021; 495K$). Together with Musard Balliu (KTH), I am the co-PI of a Facebook research award for privacy enhancing technologies (2021-2022; 100K$; 10 selected out of 159 submissions). I have also been awarded a prestigious Juan de la Cierva Formación fellowship (2020-2022; 50K) and a TALENTO fellowship (2019-2023; 80K). Finally, I have been involved as a researcher in several regional, national, and European projects.

Service: I have served/am serving on the program committee of top-tier security venues like the IEEE Symposium on Security and Privacy (S&P 2022), the ACM Conference on Computer and Communication Security (CSS 2021), the IEEE Computer Security Foundations Symposium (CSF 2020, 2022), and the IEEE European Symposium on Security and Privacy (EuroS&P 2020-2022). I also served as program chair for the Workshop on Principles of Secure Compilation (PriSC 2022) and the Workshop on Programming Languages and Security (PLAS 2021), and I am on the steering committee of both events.

Mentoring and teaching: I am currently supervising 2 PhD students at IMDEA Software. I also supervised 3 M.Sc. theses, 3 B.Sc. thesis, and 4 research internships. I have received the Venia Docendi of the UPM, where I teach the Seguridad Informática course. Overall, I taught 14 courses and tutorials at UPM, ETH Zu

AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2021
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Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	PADULLES RULLO, RAMON
Referencia:	RYC2021-033309-I
Correo Electrónico:	padulles@ice.csic.es
Título:	Polarimetric Radio Occultation with signals of the Global Navigation Satellite System for the remote sensing of precipitation

Resumen de la Memoria:

Since the beginning of my scientific career in 2012, I have been working on the use of Global Navigation Satellite System (GNSS) as a source of opportunistic signals for the sensing and characterization of heavy precipitation systems. In particular, my focus has been the development and applications of the new Polarimetric Radio Occultation (PRO) remote sensing technique. It aims at augmenting the capabilities of the standard Radio Occultations (RO) by utilizing polarimetry to sound precipitation, and to provide unique joint measurements of the vertical structure of precipitating systems (new PRO measurement) and of its associated thermodynamic state (traditional RO measurement).

My research contributed to the PRO technique from the beginning. It was invented at the ICE-CSIC, it was then demonstrated aboard the PAZ satellite, and it is currently becoming attractive to space agencies (both public and private), which are considering implementing the polarimetric approach in their RO satellites. My contribution can be summarized as follows:

- Contribution to the development and understanding of the technique. My PhD was the first ever about PRO, and I analyzed the feasibility and capability of PRO in sensing rain through the first ever PRO experimental campaign and through end-to-end simulations, in preparation for the space based proof-of-concept experiment aboard the PAZ satellite (launched in Feb. 2018).

- Development of the signal and data processing algorithms. While at NASA-JPL, I was the first one to analyze the data from the PAZ satellite. I developed the algorithms to calibrate and validate the observations, and I implemented the software that is operationally processing, analyzing, and disseminating the PAZ PRO products at ICE-CSIC and NASA-JPL

- Exploration and exploitation of the observations for geophysical applications. My research is contributing to understand and to relate the PRO observations with geophysical parameters, like precipitation and water content. This is important in order to exploit these observations in weather and climate studies, potentially helping improve modeling and predictions.

During my career I have acquired an extensive expertise on the PRO technique and all the scientific disciplines somehow related to its development, which will allow me to become a leader in the field and a key person for future mission proposals using the new PRO technology.

Resumen del Currículum Vitae:

I received a PhD in Physics from the UB for my work on Precipitation measurements using Polarimetric Radio Occultations (PRO). I was awarded an FPI fellowship to conduct the PhD at the ICE-CSIC from 2012 to 2017. My PhD consisted on the simulations and the theoretical and feasibility studies of the new remote sensing concept PRO, prior to the launch of the PAZ satellite with the proof-of-concept experiment. I also led, maintained, and analyzed the data of the field campaign where the concept was tested for the first time from a mountain top. I also participated in the JPL Visiting Student Research Program (JVSRP) at the NASA Jet Propulsion Laboratory (NASA-JPL) during three different periods and a total of 8.5 months.
I was a NASA Postdoctoral Program fellowship awardee at the NASA-JPL (2017-2019). My work consisted on the signal and data processing, calibration, and validation of the recently launched GNSS-PRO PAZ satellite data. My algorithms are currently used to process and disseminate the PAZ PRO data at ICE-CSIC and at NASA-JPL. My contributions to the GNSS-PRO measurement concept were rewarded with a NASA Group Achievement award. I also participated on planning and writing NASA Mission proposals, and I participate in a NASA ROSES project.
In 2020 I returned to ICE-CSIC and I continued working on the PAZ data processing. I investigate the applications of the polarimetric RO observations in improving weather and climate predictions. In 2021, I won a Beatriu de Pinós (AGAUR / Marie Sklodowska-Curie) fellowship.
I am member of the international polarimetric RO working group of the Coordination Group for Meteorological Satellites (CGMS) and co-sponsored by the WMO. Most members are scientists from NASA, NOAA and weather agencies. I also participate in the interdisciplinary platform TELEDETECT, comprising members from CSIC and INTA.
Relevant scientific and technological contributions:
-Development of the calibration and validation algorithms for PAZ PRO. Responsible of the data processing chain and product dissemination operationally in use at ICE-CSIC and at NASA-JPL.
-First PhD thesis worldwide on a new remote sensing technique (PRO) for heavy rain characterization.
-19 scientific articles in peer-reviewed journals. Scientific and technological impact on different scientific communities: remote sensing of precipitation, weather and climate, numerical weather prediction, and public agencies and private weather companies.
-Participation in outreach and education talks, and organization of outreach seminars at ICE.
Relevant internationalization actions:
-NASA Postdoctoral Program fellow at NASA-JPL (2017-2019), and JVSRP visiting fellow during PhD.
-Numerous collaborations with institutions like NASA, NOAA, UCAR, JCSDA, Scripps and UCLA.
-Contribution (+25 papers) to international conferences.
-Participation in international (US and EU) projects.
Relevant leadership aspects:
- PI of an i-LINK project, focused on strengthening the international collaboration between ICE-CSIC, NASA-JPL and UCLA.

-Responsible of PAZ GNSS-PRO algorithm development at NASA-JPL and ICE-CSIC.
-Responsible of first ground-based experimental campaign to proof the GNSS-PRO concept.
-Responsible of the data sufficiency section for a NASA EVI-5 satellite mission proposal.
-First and corresponding author of 6 scientific articles, out of a total of 19.
-Advisor on one MSc thesis and mentor/co-mentor of 3 undergrad students.

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	TWARDOWSKI , BARTLOMIEJ
Referencia:	RYC2021-032765-I
Correo Electrónico:	bartlomiej.twardowski@gmail.com
Título:	Title of the trajectory and line of research

Resumen de la Memoria:

The candidate s main field of expertise is artificial intelligence, focused on machine learning (ML) and neural networks (NN). He has vast experience in a few domains - computer vision, recommender systems, and neural language processing (NLP).

Life-long Machine Learning of NN is the main focus of candidate research - investigation of the different methods that help neural networks to learn continuously, without forgetting, and with a positive transfer of knowledge from the previous tasks. First years of postdoctoral studies in the Computer Vision Center UAB he investigated incremental learning methods, in particular ones that require neither storing data from the previous tasks in order to do rehearsal nor changing a network architecture. In the work - Semantic Drift Compensation novel class-IL method was proposed. When non-stationary data is processed by the network, we can experience a semantic drift at the embedding level of a neural network. The candidate investigated image captioning problems, where both images and captions can emerge during the life-time. The work was inspired by the previous research of the orderless multi-label problem published in CVPR2020 where for each image few description labels can be assigned by LSTM network. For incremental image captioning an LSTM cell of a decoder is prepared for incremental learning. Recurrent Attention to Transient Task method was proposed and published in the NeurIPS2021 conference.

The candidate research in a continual learning advances along with a preparation of systematic overview of available class-IL methods in the form of a survey. To this day, this is the most comprehensive work dedicated to class-IL. Thus, the published open source code (FACIL framework, github, more than 200 stars) and the survey (56 citations, Google Scholar) received community attention. Other works concerning: class ordering and cross-task features learning were published in workshops dedicated for continual learning. Currently, main research focuses on using self-supervised methods for a continual representation learning. Novel method with a functional regularization is investigated. So far, the results are very promising in the evaluation for different downstream tasks.

In addition, experience with self-supervised methods resulted in ICCV2021 publication with a title Reducing label effort: Self-supervised meets active learning where SimSiam method is used to aid active learning process.

Recommender systems & NLP:
When the candidate was holding a role of an assistant professor in an AI group at Warsaw University of Technology, he participated NCBIR (National Center for Research and Development) with a goal of knowledge transfer between academia and industry. This kind of work was directly related to his previous experience in modelling users   context from sequences and his thesis.

The candidate was a PI of a data generation project, specifically a paraphrase generation for NLP. In the project Variational Auto-Encoders (VAE) based approaches with recurrent neural networks. The main problem in the project was a right evaluation of similarity and correctness of generated paraphrases.

Resumen del Currículum Vitae:

The main expertise of the candidate is machine learning and neural networks. Recently, with focus on application for computer vision and a continual, life-long learning setting. This area of research is crucial for improving artificial intelligence (AI) and moving towards more general AI   where machines like humans could learn continuously and over the whole lifetime.

During his post-doc research he worked with many PhD students from a variety of universities and successfully published research results in top-tier conferences, i.e. CVPR (2020, 2 papers), NeurIPS (2020), ICCV (2021). This work was the part of the bigger project sponsored by Huawei HiSilicon (1.4M), where PI was Dr Joost van de Weijer.

Previously, he held a position of an assistant professor at Warsaw University of Technology (WUT) in the Artificial Intelligence group. He participated in several research projects, including knowledge transfer related ones between academia and industry. He was responsible for organizing research teams and their work. During his employment he supervised two BSc and one MSc students.

The candidate received his PhD diploma in 2018. The thesis was devoted to the usage of neural networks to predict the next item from sequential data. He proposed two novel methods: (i) based on matrix factorization and (ii) where the representation of the sequential data is learned by the model itself. The work was published and orally presented at RecSys conference, MIT Boston 2016.

Two times being PI of a research project. In 2019 he won (at WUT) joint grant with an industry partner founded by the Polish government. In a project group of three researchers and one student they proposed a new method for a next item prediction problem leveraging neural networks. The method was significantly more efficient for GPU computation (in comparison to recurrent neural networks or transformers) and was published in the ECIR 2021 conference. Second project was founded by Samsung and was devoted to data generation techniques in natural language processing.

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The candidate has a wide industry experience (more than 12 years). Before his postdoc position in Computer Vision Center (UAB) he had been holding leadership positions in international companies applying ML/AI solutions, e.g. Naspers Group, Zalando, Adform.

He received a group award for creating post-graduate studies for Big Data & Data Science at Warsaw University of Technology in 2018.

Serving as a reviewer for top ML/AI conferences, i.e. AAAI, CVPR, and ICCV.

Área Temática:	Tecnologías de la información y de las comunicaciones
Nombre:	MARTIN VEGA, FRANCISCO JAVIER
Referencia:	RYC2021-034620-I
Correo Electrónico:	frmvega@gmail.com
Título:	Mathematical Modelling, Analysis, and Optimization of 5G and Beyond Networks

Resumen de la Memoria:

Francisco (Ph.D. in 2017, M.Sc. in 2014) joined the Communication Engineering Department at the University of Málaga (UMA) in 2011, as an associate researcher, where he participated in contracts with several industry partners related to cellular and satellite communications. He joined Keysight Technologies in April 2018 as an R&D PhD SW Engineer, in roles ranging from technical leader to research and developer of 5G real-time SW. Besides this, in April 2020 Francisco also joined the UMA as a part-time intern substitute professor. This position was carried out simultaneously with his position at Keysight. Finally, in January 2021, Francisco refused both positions to start his current position as a postdoctoral fellow at the University of Málaga, with a grant funded by the Junta de Andalucía and the European Union.

Francisco has a solid trajectory in the academia and industry that has been strengthened thanks to international collaborations with renowned experts and with prestigious companies.

The network of collaborations includes world experts such as Prof. Marco Di Renzo (h-index: 70), Prof. Trung Duong (h-index: 64), and Prof. Maged Elkashlan (h-index: 59) and Dr. Yuanwei Liu (h-index: 47). Besides, Francisco has been very active to transfer knowledge to the industry. He has been involved in numerous contracts with companies such as Ericcson, Dekra, Agilent and Inmarsat. He has also been almost 3 years with Keysight where he was soon promoted as Advanced R&D engineer, and recognized as Key Contributor two consecutive years.

His main research line focuses on the mathematical modelling of cellular and vehicular communications. The aim of his work is to obtain accurate expressions about key metrics for performance evaluation, to identify trends and limiting factors. Besides, this characterization allows deriving the optimal set of parameters, and avoids the need to perform long time-consuming simulations.

Due to the random and irregular nature that exhibits cellular, as well as vehicular networks, stochastic geometry has become the preferred tool for system-level modelling and analysis. Nevertheless, some features of cellular and vehicular networks, like power control or scheduling, impose spatial correlations over the underlying point process that complicates significantly the mathematical analysis. Therefore, Francisco s focus has been to provide simple solutions to complex problems where some spatial correlations complicate the tractability of the problem at hand.

More specifically, his contributions include new proposed techniques such as interference-aware scheduling, geolocation-based access, multicast-precoding and grouping, or coordinated beamforming, among many others; new mathematical frameworks that allows modelling complicated correlations while obtaining tractable expressions; many theoretical insights obtaining from derived expressions and simplifications (by e.g., applying asymptotic analysis); optimization of useful metrics such as the energy efficiency, binary rate, block error rate or required bandwidth.

The contributions of his research are numerous and include 16 published journal papers, 20 conference papers (11 of them in international conferences), 2 patents and 2 free SW publications. Besides of this, he has currently 2 submitted papers under review, in IEEE TVT, and 1 paper more to be submitted to TWC.

Resumen del Currículum Vitae:

Francisco is a postdoctoral fellow at the University of Malaga (UMA). Previously, he worked as an R&D engineer at Keysight Technologies, in roles ranging from technical leader to researcher of 5G SW solutions. In addition, he worked as a part-time interim substitute professor of the UMA from 2020. Before, he was a research associate, where he participated in contracts with several industry partners related to cellular and satellite communications.

His research activity focuses on the mathematical modeling of cellular and vehicular communications. The aim of his work is to obtain accurate expressions about key metrics for performance evaluation, to identify trends and limiting factors and perform optimization.

As result, he has published extensively in top-ranked journals and conferences. He has published 36 conference and journal articles, 16 of them in prestigious journals such as IEEE Comm. Magazine or IEEE Trans. on Wireless Comm., which sum more than 320 citations (h-index: 10). In addition to these works, he has 2 patents and he published in 2017 2 free SW versions of advanced simulators.

The work of Francisco has received prestigious recognitions. He was awarded by the COIT and Ericsson with the Best Doctoral Thesis on Innovation for the Connected Society in 2018. In 2013 he was awarded by the COIT and INDRA with the Best Final Degree Project on Accessible Technologies, for his degree project. During his career at Keysight, he was promoted to Advanced R&D Engineer and he was recognized as Key Contributor for two consecutive years. This distinction is only given up to the 10% of the employees and involves a salary increase and a bonus.

The impact of his work on society is notorious due to the number of communication activities in conferences and the active collaboration with relevant partners such as Ericsson, Agilent, Dekra, or Inmarsat.

Francisco has carried out research stays in prestigious international institutions as the Paris-Saclay University and the Queen Mary University of London. He also maintains an active collaboration with renowned researchers such as Prof. Marco Di Renzo (h-index: 70), Prof. Trung Q. Duong (h-index: 64) and Prof. Maged Elkashlan (h-index: 59).

Francisco has shown independence to write research projects and ability to attract international funding. He was awarded by the European Commission in September 2017 with a Seal of Excellence for the MCSA-IF research project, which was submitted with Prof. Trung Q. Duong from the Queen University of Belfast. This Seal of Excellence was awarded to projects that, without having been financed, obtained a score higher than 85%. In addition, in 2018 Francisco was awarded with the Marie Curie COFUND EDGE Postdoctoral Fellowship to be held at Trinity College, Dublin, with Prof. Luiz DaSilva (h-index: 45). (Although being funded, Francisco finally rejected the position for personal reasons).

Besides of this he is mentoring and training young researchers. He is mentoring 2 young researchers involved in a contract with Ericcson, he trained several new employees at Keysight, and he made several trainings to some important customers. Additionally, he teaches at the UMA, he has co-supervised several TFGs and TFMs. He has served as TPC of 2 international conferences, and he is a reviewer for a number of journals, e.g, IEEE TWC, IEEE TVT, or IEEE CL.

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Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	FERRUZ CAPAPEY, NOELIA
Referencia:	RYC2021-034367-I
Correo Electrónico:	noelia.ferruz@gmail.com
Título:	Deep Unsupervised Language Models for Protein Engineering

Resumen de la Memoria:

My research career has focused on developing algorithms and tools to automatise protein research. My research has centred around two topics: 1) the implementation and analysis of extensive biophysical simulations to accelerate drug discovery and 2) the development of software, web servers and artificial intelligence methods for protein design.

I was fortunate to accomplish my PhD in Computational Biophysics (PRBB, Barcelona) while simultaneously working in the high-tech company Acellera Labs. I obtained a competitive FI-AGAUR fellowship (success rate 22%), which allowed me to focus on analysing unprecedentedly extensive molecular simulation data to predict ligand-binding events. In my role in Acellera Labs, I led drug discovery projects at all their stages. I scoped our customers' needs, managed the projects, predictively analysed massive amounts of simulation data, and communicated the results. This period attracted considerable attention from world-leading pharmaceutical companies. I collaborated with Janssen Pharmaceuticals, Boehringer Ingelheim, and Pfizer. As a result of a fruitful collaboration with the latter, I was offered a senior researcher position at Pfizer Boston. I introduced my methodology in their drug-discovery preclinical pipeline.

I am currently working as a postdoctoral researcher within the framework of an ERC and FET-open grants at Hoecker s group at the University of Bayreuth (Germany), supervising a team of 4 people. Here, I have identified evolutionarily conserved fragments across the vast protein space using network theory, work that I have made available with my software Protlego, and web-servers Fuzzle and ProteinTools. Recently, I have trained a large deep unsupervised protein language model, which opens a new door for customisable, high-throughput computational protein design.

During my career, I have demonstrated independence and excellence, as evidenced by my publications (15 total, 100% in Q1, 13 as first-author, 3 as corresponding author, mean IF: 9.7), student supervision (2 PhD, 4Msc, 3 Bsc), funding acquisition surpassing 360,000 , international experience (UK, USA, Germany), the invitation to conferences (18 as presenter) and organisation of international conferences. Besides, I have obtained several competitive grants to take on my research project (Beatriu de Pinós, Maria Zambrano, tenure-track position).

Resumen del Currículum Vitae:

My first research experiences date back to 2011 when I obtained a competitive JAE-Intro grant at CSIC Aula Dei. Soon after, I accomplished my master thesis at the University of Cambridge (UK) after a highly competitive process.

I accomplished a second master program at the University Pompeu Fabra, which opened me the doors to cutting-edge research: I undertook my MSc thesis with ICREA Prof Gianni de Fabritiis - a project in collaboration with the pharmaceutical company Janssen Pharmaceuticals. Here, I ran extensive simulation data and analysed it with traditional machine learning approaches and obtained a multi-body mechanism model for the protein target, which will be immensely useful for researchers attempting to target bipolar disorder. Considering these remarkable results, my supervisor offered me a PhD position at his research lab and a part-time job at Acellera Labs.

During my PhD, I pioneered the use of large-scale MD simulations to predict ligand-binding events, a project made possible by an FI-AGAUR PhD scholarship (success rate 22%). In my project, I pioneered the use of multi-millisecond all-atom simulations to characterise ligand binding processes - an effort of an unprecedented magnitude still today. This work incited interviews in media and attracted world-leading pharma companies. Consequently, we transferred our methodology as a software product and commercialised it through Acellera Labs. Two of the partnerships where I managed the research projects at all their states were with Boehringer Ingelheim (Biberach, Germany) and Pfizer (Boston, USA). Because of the excellent results with the latter, I was offered a research position at Pfizer, Boston. I successfully introduced our software at Pfizer and automatised our methodology as a routine protocol for Pfizer's preclinical pipeline.

I am currently a researcher at Prof Dr. Birte Höcker's lab in Bayreuth (Germany) within the framework of ERC and FET-open grants. My work has focused on the identification of conserved protein fragments across the protein space by using network theory and hidden Markov modelling, and have made my work available in the highly-trafficked webservers ProteinTools and Fuzzle. Recently, I have trained a 700 Million parameter language model, constituting the first available autoregressive model for protein design.

During my postdoctoral time, I have demonstrated excellence and full independence, by publishing 15 manuscripts (15/15 Q1, 13 first-author, 3 as the corresponding author), coordinating teams (currently 2 PhD and 2BSc students, with a total of 9), the invitation to international conferences (15 presentations and over 40 posters), and acquisition of funding to develop my own research lines (over 360,000). I have besides secured Fellowship positions after highly competitive processes, such as the Beatriu de Pinós, María Zambrano, FI-AGAUR and JAE-INTRO.

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Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	OCHOA GOMEZ, MARIO
Referencia:	RYC2021-034448-I
Correo Electrónico:	mario.ochoa.g@hotmail.com
Título:	Characterization and modelling of solar cells and semiconductors

Resumen de la Memoria:

Dr Mario Ochoa Gómez research focuses on the simulation, modelling and characterisation of semiconductor devices and solar cells. His research directly impacts the fields of photovoltaics, electronics, and photonics.

During the doctoral stage at the Instituto de Energía Solar (IES) of Universidad Politécnica de Madrid, Dr Ochoa developed a must-have tool for the modelling and simulation of III-V multijunction solar cells, which helped to boost their efficiency (4% absolute). He extended his knowledge in the internal optical coupling in multijunction solar cells as a visiting researcher at the National Renewable Energy Laboratory (NREL, USA).

Dr Ochoa performed postdoctoral research at Empa-Swiss Federal Laboratories for Materials Science and Technology (Switzerland), learning about polycrystalline thin-film solar cells. At Empa, Dr Ochoa tackled critical challenges by studying polycristalline $Cu(In,Ga)Se_2$ (CIGS) solar cells' fundamental carrier transport properties. For instance, Dr Ochoa et al. employed a novel microscopy approach based on time-resolved photoluminescence (TRPL), assisted by numerical simulations. This work reinforces previous theories by mapping, for the first time directly, key quality metrics (e.g. electron lifetime), demonstrating the impact of grain interiors and grain boundaries (a long-standing research question in the field). Therefore, these results excluded inhomogeneities as the primary source of losses suggesting grain interiors and grain boundaries (to some extent) as the primary bottleneck to achieving higher efficiencies. Moreover, the lateral charge carrier transport in CIGS was estimated by using time-resolved microscopy, and enhanced and more consistent data treatment over the existing literature. The expertise of Dr Ochoa in III-V solar cells and thin films were combined to serve as the first author of seminal publication fostering research pathways for next-generation CIGS solar cells.

TRPL microscopy technique and ultrafast spectroscopy were also identified as excellent tools for other materials, i.e., gaining insights into growth methods and charge carrier dynamics in complex solar cell structures, including CIGS and perovskite solar cells. This work was part of a collaboration with Prof. Ulrich Steiner and Prof. James Durrant from Adolphe Merkle Institute (Switzerland) and Imperial College London (UK), respectively.

Within the framework of Hybrid metrology for thin films in energy applications project, Dr Ochoa and partners provided industry solutions to Flisom AG (a leading company in flexible CIGS modules). The results led to the decision of qualifying an in-line time-resolved photoluminescence system at Flisom AG, performing continuous monitoring of the quality of the CIGS layers during industrial production.

Overall, Dr Ochoa's research assisted the fabrication of enhanced III-V and thin-film solar cells. In this regard, by contrasting modelling and simulation with characterisation results, Dr Ochoa provided a better understanding of the limiting mechanisms of solar cells that contributed to national and world efficiency records.

Resumen del Currículum Vitae:

Graduated in Electronics Engineering in Universidad de la Salle Bajío, México in 2009. Mario Ochoa received the master and PhD degree in Photovoltaic Solar Energy from the Instituto de Energía Solar of Universidad Politécnica de Madrid in 2011 and 2018, respectively. During the doctoral stage, Mario Ochoa was a visiting researcher at the National Renewable Energy Laboratory (NREL, USA) and the Comisión Nacional de Energía Atómica (Argentina). In addition, he was the co-author of one patent and received the excellence doctorate award from Universidad Politécnica de Madrid to the best 2018 PhD theses. In 2018, he was hired as a postdoctoral researcher (2.5 years) by the Laboratory for Thin Films and Photovoltaics of Prof. Ayodhya N. Tiwari at Empa-Swiss Federal Laboratories for Materials Science and Technology (Switzerland).

Dr Ochoa has collaborated with international leading universities, institutions, and industry partners, participating in more than eight research projects (European, Swiss and Spanish). He has led and performed the scientific tasks at Empa related to project HyMet, working with top metrology institutes and industries in Europe to develop suitable characterization tools for thin films in energy applications. In this context, he closely collaborated with Flisom AG, a leading company on flexible CIGS photovoltaic technology.

Dr Ochoa has established and participated in external collaborations aside from direct funded projects with Adolphe Merkle Institute, Switzerland (Prof. Ullrich Steiner) and Imperial College London, UK (Prof. James R. Durrant). Both collaborations joined efforts to study the charge carrier dynamics and passivation strategies of thin-film solar cells.

In summary, Dr Ochoa has 31 contributions to peer-review international journals, including 26 in the first quartile and 15 in the first decile. Nine publications served as first author (7 as second), with 5 in the first decile serving as the first author and 4 in the first decile serving as the second author. Dr Ochoa has been invited speaker in seminars on solar cells and time-resolved photoluminescence microscopy at universities, research institutes and industry. He has presented results in several project meetings (>10) and international conferences (>10). Dr Ochoa is actively reviewing scientific manuscripts in peer-reviewed journals such as Progress in Photovoltaics, Solar Energy Materials and Solar Cells, Physica Status Solidi Rapid Research Letters, and Advanced Photonics Research.

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As a result of his research, he was recently awarded a Juan de la Cierva-Formación fellowship. In this context, Dr Ochoa is expanding his knowledge in photonics and biophotonics at the University of Cantabria, building a more interdisciplinary profile. Currently, his work contributes to new research lines that face some of society's grand challenges, e.g., climate and health. In particular, he pursues the development of innovative photonic sensors and devices for high impact biomedical and environmental applications.

Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	CHAMPATI , JAYA PRAKASH VARMA
Referencia:	RYC2021-034515-I
Correo Electrónico:	jaya.champati@imdea.org
Título:	Edge Intelligence

Resumen de la Memoria:

My main research focus is in the field of Edge Intelligence. Specifically, I work on modelling, design and analysis of algorithms for achieving low-delay and energy-efficient distributed ML inference at the edge of the network. The target application domains include the Internet of Things (IoT), Cyber-Physical Systems, and autonomous driving. Given the emerging trends in deploying small-size Deep Neural Networks (DNNs) on the edge devices (e.g. IoT sensors) and large-size DNN on the edge servers, I study the novel three-way trade-off between the energy consumption of the ML models, the inference accuracy, and the delay in providing the inference.

During my PhD, I have gained broad expertise in edge computing research, specifically, in the design and analysis of algorithms for computation offloading. My PhD thesis significantly contributed to scheduling computational jobs on parallel machines under communication delays, with an emphasis on partitioning the set of jobs between edge devices and edge servers, which is an NP-hard problem and is a setting inherent to distributed inference in monitoring systems. In particular, I proposed and analysed approximation algorithms for the considered problem. My study on semi-online algorithms opened up a new research direction in parallel machine scheduling that is of interest in both theoretical computer science and operations research.

During my postdoc, I worked on the timely topic of Age of Information (AoI), which measures the freshness of data in networked systems. One of the problems I addressed is how frequently should a sensor sample in order to minimize AoI (or maximize freshness) in remote monitoring systems. I used queueing theory and MDP for finding optimal sampling policies. I also published a paper (IEEE/ACM TON) on transient delay analysis using Network Calculus which is the first work to compute transient delay bounds for wireless networks. My research results were published in peer-reviewed journals and conferences, more than 75% of them in top-tier venues. My work during postdoc complemented my research work during PHD and am now well-equipped with the right research expertise in tackling novel problems in Edge Intelligence.

Resumen del Currículum Vitae:

I am a research assistant professor at IMDEA Networks, Spain, leading the Edge Networks lab. I have been pursuing research activities for nearly 10 years, during which I co-authored more than 26 published works in well-established and internationally recognized venues, including the best paper award athe t IEEE NCC conference. I received my master s degree from the Indian Institute of Technology Bombay, India, in 2010, and my PhD degree in electrical and computer engineering from the University of Toronto, Canada, in 2017. My PhD work was recognized by the University of Toronto and I was awarded the Paul Biringer Graduate Scholarship as well as the Doctoral Completion Award. Prior to joining PhD, from 2010 to 2012, I worked for two years at Broadcom Communications, India, in 4G LTE protocol stack development.

From 2017 to 20a 20, I did postdoc at KTH Royal Institute of Technology, Sweden, where I worked on the timely topic of Age of Information (AoI), which measures the freshness of data in networked systems, and on the transient delay analysis for wireless networks to facilitate their design for supporting the emerging time-critical applications. Apart from actively collaborating with the professors at IMDEA, I also established external collaborations with researchers in my field including Prof. Katia Obraczka (networking aspect), Prof. Mikael Skoglund (communications aspect), Prof. Arpan Chattopadhyay (sampling theory) from the University of California Santa-Cruz, KTH Royal Institute of Technology, and Indian Institute of Technology Delhi, respectively.

During my entire career path, I actively engaged with networking, teaching, and service activities. Currently, I am co-instructing a semester-long course Network Calculus along with Prof. J. Gross at KTH Royal Institute of Technology, Stockholm, Sweden. I am supervising a PhD student, expected to graduate in 2025, from IMDEA Networks and am co-supervising a PhD student, expected to graduate in 2024, from KTH. I am also guiding two research intern students. I regularly serve as a member of the Technical Program Committee (TPC) in well-recognized conferences including IEEE INFOCOM and provide paper reviews for top journals of our field such as IEEE/ACM Transactions on Networking.

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Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	CALVO FULLANA, MIGUEL
Referencia:	RYC2021-033549-I
Correo Electrónico:	miguel.calvo.f@gmail.com
Título:	Wireless Autonomous Systems

Resumen de la Memoria:

Dr. Calvo-Fullana s research is focused on the study of wireless autonomous systems and connected autonomy. These systems are at the intersection between wireless communications and autonomy, where he is particularly interested in the development, verification and experimental validation of algorithms for multi-agent autonomy.

During his doctoral work at the Centre Tecnològic de Telecomunicacions de Catalunya and Universitat Politècnica de Catalunya, he focused on enabling wireless autonomy via energy harvesting technologies, for which he developed estimation and control algorithms.

After graduating, he moved to the University of Pennsylvania as a postdoctoral researcher, where he expanded his focus to include a more vertically integrated approach to connected autonomy. He expanded his contributions to wireless autonomy with the study of foundational properties of constrained learning problems. These properties motivated the development of wireless autonomy algorithms which were tested in high-fidelity simulation environments and via experimental demonstrations.

He is currently a postdoctoral researcher at the Massachusetts Institute of Technology, where he continues the study of wireless autonomous systems, with a focus on addressing the communication issues that plague wireless autonomous systems when deployed in the real world.

Dr. Calvo-Fullana s research is of multi-disciplinary nature, and as such, he is an active contributor to the wireless communications, signal processing, control, robotics and machine learning communities. He has participated in a dozen research projects (funded by NSF, DoD, EC, MINECO) with close collaborations with industry (Intel, Lockheed). He has served as an advisor to a dozen students and has taught undergraduate and graduate-level courses. He is the author of 10 journal and 20 peer-reviewed conference papers, for which he has received several best paper awards.

Resumen del Currículum Vitae:

Miguel Calvo-Fullana received his Ph.D. degree in electrical engineering from the Universitat Politècnica de Catalunya (UPC) in 2017. Previous to that, he received his B.Sc. degree in electrical engineering from the Universitat de les Illes Balears (UIB) in 2010, and the M.Sc. degree in electrical engineering from the Universitat Politècnica de Catalunya (UPC) in 2013. From September 2012 to July 2013 he was a research assistant with Nokia Siemens Networks (NSN) and Aalborg University (AAU). From December 2013 to July 2017, he was with the Centre Tecnològic de Telecomunicacions de Catalunya (CTTC) as a research assistant. From September 2017 to September 2020, he was a postdoctoral researcher at the University of Pennsylvania (Penn). Since September 2020, he is a postdoctoral researcher at the Massachusetts Institute of Technology (MIT).

Dr. Calvo-Fullana s research interests reside at the intersection of wireless communications and autonomy, in the rapidly developing field of wireless autonomous systems and connected autonomy. He is particularly interested in the development, verification and experimental validation of algorithms for multi-agent autonomous systems. To this end, his research follows a vertically integrated approach, with research contributions ranging from the study of theoretical properties enabling algorithmic developments, to high-fidelity simulations and large-scale experimental demonstrations. Consequently, he is an active contributor to the wireless communications, signal processing, control, robotics and machine learning communities.

Dr. Calvo-Fullana is also committed to teaching and education. He has developed and lectured undergraduate and graduate-level courses at the University of Pennsylvania, as well as serving as an advisor through MIT s various Undergraduate Research Opportunities Programs (UROP). Further, he has provided his expertise on wireless autonomous systems to aid in the establishment of wireless autonomy laboratories through the Penn Global Engagement Fund.

The research produced by Dr. Calvo-Fullana has received several accolades. His PhD dissertation received the 2017 Best Ph.D. thesis award by the Universitat Politècnica de Catalunya. He is also the recipient of best paper awards at the 2015 IEEE Global Conference on Signal and Information Processing (GlobalSIP), the 2015 IEEE International Conference on Communications (ICC) and the 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).

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Área Temática:	**Tecnologías de la información y de las comunicaciones**
Nombre:	CATALAN PALLARES, SANDRA
Referencia:	RYC2021-033973-I
Correo Electrónico:	scpallares@hotmail.com
Título:	Optimization of HPC and AI applications on emerging architectures

Resumen de la Memoria:

My research work has been developed in 6 research lines (RL). Namely, RL1: Strategies and tools to improve power consumption, RL2: Linear algebra libraries for asymmetric multi-core processors, RL3: Thread-level malleability within linear algebra libraries (in the pre-doctoral stage) and RL4: Task-based approaches in LA, RL5: Scalable parallel algorithms for many-core processors, RL6: Edge Computing and Artificial Intelligence (in the post-doctoral stage). The RL1 was mainly developed at the beginning of my career, when I enrolled the HPC&A group at UJI in 2012. The idea of working in the energy-aware area led to my thesis "Multi-threaded Dense Linear Algebra on Asymmetric Multicore Processors", which includes work from RL1, RL2, and RL3.

Two pre-doctoral scholarships funded my PhD, an FPI fellowship from the UJI and a FPU scholarship from the Ministry of Education, Culture and Sports. In addition, I received a mobility grant from the Eurolab4-HPC Consortium for a pre-doctoral internship at the Barcelona Supercomputing Center (BSC) and another grant from the Ministry of Education for a pre-doctoral internship at The University of Texas in Austin. Helping me in the development of part of the work of RL3. In total, I have spent 7.5 months in pre-doctoral internships, which are completed with an internship to IBM Research Zurich, where I extended my work in RL1. During the years 2012 to 2014 I carried out part of my predoctoral research within the framework of the project FP7 EU project Exa2Green at UJI, and I started my postdoctoral research under the EU Project INTERTWinE.

I have also done a 4-month postdoctoral internship at BSC, where I started with the work of RL4. After a few months I moved to the BSC, as a postdoctoral researcher, and took part of the Fujitsu-BSC project: Porting and Optimization of Math Libraries, which I was responsible for in my last stage at the center. During this period, I mainly focused on RL4. Currently, I am an Assistant Professor at the Complutense University of Madrid (UCM) and I carry out my research in the ArTeCS group, being part of the projects SHARPE, Heterogeneidad y Especialización en la Era Post-Moore, and Convergencia Big Data-HPC: de los Sensores a las Aplicaciones, as well as a project in collaboration with the company Imagination Technologies. This funding allowed me to continue with the work in RL4 and start working in RL5 and RL6. Moreover, my new position led into the supervision (and co-supervision) 1 MSc and 3 BSc theses, mainly related to RL6.

The results of my research have been disseminated through 19 publications in international journals, 15 of them indexed in the JCR (4 Q1-ranked, 4 Q2-ranked, 6 Q3-ranked, and 1 Q4-ranked) and the remaining 4 belonging to Q2-ranked SJR (SCOPUS) journals, and 26 publications in international conferences and 4 in national conferences. I am the first author of 15 of these works, and second author of 10. The paper published in the Energy 2013 conference received the best paper award. Moreover, I have been a PC member of three international workshops, and I have acted as a reviewer for different journals and conferences such as IEEE eScience, Euro MPI, SBAC-PAD, Journal of Computational Science or Cluster Computing. In addition, I acted as a reviewer for projects from the Spanish Ministry of Science and Innovation and the Croatian Science Foundation.

Resumen del Currículum Vitae:

I received my BSc with honors (extraordinary award) in Computer Science from the Universitat Jaume I (UJI) in 2012 and the MSc in Intelligent Systems from the same university in 2013. In 2018, I obtained my PhD with honors in Computer Science from the UJI. Two pre-doctoral scholarships funded my PhD, which lead to the dissertation of the thesis "Multi-threaded Dense Linear Algebra on Asymmetric Multicore Processors", an FPI fellowship from the UJI and a FPU scholarship from the Ministry of Education, Culture and Sports. In addition, I received a mobility grant from the Eurolab4-HPC Consortium for a pre-doctoral internship at the Barcelona Supercomputing Center (BSC) and another grant from the Ministry of Education for a pre-doctoral internship at The University of Texas in Austin. In total, I have spent 7.5 months in pre-doctoral internships, which are completed with an internship at IBM Research Zurich. I have also done a 4-month postdoctoral internship at BSC. I have worked for several regional, national and European projects. During the years 2012 to 2014 I carried out part of my predoctoral research within the framework of the project FP7 EU project Exa2Green at UJI, and I started my postdoctoral research under the EU Project INTERTWinE. After a few months I moved to the BSC, as a postdoctoral researcher, and took part of the Fujitsu-BSC project: Porting and Optimization of Math Libraries, which I was responsible for in my last stage at the center. Currently, I carry out my research in the ArTeCS group at the Complutense University of Madrid (UCM), being part of the projects SHARPE, Heterogeneidad y Especialización en la Era Post-Moore, and CABAHLA, as well as a project in collaboration with the company Imagination Technologies.

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Regarding teaching activity, I have taught more than 600 hours with an excellent and notable evaluation of quality. In addition, I have participated in 3 permanent teaching innovation seminars, an educational innovation project, a JCR Q1-ranked publication and I have taught 4 courses related to code parallelization and high-performance computing, resulting in the publication of a book related to the topic. Nowadays, I teach as an assistant professor at the Complutense University of Madrid, where I supervise (and co-supervise) 1 MSc and 3 BSc theses.