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AYUDAS RAMÓN Y CAJAL – CONVOCATORIA 2023

Turno de personas con discapacidad

Nombre: ****** ********

Referencia: **RYC2023-044270-I**

Área Temática: **Ciencias agrarias y agroalimentarias**

Correo Electrónico: **monicaherrero@usal.es**

Título: **Photogrammetry applied to Plant Science at Proximal, Close & Remote Sensing**

Resumen de la Memoria:

Her research aims to advance the cross-disciplinary generation of plant scientists and engineers. Overall, her scientific mission is to develop innovative sensor networks and photogrammetric approaches within the experimental Plant Sciences framework to advance forestry management and agricultural improvement, as well as implementing software tools that may potentially increase the usability of breakthrough imaging technologies. Her experience until now has inspired her to make a career on the computing side of plant high-throughput phenotyping systems. Her primary motivations are, first, to promote innovation relying on a sustainable foundation and secondly, to bring this technology closer to the farming and forest communities. She is also a highly passionate advocate for open science, citizen science initiatives and being involved in promoting science to a broader audience. All this together forms her particular vision to promote future innovation. Her professional career is detailed in her website: https://monicaherrerohuerta.webnode.com/

Resumen del Currículum Vitae:

She is Civil Engineering with an international PhD entitled 'Close-Range Photogrammetry applied to Agroforestry Engineering' from the University of Salamanca (Spain, 2016), accredited as Associate Professor. Here, as PhD, she started working in the Department of Cartographic and Land Engineering with 3D data by photogrammetry from Structure from Motion and LiDAR and hyperspectral and thermal sensors. After that, she had postdoctoral studies from Delft University of Technology (TU Delft, The Netherlands) in Geosciences and Remote Sensing (2015-2018). She was involved in projects using big data from satellite images and 3D Point Clouds to environmental and civil structures. Next, she was research staff member at Purdue University (IN, USA) for the Agronomy Department (2018-2020) and the Institute for Plant Science, College of Agriculture (2020-2021), changing her focus to Plant Science. First, she created analytical tools for drone-based canopy phenotyping to decision-making in breeding. In the Institute for Plant Science, she developed proximal, close and remote sensing processing pipelines to crop phenotyping. She is an active member from TIDOP research group (Geomatic Technologies for the 3D digitization and modelling of complex objects) (Spain). Currently, distinguished researcher (Maria Zambrano contract) at the Department of Cartographic and Land Engineering from the University of Salamanca (SP), 2022-2023, keeping her focus in deep learning-based digital innovations for forestry management. Her research interests to date have been focused on photogrammetry applied to Plant Science; primarily on close-range hyperspectral and LiDAR photogrammetry by alternative platforms and specifically in computer vision and deep learning analysis by multi-sensor data fusion applied to Plant Science.

Her scientific production encompasses software development used in innovation centers around the world.

She has publications in scientific congress (15) and oral and poster presentations (17), reviews in journals and leads a topic editor board from MDPI (18 publications). She counts with 3-year stay at TU Delft (NL) and 4-year stay at Purdue University (IN, USA). Her research was also published in Zine magazine: athensscienceobserver.com/2022/02/28/zine-3-plant-phenotyping-edition/. This magazine focusses on disseminating research results to society from five young American researchers, highlighting research novelty in Plant Phenotyping.

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Nombre: ****** ********

Referencia: **RYC2023-045296-I**
Área Temática: **Tecnologías de la información y de las comunicaciones**

Correo Electrónico: **ignacio_murcia@hotmail.com**

Título: **Advancing Signal Processing & Machine Learning for Emerging Biosignal Analysis**

Resumen de la Memoria:

My research spearheads innovative health and learning technologies revealing individual needs. My PhD compiled a landmark database monitoring unexplored biomarkers in 40 diabetes patients, enabling personalized glucose forecasting models via wearables. Extending this, my 3+3 month predoctoral visit at Dr. I. Chatzigiannakis Sapienza University of Rome group yielded an impactful paper on ML-powered glycemic prediction. My role spanned signal processing, algorithm implementation, and coordinating intensive data collection.

Upon PhD graduation, I joined Dr. I. Barbancho s brain-computer interface lab at the University of Malaga, researching EEG and music. Collaborations with Dr. D. Pardo-Quiles (Polytechnic University of Cartagena) produced educational acoustics software. I subsequently spent 3 months under solar physics with Dr. V. Rodriguez, applying signal processing and ML to sunspot forecasting. My research scope then expanded during a bioinformatics postdoc under cancer authority Dr. M. Vihinen at Lund University. We combined advanced ML with CRISPR gene editing to uncover genotype-phenotype connections and published influential SARS-CoV-2 insights.

Rejoining University of Malaga s Dr. A. Ortiz-led group shifted my focus to unraveling neural underpinnings of reading disabilities through causal EEG/fNIRS modeling. Our swift publications were followed by prestigious fellowships, cementing integral bonds with prominent researchers. Deepening these partnerships, in 2022, I visited machine learning chair Prof. W.L. Woo s Northumbria University lab to devise an innovative dyslexic EEG source/sink brain activity model distinguishing language region roles. My contributions encompassed constructing connectivity features, implementing ensemble classifiers in Python, and interpreting results. I repeated another 3 months stay with Dr. Wai Lok Woo this time to develop advanced multivariate predictive methods for glycemia in diabetic patients.

Additionally, through Dr. Ortiz s group, I participate in the ambitious 1.5 million ORACLE project funded by the European Research Council, co-led by Dr. F. Costa and uniting cardiology specialists across Italy, Spain and Europe to enable AI-powered personalized risk prediction for heart attacks.

Moving forward, drawing on my specialized analytical skillset, I will continue spearheading globally-minded research intersecting biomedical engineering, data science and neuroscience to reveal and respond to hidden facets of neurological conditions. My dedication to participatory design and compassionate mentorship uphold a commitment to broadening digital capabilities with care and wisdom. I persist in pushing data science frontiers to uplift human dignity.

I intend to continue building on successful collaborations by developing cutting-edge machine learning approaches leveraging the extensive Leeduca platform dataset encompassing ample neuropsychological assessments and multi-modal clinical annotations from children. Core objectives entail devising novel methodologies to quantify synchronization-based functional brain connectivity patterns from EEG and fNIRS recordings, construct integrated cardiac biomarker composites, and generate transparent AI solutions to visualize critical neural correlates while producing interpretable predictions.

Resumen del Currículum Vitae:

I pursued doctoral training at the University of Murcia, earning a master s degree and two PhD degrees in cross-disciplinary engineering fields spanning industrial engineering, computer engineering, and telecommunications engineering. This unique dual specialization echoes my commitment to harnessing interconnections across technical domains to create broad societal impact. I currently have an excellence contract from the Junta de Andalucía, PAIDI as a member of the research group Biomedical Signal Processing,Computational Intelligence and Communications Security (BioSIP), at University of Málaga.

My prolific academic training has underpinned globally-minded research spearheading technology translation to uplift human welfare. Sapienza Università di Roma, the Lund University Biomedical Center, Northumbria University, and the Polytechnic University of Cartagena, Spain hosted my multiple research stays, enabling high-impact publications through significant international collaborator relationships I cultivated, including longstanding bonds across 8 countries nurtured through 15 joint papers.

Alongside publishing in renowned indexed journals, I have actively participated in and delivered conference papers at over 10 esteemed international scientific congresses, leveraging these opportunities to exchange insights with premier global networks at the nexus of biomedical engineering and data science.

As my PhD research compiled a valuable database to enhance diabetes treatment, an ongoing focus involves responsibly gathering biometric data from patients and research participants to generate assets that facilitate care and inclusion. Whether optimizing wearables tracking physiological parameters or applying neural imaging to reveal correlates of disabilities.

I contribute signal processing, machine learning, and analytical expertise as a team member across four major ongoing projects spearheaded by the University of Malaga and funded through competitive government calls. Our research projecs employs high-performance computing to model brain synchronization patterns in developmental disabilities.

The Andalusian regional administration and MINECO support my research into EEG, while, as a member of the BioSIP group of University of Málaga, I am collaboration with trailblazing cardiology analytics research through the 1.5 million European Research Council funding which enables ORACLE consortium addressing pressing public health needs by enhancing clinical decision-making to prevent myocardial infarction. Our group s long-term cooperation with schools through the LEEDUCA research platform strives to uplift youth by revealing each student s strengths with assessments valuing neurological diversity.

All my periods in foreign and national universities had scientific production as JCR-indexed papers. I have works/collaborations with excelent researchers in institutions in 8 countries. I have authored 54 articles, with 48 in indexed journals and 39 in the high-impact Q1 and Q2 quartiles. My publications include 3 books on AI related to Diabetes Mellitus, COVID-19 research, and smart cities with IoT, along with 3 educational handbooks. My work has 827 citations, an h-index of 15, and an i10-index of 16. I have 150h of teaching, supervising final degree projects and two ongoing supervision of doctoral theses.

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Turno de personas con discapacidad

Nombre: ****** ********
Referencia: **RYC2023-042684-I**
Área Temática: **Biociencias y biotecnología**
Correo Electrónico: **juanjoperezmoreno@gmail.com**
Título: **Mechanisms of vulnerability to neurodegeneration**

Resumen de la Memoria:

I started my PhD in 2010 at the Andalusian Centre for Developmental Biology (CABD) thanks to a Junta de Andalucía fellowship and supervised by Drs. Beatriz Estrada and María D. Martín Bermudo. Interested in understanding the molecular mechanisms of muscle development, we used the model organism Drosophila to study the role of the conserved transmembrane proteoglycan Kon/NG2. First, we found that Kon regulates the assembly of the contractile units of muscles (sarcomeres) (Pérez-Moreno et al., 2014). We also showed that Kon mediates the formation of the myotendinous junction through the recruitment of Tsp (Pérez-Moreno et al., 2017), and that Kon cooperates with laminins to mediate muscle migration towards tendon cells (Pérez-Moreno et al., 2022). Together, these works have helped to define the role of Kon, but also the general process of myogenesis. Finally, I identified some of the downstream proteins by which Kon regulates sarcomere assembly and found a novel role for Kon in the development of the neuromuscular junction, opening new lines of work in the lab.

From 2016 to 2021, I worked as a postdoctoral researcher in the lab of Prof. Cahir O□Kane (Department of Genetics, University of Cambridge, UK). During this period, I was awarded a Marie Skłodowska-Curie Individual Fellowship, and a research grant by the Spastic Paraplegia Foundation (SPF) as Co-PI. We studied the physiological role of the axonal endoplasmic reticulum (ER), whose defects are associated with spastic paraplegia, a neurodegenerative disease that mainly affects longer motor neurons. Using Drosophila models for spastic paraplegia, we identified a specific loss of ER tubules at the presynaptic terminals, which is accompanied by a decrease of the Ca2+ influx in different presynaptic compartments (cytosol, ER and mitochondria), and by a decreased neurotransmission (Pérez-Moreno et al., 2023). These defects might explain the symptoms observed in spastic paraplegia patients, opening potential pathways for future treatments. We also developed tools of general interest for the Drosophila neuroscientific community: to control genetic constructs expression in different types of single motor neurons (Pérez-Moreno and O□Kane, 2019), and to measure Ca2+ levels within different cellular compartments (Oliva et al., 2020). During this period, I applied CRISPR-Cas9 genetic edition, live imaging, FRAP, STED, and confocal and electron microscopy.

In 2021, thanks to a Juan de la Cierva Incorporación fellowship, I started to work at the Institute of Biomedicine of Seville (IBiS), where in collaboration with Drs. Luis Escudero and Alberto Pascual, I study the role of mouse microglia in neurodegeneration. We have observed that microglia mitochondrial complex I deficiency induces glial dysfunction, cognitive deficit, and early lethality, suggesting a direct microglial contribution to primary mitochondrial diseases (Mora-Romero et al., 2023).

I was awarded the I3 certificate by the Spanish State Research Agency, in recognition of my scientific trajectory.

Resumen del Currículum Vitae:

Scientific production and degree of contribution:
- Articles published in JCR peer-reviewed journals (all authored by 7 or fewer authors):
5 first-author research articles (joint corresponding author in two of them).
1 second-author research article.
2 review articles as corresponding author.
- Joint first and corresponding author of an article under review in Nature Metabolism (manuscript ID: NATMETAB-A23028290).
- Participation in several prestigious international conferences.

Quality indicators of scientific production:
- Total Citations: 176 (Google Scholar)
- 2 articles highlighted on the Cover of Journal of Cell Science:
Perez-Moreno et al., 2014 and Perez-Moreno et al., 2017
- 2 articles highlighted by other scientific journals: Perez-Moreno et al., 2014 by Development (DOI: 10.1242/dev.115105); Oliva et al., 2020 by PreLights (DOI: 10.1242/prelights.20435)

Internationalization: over 5 years as a postdoctoral researcher in the Genetics Department of the University of Cambridge (UK).

Senior research experience: funded grant by the Spastic Paraplegia Foundation (2019 Call; $150,000); awarded with highly competitive postdoctoral grants: Marie Skłodowska-Curie (ID 745007) and Juan de la Cierva Incorporación; co-corresponding author of 3 original research articles (Perez-Moreno and O□Kane, 2019; Perez-Moreno et al., 2023; Bella-Romero et al., 2023) and a review article (Öztürk et al., 2020); reviewer of scientific articles (Web of Science ResearcherID: H-7605-2014) and of research grants from public and private funding bodies, including the ERC program by the European Union.

Teaching/supervision: extensive teaching and supervision of TFGs at the University of Cambridge and the University of Seville. Currently co-supervising a PhD student.

Research outreach: participation in the Cambridge Science Festival and the European Researchers' Night.

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Turno de personas con discapacidad

Nombre: ****** ********

Referencia: **RYC2023-043866-I**

Área Temática: **Ciencias agrarias y agroalimentarias**

Correo Electrónico: **m.escandon.martinez@gmail.com**

Título: **Analysis of abiotic stress and natural variation across multiple species using a Systems Biology approach**

Resumen de la Memoria:

Throughout my research career, I have made significant contributions in the fields of Molecular Biology and Systems Biology, with a focus on stress processes in forest plants. My doctoral thesis, which was funded by a Severo Ochoa grant, made a substantial contribution to the understanding of heat stress response in Pinus radiata. I utilized a systems biology approach and proposed different possible biomarkers in the different omics layers, which could be used to select the best adapted trees under future climate change scenarios. This research has been presented at national and international conferences and published in 4 articles in prestigious journals such as Journal of Experimental Botany and Frontiers in Plant Science.

My first postdoctoral research at University of Aveiro (Portugal) was focused on the analysis of hormonal and epigenetic response to infection with Fusarium circinatum in Pinus spp of different tolerances. This has been published in the D1 journal Tree physiology, pending the results obtained during Short Term Scientific Mission under COST action FP1406PINESTRENGTH. Also I led the line of metabolomic analysis in tree species, including the metabolomic response to drought in Quercus suber, which was analyzed in depth and published in the journal Plant Science.

During my postdoctoral research at the University of Cordoba, I deepened my proteomic knowledge and analytical skills in a reference group in this field. The research resulted in the publication of a review, 4 articles, and 3 book chapters, which were presented at 6 congresses. I analyzed the drought response of Quercus ilex by integrating metabolomics, proteomics, and transcriptomics. This research was published in the journal Plants and in two methodological chapter in Plant Proteomics Protocols and Methods. Also, I validated the importance of proteases in the Q. Ilex germination process (published in Frontiers in Plant Science) and I develop and evaluate the optimization of the proteomic analysis for Q. ilex species by publishing two articles in Journal of Proteomics.

Finally at University of Oviedo, I was the principal investigator of an ONCE project called "Characterization of Spanish pine forests to climate change," which aims to evaluate different Pinus spp for their response to heat stress, publishes recently an article in Journal of Experimental Botany. This project was rescinded before the two-year mark to obtain the Juan de la Cierva Incorporación contract at the same university, where I continue the studies initiated with the ONCE project. Currently I also participates as UNIOVI team member in the international project 617303-PP-1-2020 -1-EG-EPPKA2CBHEJP where I leads and prepares the contents for the thematic units of Metabolomics, Enzymology and Systems Biology, given the focus of my research career. Furthermore, I have been invited to review projects for the Knowledge Foundation, Sweden.

I am currently responsible for the research line which aims to characterize multi-omics differences among pine species that may influence the wide variable adaptability to climate change. Previous work on heat stress highlighted non-coding RNA's central role in stress molecular memory. Therefore, the proposed future research line aims to deepen the response of non-coding RNAs to complete the vision on the role of RNA metabolism in stress tolerance acquisition

Resumen del Currículum Vitae:

I graduated in Technical Forest Engineer at the University of Oviedo and later Forest Engineer at the University of Valladolid in 2010. I started my doctoral thesis "Exploring high temperature response mechanisms in Pinus radiata using a pan-omics approach" at the University of Oviedo with a Severo Ochoa scholarship (with 3 months of internship in Chile) and International doctored in 2017 with "Cum laude".

I have one year and 3 months of international experience working at the University of Aveiro (Portugal) where I have been studying the metabolomic response of Quercus suber to drought stress and the different molecular and physiological responses of Pinus species with differential sensitivity to the pathogenic fungus Fusarium circinatum. This has allowed to obtain a Short Term Scientific Mission (STSM) under COST action FP1406 PINESTRENGTH at the University of Orleans (France) in February 2019. I was at the University of Cordoba for 2 years and 5 months thanks to a Juan de la Cierva Formación contract, in the research line Identification and characterization of the most resilient and productive elite individuals of Quercus ilex through genomic and epigenomic analysis. I returned at the University of Oviedo with a Talent Opportunity Grant ONCE where I was principal investigator of the project "Characterization of Spanish pine forests to climate change" of 2-year duration. Finally, I rescinded the project before the end to start with the Juan de la Cierva Incorporación contract in 2022. At this stage, I am co-responsible for the research line of the ongoing national funded project PID2019-107107GB-I00, which aims to characterize the epigenetics differences among pine species that may influence the wide variable adaptability to climate change.

In the past years, I have taught in the subjects Plant Physiology and Applied Plant Physiology in the Biology degree, Experimentation in Biology in the Biotechnology degree and Forest Biology Foundations and Biology and Geology in Forest and Environmental Engineering degree, all at the University of Oviedo, and Ampliation of Chemistry and Biochemistry in Forest Engineering and Agro-Food Engineering and Rural Environment at the University of Córdoba. I have been accredited as Contracted Doctor and Private University Professor since 2019.

Throughout my career, I have 23 publications signing as first author (39%) or last position (13%) where I am corresponding author in 6 (26%) of them. These articles were published in high-impact journals in the Q1 (88,9%), and 46.6% of them included in the first decile (D1), such as the Journal of Experimental Botany or Tree Physiology. I am also a reviewer for prestigious journals in the areas of Forest and Plant research, such as Tree Physiology and Frontiers in Plant Science. I have an H-index of 12 (WOS) and 14 (Google Scholar) with 640 total citations (Google Scholar) and an 79 overall citation percentile median (WOS). Finally, I am currently co-directing David Morales thesis (FPU21/02839) and I have co-directed 2 Master's theses and 4 undergraduate theses.

In terms of scientific dissemination, I presented more than 25 communications, 16 of them in international congresses, one of them as an international invited speaker. I have an incipient career in outreach actively participating in programs such as Walk for Science" or "European Researchers Night"

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Turno de personas con discapacidad

Nombre: ****** ********

Referencia: **RYC2023-042515-I**

Área Temática: **Biomedicina**

Correo Electrónico: **danisecre@hotmail.com**

Título: **Dendritic nanosystems applied to the diagnosis of viral infections**

Resumen de la Memoria:

During my pre- and postdoctoral positions at HGUGM (2012-18), I focused on developing novel nanocompounds for topical vaginal microbicides, aiming to prevent HIV and other sexually transmitted infections (HSV-2, HCV). My research enhanced the understanding of virus/host interactions and, with my granted patent, emphasized my commitment to translating research into tangible societal benefits through collaborations with industries and public institutions. My international scientific-technical career spans prestigious institutions like CBMSO, CNB-CSIC, and CQM of the University of Madeira, totaling 16 months. I gained expertise in hepatocyte cell culture systems for HCV infection, preventive strategies against HCV, and synthesis/characterization of biomedical metallodendrimers.

In 2018, I secured a postdoctoral contract at ULe through the JCyL/FEDER, redirecting my focus to drug discovery for neglected tropical diseases caused by human-threatening parasites, including gastrointestinal helminths. In 2019, I received the ONCE Foundation scholarship 'Opportunity for Talent,' securing it for two consecutive years for a research stay at CNM-ISCIII. In 2021, I obtained a Sara Borrell contract to investigate the impact of HCV elimination in HIV/HCV coinfected patients, assessing neutralizing antibodies against HCV and biomarkers linked to severe liver disease and HCV clearance during anti-HCV therapy. I collaborated in various scientific networks and actively participated in the group's research areas (HIV, COVID-19). In 2023, I led a project assuming the role of PI, shifting my focus to novel dendritic nanosystems for diagnosing emerging viruses like dengue. It reflects my versatility in addressing current real-world health challenges and underscores my growing leadership role.

The objective of the research line that I plan to pursue during the execution of the contract is to create innovative diagnostic assays that are sensitive, rapid, cost-effective, and easy to use. While I have devoted my career to studying viruses like HIV and HCV, this new research direction signifies a significant shift toward diversifying my focus. By incorporating the diagnosis of emerging viruses, I aim to leverage the insights gained in nanomedicine and virology to address a wider range of pathogens. This expansion holds the potential to enhance global preparedness against viral threats, encompassing both established and emerging ones.

Throughout my entire pre- and postdoctoral scientific career (2012-23), I have achieved the following: (i) thirty-five articles in international journals (31 falling within the Q1, 14 in the D1, 22 publications as first author and 6 as the second author); three book chapters, 45 communications at congresses, and one patent; (ii) supervised seven Master's theses, one Final Degree Project, and I currently one Ph.D. thesis; (iii) contributed to seven research projects (one as a PI) secured through competitive calls (one international); (iv) two fellowships and two research training contracts; (v) taught various university courses and seminars; and (vi) engaged in scientific community by acting as a reviewer for scientific articles, guest editor for a special issue, review editor, and being a member of the editorial advisory board for reputable journals.

Resumen del Currículum Vitae:

Education: I earned my Chemical Engineering degree (2005-10) and Master's in Industrial Processes Engineering (2011) at UCM. I completed lab technician training at Repsol YPF, specifically focusing on wastewater treatment. Initiating my Ph.D. at HGUGM, I earned an International Mention in Molecular Biosciences with a Summa Cum Laude distinction at UAM in 2016.

Scientific career: During my pre- and postdoctoral positions at HGUGM (2012-18), I focused on developing novel nanocompounds for topical vaginal microbicides, aiming to prevent HIV and other sexually transmitted infections (HSV-2, HCV). My research enhanced the understanding of virus/host interactions and, with my granted patent, emphasized my commitment to translating research into tangible societal benefits through collaborations with industries and public institutions. My international scientific-technical career spans prestigious institutions like CBMSO, CNB-CSIC, and CQM of the University of Madeira, totaling 16 months. I gained expertise in hepatocyte cell culture systems for HCV infection, preventive strategies against HCV, and synthesis/characterization of biomedical metallodendrimers.

In 2018, I secured a postdoctoral contract at ULe through the JCyL/FEDER, redirecting my focus to drug discovery for neglected tropical diseases caused by human-threatening parasites, including gastrointestinal helminths. In 2019, I received the ONCE Foundation scholarship 'Opportunity for Talent,' securing it for two consecutive years for a research stay at CNM-ISCIII. In 2021, I obtained a Sara Borrell contract to investigate the impact of HCV elimination in HIV/HCV coinfected patients, assessing neutralizing antibodies against HCV and biomarkers linked to severe liver disease and HCV clearance during anti-HCV therapy. I collaborated in various scientific networks and actively participated in the group's research areas (HIV, COVID-19). In 2023, I led a project assuming the role of PI, shifting my focus to novel dendritic nanosystems for diagnosing emerging viruses like dengue. It reflects my versatility in addressing current real-world health challenges and underscores my growing leadership role. My numerous first-author publications in high-rated journals and a substantial citation index focusing on global health priorities reflect the impact and recognition of my work. Besides, open-access publications, outreach, and collaboration with industry have extended my research's reach, easing access to the global scientific community. I have played a crucial role in nurturing young researchers, proving my commitment to fostering the next generation of scientists. Beyond teaching and ANECA accreditation, editorial roles in reputable journals and participation in external scientific committees highlight my commitment to educational aspects and the evaluation and development of research activities.

Others: The collaborative nature of my career, along with expertise gained from diverse institutions, has significantly contributed to scientific research in the field of biomedical sciences. It positions me as a non-conventional chemical engineer, excelling in translational and interdisciplinary research. Despite having a hearing disability, I have shown resilience in diverse teams and multicultural settings, showcasing essential soft skills vital for successful collaboration in the scientific community.

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Nombre: ****** ********

Referencia: **RYC2023-042883-I**

Área Temática: **Biociencias y biotecnología**

Correo Electrónico: **dan.garridosanz@gmail.com**

Título: **Estrategias basadas en comunidades bacterianas para optimizar inoculantes beneficiosos para las plantas y responder a desafios ambientales**

Resumen de la Memoria:

A lo largo de mi carrera científica, he seguido dos líneas principales de investigación. La primera se enfoca en inoculantes beneficiosos para plantas y el microbioma de la rizosfera, mientras que la segunda se centra en la biorremediación utilizando comunidades bacterianas naturales. Ambas líneas están conectadas por la aplicación del análisis bioinformático aplicado a bacterias y comunidades microbianas. Mi trabajo ha demostrado que los análisis genómicos comparativos son cruciales para entender la relación entre la diversidad de especies y la ocupación de nichos específicos, lo cual permite obtener cepas útiles para su uso en intervenciones específicas, como la protección de cultivos y la restauración ambiental. Además, mi investigación se ha enfocado en comunidades bacterianas. Inicialmente, analicé comunidades naturales simplificadas mediante metagenómica para su uso en la biorremediación de contaminantes orgánicos. Luego, como investigador postdoctoral, volví a estudiar comunidades naturales en el suelo y la rizosfera. Recientemente, mi enfoque se ha centrado en comprender cómo los microbiomas residentes en la rizosfera de cultivos afectan la proliferación de inoculantes beneficiosos para las plantas. La mayor parte de mis resultados han sido producto de colaboraciones internacionales fructíferas que han enriquecido la calidad e impacto de mi trabajo. En conjunto, mis logros reflejan una trayectoria científica coherente que planeo continuar en el futuro para avanzar en nuestra comprensión de los microbiomas y su potencial para abordar urgentes desafíos ambientales de manera sostenible. Estos desafíos están guiados por el aumento de la población mundial y la consecuente necesidad de incrementar el suministro de alimentos, al mismo tiempo limitando el uso de pesticidas y fertilizantes químicos nocivos. Los inoculantes bacterianos beneficiosos para las plantas ofrecen una alternativa prometedora y respetuosa con el medio ambiente, pero su éxito a menudo fracasa debido a nuestro limitado conocimiento de sus interacciones con la microbiota residente de las plantas. Mi línea de investigación pretende avanzar en nuestra comprensión de las interacciones microbianas en la rizosfera de los cultivos para facilitar el establecimiento exitoso de inoculantes bacterianos. Para lograrlo, planteo la obtención de comunidades rizosféricas naturales y reproducibles de plantas de trigo, que además servirán como fuente de aislados bacterianos que reflejen las características funcionales generales de este microbioma rizosférico. Estos aislados se utilizarán para construir una comunidad sintética (SynCom) basada en el co-cultivo en un medio de crecimiento que contenga como única fuente de carbono y nitrógeno compuestos exudados por las raíces de trigo. Se establecerá un mapa de la red de interacciones entre todos los miembros de la SynCom y construiremos modelos metabólicos a escala de comunidad. A partir de estos modelos, estudiaremos los efectos de la adición de inoculantes bacterianos o la respuesta a estresores ambientales, corroborando los resultados en ensayos in planta. Los resultados nos permitirán predecir cambios en las comunidades impulsados por la adición de nuevas bacterias y diseñar intervenciones específicas del microbioma para facilitar el establecimiento de inoculantes beneficiosos para las plantas.

Resumen del Currículum Vitae:

Investigador altamente especializado en microbiología de plantas y ambiental. Obtuve la Licenciatura en Biología en 2013 y más tarde completé un Máster en Biotecnología en 2014, ambos en la Universidad Autónoma de Madrid (UAM). En 2015 inicié mi tesis doctoral en Microbiología, enfocada en el estudio poblaciones bacterias para la biorremediación de contaminantes orgánicos. Obtuve el título de Doctor en Microbiología en 2020 por la UAM, con mención internacional y cum laude. Durante este periodo, mi investigación resultó en 12 artículos científicos y un capítulo de libro, siendo el primer autor en 9 de ellos. De estas publicaciones, 7 surgieron de colaboraciones naciones (3) e internacionales (4), para las cuales realicé dos estancias en el extranjero: en Argentina, en 2017, y en la República Checa, en 2018. Durante este periodo impartí clases en los grados de Biología y Ciencias Ambientales de la UAM, además dirigiendo exitosamente los trabajos de fin de máster de 4 estudiantes y un trabajo de fin de grado. Todos ellos obtuvieron calificaciones cercanas al máximo, y los resultados de tres de ellos fueron además publicados en revistas internacionales. Tras defender mi tesis doctoral, empecé un contrato de investigador postdoctoral en el proyecto europeo GREENER en la UAM, resultando en la publicación de 6 artículos científicos, la mitad de ellos producto de colaboraciones internacionales establecidas en el marco del proyecto. En 2021, me trasladé a Suiza para empezar otra posición postdoctoral en el Departamento de Microbiología Fundamental de la Universidad de Lausana, trabajando en el proyecto NCCR Microbiomes. Desde entonces he publicado 4 artículos científicos, 2 de ellos como autor de correspondencia en revistas de gran impacto: The ISME Journal y Microbiome. La mayoría de estas publicaciones son además parte de colaboraciones con otros grupos de investigación. Durante este periodo he impartido clases en el Master in Molecular Life Sciences de la Universidad de Lausana, íntegramente impartido en inglés. En total, acumulo más de 1200 horas de docencia (1000 durante mi etapa postdoctoral en Suiza). Actualmente estoy dirigiendo y supervisando el trabajo de dos investigadores de posgrado. Durante este periodo, he continuado colaborando con el grupo donde realicé la tesis doctoral, lo que ha resultado en otras 7 publicaciones, sumando durante mi carrera un total de 25 artículos científicos (11 de primer autor y 2 de autor de correspondencia). Los resultados de mi investigación han sido consistentemente diseminados en cerca de 40 conferencias nacionales, internacionales y seminarios, obteniendo el premio al mejor póster en dos de ellos (otorgado por la International Society of Microbial Ecology y la Sociedad Española de Microbiología). Además, actúo frecuentemente como revisor de artículos científicos para revistas internacionales como The ISME Journal o Applied and Environmental Microbiology, y como experto para evaluación de proyectos internacionales y tesis doctorales. A lo largo de mi carrera, he participado en 10 proyectos de investigación: 6 nacionales, uno europeo, uno suizo y dos proyectos concedidos por la empresa Kimitec. Actualmente, estoy ultimando un proyecto de investigación con el sector privado, pendiente de validación, además de buscar fuentes de financiación externa para desarrollar mi línea de investigación.

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Turno de personas con discapacidad

Nombre: ****** ********

Referencia: **RYC2023-045078-I**

Área Temática: **Tecnologías de la información y de las comunicaciones**

Correo Electrónico: **menxon_lara@hotmail.com**

Título: **Procesado de imagen altamente eficiente mediante algoritmos avanzados y técnicas de Aprendizaje Automático**

Resumen de la Memoria:

Mi formación académica es de Ingeniera de Telecomunicaciones (2009) y Máster en Tecnologías de la Información y Comunicaciones (2010) por la Universidad Politécnica de Cartagena (UPCT).
En 2015, obtuve el grado de Doctora por la UPCT con mención cum laude.
Mi investigación se centra en procesado de señal e imagen y en aprendizaje máquina con aplicaciones en el campo de la ingeniería biomédica.
Mis trabajos han dado como resultado 27 comunicaciones en congresos del área y 21 artículos científicos de revista, de los cuales, 14 corresponden a revistas indexadas en JCR (10 de ellas pertenecientes a los cuartiles Q1 y Q2, y el resto al Q3), con índice-h 8 (Scopus).
En mi etapa predoctoral, desarrollada en la UPCT, mi investigación se centró en el procesado de imágenes ecográficas de la arteria carótida común. El objetivo principal era la segmentación automática de dichas imágenes para la medida del grosor de la pared arterial (IMT), un indicador preclínico de la aterosclerosis y del riesgo cardiovascular. Este problema fue resuelto mediante la aplicación de técnicas de Aprendizaje Máquina. En este sentido, las contribuciones realizadas resultaron ser pioneras al aplicar redes neuronales y reconocimiento estadístico de patrones a este problema concreto.
Por otra parte, mi investigación postdoctoral, desarrollada en la Universidad de Valladolid (UVa), se ha centrado en la obtención de imagen de resonancia magnética cardiaca 3D, en respiración libre, isotrópica y 100% eficiente, con una alta resolución espacio-temporal. Así, se ha propuesto un método eficiente de registrado grupal de imagen para la estimación conjunta del movimiento cardiorespiratorio que permite su compensación de forma retrospectiva durante la reconstrucción de las imágenes. También se han propuesto métodos y herramientas de reconstrucción altamente eficientes y se han estudiado distintos esquemas de adquisición de datos.
Actualmente, soy investigadora principal de un proyecto nacional, con el que he abierto una nueva línea de investigación en mi currículum, el procesado de imagen de microscopía, campo en el que las posibles aplicaciones son numerosas.
A continuación, como resumen de mis méritos en investigación, se destacan:
- Participación en 1 proyecto internacional.
- IP de un Proyecto Nacional.
- Equipo de investigación/trabajo en 3 Proyectos Nacionales.
- Investigadora en 2 Proyectos Regionales.
- 7 Contratos de I+D+i con diversas instituciones.
- 14 artículos de revistas indexadas en el JCR (índice-h 8).
- 27 comunicaciones en congresos científicos.
- 1 Tesis Doctoral dirigida (en desarrollo).
- 2 TFGs dirigidos.
- 170 horas de docencia impartida.
- Acreditación como Profesora Contratada Doctora.
- Diversas actividades de divulgación y organización.

Resumen del Currículum Vitae:

R. M. Menchón-Lara received the Ph.D. degree, cum laude, from the Universidad Politécnica de Cartagena (UPCT) in 2015 (Advisor: J.L. Sancho Gómez). Her research interests are signal & image processing and machine learning with applications in biomedical engineering. Since 2017, she is with the Laboratorio de Procesado de Imagen (LPI) at Universidad de Valladolid (UVa), the research group headed by C. Alberola López.
She has actively engaged in the research/work team of 3 national projects funded by the Spanish Ministry of Science and Innovation (refs. TEC2009-12675, TEC2017- 82408-R and PID2020-115339RB-I00). She has also participated in 2 regional projects funded by the regional Government and the Public Healthcare System of Castilla y León (refs. VA069U16 and 4DFLOW-EVAR), along with 7 R&D&I contracts with different institutions. Currently, she is involved in an international project (ref. HR22-00533) funded by laCaixa Foundation. Furthermore, she has recently assumed the role of principal investigator (PI) in a national project (ref. PID2022-142166NA-I00).
Her research work has resulted in 27 congress communications and 21 scientific journal papers, of which 14 correspond to publications in JCR-indexed journals: 10 of them belong to Q1 and Q2, and the rest to Q3, leading to a total of 289 citations with h-index of 8 (Scopus). She also regularly reviews articles for JCR journals, such as Signal Processing, Medical Image Processing, and Computer Methods and Programs in Biomedicine, etc.
In terms of outreach activities, it is worth highlighting her participation as member of the International Scientific Organizing Committee for the IWINAC 2013, and the organization as chair of the invited session Biomedical and Industrial Image Understanding Applications in this conference. In addition, she was involved in the local organizing committee of the 3rd ISMRM Iberian Chapter Annual Meeting. Moreover, she has undertaken the dissemination of her main research outcomes by means of local, regional and national newspapers, radio and/or TV channels focused on scientific research.
As for her formation capabilities, she is teaching theoretical and practical classes on two different Grade programs within the UVa and she holds accreditation as Profesora Contratada Doctora by ANECA. In addition, she has supervised two graduation projects at the UPCT and mentored different PhD students at LPI. Currently, she supervises an ongoing doctoral thesis at UVa.

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Nombre: ****** ********

Referencia: **RYC2023-043859-I**

Área Temática: **Ciencias y tecnologías químicas**

Correo Electrónico: **laura.frances@uv.es**

Título: **Advanced Luminescent Probes for Imaging in Living Cells**

Resumen de la Memoria:

My research career focuses on developing luminescent materials and nanomaterials for energy transfer-based applications such as photodynamic therapy, biosensing or bioimaging. Over the years, I have acquired a strong background in nanochemistry, photochemistry, photophysics and, microscopy techniques. My current capabilities include designing, synthesizing and characterizing metallic, semiconductor and lanthanide-based nanoparticles (NPs), as well as lanthanide-based molecular complexes with exceptional control of the material properties. I have pursued various research lines, each contributing significantly to the field:

- Switchable nanomaterials (Master□s thesis, ICMOL):

Gold NPs and quantum dots capped with acetamidine-based switchable surfactants, underwent reversible water/organic phase exchange by gas bubbling (carbon dioxide or nitrogen, respectively). By implementing this approach, I was able to reuse CO2 from waste, transforming it into a valuable resource. I also demonstrated the recovery of □clean□ NPs from mixtures containing organic compounds like pyrene.

- Synthesis and characterization of upconversion NPs (PhD, ICMOL with a 3-month stay in ILTS):

I was focused on novel and controllable approaches to fine-tune the size and shape of UCNPs. I also developed new methodologies for characterizing UCNPs by adapting conventional equipment. This work was extremely important for expanding the UCNP application.

- Surface modification of UCNPs (ICMOL):

I explored the synergy between UCNPs and organic ligands on their surfaces, emphasizing the importance of innovative, controllable and precisely defined UCNP functionalization methods for the successful application of these nanomaterials. This laid a relevant background for future research in this area.

- FRET for bioimaging (CNRS)

My contribution included to demonstrate in situ rolling circle amplification FRET (RCA-FRET) in HaCat cells, a groundbreaking method for real-time monitoring. The results significantly advanced conventional RCA imaging methods.

- Optimization of FRET in UCNPs (CNRS, Université de Rouen-Normandie)

Despite the huge potential of UCNPs for bioapplications, challenges persisted in FRET biosensing due to complex energy transfer processes. My efforts unravelled and predicted not only FRET mechanisms in UCNPs-based systems but also UCL quenching processes caused by solvents, becoming an expert in the area. My work constitutes a noteworthy contribution to advancing the understanding of UCNPs and their potential applications in biosensing and bioimaging.

- Molecular Upconversion (Université de Rouen-Normandie)

I synthesized and characterized novel lanthanide-containing complexes displaying molecular UC.

My current research line aims to design and elaborate luminescent probes for in vivo cellular imaging of multiple miRNA. Luminescent probes primarily based on UC luminescence (but not limited to) such as UCNPs or molecular UC complexes displaying improved UC properties will be synthesized. I will explore emissive windows from visible to NIR-II by fine-tuning the material composition in order to enhance optical resolution. The Ramón y Cajal contract presents an opportunity to strengthen this research line, substantially advancing bioimaging research and potentially opening up new avenues.

Resumen del Currículum Vitae:

I possess a strong academic background with a focus on interdisciplinary studies at the interface of chemistry, physics, material sciences and life sciences. I hold a Chemistry Degree (UV, 2012) and a master□s degree in Sustainable Chemistry (UV, 2013). In 2017, I earned a PhD in Chemistry (UV) with the highest honours in the Spanish system (CUM Laude and International distinction).

I am an accomplished researcher with a noteworthy track record of achievements, including 30 significant scientific publications (90% of them in Q1 journals, 879 citations, h-index: 16), 4 book chapters, 40 contributions to international conferences (1 invited lecture, 3 invited, 4 oral talks), and 1 seminar in an international institution.

The excellence and high quality of my research have been recognized with 4 prizes throughout my career, i.e., i) Extraordinary PhD award, UV, 2018; ii) Best PhD thesis, GRUFO (RSEQ), 2018; iii) UPCON2018 Best PhD Thesis, 2018; and iv) XVIII Premi científicotècnic □Ciutat d□Algemesí□ 2023 accesit.

Notably, I got funding through many competitive calls, enabling me to explore diverse research topics in world-leading institutions (JAEIntro, ERASMUS, Vali+d, FPU, FPU short-stay, Atracció talent, MSCA-IF, JdC-Incorporación or, Maria Zambrano).

In addition, I have actively participated in 10 national and 5 European projects, fostering a multidisciplinary and international network of collaborators and enhancing the value of my research.

I was a member of the local organizing committee of Workshop/Conference/Training School UPCON18, UPCONline21 conference, and a Photochemistry workshop (2015). I am a member of scientific societies such as Real Sociedad Española de Química (RSEQ) or the European Photochemical Association (EPA).

I have also reviewed 24 papers for different international peer-reviewed journals (Nature, Biomedicines, Nanoscale Advances, or Nanomaterials). I have worked as an expert evaluator for two years in HORIZON-MSCA-PF actions and acted as a secretary of a PhD thesis examination panel (2022). I also hold the ANECA positive evaluation as □Profesor ayudante doctor□ and □Profesor contratado doctor y Universidad privada□.

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Furthermore, I am deeply committed to scientific communication for both academic and general audiences, participating in and organizing multiple outreach activities such as Expociència, Jornada Científica por un día, Jornada de la mujer investigadora, MEDNIGHT or different presentations at schools.

During my career, I have mentored several students at different levels (9 undergraduate, 6 masters, and 4 PhD students). Currently, I am supervising 1 undergraduate thesis project and co-supervising 1 undergraduate thesis project and 1 PhD.

Overall, I am a distinguished researcher demonstrating significant abilities in simultaneous project management, organizational skills, problem-solving, dynamism to face new challenges and goal-oriented motivation. My multifaceted contributions revealed my leadership in research management and mentorship capabilities.

Obtaining this Ramón y Cajal contract will allow me to consolidate my potential as an independent leader, fortify a research line, and work towards achieving a permanent academic position in a top-quality institution.

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Nombre: ****** ********

Referencia: **RYC2023-042671-I**
Área Temática: **Ciencias físicas**

Correo Electrónico: **lucaromano2607@gmail.com**

Título: **Non-Lorentzian String Theories and Dualities**

Resumen de la Memoria:

In the search for a theory of quantum gravity, scientists predominantly pursued two primary avenues, the first is trying to quantize General Relativity, and the second is trying to introduce gravity in quantum mechanics. However, there could be a third path, trying to build a non-relativistic theory of quantum gravity and then implementing relativistic corrections. An analogous approach could be considered replacing the non-relativistic regime with the ultra-relativistic one.

The one discussed above is just one further motivation to study non-Lorentzian theories, which adds up to the numerous physical scenarios where non-Lorentzian theories have been revealed to play a prominent role. For example, it has been shown that Newton-Cartan geometry, the geometrical setting describing Newtonian gravity, could be used to build an effective action for the Quantum-Hall effect in condensed matter. Analogously Carroll geometry, the ultra-relativistic limit of Riemannian geometry, has unveiled intriguing connections to celestial holography, black holes near horizon geometry, and the structure of the BMS group, the group of symmetries of asymptotically flat, Lorentzian spacetimes. Recent advancements in the field suggest that non-Lorentzian geometries could also be useful in studying dark energy and inflation.

There exist many approaches to obtain a non-Lorentzian theory from a Lorentzian one. The most used are limits, expansions, and null reductions. A characteristic feature of non-Lorentzian theories is that two degenerate metrics replace the non-degenerate metric of Riemannian geometry. In the original Newton-Cartan formalism, this was induced by the decomposition of the flat spacetime in a one-dimensional direction, corresponding to the absolute time of Newtonian gravity and orthogonal codimension-one leaves, equal-time slices. This defines a foliation of the spacetime. This foliation has been generalized to accommodate extended objects, like strings and p-branes to a longitudinal p-dimensional space and a codimension-p transverse space. Specific foliations have been considered to take limits of string theories and supergravities. For example, the stringy foliation played a crucial role in the non-relativistic limit of ten-dimensional minimal supergravity.

We want to investigate foliations' role in the non-Lorentzian limits of string theories and supergravities. Our proposal could be divided into three parts:

 Studying the non-relativistic limit of string theories and supergravities, evaluating the role of the foliation. This amounts to studying the possibility of taking the limit of the same theory with different foliations. We expect that a systematic approach would be able to reveal a web of dualities.

 Performing the same analysis described in the previous point for the ultra-relativistic case, where our knowledge is still limited.

 Study the applications of the results obtained with the two previous points to condensed matter, celestial holography, pure gravity, and cosmology.

Our research lines place at the core of many intriguing unsolved problems of modern physics, from the search for quantum gravity to the comprehension of dark energy and we believe that the innovative and eclectic nature of our proposal could be the key to providing a consistent advancement in our comprehension of the physical world.

Resumen del Currículum Vitae:

Education:

 2016 PhD in Physics with grade: Excellent, at Università di Roma La Sapienza,
 2009 Bachelor's Degree in Physics with grade: 110 cum laude/110 at Università di Roma La Sapienza,
 2012 Master's Degree in Physics with grade: 110 cum laude/110 at Università di Roma La Sapienza.

Postdoc and Fellowship:

 January 2022 to present: Investigador Doctor at Universidad de Murcia with Maria Zambrano fellowship,
 October 2020 to December 2021: Postdoc at the University of Groningen employed by NWO,
 January 2020 to September 2020: Postdoc at the University of Groningen,
 October 2018 to December 2019: Postdoc at Universidad Autonoma de Madrid/IFT,
 November 2016 to February 2017: I was awarded the Riemann Fellowship by the Riemann Center for Geometry and Physics, Leibniz Universitaet Hannover,
 October 2015 to November 2016: being awarded a 1-year fellowship by Università di Roma La Sapienza, I joined the Van Swinderen Institute of the University of Groningen.

Awards/Certifications:

 Certification I3 to recognize an outstanding research career, awarded by Secretaria General de Universidades, Ministerio de Universidades, Gobierno de Espana.

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Teaching Experience:

 Academic Year 2022/2023 Lecturer of the course Fìsica II of the Grado en Quìmica at Universidad de Murcia (30 hours, taught in Spanish),
 Academic Year 2022/2023 Lecturer of the course Fundamentos de Fìsica of the Grado en Ciencias Ambientales at Universidad de Murcia (27 hours, taught in Spanish),
 Academic Year 2021/2022 Replacement Lecturer for 1 lecture (2 hours) of the course General Relativity for the M.Sc. at the University of Groningen (taught in English),
 Academic Year 2021/2022 Teaching assistant for the course General Relativity for the M.Sc. at the University of Groningen (16 hours, taught in English),
 Academic Year 2014/2015 OFA course first-year student math tutoring course (30 hours), Università degli Studi di Roma La Sapienza (taught Italian),
 Academic Year 2013/2014 OFA course first-year student math tutoring course (30 hours), Università degli Studi di Roma La Sapienza (taught in Italian).

Thesis Supervision:

 Bachelor's Thesis: "Fractones y Conservacion del Momento Multipolar en Teorias de Campo Gauge", G.Martinez Ros, University of Murcia, defended on 28th June 2022.

Reviewer for the following Scientific Journals:

 Journal of Physics A: Mathematical and Theoretical
 Classical and Quantum Gravity
 Frontiers in Physics
 European Physical Journal C

Some Talks and Proceedings:

 2023 Non-Relativistic Heterotic String Theory, GRASS-SYMBHOL meeting,
 2020 Carroll vs Galilei from a Brane Perspective, Non-Lorentzian Zoom meetings 2020,
 2017 Non Supersymmetric Magic Theories and Ehlers Truncations, 11th Nordic String, Leibniz Univesitat Hannover ,
 2015 Branes, Weights and Duality Orbits, 14th Marcel Grossmann Meeting , Università degli Studi di Roma La Sapienza".

Organizer of the conference Iberian Strings 2023, Murcia, Spain.

I am author of 17 papers published in international scientific journals (mainly Q1).

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Nombre: ****** ********

Referencia: **RYC2023-043268-I**

Área Temática: **Ciencias físicas**

Correo Electrónico: **matteolotito@gmail.com**

Título: **Uncovering higher strictures in supersummetric and superconformal theories**

Resumen de la Memoria:

My research focuses on formal aspects of supersymmetric and superconforml field theories, as well as string theory.

In the application I outline several ongoing or recently completed research projects that are the inspiration for my future endeavors.

I mostly plan to continue studying supersymmetric and superconformal field theories.
I particular I aim at
-understanding subtle features that they contain, when one studies subsections of them (4d N=2 SCFT VOA correspondence) even with the inclusion of extended operators
-continuing the classification efforts in the 4d N=2 setting
-analyzing global structures from the moduli space perspective
-applying new notions of generalized symmetries to obtain new results
-generalizing the construction of Lagrangians for strongly coupled theories

On the string theory side, Ihave worked on polishing some notion in the swampland program for quantum gravity, trying to infer the property that an effective theory should have if it is a consistent low energy description of quantum gravity.
I will continue refining the conjectures that have appeared in the literature and try to related some of these in order to simplify the overall picture.

Resumen del Currículum Vitae:

I am a theoretical physicist working on formal aspects of supersymmetric and superconformal field theories, as well as string theory.

I began my studies at the University of Rome La Sapienza in Italy, where I completed a Bachelor's (2011) and a Master's (2013) degree in Physics Lateran, I continued my studies at the University of Cincinnati in the USA, from which I obtained a PhD n 2018.

I continued working in fundamental research in physics as a postdoc at the University of <assachusetts Amherst in the USA, from 2018 to 2022 and after that, started a second postdoc at Seoul National University in South Korea.

For the duration of my doctorate I was supported as a Teaching Assistant, so I had the opportunity to teach various introductory physics courses to majors and non majors. As a postdoc, I also volunteered to teach a seminar course in special relativity to incoming first year students.

I also have experience with the service component of academic life.
I was the president of the Physics Graduate Student Association for three consecutive years during my PhD, functioning as glue for the student body, organizing various events and activities, as well as an intermediary between the students and the faculty.
I also have co-orgaznied multiple workshops, including a summer school involving an interdisciplinary audience (physicists and mathematicians).