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AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2020

Turno de acceso general

Nombre: ANCA COUCE, ANDRES
Referencia: RYC2020-029659-I
Área Temática: Energía y transporte
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Título:

Multi-scale description of biomass thermo-chemical conversion

Resumen de la Memoria:

I am currently PI and leader of the sustainable, clean and bioenergy systems group at TU Graz, where I received my habilitation in 2020. My career has been devoted to the development of a multi-scale description of biomass thermo-chemical processes, including pyrolysis, torrefaction, gasification and combustion; as well as the integration of these processes in bioenergy and biorefinery concepts.

The molecular, particle and reactor level have been considered for the multi-scale description of biomass conversion from first principles. At the molecular level, novel detailed reaction schemes and kinetics have been derived. The most relevant contributions are the development of the detailed RAC (Ranzi-Anca-Couce) scheme and kinetics to describe biomass pyrolysis, leading to significant improvements in the description of this complex process, which is also a main sub-process of gasification and combustion. At the particle level and reactor level, innovative methods were developed to describe these processes in an accurate way and, at the same time, in a feasible computational time. The reactor models have been employed, together with experimental work, for the design and optimization of innovative, efficient and clean biomass conversion processes for energy production in cooperation with industrial partners.

The first years of my career have been focused on developing this multi-scale approach, including detailed reaction schemes. Later on, my research line expanded to consider the applications of thermo-chemical processes in bioenergy and biorefinery systems, including the development of low-emission boiler and stove concepts, production of power in fuel cells or biofuels based on gasification and the applications of biochar and bio-oil from pyrolysis. Future developments should aim at integrating bioenergy with other renewables to achieve a complete phase-out of fossil fuels in the near future.

My work has been published since 2012 in 39 JCR journals papers (35 Q1, 18 Q1D1), including 16 as a first author and 7 as last author, with a high number of citations (around 60 per paper published until 2018), and I have participated in 14 research projects (7 as PI), securing 2.8 million euros in third party funding for my group since 2016.

Resumen del Currículum Vitae:

- Qualifications and career: I graduated as Industrial Engineer from the University of Vigo with speciality in Mechanics, obtaining the special award for the best record in the degree. I have obtained my PhD in Engineering with distinction in 2012 at the TU Berlin. My PhD has been conducted with support from a Fundación Barrié de la Maza scholarship. I started in 2013 a postdoc in the Institute of Process and Particle Engineering at the TU Graz, where I have been involved in several research projects with relevant industrial partners in my sector. After a 3 months stay in a research company (Bioenergy 2020+, currently BEST Bioenergy and Sustainable Technologies), I am since 2016 lecturer and leader of the Sustainable, clean and bioenergy systems group in the Institute of Thermal Engineering at the TU Graz. This new group was co-founded by myself and Dr. Scharler and it has obtained around 2.8 million funding since 2016. In 2020 I received by the TU Graz the habilitation with the *venia* in the topic Thermo-Chemical Bioenergy Systems. I speak fluently Spanish, Galician, English and German and I have investigated, taught or studied in Austria, France, Germany, Italy, Netherlands and Spain.

- Scientific experience: My academic career is focused on experimental and numerical research on thermo-chemical biomass conversion, including pyrolysis, gasification, torrefaction and combustion, and its integration into renewable bioenergy and biorefinery concepts. Since 2012 I have continuously published well-cited papers about these topics, including 39 papers in JCR journals (35 in Q1, being 18 Q1D1), with the highly cited comprehensive review about biomass pyrolysis published in 2016 as a single author in the most relevant journal in my area (17.4 IF) as a highlight, which makes me one of the main world references in the topic. Due to the growth of the group which I lead, thanks to the success in project acquisition, the productivity further increased in the last years, with 18 papers published in Q1 journals since 2019 (17 in Q1, 7 Q1D1). Furthermore, I am deeply integrated into the energetic biomass utilization scientific community. I have made 50 contributions to international conferences (including 33 oral contributions and two prizes), I participated in the scientific committee of several conferences, I am reviewer of 14 top JCR journals and I have a direct cooperation and common publications with colleagues from several countries.

- Technological experience: The acquired knowledge has allowed me to carry on a very important activity on technology transfer to companies involved in energetic biomass utilization. This has been mainly conducted through cooperation projects with industrial and scientific partners. I am very experienced in project acquisition and realization, including the participation in 14 projects, with 7 of them as PI (including 2 H2020 projects, being one about research infrastructure integration) securing 2.8 millions in funding for my group from competitive calls since 2016. This allows me to have a broad network within the scientific and industrial communities of my sector.

- Teaching experience: I am lecturer at TU Graz since 2016, I have been director of 19 master theses during my career in Berlin and Graz, I am currently the director of 5 ongoing PhD theses and I am currently invited lecturer at INP Grenoble (France).



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Turno de acceso general

Nombre: FONTS AMADOR, ISABEL
Referencia: RYC2020-030593-I
Área Temática: Energía y transporte
Correo Electrónico: isabelfo@unizar.es

Título:

Valorización de residuos mediante procesos termoquímicos

Resumen de la Memoria:

After earning my BSc in Chemical Engineering in 2004, I worked during one year as research assistant in the LIFTEC working on the CFD modelling of gas combustion. Next, I started my PhD Thesis in the Thermochemical Processes Group of the University of Zaragoza, moment from which I belong to this research group. My thesis was focused on the valorization of sewage sludge via pyrolysis and specifically on the use of the liquid product as bio-fuel and was framed within 2 projects of the National Research Program. I made a 6 months research stay in VTT (Finland), establishing a collaboration materialized with the publication of 1 paper and 1 review in co-authorship. After finishing my PhD, I received the Extraordinary Doctorate Award due to the records achieved (6 research articles in JCR journals, 1 teaching book chapter, 4 researching book chapters, 1 oral and 3 poster communications, and the Doctor Europeus mention).

In 2010, I was hired as post-doctoral researcher within a project supported by Carburos Metálicos about the valorization of black liquor via gasification (37 m³) and I continued developing the research line of my PhD thesis. From that period, I got the publication of 5 research articles and 1 review (300 citations), I was the supervisor of 1 Doctoral Thesis and of 4 visiting researchers that continued investigating the most interesting results of my PhD thesis.

From September 2011 up to date, I work at the University Center of Defense as full-time Associate Professor of the Chemical and Environmental Department, combining my teaching and my research tasks. During this period, I have had the opportunity to broad significantly my research lines thanks to my participation as team member in 4 research projects (1.0 M³) from the National Research Program and in 3 R+D transfer contracts; and as principal investigator in 8 research projects from competitive calls (72 m³), including 1 outstanding project funded by the Explora Call. I have worked in projects aimed to increase the viability of the pyrolysis liquid as an environmentally sustainable alternative to petroleum based products, investigating the design of pyrolysis reactors, the refining of pyrolysis liquid for bio-fuel production and the isolation of value-added chemical products from the pyrolysis liquid. I have been involved in the design of a novel autothermal biomass pyrolysis reactor with negative CO₂-balance that has been submitted to the patent office. I have been researching about the valorization of biochar as adsorbent and as soil amendment. Lastly, I have been heading a newfangled research line about the energetic and environmental sustainable production of ammonia via gasification of nitrogen-rich residues. My work during this period has yielded the publication of 11 articles in JCR journals.

I have fruitful collaborations with leading researches from different foreign institutions. 8 (35 %) of my 23 articles in JCR journals have been published in co-authorship with researches from foreign institutions. I have achieved outstanding citation records (h-index 18 and 1114 citations by 800 documents) and 3 of my publications have received different distinctions.

In the near future, I consider of key importance the research into the production of transportation bio-fuels, especially aviation jet fuels, and chemical value-added products, especially ammonia.

Resumen del Currículum Vitae:

From September 2011, I am full-time Associate Professor of the Chemical and Environmental Department at the Defense University Center and researcher of the Thermochemical Processes Group of the University of Zaragoza (this last thanks to the agreement between both institutions). I combine my teaching tasks (~2000 h, 21 Bachelor's and Master thesis supervised and 1 Doctoral thesis) with my research tasks. I have achieved the I3 certificate and the accreditation as Profesor Titular de Universidad.

I have 29 publications including 23 JCR indexed articles in Q1-Q2 journals achieving h-index of 18. Most of my publications are within the 10% (or better) most cited ones about the topic and have a high rate of citations per year. These JCR publications include 4 highly outstanding reviews. 1 of my reviews, in which I am the first and the corresponding author, accounts 300 citations, being highlighted by WoS as Highly Cited Paper in 2016. 2 other reviews were awarded as the 25 most cited works among those published by Energy and Fuels in 2016 and 2017. Apart from the articles, I am co-author of 22 scientific book chapters, 1 teaching book chapter and 1 teaching book. My CV also encompasses 16 oral presentations and 28 poster presentations in national and international conferences.

I have participated as team member in 6 projects (1.5 M³) from the National Research Program and as principal investigator in 8 research projects from competitive calls (72 m³). I would like to highlight the project (CTQ2015-72475-EXP) of the 2015 Explora Call, of which I am the principal investigator, because of the strictness of this call. It funded 94 projects among the 927 projects presented. In this project, an innovative way, never before pointed by the scientific community, for the sustainable production of ammonia via gasification of N-rich residues was proposed. It improves significantly the negative environmental impact of the current ammonia production process on the carbon and the nitrogen biogeochemical cycles. According to the experimental results obtained in this project (10.1016/j.jclepro.2020.124417), the process proposed could be able to produce at least 10% of the ammonia produced in Europe,



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converting the process from a high energy demanding process (28 GJ t⁻¹ NH₃) to a high producing one (102-262 GJ t⁻¹ NH₃). I have also participated in 4 R+D transfer contracts (390 m).

Regarding my mobility and internationalization, I made a 6 months pre-doctoral research stay in a world leading research group in pyrolysis and gasification under the supervision of Dr. Anja Oasmaa (VTT, Finland), establishing a solid collaboration that was materialized in 1 research article and 1 review published in co-authority. My scientific publications show a strong internationalization and relevance of my research since 8 of my 23 JCR articles (35%) were published with prestigious researchers from different foreign and national institutions such as, VTT, Washington State University, Twente University, Instituto de Tecnología Química, Sergipe University, Universidad Nacional de Colombia or Universidad Michoacana de San Nicolas. I have a stable collaboration activity with Dr. Manuel Garcia-Perez from Washington State University.



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Turno de acceso general

Nombre: MICHELI MICHELI, LEONARDO
Referencia: RYC2020-030094-I
Área Temática: Energía y transporte
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Título:

CleanerPV: Addressing Photovoltaic Soiling to Make Clean Energy Cleaner

Resumen de la Memoria:

My research interests have led me to investigate different aspects of solar energy production, conversion and analysis. Since 2016, my main research area has been soiling, an issue consisting on the deposition of dust and dirt on the surface of photovoltaic (PV) modules, which decreases the energy production and increases the costs.

I have been addressing soiling from different perspectives, with the aim of providing the community with tools to improve the mitigation of soiling and so increase the share of photovoltaics in the global energy market and its attractiveness for investors.

I am co-inventor of a novel soiling detector, DUSST. The design and the soiling measurement process of DUSST are part of a recently issued US patent and of an International ("PCT") patent application. I have been leading the research conducted to validate the scientific background of the detector, studying the spectral distribution of soiling transmittance and investigating modelling approaches that could be used to monitor PV system soiling. In addition, I coordinated the international work that identified an equation able to replicate the spectral transmittance profile of soiling, independently of the location, and that will make it possible to measure also the spectral component of the soiling losses.

In addition, I have developed methods to extract soiling losses directly from PV performance data, without the need of specific sensors, and to estimate it from environmental parameters. In this light, I presented investigations that involved the analysis of the largest number of soiling data and of environmental parameters considered so far. More recently, I have been working on the economics of soiling, quantifying the magnitude of its effect on the global PV production and developing an economic model to optimize the cleaning schedule. I analyzed the effect of degradation on the profitability of soiling mitigation, and described how the electricity price and the cleaning costs can also affect it.

The skills learnt and the methods developed throughout my career made it possible to map the soiling distribution across the strings of a large utility-scale PV system. We proved that soiling can affect differently the various portions of the same site, with a factor as high as 2x between the losses of the most and least affected strings. Because of this, we were able to analyze the profits made per each string through soiling mitigation and to discuss the viability of cleaning only selected highly soiled strings rather than a full PV plant. In the most recent months, I have also been investigating the possibility of predicting soiling in advance and recommending the optimal cleaning frequency for a PV system through only rainfall and particle matter data, making O&M planning possible even before the PV site is operational.

Resumen del Currículum Vitae:

I am Leonardo Micheli, former Marie Sklodowska-Curie actions Individual Fellow (IF) and now researcher at the University of Jaén, Spain. I have a PhD in Renewable Energy awarded by the University of Exeter (UK) in 2015 and I have a background focused on Energy Engineering. In between my PhD and my current position, I spent three years at the National Renewable Energy Laboratory, part of the PV Performance and Reliability group, led by Sarah Kurtz and Teresa Barnes, initially as visiting researcher and later as staff researcher.

I am first and corresponding author of a number of scientific communications and I am serving as a reviewer for several scientific journals. Moreover, I have been delivering presentations to a wide range of audiences, from public engagement events to business events and international workshops and conferences, always tailoring my talk to the audience. I believe also in the importance of public outreach and, for this reason, I have been part of public engagements events, such as the European Researchers' Night and Pint of Science.

I am a resolute and motivated researcher. My adaptability and ability to research independently were demonstrated by the 5-month research visit to the Indian Institute of Technology of Madras (India) and by my experience at NREL, which was initially supported a 10-month fellowship awarded by Sapienza University of Rome (Italy). Since the start of my PhD, I have always been involved in national and international projects, which have made me aware of the importance and the challenges of achieving milestones, coordinating with international partners, teamworking and successfully scheduling my own research plan. Thanks to these skills, in November 2017, I was hired by NREL to lead the modelling effort of the U.S. Department of Energy (DOE) funded project on PV Soiling. I was asked to coordinate the team to achieve the project's deliverables and milestones and to present our results to the DOE officers.

In order to increase the opportunities of national and international collaborations, I have always spent some effort to expand my network, which is not limited to academic partners only. Indeed, during my PhD study, I developed commercial awareness skills, since I have been working closely with start-ups and larger companies. In addition, I have been an external consultant for the Cornwall Development Company (UK), where I conducted a survey on the CO₂ emissions and the potential of renewable energy. There, I cooperated with non-energy experts, and liaised with the Council, local authorities and industries. Moreover, at NREL, I had a chance to interact with a large



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number of solar energy companies and to produce reports for the US Department of Energy (USA). A recently established collaboration with the multi-national Sonnedix has led to a number of impactful publications in 2020. Last, I am a member of the IEEE and of the IEEE Electron Devices Society, I regularly attend the meetings of the PVQAT Task Group 12 (Soiling and Dust) and I have been recently invited to join the IEA PVPS Task 13 for my expertise on soiling.



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Nombre: ROSERO NAVARRO, NATALY CAROLINA
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Área Temática: Energía y transporte
Correo Electrónico: karolrosero@gmail.com

Título:

Inorganic and hybrid materials for the next green energy generation and storage

Resumen de la Memoria:

Ph.D. in Chemistry from the University Autónoma of Madrid (2011). Her Ph.D. studies were developed in the frame of the European Integrated Project Multiprotect (2005, 390k) at the Institute of Ceramic and Glass (ICV), Spain with the guidance of Dr. M. Aparicio and Prof. A. Duran. Awarded with two funds to manage her research (I3P2006 and JAE2007, 88k). Coatings with diverse properties such biocompatibility and corrosion inhibition were designed and successfully obtained (>20 contributions and patent). Ph.D. highlighting (hgl.) Skills: expertise in electrochemical local and in-situ evaluations, and scaling-up processes including industrial standard characterizations by the collaboration with recognized experts and company partners. She also participated in other projects (Intramural, CICYT, ACI-PLAN E, 410k) contributing to the electrochemical characterizations. After her Ph.D., she took advantage of her experience in the field of sol-gel coatings to obtain a position as a researcher for Technology Transfer between the Institute of Materials Science of Seville (ICMS) and Cosentino S.A for the development of hybrid coatings with chemical-mechanical resistance properties (2011, 30k). Later, she extended her career through 2 postdoctoral positions. In 2012, she joined as a postdoctoral researcher to the Depart. of Materials for Energy Conversion and Storage of the University of Aveiro (Portugal) lead by Dr. F. Figueiredo. She awarded a postdoctoral project supported by the Fundação para a Ciência e a Tecnologia (FCT, 55k) and participated in the HyPEM project (159k), both projects focused on the design of membranes for proton-exchange membrane fuel cells (PEMFC). Metal-organic frameworks and nanocellulose composites were prepared and tested as PEMFC (>5 contributions). In 2013, she moved to the Division of Applied Chemistry of Hokkaido University (HU, Japan), supported by the prestigious grant of the Japan Society for the Promotion of Science (JSPS) and awarded with funding to develop her project (2013, 87k) with the collaboration of Prof. K. Tadanaga. She participated in ALCA-Spring Project (2013, 240k). Since 2016 and after a public call at Hokkaido University (ranking 7/1014 in Japan), she appointed a faculty position as an Assistant Professor. She awarded with 7 national projects (Kakenhi2017, Nedo2018, FCC2017, Sousei2020, AGSx3, 280k). She leads 2 international projects (EIG-Concert Japan 2018, 110k and Horizon 2020, 2021, 370k). In parallel, she leads 9 company contracts (121 k). All these projects allowed her to create and consolidate her own research line focused on the design, synthesis and characterization of inorganic and hybrid organic-inorganic materials for energy generation and storage applications (>40 contributions including publications in J.Mater.Chem.A IF=11.3, Chem.Mater. IF=9.5, Nat.Rev.Chem. IF=34.9, Mater.Horiz. IF=14.3). Awarded with 4 Educational Projects (~40 k), 1 Dissemination Project (0.7 k) and two distinctions (9 k). Teaching activities (>500 h). She is a journal guest editor and editorial member (3), member of diverse scientific societies (8), project adviser (5), creation institute adviser (1), journal reviewer (>20), proposal evaluator (2) member of thesis tribunal dissertation (4 + >50/year at HU). Dissemination-to-society: TV, radio and newspaper interviews, social media, symposiums, etc.

Resumen del Currículum Vitae:

1) EDUCATION

- PhD in Chemistry, University Autónoma of Madrid (UAM) (June 2011) Excellent Cum Laude. Award with a European Mention.
- Diploma of Advanced Studies (DEA) in Chemistry, UAM (September 2007)
- Degree in Chemistry, University of Nariño (UDENAR), Colombia (December 2004)

2) CURRENT PROFESSIONAL SITUATION

Assistant Professor at Division of Applied Chemistry of Hokkaido University (since October 2016)

4) AWARDS AND GRANTS

- SOUSER Support Program. Young Researchers who reveals high activity . 2020, 6 k
 - WinGS (Women in Global Science) Project Award. 2017, 3 k
- Postdoctoral, JSPS: Japan Society for the Promotion of Science, Ministry of Education, Culture, Sports, Science and Technology of Japan. and FCT: Fundação para a Ciência e a Tecnologia, Ministry for Education and Science of Portugal.
Predoctoral, JAE-CSIC: Promotion of Studies and Scientific Research, and I3P: Professional insertion itinerary programme, Both supported by The Spanish National Research Council (CSIC) and co-funded by the European Social Fund. Bachelor highest score average by UDENAR.

3) PREVIOUS POSITIONS

11/11/13 - 31/09/16 Post-doctoral Fellowship JPSP/Post-doctoral JST Hokkaido University, Japan



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01/05/12 - 31/10/13 Post-doctoral Contract FCT/Research Contract, University of Aveiro, Portugal
01/09/11 - 31/03/12 Research Contract, Institute of Materials Science of Seville (CSIC), Spain

4) PUBLICATIONS

85 scientific publications.
59 papers : 64% Q1, 22% Q2, 38% D1 + 6 currently submitted
12% open access
10% communication (1 hot-paper)
55% 1st/corresponding author (1 awarded TOP10 download, 2019)
57% in collaboration with international groups.
3 proceedings
3 book chapters
1 patent
13 Scientific-technical reports.
>1200 citations with an h-index of 22 (by Scopus and web of science, 25 by google scholar)
Average citation/year of 105 (from 2012).

4) CONFERENCES CONTRIBUTIONS

Conferences: Oral: 85, Posters: 42
Invited Conferences: 11, 6 by the applicant (1 plenary 2020) + 4 for 2021
Invited lectures at Universities/colleges and others: 12

6) SUPERVISION

49 students
2 postdoc. (1-on-going)
6 doctoral (3-on-going +1 starting 2021)
22 master (9-on-going)
21 bachelor (4-on-going)
12 supervision of short-term stays + 2 for 2021

5) PROJECTS

22 projects (16 as Principal Investigator and 3 as main research responsible)
4 Internationals projects (Horizon 2020, EIG Concert Japan, ACI-PLAN E Spain-Japan cooperation in Nanotechnology and New Materials and FP6)
9 Nationals projects (Japan, Portugal, Spain)
5 Short-term projects (2 proof-concept)
4 Educational Projects.
1 Dissemination Project.
9 contracts with companies.\

6) COMMITTEES

Proposal evaluator (2: AVAP, ES and FPIT, COL)
Member of thesis tribunal dissertation (1ES, 3CO, >50/year JP).
Project adviser (5),
Creation institute adviser (1)
Journal reviewer (>20)

7) I+D MANAGEMENT

PI in 16 projects and 9 company contracts
Organization of Scientific Meetings (12)
Visits and Visitor Professor including student excursion (12)
Journal guest editor and editorial member (3)

8) TEACHING ACTIVITIES (>500 h).

- Pre-graduate courses (12, since 2017): Basic of Inorganic Material Science, Exercise in Creative Engineering.
- Post-graduate courses (6, since 2018): Electrochemical devices for energy applications, Basic driving phenomena in batteries, Advanced Materials for Clean Energy



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Turno de acceso general

Nombre: DATAS MEDINA, ALEJANDRO
Referencia: RYC2020-029694-I
Área Temática: Energía y transporte
Correo Electrónico: a.datas@ies.upm.es

Título:

Novel photovoltaic devices for thermal energy storage and conversion

Resumen de la Memoria:

I started PhD studies on concentrated solar thermo-photovoltaic (TPV) energy conversion in 2005 at the Solar Energy institute of UPM. Most remarkable results of my PhD were the development of the first experimental solar-TPV (STPV) system in Europe, and the report of the conversion efficiency of STPV for the first time. Just after obtaining the PhD (cum-laude) from UPM in 2011 and I was granted by the European Commission with an Erasmus-Mundus mobility scholarship to carry out post-doctoral studies at Tokyo Institute of Technology (Japan). During that post-doc I did theoretical research on near-field (nanoscale) radiative heat transfer for TPV applications, focusing on computational electrodynamics and its application to heat transfer and energy conversion. In 2012, I come back to UPM's Solar Energy Institute to work in the group of advanced concepts for solar energy, where I got involved in the experimental research activities on Intermediate Band Solar Cells (IBSC). The most remarkable result of that period was the development of a quantum-dot solar cell with the broadest spectral response reported to date. Since 2015, I gradually shifted my activities on IBSCs to pursue my own original ideas in the fields of energy storage (molten silicon storage) and solid-state thermal-to-electric energy conversion (hybrid thermionic-photovoltaics). These ideas have resulted in several articles, 4 granted patents, 5 research projects, 3 of them coordinated by me, and one of them being a FET-OPEN European project granted with 3.7 M (www.amadeus-project.eu), and a preselection for an ERC Starting Grant. I also co-founded a company (SILSTORE ENERGY S.L.) to commercialize these technologies, which was recognized as the second-best startup created in UPM in 2015. From February 2018 to May 2019, I held a "Juan de la Cierva Incorporación" post-doctoral grant at the Technical University of Catalonia, where I conducted research on Germanium-based devices for TPV energy conversion. The latter activity is being continued by a PhD student that I currently co-supervise in UPM. Since June 2019, I am Assistant Professor at the Universidad Politécnica de Madrid (UPM). Very recently (2019), I have been recognized with the I3 Certificate, awarded by the Spanish National Research Agency to recognize the quality requirements of production and scientific-technological activity that imply an outstanding research career.

Resumen del Currículum Vitae:

I graduated as Electrical Engineer in 2004, ranking within the percentile 85% of my promotion. I got my PhD (Cum Laude) from Universidad Politécnica de Madrid (UPM) in 2011. Apart of UPM, I have worked at MIT (USA, 3 months as pre-doc), Tokyo Institute of Technology (Japan, 10 months as post-doc), and Technical University of Catalonia (Spain, 14 months as Juan de la Cierva post-doc). All these stays, as well as my PhD studies, have been funded through competitive grants. As a result of my work, I have published (according to Scopus) 42 indexed articles, among which 27 are journal articles. I am the first author in 16 of those journal articles (60%) and 24 of them (89%) are published in Q1 journals. My work has been cited up to 635 times, currently gathering an H factor of 14, and the average citation count in the last 5 years is 105 cites/year. I have presented my work to 24 national and international conferences, 14 international non-indexed workshops or seminars, and participated in up to 17 research projects, 2 of them funded by Industry. In the last 4 years, I have coordinated two European projects (one budgeted with 3.27 M, and the other with 97 k) and one regional project (total budget of 60 k). I have also edited one book (with 39 contributors from all over the world) and published 5 patents (4 already granted), all of them as first author. I co-founded a company (recognized as the second best startup created at UPM in 2015) and since 2015, I have co-supervised the Thesis work of two PhD students (one ongoing). In 2019, I have obtained the I3 certificate, awarded by the Spanish National Research Agency to recognize the quality requirements of production and scientific-technological activity that imply an outstanding research career.