



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: MARTINEZ MARTINEZ, ANTONIO JESUS

Referencia: RYC-2017-21783

Área Científica: Química

Correo Electrónico: antonio.j.martinez@outlook.com

Título:

Main group and transition metal organometallic chemistry, applications in synthesis and catalysis

Resumen de la Memoria:

The research focus of Dr. Martínez is in the organometallic chemistry of transition and main group metals, and their applications in synthesis and catalysis.

The career progression of Dr. Martínez is exceptional. After completing a BSc in Chemistry at the University of Murcia (UMU) in 2005, he was awarded a prestigious FPU fellowship. In 2006, he joined a PhD programme focused on the organopalladium chemistry at the same university, and he obtained a European PhD upon his PhD defence and prize for the best Thesis in Chemistry in 2012. He also visited the University of Glasgow (UK) twice to study computational chemistry, 5 months overall. He continued working as a postdoctoral researcher under the umbrella of a postdoctoral UMU research fellowship for a short period, 3 months before he moved to the University of Strathclyde (UK) to start a new position working in main group organometallic chemistry for nearly 5 years (2012-16). During this period, he had the opportunity to take the lead and developed his own research line on C-H bond metallation chemistry producing 12 papers. Since January 2017, he is working at the highly prestigious University of Oxford developing a research line focused on transition metal catalysis and the valorisation of light hydrocarbons, nearly 1 year. His current research in Oxford attracted a collaboration with SCG Chemicals Ltd, one of the largest petrochemical industries in Asia.

Dr. Martínez have been productive in diverse areas of chemistry through his 11 years of research career with 26 (+1 submitted) papers (including Science, Science Advances, 22 in Q1), 2 patents (+1 in elaboration), 3 corresponding authorships, 7 lectures including invited RSC and plenary talks, 14 poster communications and participation in 8 research projects (4 UK, 4 Spain). He has opened independent collaborations with other groups in Germany (Würzburg), UK (Strathclyde) and Ireland (Maynooth). He has co-supervised 5 undergraduate and 4 PhD students (UK). He has received various research awards in the UK and Spain; to highlight, 2015 RSC award to represent the Dalton Division in Brazil and the prestigious 2015 postdoctoral SusChem prize from the RSEQ.

He has secured funding at every stage of his career through fellowships/grants (FPU fellowship, predoctoral and postdoctoral UMU research grants) and competitive research contracts (Oxford, Strathclyde), and with the industry (AstraZeneca, SCG Chemicals Ltd).

His research lines are defined by an innovative cross-disciplinary approach spanning several branches of chemistry (inorganic, organic, organometallic, computational, solid-state and catalysis) appropriate for linking experimental and theoretical strategies in synthesis and catalysis, which shows a variate degree of formation. Additionally, his high mobility (4 groups/universities), success in securing funding, established independent collaborations (3), top-tier scientific production and supervision of students (9) demonstrate his leadership, independent thinking and scientific maturity to perform independent research at the highest level.

This application aims to start a completely independent career in Spain, at any University or research centre that might accept Dr. Martínez to generate a new research group and develop his research ideas in synthesis and catalysis.

Resumen del Currículum Vitae:

Dr. Martínez completed the BSc degree in Chemistry at the University of Murcia (UMU) in July 2015. He next joined Prof Vicente's Group of Organometallic Chemistry at Murcia under the umbrella of a prestigious FPU Fellowship to carry out a PhD degree working in organopalladium chemistry. Additionally, he received a predoctoral collaboration UMU research grant in support of his research and predoctoral mobility. In 2007, he won the first-class qualification in his MSc, and he received his European PhD in January 2012, awarded Summa Cum Laude by Unanimity. He also won the prize for the best Thesis in Chemistry at the UMU the same year. During this period, he did two stays at the University of Glasgow (UK) in the group of Prof McGrady studying computational chemistry (5 months overall). After a short postdoctoral period with Prof. Vicente with a postdoctoral UMU research grant, he moved to the University of Strathclyde (UK) to work with Dr. O'Hara for nearly 5 years after getting a competitive postdoctoral research position, from April 2012 until December 2016. During this period, he developed independent research and supervised 5 undergraduate and 4 PhD students. In December 2017, he started to work at the University of Oxford in catalysis with Prof Weller after securing a competitive postdoctoral research position in a very competitive selection process. He is currently supervising 1 undergraduate and 2 PhD students in Oxford.

Dr. Martínez has gained strong background in diverse branches of chemistry (inorganic, organic, organometallic, computational, and catalysis) and demonstrated to be productive in all of them, which is reflected in 2 patents (+1 in elaboration), 26 publications (+1 submitted) including 2 high-profile multidisciplinary scientific journals and 1 review (22 in Q1: 1 Science, 1 Science Adv., 1 Angew. Chem. Ind. Ed., 2 Chem. Sci., 3 Chem. Comm., 1 Adv. Organomet. Chem., 4 Inorg. Chem., 6 Organometallics, 2 Dalton Trans., 1 Org. Biomol. Chem.), 249 total citations, one paper cited 60 times, average citations per paper of 10, and steadily growing h-index of 8 (source: ISI, January 2017). He is the corresponding author of three of them, and also, he conducts peer review for international journals (RSC, ACS and IUCr).

He has received various research awards and recognition in the UK and Spain: 2015 RSC award to internationally represent the Dalton



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Division in Brazil, the prestigious 2015 postdoctoral SusChem prize from the RSEQ and the 2015 RSC oral communication Prize from the main group interest annual meeting in London.

He has participated in 8 research projects (4 UK, 4 Spain) and given 7 lectures including invited international RSC (2015 SiLQCOM, Brazil) and plenary talks (XII SJI RSEQ, Barcelona 2015), and 14 poster communications at national and international conferences. He has been collaborating with the industry (AstraZeneca and SCG Chemicals Ltd) and other academic research groups and has started independent collaborations in Germany (Würzburg), UK (Strathclyde) and Ireland (Maynooth).

He has demonstrated excellence during his career progression through his scientific achievements, mentoring and supervising experience, and by itself testifies to his capacity to be an independent research leader in Spain at a Ramón y Cajal level.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: ABELLAN SAEZ, GONZALO
Referencia: RYC-2017-23464
Área Científica: Química
Correo Electrónico: gonzaloabellan@gmail.com

Título:

Chemistry of 2D materials: from the hybrids towards the applications

Resumen de la Memoria:

The scientific career of Gonzalo Abellán, which has resulted in 45 publications of which he is corresponding author in 8 of them, and 3 international patents, can be divided in three main parts: i) at the University of Valencia as a PhD student; ii) at the University of Erlangen-Nuremberg (FAU-Germany) as a Marie Curie postdoc and iii) at FAU as Habilitand and Junior Group Leader. In these periods he has worked in different aspects of inorganic and organic chemistry as well as in materials chemistry, focusing his research in hybrid magnetic materials and in the chemical functionalization of 2D materials including graphene, black phosphorus and antimonene.

During his PhD he focused in the chemical design, synthesis, exfoliation and physical characterization of new magnetic layered double hydroxides (LDHs), and then explored the preparation of new hybrid multifunctional materials with special emphasis on the control of their magnetic properties by means of an external stimulus. Finally, he was also devoted to the applications of several LDH-based materials in different fields such as energy storage and conversion or spintronics.

Afterwards, he obtained a self-driven Marie Curie Fellowship before finishing his PhD to join the group of Prof. Andreas Hirsch in Erlangen, where he made a change in his research line moving towards organic and supramolecular chemistry. More concretely, he investigated the reductive covalent functionalization of graphene and related synthetic carbon allotropes, as well as the preparation of hybrid architectures by exploiting the non-covalent functionalization of graphene. Moreover, and taking advantage of his previous PhD experience in the inorganic chemistry of layered materials, he initiated a completely new research direction in the group based on the exfoliation and chemical functionalization of Black Phosphorous (BP), a new exciting semiconducting 2D material.

In 2017 he was appointed as Habilitand at FAU, consolidating his independence by creating his own group and securing independent funding. He has initiated a research line which aims at exploring the Chemistry of a novel class of graphene-like 2D layered elemental materials of group 15, the pnictogens: P, As, Sb, and Bi. By using his previous expertise in inorganic chemistry and hybrid materials in combination with the acquired knowledge on the organic and supramolecular chemistry of graphene, he intends to go much beyond the state of the art by exploring the markedly different chemistry of 2D As, Sb and Bi, creating completely unprecedented hybrid architectures and exploring their still undeveloped applications in catalysis, magnetism and energy storage. His scientific accomplishments have merited so far 7 Awards, 19 invited contributions to international conferences and institutions, and 3 projects as Principal Investigator.

Resumen del Currículum Vitae:

Gonzalo Abellán is a Junior Group Leader at the Friedrich-Alexander Universität Erlangen-Nürnberg (FAU-Germany), where he leads the research line on 2D elemental materials beyond graphene. He received the PhD in Nanoscience and Nanotechnology from the University of Valencia (UV-September 2014). His PhD was focused on the design of hybrid materials based on magnetic layered double hydroxides and merited the highest mark, "Excellent Cum Laude" alongside recognitions like "Best Thesis in Chemistry" awarded by the UV. Moreover, he was distinguished with the "European Materials Research Society (E-MRS) Graduate Student Award 2012" for his outstanding contributions to the field of hybrid materials; the "Valencia Idea 2014 Award" (1st prize in Energy and Environmental) to outstanding young researchers, as well as with the 2nd prize in the Xth City of Algemés Scientific and Technical Award-2015.

In 2013, and before finishing his PhD, he gained a self-driven Marie Curie Fellowship and joined Prof. Andreas Hirsch's group at the FAU in September 2014 to develop multifunctional graphene by means of organic chemical functionalization. His postdoctoral accomplishments were recognized being selected to attend the extremely competitive 65th Lindau Nobel Laureate Meeting.

Since 2016 he started to develop his own research line in the chemistry of elemental 2D-materials of group 15 (P, As, Sb and Bi; the pnictogens). In 2017 he was appointed as Habilitand at FAU, consolidating his independence by creating his own group and securing funding (399.772 up to now). Indeed he has been awarded with an Emerging Talents Initiative (ETI-FAU) project and with a European FLAG-ERA Graphene-Basic Research project. As a result of his career, the candidate has been honoured as an Emerging Young Researcher by the Inorganic Chemistry Frontiers journal (RSC), and received the XII City of Algemés Scientific and Technical Award in 2017.

Gonzalo Abellán has published 45 articles (excluding extended abstracts or corrigendum articles) in peer reviewed international journals including: 4 Angew. Chem., 2 J. Am. Chem. Soc., 2 Adv. Mater., 1 Nature Commun., 2 Chem. Sci., 2 Chem.-Eur. J., 6 J. Mater. Chem., or 4 Chem. Commun., highlighted with 9 Covers, receiving a total of 925 citations with an h-index = 16. He is corresponding author in 8 papers (+3 submitted) and the first author in 27 articles (+ 1 submitted). 20 articles were published without his PhD supervisor, +4 additional already submitted. 35 articles were published in journals with impact factor > 4.3. Moreover, he obtained 3 international patents. Gonzalo has received 11 invitations to give seminars at international institutions, and 8 invited contributions to international conferences (plus 21 additional oral communications). He was invited to write a Book for Springer-Nature (expected 2018), and he published, among others, a Book Chapter in Elsevier as corresponding author. He has participated in 5 European research projects, and has co-directed 4 PhD Thesis (on going), 6 Master Thesis (2 on going) and 1 Bachelor Thesis. He is co-director of the MUDIC Museum of Science in Orihuela (UMH) and



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

has also performed reviewer tasks for the National Science Centre of Poland, and acts as regular reviewer for >20 journals including: Nat. Commun., Adv. Mater., Adv. Energy Mater., Chem. Sci., Sci. Rep., or J. Mater. Chem. A.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: PELAZ, BEATRIZ
Referencia: RYC-2017-23457
Área Científica: Química
Correo Electrónico: beatriz.pelaz@gmail.com

Título:

Nanochemistry toward next generation nanomedicines

Resumen de la Memoria:

I am a chemist and biochemist with a strong multidisciplinary background. My research interests are focused in the development of novel nanomaterials by wet chemistry methods, with emphasis on applications in biology and medicine.

I graduated in Chemistry from University of Valladolid (2005) and Biochemistry from University of Zaragoza (2011). Following my degree in Chemistry, I completed the master degree in experimental organometallic chemistry of the University of Valladolid (2006).

In 2006, I started my PhD in the group of Dr. Jesús M. de la Fuente. In March 2012, I obtained the European PhD degree from the University of Zaragoza. During my PhD, my work was focused on the development of synthetic methods for the production and derivatization of novel nanomaterials, with emphasis on applications in biology and medicine. In this period, I learnt about the synthesis of inorganic nanoparticles, their surface modification and their physicochemical and biological characterization.

In June 2012, I joined the group of Prof. Wolfgang J. Parak at the Phillips University of Marburg (Germany). In 2013, I was sponsored with a 2-years postdoctoral fellowship from the Alexander von Humboldt Foundation with the project entitled: "Functional Nanoparticles for Enhanced Targeting & Detection of Cancer". During my time as postdoctoral researcher/junior group leader at Parak's group, my research interests were focused on controlling the surface chemistry onto different NPs, aiming to i) understand how chemical changes affect or modulate their biological response and ii) to produce highly active materials for applications in biology and medicine.

In January 2017, I returned to Spain, and I joined CiQUS where I launched the BioNanoTools (<https://bntsite.wordpress.com/>) group together with Dr. Pablo del Pino (RyC Fellow). In the 2015 call, I was awarded with a "Juan de la Cierva-Incorporación" contract. I renounced this position because, at the same time, I was awarded with a MINECO RETOS Mod. 3 project. This project entitled "Plasmonic and magnetic Smart capsules for LNA-antimir therapy for breast cancer" (205 k€) in which I am PI, aims for the development of stimuli responsive polymeric capsules for breast cancer treatment. Currently, my research is focused in the development of chemical methods for the production of more efficient nanomedicines. Therefore, my present research interests are focused in:

- i) the supramolecular chemistry at the surface of nanomaterials once they are immersed in biological environments;
- ii) the biological chemistry to understand how the physicochemical properties of the nanomaterials affects their biological fate and chemical activity, both in vitro and in vivo, to fully take advantage of their capabilities, and
- iii) through nanochemistry methods (self-assembly and colloidal chemistry), development of biomimetic materials, that is, materials' surfaces that mimics structures naturally present in cells, membranes, etc.

Resumen del Currículum Vitae:

2005: I graduated in Chemistry, University of Valladolid.

2011: I graduated in Biochemistry, University of Zaragoza.

2005/06: I worked as an undergraduate student in Prof. Pablo Espinet's group, Inorganic Department of the University of Valladolid.

2006/07: I worked as a post-graduate researcher, Carbohydrates Group (CICIC-CSIC, Sevilla). I was a visiting student at the University of Glasgow (Scotland) (1 month; January 2007).

2007/12: I was a PhD student at the Institute of Nanoscience of Aragon (INA) in Dr. Jesús M. de la Fuente's group. I obtained a European PhD with the thesis entitled "Synthesis of anisotropic gold nanoparticles for biomedical applications". During my PhD, I was a visiting student at the Philipps Universität-Marburg (PUM) (3 months).

2012/16 (55 months): I joined the group of Prof. Wolfgang J. Parak at PUM, Germany. Firstly, as a postdoctoral researcher and later, as a Humboldt Fellow (2013-15). My research at Parak's group was focused in the synthesis and surface modification of nanocrystals (mainly, plasmonic, magnetic and semiconductor materials) and polymeric microcapsules with emphasis on applications in biology and medicine.

2017/-: I joined the Center for Research in Biological Chemistry and Molecular Materials (CiQUS), where I co-lead the BioNanoTools laboratory (<https://bntsite.wordpress.com/>). My research interests are currently focused in the development of novel nanomedicines based on polymeric nanocapsules and/or multifunctional nanocrystals for application in biology and medicine.

To date, I have over 60 publications (ca. 72% D1 and 93% Q1), mainly in high impact peer reviewed journals such as ACS Nano (9x), Nat. Commun. (1x), JACS (1x), Angew. Chem. Int. Ed. (1x), Acc. Chem. Res. (1x), Small (4x), Chem. Mater. (3x), Mater. Horiz. (1x), etc. 7 of them



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

are currently highly cited articles by WoS. I have an h-index of 22 and more than 1700 citations (WoS).

I am co-author of one international patent, have participated in over 20 research projects (funded by EU, national and regional agencies), and have secured ca. 290k € in funding: Humboldt fellowship and 2 projects as PI (1x DAAD, 1x MINECO-RETOS Mod. 3). In the 2015 call, I was awarded with a "Juan de la Cierva-Incorporación" contract (ranked 1st in materials science, 100 of 100 points). I renounced this position because, at the same time, I was awarded with a MINECO RETOS Mod. 3 project.

I would also highlight my role as student's supervisor (5 students to date) and teaching duties at PUM. I am a regular reviewer of several journals (ACS Nano, Langmuir, etc). Currently, I am guest editor of MDPI Materials and member of the advisory editorial board of Current Pharmaceutical Biotechnology. I have been reviewer of projects for the H2020-MSCA-IF, UK cancer research and the PhD Reaxys prize.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: ECHEVERRIA LOPEZ, JORGE
Referencia: RYC-2017-22853
Área Científica: Química
Correo Electrónico: jecheverrialopez@gmail.com

Título:

Theoretical study of noncovalent interactions in nanodevices and crystal and materials design

Resumen de la Memoria:

I am a theoretical chemist with proven experience in inorganic and organic chemistry as well as in condensed matter physics. My research activity has evolved along the 10 years of my scientific career and can be roughly divided into predoctoral and postdoctoral. As a PhD student in the Universitat de Barcelona, I worked with my thesis supervisor, Prof. Santiago Alvarez, in the application of new symmetry concepts to organic and transition metal compounds. I also used DFT to understand the electronic structure of several families of transition metal complexes. I spent four months in the Hebrew University of Jerusalem (Israel) in the group of Prof. Sason Shaik studying weak interactions in alkanes, which resulted in a publication in Nature Chem. as first author. A total of 7 peer-reviewed articles were published from my work as PhD student.

As a postdoc in CEMES-CNRS in Toulouse (France) I focused on the use of theoretical and computational tools to achieve the construction of a single molecule motor. Working with Prof. Christian Joachim, a reputed theoretical physicist, involved an important reorientation of my scientific career. My ability to adapt to this new environment is reflected in the high quality of my results from 2011. In Toulouse I was in charge of the theoretical design of new molecular motor prototypes, also collaborating with microscopists in the calculation of STM and AFM images and, in parallel, developing the theory for a practically newborn research field. For instance, I was able to design a single molecule motor able to move a nanoscopic load, a molecular rotor capable of rotating one-way in a controllable and reversible fashion and I also proposed a new rotation mechanism involving the excited states of the molecule. These remarkable results were published in high-impact journals (Nature Nano., ACS Nano, Nano Letters, Nanoscale, etc.).

Since April 2016 I am a Juan de la Cierva-Incorporación fellow in the Electronic Structure group in the Universitat de Barcelona. Here I am able to develop my own research line as a senior postdoc, currently working in the study of noncovalent interactions and their importance in crystal and materials design and in the development of molecular rotors and switches. In the last two years, I have defined new concepts (as "Frustrated Lewis Trios" and "Long-range hole-bonding") and discovered non-described interactions (H...H contacts in phosphines) with the help of theoretical and computational tools. From this period as an independent researcher, I have published 10 articles, all of them in first-quartile journals, which evidences my high productivity and the quality of my research. During my scientific career, I have always tried to work in close collaboration with experimental chemists and physicists, not only to corroborate theoretical hypothesis but also to help them in the design of molecules with the desired properties, maintaining several ongoing collaborations with researchers in France, India, Poland and the Netherlands.

Resumen del Currículum Vitae:

My scientific career started after I got my chemistry degree in the Universidad de Zaragoza, when I joined Prof. Santiago Alvarez group in the Universitat de Barcelona to pursue a PhD in inorganic chemistry (2010, excellent cum laude). Then, between 2011 and 2015 I worked as a postdoc in CEMES (Toulouse, France), a top-ranked CNRS unit devoted to the development of new materials and molecular devices. The fact that no previous collaboration was open between that centre and the UB, along with the dramatic change of research field with respect to my PhD supposed an extra challenge for me. After a contract under the "AutoMol" (ANR) project, I wrote a proposal and I got a Beatriu de Pinós-Marie Curie grant. In 2015, I moved to the UB and since 2016 I am a Juan de la Cierva-Incorporación fellow in the Electronic Structure group. Here, I have opened a new independent research line regarding the theoretical study of noncovalent interactions and their impact in crystal and materials design, which has given so far excellent results (5 articles published in solitary in 2017).

I have held highly competitive grants during my whole career, both Spanish and European (FPU, Marie Curie, Juan de la Cierva), won the Ramón Margalef Prize in 2011 (5000€), and the Young Scientist award from the Volkswagen Foundation to attend the 1st Herrenhausen Conference (Hanover, 2012). I have participated in 8 competitive research projects from Spain, France and Japan, including a transnational MANA-WPI initiative funded by the Japanese government with 11Million\$. I am also one of the four participants in a European PRACE project (SPINMOLSURF-2016163898).

I have published 26 articles (25 Q1: 2 Nature Nano., 1 Nature Chem., 1 NanoLetters, 1 ACS Nano, 1 Nanoscale, 1, Chem. Commun., 2 CEJ) and co-authored 2 book chapters. I am the corresponding author in 11 papers (all Q1, including 1 Angew. Chem.) and the only author in 5



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

(2 Cryst. Growth Des., 1PCCP, 1 CrystEngComm, 1 ChemPhysChem). My work has received more than 1775 citations (>175 cit./year; h-index = 11) and I have 3 articles with > 100 citations (WoS, Jan. 2018). The average impact factor (JCR, until 2016) of my publications is 10.7. My normalized impact for the period 2013-2016 is 5.11 (Scopus; Phys. Chem. area), when a value of 1.5 is needed to be *garante* in Severo Ochoa calls.

I have been in several short stays: 3 months in Israel (Prof. S. Shaik), 4 months in Stanford (Prof. T. Martinez) and 1.5 months in Singapore (invited, Dr. F. Ample). I collaborate with scientist in France (G. Rapenne), USA (S.W. Hla), India (S. Kahn) and the Netherlands (H. van der Zant). I recently started a new independent collaboration with Dr. Jablonski (Poland), which has already been fruitful with one publication (PCCP 2017).

I have supervised a Master Thesis (Univ. Paul Sabatié, Toulouse), TFG and TFM students (UB) and carried out more than 500 hours of teaching duties. I have been guest editor (with no co-editors) in *Molecules* (IF = 2.86), reviewer for the RSC, ACS and Wiley, and referee for projects of the Polish National Science Centre (NCN). I have participated in 20 conferences giving 7 oral communications (2 invited), I co-chaired the 8th IQTC Symposium (Barcelona, 2017) and I have recently been invited as a lecturer to the 2nd Materials Science School in Sofia (Bulgaria) organized by the H2020 Materials Networking.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: MARCOS ALGABA, VANESA
Referencia: RYC-2017-22027
Área Científica: Química
Correo Electrónico: vanesa.marcosalgaba@gmail.com

Título:

Molecular Manufacturing using Smart Artificial Machinery

Resumen de la Memoria:

The research career of the applicant is a journey from homogeneous catalysis to smart catalytic systems, which has helped her to gain expertise in a broad variety of research areas, such as asymmetric synthesis, organocatalysis, nanomaterials, molecular machines, topology chemistry and supramolecular chemistry. In her formative stage (2005-2011), she focused in two main research areas based on the development of asymmetric synthetic methodologies mediated by lithium and copper sulfinyl carbanions and on the development of organocatalytic strategies for the synthesis of chiral sulphur and selenium compounds and the study of organocatalytic tandem and one-pot processes (total number of publications= 16, 5 ACIE, 1JACS, 4 CEJ, 2 Org. Lett.). During this period she gained a strong background in various subdisciplines of organic chemistry, such as sulphur chemistry, asymmetric synthesis and organocatalysis, which encouraged her to explore other research areas during her postdoctoral stage. In her first postdoctoral stay (2011) she joined Nazario Martín's Group at Universidad Complutense de Madrid, where she gained knowledge in nanomaterials sciences. During this period of time, she applied her expertise in the organocatalysis field to a new research area based on the synthesis of chiral fullerenes, which led to two publications (1 JACS and 1 ACIE). In 2012, interested in the area of Molecular Machines, she moved to the group of Prof. D. A. Leigh at University of Manchester (UK). During her years in the group, she has progressively taken on more and more responsibilities and currently she is Lecturer in Organic Chemistry and Deputy Group Leader. During these four years, she has been involved in all the research areas of the group, which cover the synthesis and application of molecular machines and molecular knots. Furthermore, she pioneered a completely new research area in the group based on synthesis with molecular machines, molecular knots, which is coming to fruition and several high profile publications have already appeared and others will follow soon. This research area covers three research lines: 1) the development of rotaxane-based switchable catalysts; 2) The application of Molecular knots and Links for catalysis and 3) the development of molecular robots for catalysis. During this period of time she has obtained high quality top journals (1 Nature, 1 Science, 4 JACS). Her next goal is to establish a high quality and internationally recognised research group at a world-leading research institution, working at the interface of nanomaterials science, molecular machines/ supramolecular chemistry and catalysis by developing novel programmable synthetic processes using mechanised nanoparticles (MNPs) catalysts. Thus, these MNPs will confer an additional "bio-like" level of control over chemical transformations. The construction of these sophisticated functional molecular devices could prove their functionality as biocompatible catalysts for the in vivo synthesis of drugs, striking right at the forefront of nanomedicine.

Resumen del Currículum Vitae:

Vanessa Marcos received her B.Sc. in Chemistry from the UAM (2001-05). Then, she joined the group of Prof. García Ruano at the same university, and obtained her M.Sc. in 2007 with a Spanish "FPI" fellowship. During her PhD, she spent six months in the laboratory of Prof. K. A. Jørgensen (DK) and three months in Prof. Tiecco's group (It), working on new organocatalytic approaches using bifunctional catalysts and in organocatalytic asymmetric synthesis of selenium compounds. In 2011, she finished her Ph.D. thesis focused on the development of asymmetric synthesis using sulfoxides and exploring novel organocatalytic methodologies with the highest qualification ("Summa Cum Laude"). She was awarded the Lilly Research Award in 2010 as the best chemistry Ph.D. student in Spain and for carrying out the best Ph.D. thesis at the UAM in 2011. Exposure to these different projects and scientific cultures during her Ph.D. gave her a strong background in various subdisciplines of organic chemistry, which encouraged her to explore other research areas, such as nanomaterials and molecular machines, for her postdoctoral stage. In 2011, she moved to Prof. N. Martín's group at UCM as a research associate, where she initiated a research line based on the organocatalytic synthesis of chiral fullerenes, which led to 2 publications. In 2012, she started as a postdoctoral research associate in the laboratory of Prof. D. A. Leigh at University of Manchester and in 2015 she was appointed Deputy Group Leader. During her years in the group, she has progressively taken on more and more responsibilities: 2012-2013: Postdoctoral Research Associate; 2013-2015: Senior Research Associate; 2015-2016: Project Manager; From Nov- 2016: Lecturer in Organic Chemistry. Her current role involves teaching, research and administrative responsibilities. Her research duties are to ensure the smooth day-to-day running in the lab, introduce and develop new research opportunities for the group and lead the teams of researchers working on the diverse projects of her design. She participates with Prof Leigh in the elaboration of all the research proposals and grant applications. Currently, she is leading research projects in all the research areas of the group and she pioneered a completely new area in the group, on synthesis with molecular machines, molecular knots and rotaxanes, which is coming to fruition and several high profile publications have already appeared (for more details, see CVN). She is co-supervisor of the PhD, MSc, MChem, visiting students and postdocs that we have in the group. She is author of 28 publications in high peer-reviewed journals. Highlights include: 1 Nature, 1 Science, 6 ACIE, 6 JACS, 4 CEJ, 1 OL, 1 Chem. Commun, and 4 reviews (1 PNAS, 2 Chem. Soc. Rev. and 1 ACS catal.). She has presented her research orally at a number of national and international conferences (oral, invited and plenary talks). Since her first article (2007), the applicant has published in the best-quality journals (most of them with an impact-index higher than 5.0), she has received more than 975 citations and has an h = 18. She is teaching



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Year 1 and 2 Organic Chemistry Tutorials and Year 3 Chemistry project (Labs) (4 and 1 group, respectively). Her main research interests include nanomaterials, supramolecular chemistry, molecular machines and catalysis.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: PUGA VACA, ALBERTO
Referencia: RYC-2017-22849
Área Científica: Química
Correo Electrónico: albertovpuga@hotmail.com

Título:

Valorisation of biomass or other renewable feedstocks by (photo)catalytic transformation into solar fuels or specialty chemicals

Resumen de la Memoria:

I am a Researcher at Instituto de Tecnología Química (ITQ, Valencia), working in the field of heterogeneous catalysis and photocatalysis. Furthermore, I am the principal investigator of a three-year NATIONAL GRANT FOR YOUNG RESEARCHERS on sunlight-driven biomass-to-hydrogen processes (CTQ2015-74138-JIN, total amount: 194810 €, co-funded by the Spanish Research Agency and the EU). In the context of this project, my main research focus is set on the design of highly efficient nanostructured photocatalysts for the transformation of low-cost feedstocks derived from waste and/or renewable substrates to solar fuels. Particular reactions of interest to my research include hydrogen production, carbon dioxide reduction, biomass reforming and pollutant removal.

Also on these topics, I have recently become the principal investigator of an international project (ADSIDE0-AD1705) in collaboration with Université Hassan I (Morocco). Furthermore, I am currently supervising an early-stage researcher (MSc degree) on photoreforming of bio-oil components.

Previously, I worked on the study of polymeric coatings for encapsulation technologies as a MARIE CURIE Fellow (Universitat Rovira i Virgili, URV, Tarragona), leading one part of a broader network project (1 article as corresponding author).

A significant stage of my post-doctoral investigations (over 3 years at Queen's University Belfast, QUB, UK) was performed in collaboration with multi-national corporations such as PROCTER & GAMBLE (UK, USA), PETRONAS (Malaysia) or INVISTA (UK, USA), on the use of ionic liquids for industrially relevant processes. Major achievements from these investigations are embodied in 8 PCT World patents (4 granted), and 11 publications in journals (1 as corresponding author). The topics covered include: (1) the production and straightforward separation of polymers in ionic liquid media (work recognised with the 2014 SUSCHEM INNOVA PRIZE), (2) the production of alicyclic (azepanium or piperidinium) ionic liquids exhibiting wide electrochemical windows as electrolytes for energy storage devices, (3) the discovery of readily reversible chemical absorption of CO₂ in hydrated phosphonium carboxylates, or (4) the design of ionic liquids for enhanced fragrance release (patent awarded the 2017 SUSCHEM INNOVA PRIZE).

My PhD research (FPU grant, Chemistry Extraordinary Prize at Universitat Autònoma de Barcelona, UAB; 10 articles) was focused on the synthesis of highly methylated or halogenated boron clusters (carboranes) and on the production of ionic liquids exhibiting remarkably wide liquid ranges and excellent thermal stability. A stay in Germany (Universität Bonn) served to complement investigations on halogenation of carboranes, whereas the latter project was mainly performed in the UK (5+ months at QUB) thanks to my FPU grant.

The great variety of research fields covered reflects my broad curiosity, versatility and plurality of interests.

Resumen del Currículum Vitae:

Education

- PhD in Chemistry (Universitat Autònoma de Barcelona, UAB, 10/2002-05/2007)
- Chemistry Degree (Universitat de Barcelona, UB, 09/1996-03/2000)

Experience and Research Stays Abroad

- JIN Research Associate (Instituto de Tecnología Química, ITQ, CSIC-UPV, Valencia, 01/2017-present)
- JAE-Doc Post-Doctoral Researcher (ITQ, 01/2012-12-2016)
- MARIE CURIE Fellow (Universitat Rovira i Virgili, URV, Tarragona, 05-12/2011)
- Post-Doctoral Research Fellow (Queen's University Belfast, QUB, UK, 02/2008-04/2011)
- Pre-Doctoral Researcher (ICMAB-CSIC & UAB, Barcelona, 10/2002-05/2007), including:
 - Visiting Researcher (QUB, UK, 09-12/2004 & 07-09/2006)
 - Visiting Researcher (Universität Bonn, Germany, 05/2006)
- Undergraduate Researcher (UB, 12/1999-06/2000)

Scholarships, Grants, Public Funding

- JIN Grant for young researchers, Principal Investigator (CTQ2015-74138-JIN, total amount: 194 810 €, co-funded by the Spanish Gov. and the EU, 01/2017-01/2020).
- International cooperation grant, Principal Investigator (ADSIDE0-AD1705, UPV, total amount: 9 000 €, 01/2018-12/2019) in collaboration with Université Hassan I (UHI, Morocco).
- JAE-Doc post-doctoral grant (ITQ, CSIC-UPV, 01/2012-12/2014) under the supervision of Prof. A. Corma.
- European network (IAPP, FP7, CAP-IT! Grant Agreement #251298); appointed as a MARIE CURIE fellow at URV, within a project with PROCTER & GAMBLE as the main industrial partner.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

- FPU scholarship for PhD research (ICMAB-CSIC & UAB 2013-2016) under the supervision of Profs. F. Teixidor and C. Viñas.
- Research collaboration grant (UB, 1999-2000).
- Participation in research projects (2 funded by the Spanish Gov., 3 funded by the Catalan Gov.)

- ☐ International Private Funding
 - Research agreement with SOLVAY (France), on biomass valorisation (ITQ, 2012-2014).
 - Research agreement with PROCTER & GAMBLE (UK, USA), on fragrance release (QUB, 11/2010-04/2011 and follow-up stages).
 - Research agreement with PETRONAS (Malaysia), on CO₂ capture (QUB, 12/2008-09/2009 and follow-up actions).
 - Research agreement with INVISTA (UK, USA), on ionic liquids for energy storage and polymer synthesis (QUB, 02/2008-11/2008 and follow-up stages).

- ☐ Publications (687 citations, h-index: 15)
 - 29 journal articles from different stages (PhD, 10; QUB post-doc, 11; URV post-doc, 1; ITQ, 6 + 2 submitted), 6 as corresponding author, 12 as first author, including:
 - JACS (2)
 - Adv. Funct. Mater. (1, inner cover)
 - Green Chem. (5)
 - Chem. Eur. J. (2)
 - Inorg. Chem (2)
 - Chem. Comm. (1)
 - 8 patents in collaboration with multi-national corporations, 4 of them granted in several countries (global coverage under the PCT treaty, China, Japan, USA or EU).
 - 29 contributions to conferences (9 as a speaker), 24 of them at the international level.

- ☐ Prizes
 - Suschem INNOVA Prize 2017
 - Suschem INNOVA Prize 2014
 - Young Boron Chemist Award at Imeboron XIII conference, 2008
 - UAB Chemistry PhD Extraordinary Prize, 2007

- ☐ Teaching and mentoring
 - MSc supervisor (1 student, ongoing, UPV)
 - Teaching assistant (2013-2015, UPV)

- ☐ Editorial and Reviewer activity
 - Member of Editorial Board for J. Appl. Surf. Interf.
 - Project Reviewer for Agence Nationale de la Recherche (France)
 - Project Reviewer for UEFISCDI (Romania)
 - Outstanding reviewer (Fluid Phase Equilibr.), certificate of reviewing (ACS Catal., J. Catal.)



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: HORNILLOS GOMEZ-RECUERO, VALENTIN

Referencia: RYC-2017-22294

Área Científica: Química

Correo Electrónico: valentinhornillos@hotmail.com

Título:

Metal-Catalyzed Asymmetric Transformations

Resumen de la Memoria:

Dr. Hornillos has been successfully working in projects belonging to many different areas, including organometallic chemistry, development of synthetic methodologies, ligand design, fluorescent labelling and, particularly valuable is his knowledge, in asymmetric catalysis and cross-coupling chemistry. His research career started in the group of Prof. E. Díez Barra (2002-2004) working in the synthesis of metallo-dendrimers based on N-heterocyclic carbenes and pincer complexes and their applications in catalysis. This period resulted in 6 publications. In 2004, after getting a predoctoral scholarship (PFI), Valentín moved to the National Research Council (CSIC), within the group of Profs. A. U. Acuña and F. Amat, to carry out his PhD studies. His PhD thesis consisted on the design and synthesis of complex lipid drugs incorporating reactive and fluorescent groups while preserving their therapeutic activity. These compounds have been successfully used in the discovering of the therapeutic targets and key aspects of the mechanism of action of these drugs. Dr. Hornillos came across many challenging synthetic approaches and got insight into the theoretical aspects of fluorescence spectroscopy resulting in 14 publications (1 as corresponding author) and 1 patent. He also spent 5 months at Novartis in Vienna working in the synthesis of ceramides (1 publication). After obtaining his PhD (2009, Excellent cum Laude), Valentín moved with a postdoctoral fellowship from MEC to the group of Prof. Ben L. Feringa in Groningen where he completed an outstanding work in the field of asymmetric metal-catalysis, in particular allylic substitution, conjugate addition, borylation and cross-coupling reactions. His research has led to the development of very powerful tools for the enantioselective construction of stereogenic centers with applications in the synthesis of natural products and bioactive substances. Among the main achievements Dr. Hornillos developed the first copper-catalyzed enantioselective coupling between two allyl groups (JACS, 2013), conditions for the selective cross-coupling of highly reactive alkenyllithium compounds (Chem. Sci. 2015), the first asymmetric synthesis of phosphine boronates (Angew. Chem., 2015) or an exceptionally fast, versatile and selective method for Pd-catalyzed cross-coupling reactions (Nat. Commun. 2016). He also participated in a project involving the catalytic conversion of biomass into natural gas using metal nanoparticles and implemented new research lines devoted to the discovery of new synthetic methods based on transition metal catalysis. In 2013 he was appointed as a senior researcher at the University of Groningen where he was supervising 3 PhD and 3 Master students, resulting in 5 publications as corresponding author (ACS Catal., Org. Lett., Chem. Eur. J., Nat. Commun., and Angew. Chem.). In 2015, Valentín secured one of the most competitive international fellowships at the postdoctoral level: Talent Hub Fellowship (two years, IP, 152.685 €) and in December 2015 he moved to the IIQ (CSIC) in Seville where he is performing research on asymmetric catalysis and supervising a PhD (3 publications in international top journals and 1 book chapter, being IP in all of them). Moreover, he has very recently secured funding (40.000 €, IP) from the University of Seville for a project consisting on the development of novel DKR.

Resumen del Currículum Vitae:

Dr. Hornillos received his B.Sc. in Chemistry from the University of Castilla-La Mancha (1997-2002), where he also initiated his scientific career in his last year through a collaboration grant (MEC). In 2004, he obtained his Advanced Studies Diploma at the same University which also resulted in six publications, and then he moved to the National Research Council (CSIC) in Madrid to carry out his PhD studies supported by a FPI scholarship. During the PhD period, he also spent 5 months at Novartis Institutes for BioMedical Research (NIBR) in Vienna. The output of his PhD research led to 14 publications (1 as corresponding author) and 1 patent. In 2010, Valentín obtained a two-year postdoctoral grant from MEC to carry out his postdoctoral studies and moved to the group of Prof. Ben L. Feringa in the Netherlands to work in the fields of asymmetric catalysis and cross-coupling processes. In 2013 he was appointed as a senior postdoctoral researcher by the University of Groningen where he was also developing his own research. In July 2015, he obtained a 2-year highly competitive Talent Hub Fellowship (Principal Investigator) which provided him with 152.685 €. Since December 2015, he is performing research on asymmetric catalysis at the IIQ (CSIC) in Seville where he is also supervising a PhD.

Valentín has also participated in 13 research projects (4 international), has been granted with 6 fellowships and 5 research contracts including a FPI predoctoral grant, MEC postdoctoral grant, Marie Curie postdoctoral grant (declined), a senior research contract from the University of Groningen, an associate professor contract and a Talent Hub Fellowship. His research career is supported by 46 publications (+2 submitted) in international top journals including 1 Nature Communication, 1 Nature Protocols, 1 Nat Cell Death and Disease, 1 JACS, 3 Angew. Chem. (1 highlighted as a cover picture), 2 Chem. Sci., 1 ACS Catal., -5 Chem. Eur. J. (1 highlighted as a cover picture and VIP), 4 Org. Lett., 4 Chem. Commun., Org. Biomol. Chem., J. Biol. Chem., Dalton Trans., J. Med. Chem, Organometallics, Chem. Phys. Lipids, J. Phys. Chem B, Tetrahedron Lett, Eur. J. Org. Chem. etc., in 19 of them appearing as first author and in 8 of them (Nat. Commun., Angew. Chem., ACS Catalysis, Chem Commun, Org. Lett., Chemistry. Eur. J.) as corresponding author. He is also author of 2 book chapters and 1 patent which has been exploited by the company BIOFTALMIK. His research has been highlighted in synfacts (7 times), scientific blogs and spotlights. According to SCOPUS, he has an h-index of 16. During his scientific career, he has attended several national and international meetings presenting 37 communications, 26 in international congresses, and 15 of which held orally (2 invited). His leadership qualities and



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

independent thinking is also demonstrated by the supervision of 4 PhD and 3 master thesis. Valentín has been referee for various journals, has been examiner of 2 thesis and has teaching experience of 120 hours. He is also qualified as "Profesor ayudante doctor", "Profesor contratado doctor" and "Profesor de Universidad Privada" by ANECA and has the CAP certificate.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: SOBERATS REUS, BARTOLOME

Referencia: RYC-2017-21789

Área Científica: Química

Correo Electrónico: b.soberats@uib.es

Título:

Dynamic Self-Assembled Materials

Resumen de la Memoria:

I obtained my PhD (Outstanding Doctoral Award) at the University of the Balearic Islands (2010) under the supervision of Prof. A. Costa. My PhD work mainly focused on the development of supramolecular receptors for ionic species. For this purpose, we prepared squaramide based receptors and resorcinarene cavitands that were used for sensing and catalysis (6 papers). Through this work, I gained a solid experience in organic synthesis and in the study and characterization of supramolecular complexes in solution by different techniques (NMR, MS, UV-Vis, ITC, etc).

In my first postdoc I joined the group of Prof. T. Kato at the University of Tokyo (Japan, 2011-2015). The Kato Laboratory is a pioneering group in the field of functional materials and I could acquire valuable expertise in the design and characterization of liquid crystals by utilizing different techniques (X-ray, POM, DSC, etc). My research mainly focused on three topics: a) liquid crystals for Li-ion and proton transport, b) stimuli-responsive ion-conductive systems, c) liquid-crystalline dye sensitized solar cells. As part of these projects, we introduced new strategies to control the properties of liquid-crystalline materials i.e. phase, ionic conductivity, anisotropy, response to external stimuli, etc. Accordingly, these investigations became important breakthroughs in the respective fields opening new research lines. With Prof. Kato, I have published 4 patents, 9 original papers (3 JACS, 2 CM, Adv. Sci) and 2 reviews (Nat. Rev. Mater.).

Subsequently, I carried out a second postdoc with Prof. F. Würthner at the University of Würzburg (Germany, 2015-2016). The Würthner group is a leading group in various topics, i.e. organic dyes, self-assembly, organic electronics and photocatalysis. There I led a subgroup on liquid crystals and colloids and I supervised a team of 5 researchers. During this tenure, I prepared new liquid crystals based on organic dyes for photonics and I also expanded my expertise in the fields of supramolecular polymers (Chem. Sci. 2016) and dye chemistry (Adv. Opt. Mater. 2016). One of our major achievements during this period was the development of unprecedented columnar assemblies of perylene bisimide liquid crystals, where the dyes organize with the cores parallel to the columns forming J-aggregates (Angew. Chem. Int. Ed. 2017).

In 2016, I started my independent research as Junior Group Leader in the Center for Nanosystems Chemistry at the University of Würzburg. My position was financed by the Bavarian Polymer Institute and I focused on two research lines: a) development of exotic dye assemblies via hydrogen bonding interactions, and b) development of dynamic self-assembled materials. The first project already yielded a paper on diketopyrrolopyrrole liquid crystals (Angew. Chem. Int. Ed. 2017). The second is a challenging project aiming to apply dynamic chemistry to self-assembled systems. As Junior Group Leader, I codirected 2 Master's theses, and I supervised undergraduate students.

In September 2017, I was appointed Assistant Lecturer with doctoral degree (Prof. A. Dr.) at the University of the Balearic Islands, where I currently carry out my research and teaching activities in organic chemistry. There, I joined the group of supramolecular chemistry and I am currently co-directing two Master's theses and I continue my research on functional materials.

Resumen del Currículum Vitae:

I completed the B.Sc. in Chemistry at the University of the Balearic Islands in 2005 to then carry out my PhD at the same university with a CAIB-Fellowship. I got my PhD in 2010 with the qualification of Summa Cum Laude and the Outstanding Doctoral Award. During my PhD, I performed two predoctoral stays, the first one in Tarragona (ICIQ, 2007) in the team of Prof. P. Ballester and the second in the Netherlands (Radboud University, 2008) in the group of Prof. R. J. M. Nolte.

Afterwards, I carried out two postdocs, the first with Prof. T. Kato at the University of Tokyo (Japan, 2011-2015) working on liquid-crystalline functional materials, and the second with Prof. F. Würthner at the University of Würzburg (Germany, 2015-2016) working on self-assembled functional dyes. In the Würthner group, I led the subgroup of liquid crystals and colloids, where I co-supervised five researchers. During my post-doctoral periods, I gained a solid expertise in the fields of liquid crystals and self-assembled functional materials, which are my main research lines. Moreover, I learned about the preparation of research projects and manuscripts, coordination of collaborative works, supervision of students and laboratory management.

In 2016, I was appointed Junior Group Leader in the Center for Nanosystems Chemistry at the University of Würzburg. My independent research focused on the development of dynamic self-assembled materials and was funded by the Bavarian Polymer Institute (until Dec. 2018). In September 2017, I returned to the University of the Balearic Islands as Assistant Lecturer with doctoral degree (Prof. A. Dr.), where I currently carry out my research and teaching activities. In my current position I joined the group of supramolecular chemistry, where I continue my research on stimuli responsive self-assembled materials based on liquid crystals, supramolecular polymers and gels.

During my career, I have worked in top research groups in Spain, the Netherlands, Japan and Germany being involved in various collaborative projects, which show my capacity to work in interdisciplinary environments and with scientists of different nationalities and cultures. Since 2015, I have co-directed two Master's theses (two more ongoing) and co-supervised several research students. I also carried out teaching activities (organic chemistry) in the chemistry and biology degrees during my stays at the University of Würzburg and



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

the University of the Balearic Islands.

As a result of my research work, I have published 4 patents and 21 papers (16 in the last 5 years) in international peer-reviewed journals. Among my publications I would like to highlight three JACS (2013, 2014 and 2015), two Angew. Chem. Int. Ed. (2017), one Chem. Sci. (2016), one Adv. Sci. (2017), two Chem. Mater. (2014 and 2016) and a review paper in Nat. Rev. Mater. (2017). I am first or second author in 76 % of my publications and 90 % these works were published in journals of the first quartile (Q1) and. Overall, my papers have been cited around 387 times (223 during 2016 and 2017) and my H-index is 12. Moreover, I peer-review manuscripts for the American Chemical Society, Royal Society of Chemistry and Wiley and I have attended around 23 conferences, where I gave 5 oral presentations and also 4 invited talks.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: MARTINEZ CUEZVA, ALBERTO

Referencia: RYC-2017-22700

Área Científica: Química

Correo Electrónico: amcuezva@hotmail.com

Título:

Development of novel catalytic systems. Synthesis and study of hydrogen-bonded mechanically interlocked molecules.

Resumen de la Memoria:

Dr. Alberto Martínez-Cuezva possesses a high multidisciplinary profile, being involved in very diverse research projects. He has contributed with high-impact works in fields like organometallic chemistry, catalytic transformations or Supramolecular Chemistry.

During his PhD under the supervision of Prof. Sanz (Univ. Burgos), he worked mainly in the development of novel catalytic systems. He deeply studied the direct nucleophilic substitution of the hydroxyl group of alcohols, including benzylic, allylic and propargylic ones, by a wide range of nucleophiles, carbon-based and heteroatomic ones. This transformation was, for the first time, catalyzed by organic acids, conducted under very mild conditions and without the need of dry solvents or inert atmosphere. Water was the only byproduct generated in the process, being a highly atom-economic transformation. He also contributed in the development of gold(I)-catalyzed processes, field that has experimented a high evolution in the last decades. He worked in the asymmetric synthesis of functionalized indenones, being one of the limited examples of enantioselective gold-catalyzed processes involving alkyne activation. He had the opportunity to perform two short stays at prestigious institutions, The Scripps Research Institute (La Jolla, CA, USA, 2007) and The Massachusetts Institute of Technology (Cambridge, MA, USA, 2008), where he extended his knowledge in metal-catalyzed transformations.

After his PhD he moved to the group of Prof. Benjamin List (Max-Planck Institut für Kohlenforschung, Germany), where he continued improving his skills in the development of organocatalyzed asymmetric transformations. He focused his efforts in the synthesis of novel chiral SPINOL-derived phosphoric acids, and their use as catalysts for the assembly of enantioenriched fused indolines and azahelicenes. He also worked in the development of asymmetric amine-catalyzed processes.

In 2013 he came back to Spain with a Marie-Curie postdoctoral fellowship under the supervision of Prof. Berná and Prof. Alajarín (Univ. Murcia), where he incorporated a new research area to his curricula: the synthesis and study of novel mechanically interlocked molecules and their use as potential artificial molecular machines. Although this area was completely new for the candidate, he has been able to complete significant projects, as shown in the number and high impact level of publications derived of his work. Recently, the candidate was able to integrate the knowledge acquired during his multidisciplinary career in a project: employment of mechanically interlocked molecules as substrates in catalytic reactions. He found an unprecedented behavior of the polyamide macrocycle present in interlocked systems, which activates a stereocontrolled cyclization reaction inside the macrocyclic void. Nowadays, he is working for extending this methodology, and he also implemented a new line in the research group: the development of novel mechanically interlocked systems and their use as catalysts, area in which the candidate has a strong background.

Resumen del Currículum Vitae:

Dr. Martínez-Cuezva graduated in 2004 at the University of Burgos (B. Sc. in Chemistry with Honors). Then he started his PhD granted by a MEC-FPU under the supervision of Prof. R. Sanz, working mainly in the development of novel catalytic systems. In 2007 he did a stay at The Scripps Research Institute (La Jolla, CA, USA) under the supervision of Prof. P. Wentworth. In 2008 he did a second stay at the group of Prof. S. L. Buchwald, where published an article (JACS). In 2010 he obtained his PhD (cum laudem and Best PhD award). He was recognized with the "VII Premio Lilly de Investigación" (2009) and honored to give an invited lecture.

After his PhD, the candidate moved to complete a postdoctoral stay (funded by a Max-Planck Society grant, 2010-2013) at the Max-Planck Institut für Kohlenforschung (Germany) under the supervision of Prof. B. List, working in the development of novel asymmetric transformations.

In 2013 he moved back to Spain supported by a Marie-Curie fellowship first and then by the MINECO contract "Ayuda Formación Posdoctoral 2013" under the supervision of Prof. Berná and Prof. Alajarín (Univ. Murcia).

Dr. Martínez-Cuezva is coauthor of a total of 31 scientific articles (plus 1 submitted and 1 in preparation) in high-impact peer-reviewed SCI journals (H index 15, 1115 citations), from which the following ones can be highlighted: JACS (2) (1 highlighted in Org. Process Res. Dev.), ACIE (5) (2 highlighted in Synfacts, 1 highlighted in ACIE, 2 featured Inside Cover, 1 featured article Frontispiece), Chem. Sci. (2), Chem. Commun. (2), Org. Lett. (4) (1 featured in the ACS as one of the most cited articles in 2007 based on data from Thomson Reuters), Adv. Synth. Catal. (1), JOC (3), Chem. Eur. J. (1). He is also coauthor of a book chapter. He is first author in 80% of the articles published during his postdoctoral stays, showing his responsibility and capacity as main researcher. It is noteworthy that he has published in the top journals along all the stages of his career, including Ph.D., short stays and different postdoctoral periods, owning 50% of his articles without the participation of his PhD supervisor. He is corresponding author of 1 article (and 2 more in preparation). He has participated in a total of 11 research projects, including international, national and regional ones, remarking a European project with an economical budget to develop his own research. His work has been presented in different congresses, with oral presentations (18), posters (16) and proceedings (2). Remarkably, the candidate has been invited to give 5 lectures in national and international institutions. He has supervised 3 Master and 6



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Degree students. Nowadays he is the supervisor of 1 PhD, 1 Master and 6 Degree students. The candidate has collaborated in teaching activities in different degrees (aprox 500 hours) and in dissemination events.

Dr. Martinez-Cuezva has been awarded with competitive fellowships during his entire career (Beca Colaboración, FPU, Max-Planck-Society grant, Marie Curie fellow, Ayuda Formación Postdoctoral). He has been recognized with different awards: Best Degree Qualification (2005); VII Premio Lilly de Investigación (2009); Best PhD thesis (2011); finalist at VI Premios Suschem-PostDoc (2014). He obtained the ANECA qualification for **Profesor Ayudante Doctor** and **Profesor Contratado Doctor**.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: CABRERO ANTONINO, JOSE RAMON

Referencia: RYC-2017-22717

Área Científica: Química

Correo Electrónico: joseram85@hotmail.es

Título:

Applied homogeneous and heterogeneous catalysis for the efficient production of valuable organic compounds

Resumen de la Memoria:

The research line that I have developed during my scientific career has been mainly focused on organic chemistry and catalysis fields, either homogeneous as heterogeneous. However, I have also gained experience in other topics such as solid material design. My research experience began in 2008 at the Universitat de València, where I did my bachelor project at the Organic Chemistry Department under the supervision of Prof. Abad, working on the synthesis of cyprodinil haptene derivatives. There, I could learn important aspects of organic chemistry that would guide my future career. In October 2008, I joined Prof. Corma group at the ITQ (UPV-CSIC) where I finished my Ph.D. thesis (with a FPU fellowship) in 2013, obtaining the highest mark and being awarded with the university extraordinary prize and by the Real Academia de Doctores de España as the best thesis in Spain in experimental and technological sciences. In the course of my Ph.D. I worked, under the supervision of Prof. Corma and Dr. Leyva Pérez, on the design of novel metal-based catalysts for C-C multiple bond activation. Iron, copper and gold catalysts were synthesized and their activity in several nucleophilic hydroadditions to alkenes/alkynes was explored. Complementarily, olefine epoxidations, catalytic activation of simple C-C and C-H bonds and formation of new C-S bonds, among others, were also important projects in which I was involved. Afterwards, I performed in the same group my 1st postdoctoral stage until the end of September 2014. In that period, I focused my efforts on the use of zeolites as catalysts for the synthesis of complex organic molecules (the relevance of this work was recognized with the 1º accésit en l'XI Premi Científicotècnic Ciutat d'Algemesí) and the design of new iron-based heterogeneous catalysts for hydrogenation reactions. In my whole period in ITQ (6 years), I gained experience either in homogeneous as in heterogeneous catalysis and their application in synthetic organic chemistry. This work was reflected in 16 publications in top-rated journals, 2 patents and 6 congress communications. From October 2014 to March 2017, I did a 2nd postdoctoral stage in the Leibniz Institute for Catalysis (LIKAT, Germany), with the support of a Ramón Areces fellowship (2 years) and an internal fellow from the institute (last 6 months). There, I worked in the group of Prof. Beller in a project dealing with the development of new homogeneous catalysts environmentally benign and active in reductive organic transformations useful for producing fine chemicals (including hydrogenations, imide functionalization, N-alkylation of amines and C-alkylation of heterocycles). In this period I improved my previous knowledge in homogeneous catalysis and this work resulted in 12 publications. More recently, in May 2017, after gaining a Juan de la Cierva contract, I have started a new project inside Corma's group developing a new line of work based on the synthesis of supported Pt and Pd single atoms and their application in redox organic transformations.

Resumen del Currículum Vitae:

In Jul 2008, I finished my studies in Chemistry at the Univ. de València, doing my bachelor degree project working in organic synthesis with Prof. A. Abad. In Oct 2008, I joined the group of Prof. A. Corma (Prince of Asturias Award 2014 for science and technological research, h-index = 132) at the ITQ (Valencia). I completed my Ph.D. studies with the highest mark "Excellent cum Laude" at the end of 2013 under the guidance of Prof. Corma and Dr. A. Leyva, mainly working on the design of novel metal-based catalysts for C-C multiple bond activation. During this 5-year period, I was funded by an UPV fellow (10 months) and 4-year FPU fellow from the Spanish government (the most prestigious Ph.D. fellowship in Spain). Remarkably, my thesis was awarded by the R. Academia de Drs de España as the best thesis in Spain in experimental and technological sciences and by the Univ. Politécnica de Valencia with the extraordinary prize. Then, I performed my 1st postdoctoral stage until the end of Sept 2014 at the Prof. Corma group studying the use of zeolites as catalysts for organic synthesis and developing heterogeneous Fe-catalysts for hydrogenation reactions. This 6-year period in ITQ has resulted in 16 papers in high-impact journals and 2 patents. In addition, I was awarded with the 1º accésit en l'XI Premi Científicotècnic Ciutat d'Algemesí. After being granted with a 2-year postdoctoral fellowship by Ramón Areces foundation, I carried out at the LIKAT (Rostock) my 2nd postdoctoral stage from Oct 2014 to Mar 2017, being the last 6 months hired by an internal scholarship from the institute. I was working in the group of Prof. M. Beller (h-index = 104) on the application of novel homogeneous metal-based systems as catalysts for reductive organic transformations. This postdoc. stay was also very productive, publishing 12 papers in top-rated journals (+4 additional projects are currently underway). In May 2017, I have rejoined Prof. Corma group with a Juan de la Cierva Inc. Here, I started a new line of work based on the synthesis of Pt or Pd single atoms supported on metal oxides for their application in redox organic transformations. As a summary, I am author/co-author of 28 papers (23 as a 1st/2nd author, in 5 of those the first two authors contributed equally, 12 without my Ph.D. supervisors). Moreover, the average number of authors per article is around 5, showing my highly degree of implication in the development of the different publications. My scientific work have been published in top-rated peer-reviewed journals which include: ACS Catal. (6), Chem. Sci. (5), Angew. Chem. (4), JACS (2), Chem. Eur. J. (2), Adv. Synth. Catal. (2), Catal. Sci. Technol. (2), Science (1), ChemSusChem (1), JOC (1), Tetrahedron (1) and J. Organomet. Chem. (1). Notably, 93% (26/28) are located in the first quartile (Q1) and 21/28 (75%) in the first decil (D1) of their category. I have received 580 cites and my h-index is 13. These parameters show the relevance of the work that I performed during my scientific career. In addition, I am co-author of 2 licensed patents and my scientific work was presented in scientific meetings (11



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

contributions including 2 oral comms.). I was involved in 7 funded research projects and I have directly participated in the co-supervision of 2 bachelor projects, demonstrating my leadership skills. Additionally, I'm currently collaborating on teaching at the Univ. Politécnica de Valencia.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: GONZALEZ CAMPO, ARANTZAZU

Referencia: RYC-2017-22910

Área Científica: Química

Correo Electrónico: agonzalez@icmab.es

Título:

Surface and supramolecular chemistry for functional and responsive materials

Resumen de la Memoria:

I am currently a researcher at the ICMAB-CSIC at the Functional Nanomaterials and Surfaces group (FunNanoSurf). My research career has followed an international course and I made significant contributions to different fields such as macromolecular synthesis, supramolecular chemistry, molecular surface immobilization, bio functionalization and polymer nanocomposites demonstrating my multidisciplinary background. My research career started with my PhD thesis at ICMAB-CSIC and U. Montpellier II with a FPI grant, ranged from the synthesis of macromolecules with high content of boron atoms for the Boron Neutron Cancer Therapy to the preparation of boron-based organic-inorganic hybrid material for high thermal and porous materials. After, I moved to Imperial College London to lead the development of new thermal conductive nanomaterials by the preparation of nanocomposites based on ZnO nanoparticles and carbon nanotubes as fillers, sponsored by Toyota Motors Europe and internationally highlighted. Pursuing my motivation in the development of surface engineering field and development of materials for biomedical and energy applications, I moved to the University of Twente (NL) to get expertise in chemical surface engineering using soft-litography and supramolecular chemistry. There, I spent two years as Beatriu de Pinós A fellow, leading my own research projects, with the success to develop a new methodology for the preparation of multifunctional surfaces using covalent and supramolecular chemistry and innovative results for supramolecular positioning of proteins at surfaces to fabricate new reversible and stable protein biochips and biopolymer functionalization. Later, I re-joined the ICMAB first as Beatriu de Pinós B fellow to prepare carbon nanotubes functionalized with boron clusters. Then, as JAE-Doc and lately as senior researcher to lead the group with Prof. Nuria Aliaga-Alcalde and the multifunctional nanostructure materials research line in the FunNanoSurf group (since 2014). With this aim, I am leading three research projects: the development of chemical functionalization of surfaces and graphene layers, development of supramolecular-based responsive materials and development of biocompatible sensors o biosensors. All three projects are focused on biomedical and/or energy conversion/storage applications. I am co-author of 35 publications including a book chapter (3 as corresponding author, and two papers highlighted as "hot paper", Chem. Comm and Jacs) in multidisciplinary (nanoscience; materials science and chemistry) and specialized journals (polymer science, organic chemistry; biomaterials,sensors) in journals such as J.Am.Chem.Soc, Org. Lett., Nanoscale, ACS Nano, Scientific Reports, Chem. Mater, Carbon, Biosensors and Bioelectronics or Small. I am also co-inventor of an international patent. I have supervised a total of 19 students (3 PhD, 5 MSc and 11 Bsc). I am PI and responsible researcher of national and international projects, reinforcing my research leadership and collaborations. I am also involved in outreach activities for general public, vice-president of the Jóvenes Investigadores Químicos (JIQ-RSEQ), member of thesis and master committees and reviewer of international projects and journals

Resumen del Currículum Vitae:

I graduated in Chemistry from the U. Autònoma de Barcelona in 2001, and subsequently achieved my PhD in chemistry with a thesis entitled "Insertion of carborane clusters into dendritic structures and hybrid materials" at the ICMAB-CSIC with Dr. Rosario Núñez (2006). During my thesis period I was awarded with the second prize of the Sant Jordi awards (2004) of the Catalanian Society of Chemistry and the Extraordinary Prize of PhD of the UAB. My thesis was published in journals such as Chem Mater, Org Lett and Chem Eur J. and awarded with the Young boron researcher prize. I prepared carboranes derivatives to functionalize dendrimers for biomedical applications and organic-inorganic hybrid materials. During the PhD, I spent 6 months at the U. Montpellier II. After, I moved to Imperial College London to lead a project with Toyota Motors. I developed an in situ methodology for thermal conductive nanomaterials by the preparation of nanocomposites based on ZnO nanoparticles and carbon nanotubes. The results were internationally patented and highlighted in Chem.Comm. Next, I joined the group of Prof. Huskens (UTwente) as a Beatriu de Pinós fellow. There, I led my own research projects with the success to develop a new methodology for the preparation of multifunctional surfaces using covalent and supramolecular chemistry and innovative results for supramolecular positioning of proteins at surfaces to fabricate new reversible and stable protein biochips and biopolymer functionalization. Over there, I published 7 papers in journals such as JACS and Small. Later, I re-joined the ICMAB first as Beatriu de Pinós fellow to prepare carbon nanotubes functionalized with boron clusters. Later, as JAE-Doc and currently as researcher to lead the FunNanoSurf group with Prof. Nuria Aliaga and the multifunctional responsive materials for biomedical and energy applications line using supramolecular and surface chemistry. With this aim, I am leading 3 projects: the development of chemical functionalization of surfaces, development of supramolecular-based responsive materials and development of biocompatible sensors o biosensors. I am co-author of 35 publications including a book chapter (3 as corresponding author, and 2 papers highlighted as "hot paper" in JACS and Chem. Comm) in multidisciplinary (nanoscience; materials science and chemistry) and specialized journals (polymer science, biomaterials, sensors) such as J.Am.Chem.Soc, Nanoscale, ACS Nano, Scientific Reports, Chem.Mater or Small. I am co-inventor of an international patent. I have presented 25 communications (11 oral), 10 communications from my students and invited speaker in 6 conferences. I have organized the XII Simposio de Jóvenes Investigadores (JIQ-RSEQ), 1st International Scientific School on Materials for



MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Biomedical Applications (ICMAB) and Workshop in microcontact printing within the European Dyanamol Initial Training Network. I have supervised 19 students and currently I am supervising 6 students (2 PhD, 2 MSc and 2 Bsc). I am PI and responsible researcher of national and international projects with total of 143000€, reinforcing my research leadership and collaborations. I am also involved in outreach activities for schools. I am vice-president, of the JIQ-RSEQ group, member of the AMIT committee, member of thesis and master committees, reviewer of COST and Dutch projects and journals



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: OLMOS VERGE, ANDREA
Referencia: RYC-2017-22640
Área Científica: Química
Correo Electrónico: andrea.olmos@dqcm.uhu.es

Título:

Regio and enantioselective carbene insertion reactions

Resumen de la Memoria:

During my research career I have worked in very different subjects. My PhD was centered in the development of stoichiometric heterogeneous reagents their use under continuous flow conditions in supercritical carbon dioxide. This work produced 7 scientific articles with a total of 168 cites.

During my postdoctoral stay I worked on the use of metal-doped zeolites in the heterogeneous catalysis of organic reactions. In this period I prepared a new scandium-USY zeolite and successfully applied it to several transformations, in a proof of self-thinking. This stay produced 7 scientific articles, 3 of them highlighted in Synfacts, with a total of 145 cites. In addition, we contributed to the research monography Modern problems of organic chemistry (ISBN: 978-5-98709-237-4) with the chapter Zeolites as green reagents and catalysts for organic chemistry.

Since my incorporation at the University of Huelva in 2012 I have worked mainly in C-H carbene insertion reactions into non-activated alkanes, with the publication of 9 scientific articles with a total of 80 cites. Some of the results obtained in this period were protected with a granted patent (WO2015181415 A1).

Since December 2016 I am developing my own Young Researcher Project as PI. The main lines I am developing are the preparation of catalysts for the regio- and enantioselective C-H carbene insertion reactions. In these two fields, I am developing my self-thinking in a research line not faced before in my research group. In this sense I have made seminal contributions which include the development of a new fluorinated hydrotrispyrazolylborate ligand that has allowed the first functionalization of methane using copper. This is the first completely new ligand prepared in my research group. In this moment I have two manuscripts in preparation concerning the development of completely new chiral hydrotrispyrazolylborate ligands for enantioselective carbene insertion reactions that will be submitted to JACS/Angewandte. In both I am corresponding author and in one of them I am the only author.

During my stay at the University of Huelva, I have supervised two master projects and two final degree projects (all qualified as excellent) and collaborated with the teaching tasks of the department.

I have had two important career breaks: one of 11 months (Sept. 16, 2013-Aug. 12, 2014) due to maternity and one of 5 months (March 12, 2015-Aug. 10, 2015) due to a laboratory accident.

Resumen del Currículum Vitae:

I obtained my Chemistry degree in 2004 in the University of Valencia where I also developed my PhD Thesis under the supervision of Gregorio Asensio Aguilar and M. Elena González Núñez. The work done during this period allowed for the publication of 7 articles, all in journals placed in Q1 that have received 168 cites in total.

I moved to the group of Patrick Pale in the University of Strasbourg to perform a two-year post-doctoral stay. This stay produced the publication of 7 articles (5 of them in Q1) with a total of 145 cites. Three of these publications were highlighted by Synfacts. We also collaborated in the publication of the book Modern Problems in Organic Chemistry with the chapter Zeolites as Green Reagents and Catalysts for Organic Chemistry.

In January 2012 I incorporated Pedro Pérez's group at the University of Huelva with a Juan de la Cierva contract. My stay at this university was prolonged with a post-doctoral contract and since December 2016 I am PI of a Young Researcher Project. In this period we have published 9 articles all of them in Q1 in Journals as Angewandte Chemie International Edition, Chemical Science or ACS Catalysis. I have also debuted in direction tasks assuming the co-direction of two Final Master Research Projects and two Final Degree Research Projects. I have participated in the teaching duties of the Department teaching more than 140 hours.

In summary, during my research career I have published 23 articles, more than 90 % of them placed in the first quartile, which have received more than 390 cites with an average cites/articles of 17 and a h-index of 12. I have also collaborated in the publication of a chapter book. During this last period at the University of Huelva I have debuted in direction as well as in teaching tasks.

I have had two important career breaks: one of 11 months (Sept. 16, 2013-Aug. 12, 2014) due to maternity and one of 5 months (March 12, 2015-Aug. 12, 2015) due to a laboratory accident.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2017

Turno de acceso general

Nombre: ARAGO MARCH, JUAN

Referencia: RYC-2017-23500

Área Científica: Química

Correo Electrónico: juan.arago@uv.es

Título:

Computational modelling of electroactive (supra)molecular systems

Resumen de la Memoria:

Dr. J. Aragón (b. 1983, Valencia) is currently a Ramón y Cajal Research Fellow at the Institute of Molecular Science (ICMol) of the University of Valencia (Spain). Dr. J. Aragón obtained his PhD (Theoretical study of the structural and electronic properties of oligothiophene and pentacene systems) with academic honours in 2012 at the ICMol under the supervision of Profs. Enrique Ortí and Pedro M. Viruela. During his PhD, he had the opportunity to teach 12 credits in the Department of Physical Chemistry and made a short predoctoral stay (4 months) at the University of Mons. After his PhD, he continued working for one year in his PhD group as a post-doctoral researcher and, then, moved in September 2013 to the University of Warwick (United Kingdom) for a post-doctoral stay at the group of Prof. A. Troisi after being awarded with the prestigious Marie Curie Intra-European Fellowship (IEF). After the IEF Fellowship (September 2015), Dr. J. Aragón was hired as a Research Fellow within an ERC-Consolidator project at the group of Prof. A. Troisi. During his post-doctoral stay, he has been working on the exciton transport in molecular crystals and aggregates, which is of great relevance for potential applications in the field of organic electronics.

Dr. J. Aragón is interested in the theoretical characterization of the structural, electronic, self-assembly and energy/charge transport properties of electroactive (supra)molecular systems with special relevance in the field of organic electronics. In particular, he is mainly focused on the intimate relationship between molecular organization and functionality (e.g., exciton transport) which is of utter importance for the design and development of enhanced (supra)molecular materials for the next generation of optoelectronic devices. His three main research lines are:

- 1) Modelling of weakly-bonded supramolecular systems.
- 2) Exciton transport in (supra)molecular materials.
- 3) Hole-transporting materials for perovskite solar cells.

The development of these three research lines has allowed Dr. J. Aragón to acquire a considerable expertise in the application of classical and quantum computational techniques (e.g., MM/MD, CAS/SCF/CASPT2, DFT-NL, TDDFT) for the accurate description of electroactive (supra)molecular compounds. Regarding the exciton transport, he has developed/implemented different diabaticization schemes to be able to compute excitonic/electronic couplings and he has gained a deep knowledge in quantum dynamics techniques.

Although Dr. J. Aragón has a strong theoretical background, he works well in multidisciplinary research projects. Proof of that are the fruitful collaborations maintained with international and national experimental groups that have eventually given rise to over 18 publications in high-impact journals. He is generally involved in mentoring and management tasks and is active in outreach activities to disseminate science in non-specialists audiences.

Resumen del Currículum Vitae:

During his scientific career (10 years including the PhD), Dr. J. Aragón has participated in 7 national and 2 European projects, in more than 65 international and national conferences (among them, 10 invited/oral communications) and in the organization of 2 conferences (VII Simposio Investigadores Jóvenes RSEQ-SIGMA Aldrich and ESON09). He has also given 5 seminars in different research institutions. He holds clear leadership skills; he has already supervised 1 PhD thesis, 1 MSc student and 1 TFG (final degree project). The previous MSc student is now pursuing a PhD under his supervision. Currently, he is also supervising 2 MSc student and 1 TFG. Additionally, he has actively participated in outreach activities such as Expociencia and talks in high-schools to disseminate science in non-specialist contexts.

Dr. J. Aragón has proved to be able to obtain funding for his research included his salary. Among the most important funding, he has achieved a Marie Curie IntraEuropean Fellowship (221 k€) and a Juan de la Cierva Incorporación grant (64 k€). Regarding his scientific production, he is author of 1 book chapter and 45 publications in international peer-review journals of Multidisciplinary Chemistry, Material Chemistry and Physical Chemistry (including 1 J. Am. Chem. Soc., 4 Angew Chem. Int. Ed, 2 Chem. Sci., 2 Chem. Commun., 5 Chem. Eur. J., 1 Adv. Energy Mater., 1 Adv. Funct. Mater., 1 J. Phys. Chem. Lett., and 1 Phys. Rev. Lett.). 35 of his publications (> 75%) are ranked in the first quartile (Q1), 33 in journals of impact factors (IF) > 3, 11 in journals with IF in the range 5-8 and 12 in journals with IF > 8. Dr. J. Aragón is also the corresponding author in 9 of his publications (20%). His publications accumulate 451 citations (WOS, 14th January 2018), providing an h index of 13.