

LIST OF SUPERVISORS

MSCA-IF-2017

Universidad Pablo de Olavide

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Life Sciences

Antonio Rodríguez-Moreno

Contact Person / Scientist in Charge:

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Department / Institute / Centre:

Department / Institute / Centre [Name]: Department of Physiology, Anatomy and Cell Biology/Faculty of Experimental Sciences

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<https://www.upo.es/investiga/labneurocienciadelaplasicidad/>

Brief description of the Centre / Research Group:

The Laboratory of Cellular Neuroscience and Plasticity is a young group dedicated to the study of the mechanisms and function of synaptic plasticity and the role of NMDA receptors in normal and altered physiology. We use state-of the art electrophysiological and imaging techniques, including a newly acquired Multiphoton Microscope.

Project description:

The proposed research project involves the study of synaptic plasticity and its roles in normal brain physiology and in diseases. Main research interests include the study of the mechanisms of synaptic plasticity in cortex and hippocampus, the study of the physiology of glutamate receptors of the NMDA and kainate type and the study of synaptic physiology in wild-type animals and in animal models of different brain diseases (Alzheimer, epilepsy and autism).

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	No	No	Yes	No	No

Applications: Documents to be submitted by applicants and deadlines:

- CV
- Motivation Letter
- Two reference letters

Eduardo Narbona

Contact Person / Scientist in Charge:

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Email address: enarfer@upo.es

Department / Institute / Centre:

Department / Institute / Centre [Name]: Department of Molecular Biology and Biochemistry Engineering,

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

https://www.researchgate.net/profile/Eduardo_Narbona

<https://www.upo.es/bmib/contenido?pag=/portal/upo/profesores/enarfer/profesor&menuid=25262&vE=>

Brief description of the Centre / Research Group:

The Floral Evolution and Ecology Research group (FLEER) aims to investigate evolutionary change and ecological interactions in plants, especially in regards to flowers. FLEER's main research objectives are: plant breeding systems, evolution of sexual systems, flowering phenology, plant reproductive barriers, plant-pollinator interactions and plant-herbivore interactions. In recent years, we have focused on flower colour and the ecological, biochemical and genetic mechanisms underlying flower colour variation. In particular, we investigated the development of new techniques for the quantification of flower colour, the genetic and biochemical basis of flower colour polymorphisms, and the adaptive role of anthocyanins, the most widespread plant pigments. We actively collaborate with other research groups from Spain, France (Montpellier University) and USA (Santa Clara University and Stanford University).

Project description:

Speciation is a continuous process ranging from incipient phenotypic variation with low reproductive isolation, to the complete reproductive isolation between populations with fixed phenotypic and genotypic differentiation. An important mechanism promoting speciation is divergent selection caused by both abiotic and biotic agents. This may create differentiation between populations and influence reproductive isolation. Evolution of reproductive isolation is an essential part of the speciation process and depends on a considerable number of pre- and post-zygotic barriers, prezygotic barriers often evolve first, as a byproduct of ecological adaptations. Up to this point, little has been understood about the genes involved in speciation. Flower colour genes are excellent candidates, given that this trait usually affects pollinator attraction and may reduce or interrupt gene flow between divergent groups of plants. In addition, flower colour biosynthetic pathway is suitable for a "metamodel" approach, in which multiple independent changes in regulatory genes found in other species can be tested.

In this project, we plan to investigate the role of "flower colour polymorphisms" (i.e. intraspecific discrete colour variation) during the speciation processes using a multidisciplinary approach combining

ecological, reproductive, genetic and genomic studies. This main objective is divided into several specific objectives: 1) to identify divergent selective pressures on flower colour, 2) to determine the degree of reproductive isolation between morphs, 3) to characterize the molecular and biochemical basis of flower colour, and 4) to determine if flower colour polymorphism precede speciation, or conversely, if the colour polymorphism is independent of the speciation process.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	No	No	Yes	No	No

Applications: Documents to be submitted by applicants and deadlines:

- Curriculum vitae
- Motivation letter. Deadline (07/09/2017)

Jaime Carvajal

Contact Person / Scientist in Charge:

Name and surname: Jaime Carvajal

Email address: jcargar@upo.es

Department / Institute / Centre:

Department / Institute / Centre [Name]: UPO - The Andalusian Center for Developmental Biology (CABD)

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

http://www.cabd.es/en-research_groups-98-225-molecular-embryology-summary.html

Brief description of the Centre / Research Group:

THE ANDALUSIAN CENTRE FOR DEVELOPMENTAL BIOLOGY (CABD-CSIC-UPO)

The CABD was created in 2003 as the first Developmental Biology Institute in Spain.

The centre is jointly funded by the Spanish Research Council CSIC, the Andalusian Regional Government Junta de Andalucía, and the Universidad Pablo de Olavide (UPO) in Seville. The building and its equipment were acquired with EU funds. In 2017 CABD received the accreditation as a MARIA DE MAEZTU EXCELLENCE UNIT, which will ensure the continuation of excellent research and further expansion of the institute.

The emphasis is made on Developmental Biology to take advantage of the strong Spanish school that has spread around the world. The Centre now houses young and dynamic groups working on mouse, zebra fish, *Xenopus*, *Drosophila* and *Caenorhabditis* development. The CABD also houses groups studying control of cell cycle in yeast, regulation of gene expression in bacteria and oxidative stress.

THE MOLECULAR EMBRYOLOGY TEAM.

Unravelling the mechanisms by which a cell adopts the correct fate in response to its local environment remains one of the fundamental goals of biological research. Skeletal muscle is a paradigm for the study of cellular commitment, differentiation and organogenesis during both embryogenesis and regeneration and repair in the adult. It has long been the subject of developmental studies because it is easily recognizable from an early stage, a factor vitally important prior to the advent of molecular markers. Moreover, the establishment of myogenic cell lines has allowed its biochemistry to be studied intensively for over 30 years. In the 1990s, the use of transgenesis, new cell labelling techniques and molecular markers allowed the merging of these two approaches to provide the basis of an understanding of the molecular embryology of the system. We are now entering a new phase, in which integration of molecular embryology, comparative genomics, functional genomics and studies of transcriptional regulation will result in precise understanding of the mechanisms of determination and differentiation in the embryo and muscle function and homeostasis in the adult.

Project description:

First we will analyse normal muscle during postnatal development, concentrating on features that allow the system to distinguish the different stages of muscle maturity irrespectively of muscle identity as these should inform on the basic biology behind muscle growth; we will also concentrate on features specific for particular muscle types as these should inform on the basic biology behind muscle identity. We will couple this analysis with RNAseq to establish links between discriminatory features and biological function.

We are interested in further the understanding of muscle pathologies, particularly in the detection of muscle changes that appear before disease onset. We will analyse new mouse mutants generated in our laboratory by CRISPR/Cas9 technologies. These new mutants lines have different muscle phenotypes.

We have recently discovered that knocking down the *Mrf4* gene in adult regenerating muscle results in muscle hypertrophy (Moretti et al., Nature Communications, 2016). To further study this unexpected result, we have generated a mouse strain in which we can modify *Mrf4* levels by providing/withdrawing doxycyclin in the diet. We will cross this strain into the *Mrf4*-KO mouse to obtain an inducible and reversible KO for this gene. This will be coupled with physiological analyses of muscle strength. By withdrawing *Mrf4* at different postnatal stages we expect to identify the window at which the fiber become sensitive to *Mrf4* levels.

This project will advance our knowledge on muscle biology and function, the contribution of specific genes to general homeostasis and the implication of *Mrf4* in the process of atrophy and hypertrophy.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	No	No	Yes	No	No

Applications: Documents to be submitted by applicants and deadlines:

- Full CV
- Expression of interest
- A short project to be developed by the applicant on the subject of muscle development, atrophy, hypertrophy, or homeostasis, to be carried out in parallel.

Rafael Rodríguez Daga

Contact Person / Scientist in Charge:

Name and surname: Rafael R. Daga

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Department / Institute / Centre:

Department / Institute / Centre [Name]: UPO - The Andalusian Center for Developmental Biology (CABD)

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

http://www.cabd.es/en-research_groups-19-42-control-of-cellular-space-and-morphogenesis-summary.html

Brief description of the Centre / Research Group:

The projects conducted in our laboratory are aimed at understanding how nuclear architecture and the mitotic checkpoint, contribute to maintain genomic stability. To study these questions, we are using a simple eukaryote, genetically tractable fission yeast *Schizosaccharomyces pombe*, as model organism.

We are currently investigating the role of the TPRs (Translocated Promoter Region) protein Alm1 and Nup211 in chromosome segregation. TPR are large coiled-coil proteins that comprise the nucleoplasm-facing part of the nuclear pore. TPRs interact with chromatin, chromatin regulators and mitotic checkpoint components and contribute to both, the spatial organisation of chromosomes within the nucleus and mitotic timing.

In addition to chromatin interactions with nuclear pores, chromosomes are also connected to the nuclear envelope via interphase SPB (Spindle Pole Body/Centrosome) that converts cytoplasmic microtubule forces into movement of the DNA. We are also investigating how this movement plays a role in DNA repair.

Our laboratory is located at the Andalusian Center of Developmental Biology (CABD), where there is a great scientific environment as well as great proteomic and microscope facilities, being the latest, one of the best in Spain and include confocals, spinning disc, laser ablation and super-resolution microscopes.

Our lab is currently composed by two senior postdocs, three PhD students, two under graduated students, and a technician. A branch of the lab is engaged in a Biotech spin off, in which we are developing new and very promising genetic diagnosis tools.

Project description:

The field of nuclear architecture has witnessed remarkable progress. It has been demonstrated that the spatio-temporal organisation of genomes is essential for their integrity and regulation. In spite of the well-established general view, little is known about how nuclear architecture is built-up, which are the structural elements that contribute to genome organisation, or how the dynamic rearrangement of genomes are spatio-temporally regulated during the cell cycle.

The general objective of this project is to study the molecular basis of nuclear organisation using the fission yeast as model organism. Fission yeast nuclear architecture is conserved in higher eukaryotes and is cell-cycle regulated. Previous results from our lab have shown that the absence of the structural component of the nuclear pore complex basket (Alm1) results in chromatin deregulation, which leads to severe mitotic defects and alterations of cell ploidy. This work is currently under revision in The Journal of Cell Biology.

Our next objective is to characterise the function of the TPR Alm1 as scaffold for chromatin and chromatin regulators, and study their control during the cell cycle. For this purpose, we will study the regulatory network that connects the TPRs and chromatin regulation by using proteomic, genetic and epigenetic approaches. Moreover, we will investigate how Alm1 binding to mitotic checkpoint (SAC) elements is regulated by mitotic kinases.

Overall, we aim to get further insight into the function of TPRs in chromatin organisation and genome integrity.

Specific aims:

1. To characterise the function of Alm1 as anchoring platform for SAC regulators
2. To study of the dynamic interacting network associated to Alm1
3. To study of the role of Alm1 in the regulation of chromatin state

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	No	No	Yes	No	No

Applications: Documents to be submitted by applicants and deadlines:

- CV

Pim Edelaar

Contact Person / Scientist in Charge:

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Department / Institute / Centre:

Department / Institute / Centre [Name]: Department of Molecular Biology and Biochemistry Engineering / Faculty of Experimental Sciences

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<http://pimedelaar.theblogpress.com/>

Brief description of the Centre / Research Group:

Our scientific interests center on individual variation, population divergence, genetics and evolutionary theory, with a particular focus on the diverse mechanisms of adaptation and divergence. A main line of research is how individual Matching Habitat Choice can facilitate local adaptation, genotype-environment correlation, invasion of novel habitats, and experimental speciation. We (a technician, a post-doc, two PhD students, two MSc students and me) study this in a cryptic ground-perching grasshopper, combining descriptive field studies, manipulative experiments in the field and in our lab, determination of the quantitative genetics of colour, plasticity and habitat choice, and individual-based simulation modelling. We are also starting another exciting experimental test using Zebra finches. Additional consequences of Matching habitat Choice on individuals, populations and other species are being studied in a newly funded project using different selection lines of *Drosophila* fruit flies. And additionally we study selection and adaptation in invasive species (exotic parakeets, african weavers) after, as well as before, their introduction.

Some key words describing our interests and expertise: evolutionary ecology, evolutionary genetics, sexual and natural selection, local adaptation, population differentiation, genetic divergence, biogeography, speciation, invasion biology, behavioural ecology, animal communication, population ecology, intra- and interspecific interactions, parasitism and predation, habitat selection, conservation, ornithology and entomology.

Project description:

See the description of the research group and our website for current and future projects:

<http://pimedelaar.theblogpress.com/>

Anyone interested to collaborate on these projects, or to develop a personal project within these contexts, is invited to contact us and discuss options.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	No	No	No	Yes	No

Applications: Documents to be submitted by applicants and deadlines:

- A short description of scientific interests
- Brief CV; no deadline.

Information Science and Engineering

Luis Merino

Contact Person / Scientist in Charge:

Contact Person / Scientist in Charge [Name and surname]: Luis Merino

Contact Person / Scientist in Charge [Email address]: lmercab@upo.es

Department / Institute / Centre:

Department / Institute / Centre [Name]: Systems Engineering and Automation Division / Service Robotics Laboratory

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<http://robotics.upo.es>

Brief description of the Centre / Research Group:

The Service Robotics Laboratory at UPO is devoted to the development of autonomous robotics systems that assist, help and interact with humans.

The group maintains research lines in estimation, planning and navigation for mobile robotic systems, including aerial and ground service robots, social robotics, multi-robot systems, sensor fusion, and planning under uncertainties applied to robotics. The team aims to be multidisciplinary, combining their current research lines with soft computing, intelligent systems and machine learning.

The group has a strong participation on international activities. The members of the team have led and/or participated in 9 projects of the 7th Framework Programmes (FP) or H2020 of the European Commission (EC) during the last 5 years.

Project description:

Deploying robots in environments with humans, like offices, at home, or in commercial spaces, requires not only robust localization and navigation techniques, but also that the robots are human-aware, and situate socially with respect to the humans.

The following lines are topics of interest for potential projects. We are open to discuss related ideas, of course:

Robust person detection and tracking algorithms, including social features like people groups dynamics. While lot of research has been done towards this objective, robust systems for

people tracking from robots in the wild are not yet available. We are working on methods that combine standalone detectors in order to achieve a more reliable tracking. We would like to research into the possibilities of deep neural networks and the integration of different sensor modalities in the same detector.

Besides tracking, a key building block for social navigation is the capability of predicting the effect of the robot actions on the behaviour of the group. Social force models, from the crowd simulation community, have been considered for this. But we want to research the incorporation of new methods for person prediction derived from data, using recurrent deep networks.

Smooth motion in human environments is guided by the presence of persons, which should feel comfortable with the robot. This is influenced, among other factors, by the robot's motion "legibility", i.e., how persons estimate the robot's internal state by observing its behaviour. Expressive, legible motions are typically easier to demonstrate than to formalize mathematically. We are interested in the application of learning from demonstrations approaches for encoding social and legible navigation tasks, topic in which we have been working for several years.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	Yes	No	No	No	No

Applications: Documents to be submitted by applicants and deadlines:

- CV
- Motivation letter
- Summary of project proposal (250 words) by 15th June 2017

Information Science and Engineering / Life Sciences

Antonio Jesús Pérez Pulido

Contact Person / Scientist in Charge:

Name and surname: Antonio J. Pérez

Email address: ajperez@upo.es

Department / Institute / Centre:

Department / Institute / Centre [Name]: Department of Molecular Biology and Biochemistry Engineering / UPO - The Andalusian Center for Developmental Biology (CABD)

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<http://www.bioinfocabd.upo.es/>

Brief description of the Centre / Research Group:

The CABD (<http://www.cabd.es/en-home.html>) is a centre jointly funded by the Spanish Research Council CSIC, the Andalusian Regional Government Junta de Andalucía, and the Universidad Pablo de Olavide (UPO) in Seville. The emphasis is made on Developmental Biology but it also houses groups studying control of cell cycle in yeast, regulation of gene expression in bacteria, and specialized groups on Bioinformatics.

It is placed in the campus of a young university (<http://www.upo.es>), where their researchers have a highlighted publication level. The campus is well communicated by underground, bus, and cycle lane, though it is only at 1km from Seville. Both CABD and UPO offer a young and warm environment.

We are a small bioinformatics group with almost 10 years of experience (<http://www.bioinfocabd.upo.es/>). Our group is interesting in sequence analysis, mainly protein annotation and gene prediction, though we are also working with sequences related to rare human diseases as the Spinal Muscular Atrophy (SMA). The target of our research is always developing computational tools, which will be available for the scientific community. But we always test these new tools in specific biological scopes in order to offer new knowledge

(<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40094622/>).

Project description:

Our group recently developed a new computational tool to search for new and ancient genes in genomic sequences called AnaBlast (<http://www.bioinfocabd.upo.es/ab>). It has already been tested with the whole genome of a yeast, where it proposed new protein-coding genes, and we are currently developing a web application for it. Our target is now to test AnaBlast with other most complex organisms, with the possibility of experimental validation from our collaborators.

The project would be joined into this frame and we will insert AnaBlast in a high-computing performance environment, which is part of the infrastructure from our university. Once the web

application was functional, we will start the human genome analysis in searching for new protein-coding genes or reviewing the well-known ones for alternative splicing or processes of innactivation in pseudogenes.

The project will require computational development by writing small scripts, and the subsequent data analysis in a genomic scale, using standalone genome browsers.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	No	No	Yes	No	Yes	No	No

Applications: Documents to be submitted by applicants and deadlines:

- Curriculum vitae
- Two reference letters

Social Sciences & Humanities

Carmen Cabello-Medina

Contact Person / Scientist in Charge:

Name and surname: Carmen Cabello-Medina

Email address: mcabmed@upo.es

Department / Institute / Centre:

Department / Institute / Centre [Name]: Business Organization and Marketing Department

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<http://www.upo.es/doem/?p=mcabmed&lang=es>

Brief description of the Centre / Research Group:

In our research group 4 researchers are involved in the project addressing the study of determinants of firm's innovation:

- Dr. Carmen Cabello-Medina, (mcabmed@upo.es), Principal Researcher of the group:
<https://goo.gl/MCJQrd>
- Dr. Gloria Cuevas-Rodríguez (gcuerod@upo.es)
- Dr. Antonio Carmona-Lavado (acarlav@upo.es)
- Dr. Vesna Vlasisavljevic (vesna_pupu@hotmail.com)

The most recent publications are:

- Vlasisavljevic, V., Cabello-Medina, C. and Pérez-Luño, A. (2016), "Coping with Diversity in Alliances for Innovation: The Role of Relational Social Capital and Knowledge Codifiability". *British Journal of Management*, 27, pp. 304-322.
- Cuevas-Rodríguez, G., Carmona-Lavado, A., Cabello-Medina, C. (2014), "Internal and External Social Capital: Do they always work well together?", *British Journal of Management*. Vol. 25, 2, p266-284.
- Carmona-Lavado, A.; Cabello-Medina, C. y Cuevas-Rodríguez, G. (2013) "Service Innovativeness And Innovation Success In Technology-Based Knowledge-Intensive Business Services: An Intellectual Capital Approach". *Industry and Innovation*. Vol. 20 Issue 2, p133-156.
- Pérez Luño, A., Cabello Medina, C.; Carmona Lavado, A.; Cuevas Rodríguez, G. (2011) "How Social capital and Knowledge affect Innovation". *Journal of Business Research*, Vol. 64, 12, pp. 1369-1376.

Project description:

Explanatory model of alliances for innovation in knowledge-based firms (KBFs). Opportunities for cross-industry innovation.

Recent literature shows the importance of interorganizational relationships to improve the firm innovative performance in KBFs. However, alliances per se do not determine the innovative performance, and research has suggested the existence of inter-firm differences in the success of these agreements.

The capacities of firms to manage its agreements can be at the origin of such differences: not all companies have the needed capabilities to successfully manage unforeseen changes, the intangible attributes of alliances and the complexity of the portfolio.

Some collaboration of KBFs creates cross-industry innovations, as the result of access to external sources of knowledge that is outside of the firm value chain, facilitating innovation in other sectors.

Finally, KBFs tend to be located in clusters. The facilitators of knowledge exchange in these clusters contribute to the success of collaborations to achieve the expected innovation performance.

Considering all mentioned above, our current project tries to develop an explanatory model of alliances for innovation in KBFs. In this model the joint effect of alliances characteristics and portfolios and alliances management capabilities on innovation performance is analyzed. Similarly, the impact of these collaborations on firms in traditional industries is also analyzed (cross-industry innovation). The interaction between all these variables can determine the achievement of the objectives of innovation and the resulting type of innovation. Finally, the model is completed with the analysis of region variables that could favor or inhibit the knowledge transfer and therefore influence the results of innovation.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	Yes	No	No	No	No	No	No

Applications: Documents to be submitted by applicants and deadlines:

- Brief description of Current Project in which the applicant is involved.
- Recent publications.
- CV.

Igor Pérez Tostado

Contact Person / Scientist in Charge

Contact Person / Scientist in Charge [Name and surname]: Igor Pérez Tostado

Contact Person / Scientist in Charge [Email address]: ipertos@upo.es

Department / Institute / Centre

Department / Institute / Centre [Name]: Department of Geography, History and Philosophy

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<https://www.upo.es/investiga/limites-violencia>

<https://www.upo.es/historia-moderna/>

Brief description of the Centre / Research Group:

The research Project “In the limits of violence: massacre and the projection of the Iberian Monarchies in the Early Modern world” (“En los límites de la violencia: masacre y proyección de la Monarquías Ibéricas en los siglos modernos”, MINECO HAR2014- 52414-C2-2-P) is part of the Early Modern History Unit of the Department of Geography, History and Philosophy at the Pablo de Olavide University in Spain. It aims to study and compare the development of violence in the margins of the Iberian empires during the Early Modern period in a comparative and connected perspective. The project is carried out by an international team of researchers composed by José María Cardesín Díaz, Harald E. Braun, Joao Gomes, Christophe Giudicelli, Alain Hugon, Andrew Lipman, Igor Pérez Tostado (PI) and Laura Borragán Fernández. The individual areas of expertise and lines of research of each member converge towards a reframing of the conceptualization, exercise and consequences of mass violence in the Early Modern empires. Geographic areas under study are Europe, North America and South East Asia. Subjects of special interests are legal/political theory and practice, inter-episode and inter-empire connections and comparisons, recurring patterns, inhibitors and accelerators, and long-term impacts such as dehumanization, racialization and collective dispossession.

For more information, please visit: <https://www.upo.es/investiga/limites-violencia>

Project description:

Candidates interested in the history of Early Modern empires, in any of its dimensions, are encouraged to apply. The city of Seville offers world class archive repositories relating to the Early Modern Spanish Monarchy and its connections with Africa, America and Asia.

The Pablo de Olavide university is home to a thriving number of international scholars and research projects on working on the Early Modern globalization, political practice, migration and culture.

For more information, please visit: <https://www.upo.es/historia-moderna/>

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
No	Yes	No	No	No	No	No	No

Applications: Documents to be submitted by applicants and deadlines:

- Brief CV
- Motivation letter
- Summary of project proposal (250 words) by 15th June 2017

Chemistry

Sofía Calero

Contact Person / Scientist in Charge [Name and surname]: Sofía Calero

Contact Person / Scientist in Charge [Email address]: scalero@upo.es

Department / Institute / Centre

Department / Institute / Centre [Name]: Department of Physical, Chemical and Natural Systems / Faculty of Experimental Sciences

Department / Institute / Centre [Address]: Ctra. de Utrera, Km 1, 41013, Seville, Spain

Webpage:

<http://www.upo.es/raspa>

Brief description of the Centre / Research Group:

Prof. Calero's research group, Nanostructured materials for technological applications (or RASPA group), is a subdivision of the larger Physical Chemistry Division, itself being part of the Department of Physical, Chemical, and Natural Systems at the University of Pablo de Olavide. Its main activity consists in using various computational tools to study and design multifunctional nanostructured materials and complex molecules. With the help of molecular simulations, a sound basis for the development of new multifunctional materials like metal-organic frameworks (MOFs) or covalent organic frameworks (COFs) is provided. The group focuses on the study of processes which, if controlled to some extent at the molecular level, will have significant implications, whether scientific or in the field of technological applications. RASPA group of over twenty current and former researchers at Pablo de Olavide has many years of experience in the field of computational chemistry, molecular simulations, and multifunctional materials.

Project description:

A competitive project that merges the RASPA group's expertise and the candidate's research experience aiming at high impact results towards the better understanding of various phenomena regarding existing nanoporous materials like MOFs, COFs, or zeolites at the molecular level, or the development of new materials based on this knowledge. Many of the projects chosen by the RASPA group are cutting-edge and socially meaningful. In the past, storage and separation of carbon dioxide and methane in hydrated nanoporous materials has been studied, which is important for environmental and energetic reasons. Since volatile organic compound (VOC) emissions can cause serious risk to human health and the environment, Monte Carlo simulations were used to assess the performance of zeolites for the adsorption-based removal of a number of common air pollutants. Recently, RASPA group has modeled the adsorption of carbon monoxide, a potentially toxic gas, on a hydrated metal-organic framework. All these projects aim to solve contemporary, actual problems and are in line with the global mantra of minimizing waste, maximizing recovery and a propension to move towards green energy. The submitted project will thus follow in the same direction with regard to the societal relevance of its goals.

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
Yes	No	No	No	No	No	No	No

Applications: Documents to be submitted by applicants and deadlines:

- Curriculum Vitae
- Project description

Chemistry / Physics

Juan Antonio Anta

Contact Person / Scientist in Charge:

Name and surname: Juan Antonio Anta

Email address: anta@upo.es

Department / Institute / Centre:

Department / Institute / Centre [Name]: Department of Physical, Chemical and Natural Systems

Department / Institute / Centre [Address]: Crta. de Utrera km.1 41013 Sevilla

Webpage:

<https://www.upo.es/investiga/ccs/index.html>

Brief description of the Centre / Research Group:

The Nanostructured Solar Cells Group is based in the Department of Physical, Chemical and Natural Systems of the University Pablo de Olavide, in Seville, Spain. It is composed of 5 members including a professor, a postdoc, 2 PhD students and 1 master student. We work on fundamental characterization and modelling of third generation solar cells based on hybrid and nanostructured materials such as Dye-sensitized solar cells and Perovskite Solar Cells. We have regional and national funding and belong to the StableNextSol COST Action.

For more information please check: <https://www.upo.es/investiga/ccs/index.html>

Project description:

In the group of nanostructured solar cells of the University Pablo de Olavide in Seville (Spain), we like to experiment with solar cells. We always treat them with care and delicacy, as we always use a small perturbation to analyze their response. This small perturbation can be an optical blink, of different colours, or electrical, at either at a pleasant room temperature or at freezing cold conditions, in either total darkness or under extreme light soaking. Normally, all cells behave well, although perovskite ones do not appear to stand well our treatments. In any case, they always provide us with tasty information, in the form of resistances and capacitances, or kinetic constants, of different sorts. In addition, our doctors like to run simulations and devise models of reference, to better understand their complex behaviour. We do not know if we do it well or badly, but we always do it with frequency and intensity.

For more information please check: <https://www.upo.es/investiga/ccs/publications.html>

Research Area:

Chemistry	Social Sciences & Humanities	Economic Science	Information Science and Engineering	Environmental Science and Geology	Life Sciences	Mathematics	Physics
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Yes	No	No	No	No	No	No	Yes
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Applications: Documents to be submitted by applicants and deadlines:

- CV
- List of publications.
- Recommendation letters and/or personal references