

Postdoctoral Open Position

COMBINATORIAL DISCOVERY OF FUNCTIONAL INTERFACES FOR STABLE AND EFFICIENT ORGANIC PHOTOVOLTAIC CELLS

David Amabilino (@DAmabilino) and Mariano Campoy-Quiles (ICMAB, CSIC)

Position offered

We offer a position for an experienced researcher (possibly postdoctoral) in the framework of the project “Combinatorial discovery of functional interfaces for stable and efficient organic photovoltaic cells” funded by the *Ministerio de Ciencia e Innovación* as part of the Ecological and Digital Transformation Programme. The overarching objective of this interdisciplinary project is the rapid discovery of highly sustainable, efficient and stable organic photovoltaic solar cells. To do that, Mariano’s group in organic solar cells has team up with the synthetic chemistry groups of David Amabilino and Kasper Moth-Poulsen.

We will use combinatorial interface screening with the deployment of functional additives. All the studies will intrinsically employ the principles of green chemistry. The combinatorial screening will be performed exploiting protocols developed in Mariano’s team. Broadening the measuring techniques will allow the simultaneous study of efficiency and stability in OPVs made of materials with gradients of composition of the electron donors and acceptors and of the thickness of the film.

Main Tasks and Responsibilities

The candidate’s role will be the fabrication and optimization of organic solar cells and testing of their stability. Some of the materials to be tested will be provided by the other members of the consortium, particularly the additives that will be synthesized in the group of David Amabilino and Kasper Moth-Poulsen. So this will be a team work. The fabrication of the solar cells will include the incorporation of structural gradients (thickness, composition), processing gradients (annealing, solvents, additives, etc.) as well as degradation gradients (illumination time, illumination spectrum, thermal annealing...) that will enable the high throughput screening.

Moreover, advanced spectroscopic characterization such as hyperspectral imaging, will be performed to characterize the gradients. Specific training will be given on this processing methods and characterization tools. Finally, the candidate will also perform data analysis for the large datasets produced, using statistical and artificial intelligence algorithms. They will also develop their mentoring skills, overseeing more junior members of the team, and they will be mentored in paper and grant writing, thereby developing their career skills.

Requirements

- Three years of research experience (e.g. through PhD degree)
- Experience in organic solar cells fabrication and characterization
- Useful to have knowledge of handling of large datasets, statistical analysis or AI
- Passion for sustainable technologies and renewable energies
- Good communication skills and openness for teamwork

Conditions

- The contract will be full time.
- Duration up to 2 years.
- The starting date will be from December 2022

How to apply

The selection process will be continuous until a good candidate is found. Interested persons should send an email to Mariano Campoy-Quiles (mcampoy@icmab.es) attaching:

- CV
- Letter of motivation
- Contact details of a reference person.

ICMAB is an equal opportunity employer committed to diversity and inclusion of people with disabilities.

About the NANOPTO group

The Nanostructured Materials for Optoelectronics and Energy Harvesting (NANOPTO) research group focuses on producing and characterizing advanced semiconducting structures with the main objective of understanding their fundamental behavior in order to empower different applications in the areas of optoelectronics, energy harvesting, and sensing.

The team in charge of this project is led by Mariano Campoy. The focus of his research lies in the experimental development of organic and hybrid-based materials for applications in energy (photovoltaics and thermoelectrics) as well as optoelectronics (e.g. photodetectors). The group also has a strong background on advanced spectroscopic techniques as well as a broad processing toolkit and an extensive collaboration network with researchers working at the most prestigious international centers, which we intend to nurture.

We value a diverse and inclusive working environment, where all team members would have excellent opportunities for learning and contributing.

For more information, please visit: <https://nanopto.icmab.es/>

About ICMAB

ICMAB is one of the world's leading Institutes in Materials Science research, located at Campus UAB, very close to Barcelona. The ICMAB's main strategic objectives and missions are to make an impact in the field of new materials for applications in energy, electronics and health through its research and training and empowering the next generation of scientists.

ICMAB provides facilities, state-of-the-art equipment and most importantly, excellent scientists and professionals, to assure you a rewarding environment. In the last years, we have grown up to build up a team devoted to project managing, technology transfer, innovation, communication, maintenance, technical services and administration, to team up with the researchers for the advancement of science.

The diversity of our people and the interdisciplinary research fields related to Materials Science ensures an enriching and inspiring working environment. If you are an enthusiastic and highly motivated person and would like to work in a multidisciplinary and multicultural environment, join us!