

Postdoctoral Open Position

MULTIFERROIC NANOCOMPOSITES FOR LIGHT AND MAGNETIC ENERGY HARVESTING

Mariona Coll, Anna Palau (ICMAB, CSIC)

Position offered

We offer a position for a postdoctoral researcher in the framework of the project “Multiferroic nanocomposites for multi-harvesting of light and magnetic energy (MAGNETOLIGHT)”

MAGNETOLIGHT is an interdisciplinary and innovative project aiming to adopt a disruptive approach to revolutionize the field of multisource energy harvesting for IoT by uniquely combining the photovoltaic and magneto-electric effect in simple multifunctional nanocomposite structures able to harvest low-frequency magnetic fields and sunlight to sustainably provide enhanced power supply opening new areas of research. To tackle this challenge, new approaches are needed to identify compatible and efficient multifunctional materials to push the power of the multiferroic BiFeO₃-based harvesting systems.

This project will simplify the materials integration in a compact device using stable and non-toxic all-oxide components prepared by chemical solution deposition and atomic layer deposition. MAGNETOLIGHT will build on the significant results of our team on the cost-efficient synthesis, oxide materials nano-engineering, device fabrication, and advanced characterization of multifunctional complex oxide thin films and strained nanocomposites and level it up aiming to develop a multisource energy harvesting system with nanoscale control based on multifunctional complex oxide nanocomposites for self-powered IoT devices. This project has high-gain perspective in the area of Digital and Ecology Transition.

Main Tasks and Responsibilities

- Fabrication of multiferroic nanocomposites by chemical deposition techniques
- Design and implement experiments for novel 2D oxides
- Characterization of the morphological and physical properties of fabricated films and heterostructures
- Study of the Magnetoelectric and photovoltaic properties of multiferroic nanocomposites
- Correlation of device morphology with multi-harvesting of light and magnetic energy performance.
- Publish research results in peer-review scientific or technical journals and present results at external seminars and conferences
- Collaborate with international research groups to accomplish research goals

Requirements

- PhD degree Materials Science, Materials Chemistry, Applied Physics,

- Ability to perform as an innovative experimentalist with a broad range of experience in experimental design, measurement, and data acquisition techniques supported by high quality publications/patents
- Experience in magnetoelectric materials is highly valuable
- Proficient verbal and written communication and interpersonal skills to collaborate effectively in a multidisciplinary team environment and present and explain technical information

Conditions

- The contract will be full time.
- Duration of 2 years with the possibility of extension.
- 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 with subject "MAGNETOLIGHT postdoc" to Anna Palau (palau@icmab.es) and Mariona Coll (mcoll@icmab.es) attaching:

- CV
- Letter of motivation
- If possible, contact details of a reference person

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

The researcher will work with a dynamic interdisciplinary team of research chemists and physicists devoted to develop and nanoengineer functional materials (thin films, nanocomposites and core-shell nanostructures) by cost-effective deposition techniques

About ICMAB

ICMAB is one of the world's leading institutes in Materials Science research, located at Campus UAB, very close to Barcelona. One of the main ICMAB's strategic objectives and missions is to make an impact in the field of new materials for applications in energy, electronics and health.

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!