

## Predocctoral Open Position

### **POLYOXOMETALATE BASED ELECTROLYTES FOR METAL-AIR BATTERIES**

*Nieves Casañ-Pastor (ICMAB, CSIC)*

#### Position offered

We offer a position for a predoctoral researcher in the framework of the project "Baterías Zinc-Aire a pH quasi-neutro asistidas por polioxometalatos" (Zinc-air batteries at neutral pH assisted by polyoxometalates).

#### Main Tasks and Responsibilities

The project requires the synthesis of specific polyoxometalates and their study in aqueous enar neutral solutions. Additional electrochemical characterization individually and as part of a M-O<sub>2</sub> cell will be required, during the reduction and reoxidation process

The material will be further characterized by 31P, 51V and 193W NMR, and additional spectroscopic techniques

#### Requirements

- MSc degree (in Electrochemistry, Materials Science, Chemistry...)
- A good knowledge of English will be highly valued.
- Experience in inorganic solution synthesis, electrochemistry and spectroscopes ...
- Team work capabilities, initiative and creativity
- A natural instinct for lab work and collaboration

#### Conditions

- The contract will be full time.
- Gross annual salary of around 22,000 Euros
- 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 to Nieves Casañ-Pastor (nieves@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.

## About the group

The group led by Nieves Casañ-Pastor has four decades experience in the development of mixed valence phases and nanomaterials, as well as electrochemical synthesis and characterization, including wireless electrochemical effects for the development of energy storage devices, new materials or bioelectrodes.

Among the pioneering work developed at the group a few examples are:

- electrodeposition of complex oxides, or single metal Xray detectors
- cation or anion (oxygen, fluoride , nitride) intercalation and deintercalation solid state processes have been achieved as been achieved at room temperature allowing the preparation of 2D ferromagnetic materials and superconductors
- the formation of hybrid materials with complementary electrochemical properties have led to large charge capacity bioelectrodes
- pristine graphene has been prepared by electrochemical exfoliation of graphite
- wireless bipolar electrochemistry effects have allowed the electrostimulation of neural cell growth, and the development of new engineering in electrostimulation protocols and in general electrochemical cells with a lower resistance, or generation of Titanium oxides nanotubes-

Additional information may be checked at: <https://icmab.es/ssc/electrochemistry-and-electroactive-materials>

## 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!