

CONTRATOS PREDOCTORALES 2022 SEVERO OCHOA

PROJECT TITLE / JOB POSITION TITLE:

Wireless Bipolar Electrochemistry effects in Bioelectrodes, Electrochemical Energy Storage and Electrocatalysis

JOB POSITION RESEARCH LINE:

RL1.- Sustainable Energy Conversion and Storage Systems

RESEARCH PROJECT / RESEARCH GROUP DESCRIPTION:

The electrochemistry and electroactive materials group is developing an energy storage system based on two fundamental ideas. The induction of dipoles in immersed conducting materials allows additional charge transfer mechanisms and a significant decrease in cell impedance that allows more efficient energy storage electrochemical cells. The project deals with the setting of such cells and with the preparation of directional nanostructured materials as electrodes, including TiO₂ nanotubes and redox gradient materials. A local spatial resolution study of the gradients is fundamental for the study and involves diffraction and spectroscopic studies at main European centers like ALBA synchrotron XAS lines and pioneering XPS local operando studies.

JOB POSITION DESCRIPTION:

A predoctoral position will develop pioneer redox gradient materials, using state of the art wireless electrochemistry techniques and local resolution characterization. Based on those data, new engineered energy storage systems and catalysts will be developed. The work requires working in electrochemistry and nano characterization, inorganic chemistry and synthesis, as well as a team effort and training in novel aspects of materials science. Education in fundamental electrochemistry and chemistry is desired, as well as a disposition to learn about new settings and ideas. A teamwork is offered in the development of any aspects of the project, and its interdisciplinarity with physical and chemical aspects of the development.

GROUP LEADER:

Prof. Nieves Casañ-Pastor and Dr. Xavier Torrelles

Email: nieves@icmab.es

Research project / Research Group website : PID2021-123276OB-I00, *WirelessBipolar Electrochemistry effects in Bioelectrodes, Electrochemical Energy Storage and Electrocatalysis*

RELATED LINKS TO THE POSITION

URL: <https://icmab.es/ssc/electrochemistry-and-electroactive-materials>

Title link: Electrochemistry and Electroactive Materials