MSCA Postdoctoral Fellowships

HORIZON MSCA 2024 PF

🚀 Expression of interest

instituto IMdea energía

EXCELENCIA MARÍA DE MAEZTU
HR EXCELLENCE IN RESEARCH

5th of July 2024

Deadline for submission of documents

Contact Person/ Scientist in charge

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Brief description of the Research Group

One of the main targets of the Electrochemical Processes Unit (ECPU) is to provide new concepts and technological alternatives for electrochemical energy storage. The energy storage systems developed by the ECPU are designed to be applicable to renewable energies, electrification of transport and the emerging nexus between water and energy. The research programme focuses on how newer materials and designs may improve the performance of these systems and on the application of electrochemical storage systems to renewable power generation systems, sustainable buildings and electric vehicles.

Research Area

- Chemistry (CHE)
- Information Science and Engineering (ENG)
- Environmental and Geosciences (ENV)
- Physics (PHY)

Applications

Deadline for submission of documents 5th of July 2024. Documents to be submitted:

- Complete curriculum vitae stating background and skills
- Letter of motivation including research interests

Project description

The MSCA Postdoctoral fellow will join an interdisciplinary group of researchers – chemists, physicists and engineers – aiming to generate novel concepts, materials and devices for electrochemical energy storage. The fellow will be involved in some of the following research lines being currently addressed at ECPU:

Redox Flow Batteries
- Organic or organometallic based electrolytes for high energy density, low-cost and sustainable RFBs
- Membrane-free concepts: immiscible electrolytes and microfluidic RFBs
- Solar-rechargeable RFB

Metal-air (Zn-air, etc)
- Electrodes, electrolytes and electrocatalysts for lower cost and increased performance

Metal-ion Batteries (Li-ion or multivalent batteries)
- New organic or inorganic electrodes and electrolytes for Li-ion or multivalent batteries
- Advanced In-situ/operando characterization techniques
- Li-ion battery recycling

Battery testing and modelling
- New methodologies for accelerated testing of batteries.
- Prediction models to estimate the state of health of batteries.
- o Multiscale / Multiphysics Modelling applied to battery design

Efficient Electrochemical Water Treatment:
- Water deionization (capacitive or faradaic)
- Water electro-oxidation

Computational Chemistry: electronic structure calculations (Density Functional Theory, Wave Function Theory, Molecular Dynamics)