

Postdoctoral fellowship offer

« Energy storage – alkali-ion batteries »

Financial support: ION-MEET an A*Midex financed project

Duration: 12 months

Location: MADIREL Laboratory - 52 Avenue Escadrille Normandie Niemen - 13013 Marseille – International partners in Italy and Spain

Contact: luca.pasquini@univ-amu.fr

Working environment:

The MaDIREL “Electrochemistry of Materials” (EIMa) team (part of the Axe 2 – Membranes, coatings and dispersions) is specialized in the electrochemical preparation and characterization of solids, especially in the field of materials for energy storage and conversion. The group members have considerable experience on ionomers for energy applications and on the preparation and analysis of fuel cell or battery materials with more than 150 papers on these topics published in international journals. The group is equipped with all electrochemical facilities. Florence VACANDIO and Philippe KNAUTH are part of the team and will actively participate in the project with their expertise in solid electrolytes and electrochemistry, together with the PhD student Suanto Syahputra. The candidate will also work with local partners of Aix Marseille University and international partners involved in the project, namely in Italy with Università degli Studi di Roma Tor Vergata and Università degli Studi di Roma La Sapienza and in Spain with Universidad Autonoma de Madrid.

Project description:

The ION-MEET objective is to strengthen the collaboration in research and training between internationally recognized teams in the Mediterranean area to make advances in the field of energy storage and conversion devices (alkali-ion batteries, fuel cells and water electrolyzers) based on solid-state ion conductors (SICs).

Developing all-solid-state batteries is the holy grail of battery research especially for safety, which is paramount from the customer point of view. The project will tackle this problem by:

- i) advanced battery electrodes compatible with solid polymer: study of electrode materials with a reduced environmental impact, high voltage cathodes, such as Ni-Mn spinels, focusing on improving the redox stability, nanostructured anodes including nano-Si, Si/C or Sn/C nanocomposites with very high insertion capacities
- ii) electrodes containing less critical raw materials (CRM) and more eco-friendly components based on biochar, an eco-friendly material that can be produced from renewable sources like protein-rich waste biomass
- iii) post-mortem analysis and recycling

Profile:

A PhD degree in chemistry or physical chemistry with experience in electrochemistry is required. The knowledge of methods for synthesis and characterization of materials for battery applications will be considered favorably.

Application:

Detailed CV and motivation letter should be sent to luca.pasquini@univ-amu.fr.
Application should be sent *before the 8 November 2026*.