Postdoctoral position

Study of electrode/electrolyte interfaces in all-solid state lithium-ion batteries

From May 28, 2019 to July 10, 2019

Context

The position is part of the “RAISE 2024” (towaRd All solld State battery in 2024), a five years project funded by the E2S (Energy Environment Solutions) Initiative (https://e2s-uppa.eu/en/index.html).

The RAISE 2024 project aims at developing polymer based solid-state batteries up to a Technology Readiness Level 6 in close partnership with three academic laboratories, IPREM (Institute of Analytical Sciences and Physical Chemistry for the Environment and Materials), IPRA-DMEX (Multidisciplinary Institute for Applied Research) and PDP (research center Pau Public Law) as well as two major international companies, Arkema and SAFT.

The main objective of the project is to develop an advanced battery systems based on solid electrolytes, which represents a new challenging and promising field in the rechargeable battery domain. Electric vehicles and renewable energy storage are the applications targeted, with safety, high energy density, no self-discharge, a long stability/cycle life, easily scalable, low cost as main requirements.

Position ans assignments

Interfaces are the key to all-solid-state batteries performance and lifetime but their study remains very challenging so far because they are buried in the entire battery stack. The objective of this Postdoc is to study such solid/solid interfaces through Auger electron spectroscopy coupled to cross-section preparation. She/he will work on the procedure to obtain clean cross-sections with a good control of cutting time and sample temperature (by cooling) to prevent any possible samples degradation under the ion beam. S/he will also work on XPS depth profiling and on the development of in-situ XPS analysis. S/he will work in close collaboration with a PhD and other Postdocs.

Keywords:

all-solid-state battery, interfaces, surface analysis: XPS, Auger and ToF-SIMS.

Hosting laboratory: IPREM, UMR CNRS 5254, Université de Pau et des Pays de l’Adour
Localisation address: IPREM, Université de Pau et des Pays de l’Adour, Pau, Nouvelle-Aquitaine, France

Starting period: September 2019

Duration: 18 months

Gross salary range: 2960 €/month (which includes extra gratification for teaching duties – 64h)

Funding: This postdoc position is funded by the project E2S UPPA (Energy Environment Solutions) which has a core scientific domain focused on Environment and Energy to meet challenges related to the energy transition, geo-resources, aquatic habitats and the environmental effects of natural and anthropogenic changes.


Young Researcher skills required

The candidate has the following skills and expertise:

* A PhD in electrochemistry and/or physical-chemistry or equivalent.
* A strong experience in surface analysis techniques and electrochemical energy storage
* Autonomy, dynamism, creativity, good communication skills.

Application procedure

Applications must be sent as a single pdf file and submitted by email to Romy Guerin (romy.guerin@univ-pau.fr).

They must include:

* a cover letter addressing their research interests and the skills required above (2 pages),
* a CV (max 2 pages)
* two reference letters
* contact details of at least two relevant professionals who can provide a reference letter based on request
Contact Advisors:

lenaic.madec@univ-pau.fr ; herve.martinez@univ-pau.fr ; Jean-bernard.ledeuil@univ-pau.fr ; remi.dedryvere@univ-pau.fr

Application deadline

Please submit your application to Romy Guerin (romy.guerin@univ-pau.fr) before July 10th, 2019, mentioning [Postdoc] in the subject of your email, as well as the subject of the Postdoc.