UNIVERSITÉ DE PAU ET DES PAYS DE L'ADOUR | COLLÈGE STEE SCIENCES ET TECHNOLOGIES POUR L'ÉNERGIE ET L'ENVIRONNEMENT

IPREM Institut des sciences analytiques et de physico-chimie pour l'environnement et les matériaux

D-MEX

saft a company of TOTAL

ARKEMA INNOVATIVE CHEMISTRY

e2s UPPA energy environment solutions

PDP: PAUDROITPUBLIC

PostDoc position, 18 months

Work place: Université de Pau et des Pays de l'Adour, Pau, Nouvelle-Aquitaine, France.
Keywords: all-solid-state battery, physico-chemistry of interfaces, polymers, surface analysis, electrochemistry, process.
Occupation: Research and teaching

Context

The position is part of the "**RAISE 2024**" (towaRd All solId State battery in 2024), a five years project funded by the E2S (Energy Environment Solutions) Initiative (https://e2s-uppa.eu/en/index.html). The RAISE2024 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 - https://iprem.univ-pau.fr/en/home.html), 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 system based on solid electrolytes, which represents a *new field in the rechargeable battery domain. Electric vehicles and renewable energy storage are the applications targeted, with s*afety, high energy density, no self-discharge, a long stability/cycle life, easily scalable, low cost as main requirements.

Goals

The postdoc candidate will be in charge of the study and characterization of the buried interfaces in solid-state batteries based on Lithium ion-conductive polymers. Within the framework of a close collaboration between Arkema France (Lacq), IPREM (Pau) and TOTAL-SAFT (Bordeaux), the work will be devoted to the study and the characterization of solid electrolytes and battery stacks through the implementation of a specific Focused Ion Beam (FIB) cross cut methodology coupled to the analysis of the materials by several surface techniques including Time-of-Flight Secondary Ion Mass Spectrometry (ToF-SIMS), Auger Electron Spectroscopy (AES) and X-ray electron spectroscopy (XPS). The candidate will also highly participate to the evaluation of the material properties in terms of ionic conductivity, electrochemical stability, dendrite mitigation and mechanical properties.

Position and assignments

The Postdoc position also include teaching duty at UPPA (64 h per year).

-- 18 months, available from October 2023

-- Gross salary: 3109 €/month

Profile request

The candidate has the following skills and expertise:

- A PhD in physical-chemistry or equivalent.
- Good knowledge in electrochemistry
- A strong experience in interfacial physico chemistry and surface techniques is welcome.
- Autonomy, dynamism, creativity, good communication skills.

Contact Advisors: joachim.allouche@univ-pau.fr **/** yann.tison@univ-pau.fr **/**cecile.courreges@univ-pau.fr

Secretary: estelle.camborde@univ-pau.fr

Have we picked your interest? Then please submit your application including the following documents (as a single .pdf file) until 15/09/2023 by email to the contact advisors.

- Motivation letter
- Curriculum vitae of at most 3 pages.
- Transcripts and certifications from university:
    - Master degree (or equivalent), including class ranking if possible,
    - Phd degree.
- Names of at least two references who are willing to write a letter of recommendation on the candidate's behalf (they may be contacted by us).
- Any other relevant documents.