

JOB DESCRIPTION

Functions: Post-doctoral researcher in material chemistry (F/H) – Investigation of anion rotation in ionic conductors for next generation batteries.

Emploi-type : Chercheur

Catégorie : A

Corps : Chercheur

Activities in the job description may evolve with knowledge of the position and the service requirements.

Presentation of Sorbonne University

Sorbonne University is a multidisciplinary, research-intensive, world-class university. Located in the heart of Paris, with a regional presence, it is committed to the success of its students and to meeting the scientific challenges of the 21st century. Thanks to its 54 000 students, 6 300 academic researchers and partner researchers, and 3,600 administrative and technical staff who make it a daily reality, Sorbonne University promotes diversity, creativity, innovation and openness to the world.

The university is structured in three faculties: « **Art and Humanities** », « **Medicine** » et « **Science and Engineering** » each disposing of an important autonomy in the application of the university's strategy.

To learn more about Sorbonne University: <https://www.sorbonne-universite.fr/en>

This position is available within the Faculty of Science and Engineering: <http://sciences.sorbonne-universite.fr>

Within Sorbonne University, **the Faculty of Science and Engineering** covers a large spectrum of scientific disciplines.

It is composed of **79 research laboratories**, 22 teaching departments and 6 UFR (Formation and Research Units) in chemistry, engineering, mathematics, physics, life sciences as well as Earth, Environment and Biodiversity. It also comprises the university's engineering school - Polytech Sorbonne -, the Paris Astrophysic Institute, the Henri Poincaré Institute, three marine stations located in Banyuls-sur-Mer, Roscoff and Villefranche-sur-Mer.

It is hosting 20 800 students among which 2 700 doctoral researchers and accounts for 4 800 academic and research staff and 3 252 administrative and technical staff.

Laboratoire de Chimie de la Matière Condensée de Paris (UMR 7574)

Laboratoire de Chimie de la Matière Condensée de Paris (UMR 7574) : <https://lcmcp.upmc.fr/>

within the **Reactive Materials for Energy deviceS (RMES)** team: <https://lcmcp.upmc.fr/site/rmes>

The postdoctoral researcher will integrate the LCMCP, laboratory internationally recognized in the field of Material Sciences for the elaboration of **functional inorganic and hybrid materials**, and the evaluation of their physico-chemical properties at multiple scales. The lab brings together all facets of chemistry of materials with a strong coupling between synthesis methods and processing of materials. These materials target applications with a strong societal impact in the fields of **energy, health, and environment**.

The **RMES team's** expertise covers organic/inorganic/hybrid materials, processing and sintering of ceramics and electrochemical characterization methods that place it in an ideal position to develop innovative ideas at the crossroads of material science disciplines, a scientific culture largely developed at the LCMCP. The RMES team is part of the French Network on Energy Storage (<https://www.energie-rs2e.com/en>) which nurtures strong scientific connections between research labs to accelerate the development of energy storage through dynamic collaborations and the development and mutualization of advanced in situ/operando characterization techniques, including at synchrotron facilities.

Project and main Activities

Mission:

The post-doctoral researcher will take part in the study of a novel family of inorganic solid electrolytes developed in the RMES team, based on oxythiophosphates chemistry.

The project will focus on studying the rotational property of oxythiophosphates anions in these materials, using a range of advanced characterization techniques available in the lab (XRD, PDF, NMR) or in national/international facilities (synchrotron, neutron). The role of anion rotation appears as a key feature to develop materials with record-high ionic conductivity to be used in next generation batteries. This project will investigate the relationship between ionic conductivity and anion rotation using non-centrosymmetric molecular anions

He/she will benefit from the expertise developed by the LCMCP lab on low temperature synthesis of materials (Soft Chemistry), the characterization platforms of LCMCP and the Faculty of Science and Engineering, as well as from the broad range of expertise of collaborators in the French Network on Electrochemical Energy Storage.

Main activities:

- Synthesis of inorganic materials
- Structural and physical properties characterization
- Electrochemical properties characterization
- Reporting on scientific results (meetings, communications in congress, scientific publications)

Knowledge and Skills*

Education, Qualifications and Training :

- PhD in Solid-state Chemistry or Physics (or very close to completion)

Experience in areas including (but not limited to) :

- Ionic conductors
- Dynamic properties of solids
- Advanced structural characterization techniques (PXRD, PDF, XAS, NMR...)
- Large instrument facilities (synchrotron, neutron)

General and interpersonal skills :

- Ability to work as a team member and foster positive relationships.
- Demonstrate proactivity, availability, and reactivity in leading research projects.
- Excellent communication skills.
- Clear reporting and scientific writing.

General knowledge:

- Understanding of the organization of Research and Higher Education French system.
- Understanding of Sorbonne University's organization.
- Regulations applicable to one's own professional activity field.

Specific dispositions related to the position and exposure to occupational hazards

Contract: 12 months CDD contract

Salary (depending on experience): 35-37k€/year

Expected starting date: January-March 2026

Interested candidate should send a CV, cover letter and contact information for two references (PhD advisor, supervisor) to Dr. Arnaud Perez (arnaud.perez@sorbonne-universite.fr).

Exposure to occupational hazards :

☐ Non

☒ Yes : **Chemical risk**

*Conformément à l'annexe de l'arrêté du 18 mars 2013 (NOR : MENH1305559A)