



**Post-doctoral position in condensed-matter physics at Sorbonne Université (Paris, France): Liquid-liquid transitions, polymorphism and second critical point in dense liquids.**

The Institut de Minéralogie, de Physique des Matériaux et de Cosmochimie (IMP-C) at Sorbonne Université (Paris, France) seeks applications for a postdoctoral position starting in January 2023 focused on the experimental study of liquid polymorphism and liquid-liquid transitions in sulfur and other systems under high pressure and temperature. The position is initially for 12 months with a possible 12 month extension depending on progress. Applications are to be done online at:

<https://emploi.cnrs.fr/Offres/CDD/UMR7590-FREDAT-001/Default.aspx?lang=EN>

Please contact Dr. Frédéric Datchi ([frederic.datchi@sorbonne-universite.fr](mailto:frederic.datchi@sorbonne-universite.fr)) for inquiries.

- **Missions:**

In the framework of the ANR project LILI (liquid-liquid transition, polymorphism and second critical point in dense liquids), the recruited person will carry out experimental studies of the liquid-liquid transition in Sulphur recently discovered by the team [L. Henry et al, Nature 584, 382 (2020)] and in other systems, with the aim of better understanding the origin and characteristics of liquid-liquid transitions. The research work will involve experiments under high static pressure and high temperature, using optical spectroscopies (Raman, Brillouin) on the one hand, and synchrotron X-ray diffraction, absorption and imaging on the other hand as diagnostics. Experiments under high pressure and temperature will be carried out in a resistively heated diamond anvil cell (DAC) or in a Paris-Edinburg press (PEP).

- **Activities :**

- Prepare and perform experiments under high pressure and temperature in the laboratory and on synchrotron sources. Propose technical solutions to any difficulties encountered.
- Analyze and interpret data.
- Write experimental reports and scientific papers on the results obtained.
- Participate in meetings concerning the project.
- Communicate the results via seminars or conferences.

- **Skills :**

- The candidate should have a PhD in physics, materials science or a related field.
- A working knowledge of high static pressure experiments in DAC or PEP is required.
- Knowledge of optical spectroscopies and x-ray diffraction, and associated analytical methods will be appreciated. Experience with large facilities will also be an asset.
- The candidate should be creative, have good analytical skills and be highly motivated by experimental work.
- Good writing and communication skills are expected. The working language is French, but written and spoken English at least at B2 level is required.
- Good ability to work both independently and in a collaborative working environment.

- **Work context :**

The IMP-C laboratory (<http://imp-c.sorbonne-universite.fr/fr/index.html>) is a multidisciplinary research institute with about 200 staff working on ambitious research projects in condensed matter physics, Earth and Universe Science and biology. The candidate will work in the PHYSIX team (11 permanent and 11 PhD students/post-doc staff members) whose emphasis is on experimental and theoretical research on materials under extreme conditions of pressure and temperature. The ANR project serving as a framework for this recruitment is carried out in collaboration with the European synchrotron ESRF (Grenoble, France) and the CEA (Paris region), with which the candidate will interact during the contract.

- **Constraints and risks :**

The candidate will use high pressure presses, laser and X-ray sources. The working environment will respect all safety regulations. Dedicated training will be provided if required.