

OPEN POSTDOC POSITION
ON THE DESIGN OF NOVEL METALLIC OXIDES

The [New Materials Design Group](#) (DEMARE) at the [IMPMC](#) laboratory of [Sorbonne University](#) opens a 24-months postdoc position for a research project on:

“Novel metallic oxides for coating materials”

within the frame of the [ATHERM_COAT](#) targeted project of DIADEM, the national project on emerging materials. Main objective of ATERM_COAT is the discovery of novel transition-metal oxides suitable as coating material with improved performances for electric-hydrogen-thermal (EHT) cells.

Main activities:

- Synthesis of novel phases of transition metal oxides
- Structural characterizations and electrical conductivity measurements of bulk samples

Start date: September 1st or October 1st 2025.

Salary. The net monthly salary amounts to 2900-3000 €, the exact value depending on the specific family situation.

Working environment. The candidate will work closely with a diverse group of scientists, engineers and PhD students of the DEMARE research group and of the IMPMC laboratory. Interpersonal communication and teamwork are important elements of this environment.

Detailed description of the research activities. The successful candidate will be required to:

- Employ standard solid-state and high-pressure synthesis techniques, *e.g.* Paris-Edinburgh and/or multi-anvil press, to synthesis single-phase powder or single-crystal samples
- Perform a full range of structural characterizations, *e.g.* x-ray energy-dispersive spectroscopy (EDS), micro- and high-temperature x-ray diffraction.
- Perform extensive electrical conductivity temperature-dependent studies.
- Contribute to the development of a novel *in situ* calorimetry technique under high pressure in collaboration with a group of scientists and engineers.
- Collaborate with the theory group of the laboratory in order to model and predict the electronic and transport properties of candidate materials.
- Maintain and advance the synthesis platforms and associated diagnostics.
- Report experimental results by publishing and attending scientific conferences.
- Performing work in a safe and secure manner.
- Mentor students and other junior team members.

Minimum Job Requirements:

- Strong background in solid state chemistry, materials or condensed matter physics.
- Experience in the synthesis of bulk materials, e.g. transition metal oxides. A previous experience in high-pressure synthesis techniques will be a bonus.
- Ability to independently perform structural refinements from x-ray and/or neutron diffraction measurements and interrelated experience with common analysis tools (FullProf, GSAS, Fit2D, Jade, and other software).
- Experience with common data acquisition tools: Labview, oscilloscopes, precision voltage current source instruments, detectors, etc.
- Ability to explain and present technical issues, both verbally and in written form, to an audience with various technical backgrounds.

Education: PhD in solid state chemistry, condensed matter physics, materials science and relevant experience or closely associated scientific field.

Contact: please submit a detailed cover letter with your resume addressing all required and desired skills to Professor Andrea Gauzzi (andrea.gauzzi@sorbonne-universite.fr). Save the cover letter with the name “DIADEM_2025_postdoc_yourname”.