Postdoctoral researcher on the synthesis and characterization of MOFs for dehumidification (M/F)

Presentation of the Ecole Supérieure de Physique et de Chimie Industrielles de la Ville de Paris

ESPCI Paris – PSL (École Supérieure de Physique et de Chimie Industrielles de la Ville de Paris) is a comprehensive engineering school that has been training disruptive, adaptable, and creative engineers since 1882, equipping them with a solid theoretical and experimental background and an awareness of the challenges facing society.

It is part of an internationally recognized research center in physics, chemistry, and biology (500 publications per year). It is known for its ability to transform knowledge from fundamental research into disruptive innovations (two patents per month, three start-ups per year).

Distinguished by six Nobel Prize winners, it welcomes 400 engineering students, 530 researchers (including 250 doctoral students and 100 postdoctoral researchers) in 10 joint research units, and approximately 100 support staff for research and teaching.

Since its creation, ESPCI has continuously mobilized its strengths and skills to address major societal issues and defend the importance of science in the service of society. The environment, solidarity, health, access to knowledge, and openness to learning are issues that ESPCI is committed to addressing in its daily activities while helping to advance them. ESPCI defends equal opportunities and promotes social diversity. It encourages and values the commitment of its students, particularly in community involvement.

Our institution is part of Paris Sciences & Lettres University. Ranked number one in the world ranking of young universities published by Times Higher Education, PSL is also among the top 50 best universities in the world (Shanghai, Times Higher Education, QS, CWUR).

ESPCI is engaged in a major renovation project for its Paris campus, which will make it one of the most modern scientific sites in Paris.

Positionning

The IMAP (Institut des Matériaux Poreux de Paris) is a joint research unit of the ENS, ESPCI, and CNRS within PSL University in Paris. It has globally recognized expertise in the synthesis and characterization of porous hybrid solids (MOFs) for applications in the fields of health, energy, and the environment. The team is made up of eight permanent staff (researchers, engineers, and lecturers) and more than 30 postdocs, PhD students, and interns.

The postdoc will work mainly at IMAP in close collaboration with several AI-MAHC project partners. He/she will also participate in the drafting of reports and deliverables and prepare regular presentations related to the PEPR Diadem project. Participation in consortium meetings will be mandatory. The postdoctoral researcher will be supervised by Dr. Christian Serre, Dr. Georges Mouchaham, and Dr. Farid Nouar.

Missions and responsabilites

Al-MAHC is a research and innovation project funded by the PEPR (Priority Research Programs and Equipment) DIADEM (Integrated Devices for Accelerating the Deployment of Emerging Materials) program (https://www.pepr-diadem.fr/). It aims to improve the efficiency of passive dehumidification systems. AI-MAHC will bring together three French partners (ESPCI, CNRS – G. Maurin, University of Montpellier – I. Bevzerkhyy, University of Bourgogne, Dijon) and one Danish partner (M. Qin, DTU, Denmark), pioneers in this field, to develop, with the support of Artificial Intelligence, optimized and sustainable metal-organic frameworks (MOFs) for the development of more efficient dehumidification systems.

As part of this project, IMAP is looking to recruit a motivated postdoctoral researcher. He/she will be responsible for:

- Preparing new MOFs with high water adsorption capacity with the support of high-throughput synthesis and AI

- Characterizing the materials obtained (X-ray diffraction, N2 porosimetry, water sorption, IR and UV-Vis spectroscopy, thermogravimetric analysis, etc.)

- Optimizing the synthesis, scaling, and shaping of the most efficient MOFs

- Producing composite (paper) membranes for passive dehumidification tests

Profile

Required knowledge and skills:

The candidate must have extensive experience in the synthesis, shaping, and characterization of porous hybrid solids and their related composites, as well as in the characterization of membranes or other composites. Experience in X-ray diffraction and gas or vapor sorption characterization techniques is desirable. A high level of English (spoken and written) and strong communication skills are required. The candidate must be able to work independently and demonstrate initiative.

Required education (or degree): PhD

Desired experience: Not specified

Recrutement conditions

Category : Postdoctoral fellow

The position is available:

• on a one-year contract basis for non-tenured employees (with a possibility of 1-2 years extension).

Applications from individuals with RQTH status are encouraged.

Position available from: May 1st, 2026

Contact

Applications (CV, cover letter) should be sent by email to 'imap.recrutement@ens.psl.eu' with the following reference '[AI-MAHC]' in the subject line of your email.

Place

10, Rue Vauquelin 75005 Paris

Metro line 7 (Place Monge/Censier Daubenton) - RER B (Luxembourg) - Bus 21, 27 & 47 - 3 Vélib' stations nearby.