

Postdoctoral Researcher – Electrochemical Sensors and Photo-Oxidation for Environmental Monitoring
University of Pau and Pays de l'Adour (France)

Position overview

We are seeking a highly motivated postdoctoral researcher to join the research project *SAPHIR*, which aims to develop an innovative system combining **photo-oxidation treatment** and **in situ electrochemical sensing** for the monitoring and removal of pharmaceutical residues in wastewater.

The project focuses on the development of an integrated and automated platform capable of detecting micropollutants in real time and optimizing their degradation through advanced oxidation processes.

Research activities

The successful candidate will contribute to several aspects of the project:

- Identification and quantification of pharmaceutical residues using liquid chromatography–tandem mass spectrometry (LC-MS/MS).
- Development of **electrochemical sensors** for micropollutant detection (electrode surface modification, voltammetric techniques, signal interpretation).
- Optimization of electrochemical analytical methods and large dataset processing using Python.
- Investigation of **photo-oxidation degradation kinetics** and optimization of photoreactor operating conditions.
- Integration of the electrochemical sensing system with the treatment device to develop an **automated monitoring and control system**.
- Validation of the integrated platform under realistic conditions and comparison with reference analytical methods (LC-MS/MS).

The postdoctoral researcher will work in close collaboration with an engineer involved in the project and within a multidisciplinary research environment combining analytical chemistry, electrochemistry and environmental engineering.

Candidate profile

- PhD in analytical chemistry, electrochemistry, environmental chemistry or related field.
- Experience in electrochemical techniques and/or sensor development.
- Experience in LC-MS/MS analysis of organic contaminants is highly desirable.
- Programming skills in Python for data analysis are an asset.
- Interest in environmental monitoring and water treatment technologies.

Keywords

Electrochemical sensors, Environmental monitoring, Micropollutants, Wastewater treatment, Photo-oxidation, Analytical chemistry, LC-MS/MS, Python data analysis.

Practical information

Contract: Postdoctoral position (24 months)

Start date: June 2026

Location: IPREM and Sewage sludge treatment Plant of Lescar (64, France)

Applications should include a CV, a motivation letter and contact information for two referees.

Please email your application by 20 April 2026 to:

Corinne Parat : corinne.parat@univ-pau.fr

Gaël Plantard : gael.plantard@univ-perp.fr

Assessment and interview of shortlisted candidates:

Relevant training and research experience in related fields. The candidate's motivation, knowledge, scientific maturity and curiosity. Emphasis will also be placed on personal skills.

Shortlisted candidates will have 15 minutes to present their CV and research proposal. The presentation will be followed by a 10-minute discussion.