

Postdoctoral position in materials chemistry to prepare and study dissymmetrical metal oxide heteronanostructures for photocatalysis using Z-scheme configuration

The ISM, ICMCB and LOMA - part of joint laboratories at University of Bordeaux/ French National Centre for Scientific Research (CNRS) - are looking for a postdoctoral researcher for a project to synthesize and characterize dissymmetrical metal oxide based heteronanostructures for optimized charge separation. This project proposes a new strategy for the synthesis of metal oxide-based heteronanostructures using an optofluidic method. Using a laser beam focused in microchannels, the strategy involves asymmetric photodeposition of reduction and oxidation co-catalysts on binary or ternary oxide nanoparticles exposing well-defined facets previously prepared by original solvothermal routes. The post-doctoral researcher will be in charge of the synthesis of the metal oxide nanoparticles exposing well-defined facets and of the characterization of their structural, textural and optical properties (ISM/ICMCB). The post-doctoral researcher will also work on the photodeposition of co-catalysts in collaboration with LOMA. The long-term goal is to design efficient photocatalytic systems for water splitting.

The three laboratories are located on the same scientific campus in Bordeaux, France, are well-known in their respective field of expertise and ICMCB/LOMA have a long history of collaboration.

Bai et al., *ACS Nano*, **2021**, *15*, 2947.

Hermans *et al.*, *ACS Applied Materials & Interfaces*, **2020**, *12*, 53910.

Qualifications

We are looking for candidates with a background in materials chemistry and good skills in sol-gel and colloid chemistry, nanomaterials, XRD, HR-SEM, XPS/UPS, UV-visible and Raman spectroscopy. The candidate should hold a Ph.D. degree in chemistry or physics and have documented experience in the synthesis of metal oxide nanoparticles with controlled size and shape. Some knowledge in photocatalysis would be an added value.

Position Summary

Funding of this position has been awarded by the IDEX of Bordeaux as a part of a broader « Grand Projet de Recherche » entitled « Post-Petroleum Materials ». The position can be immediately filled, the initial contract will run for a maximum of 12 months. The salary will depend on experience, with a net salary rate of between 2100 and 2300 € /month (before income tax) depending on the experience. Health insurance and social contributions will be paid by the employer. Bordeaux is a major university town in France, hosting to more than 65,000 students from over many different countries, and it also constitutes a world-ranking research community in the field of materials science.

Applications

Candidates should contact Thierry Toupance, thierry.toupance@u-bordeaux.fr, +33540002523 and/or Marie-Hélène Delville, marie-helene.delville@icmcb.cnrs.fr, +33540008460.

with:

- Cover letter (max. one page)
- CV
- PhD degree
- Transcript of academic records
- Letters of recommendation or contact details for potential referees