
PhD offer - Development of long-life bimetallic catalysts for fuel cells

Context and goal

In the framework of the joint project TiNTHyN involving universities and research centers in Wallonia, the University of Liège and UCLouvain University recruit a PhD candidate to develop electrocatalysts for low temperature fuel cell applications. The research will involve the synthesis of bimetallic hollow nanostructures supported on optimized carbon supports, in order to obtain efficient catalysts with high resistance to degradation upon use. This research is part of a collaborative network of 12 PhD theses on hydrogen technologies involving 4 universities and 3 research centers. The recruited PhD student will thus be involved in research and training activities within a cohort of 12 fellow PhD students.

Role of the PhD student

The main role of the hired researcher will be to refine an existing synthesis process of catalyst synthesis to (i) adapt it to up-to-date corrosion-resistant carbon supports and (ii) simplify it at best while keeping outstanding electrochemical performances. To that aim, the rationalization of the manufacturing process will be studied with the strong support of the UCLouvain laboratory, aiming at unveiling the key factors that can be streamlined and correlating those to performance. Catalyst synthesis and physico-chemical characterization will be performed both at ULiège and UCLouvain. Finally, the electrochemical characterization, from fundamental techniques (on rotating disk electrode) to the manufacturing of Membrane-Electrodes Assemblies and testing in real fuel cell configuration will be performed at ULiège. The student will be enrolled in a joint PhD program between ULiège and UCLouvain with the aim of completing a thesis within 4 years.

Information

- *General:* The PhD candidate will be hired by ULiège (Belgium), but the program will be performed jointly between ULiège and UCLouvain. The work will mainly take place in ULiège, at the University (Department of Chemical Engineering – Nanomaterials, Catalysis, Electrochemistry laboratory), with frequent visits to the MOST (Molecular Chemistry, Materials and Catalysis) laboratory at UCLouvain.
- *Profile:* Master in Sciences (Chemistry or physics) or Master in Engineering (preferably specialized in Chemistry and Materials Sciences).
- *Language:* a good level of English is requested
- *Duration:* 4 years
- *Start:* summer 2024
- ***Monthly salary:* ~4000 € (gross), i.e. ~2400 € (net)**
- *Application:* please send a detailed CV and a motivation letter highlighting your skills and interests related to this specific proposal to Nathalie.Job@uliege.be and sophie.hermans@uclouvain.be
- *Application deadline:* May 31st 2024
- *Supervisors:*
 - Prof. Nathalie Job – ULiège, Department of Chemical Engineering (NCE)
 - Prof. Sophie Hermans – UCLouvain, MOST, IMCN Institute.