Post-doctoral Researcher Position in electrocatalysis and bio-electrochemistry applied to lignin valorization

Applicants are invited for a two-year post-doctoral researcher position in electrocatalysis and bio-electrochemistry at FARE Laboratory , Reims, France.

Duration: 2 years

Deadline: Open until filled (not later than 15/02/2022)

Objective: The main objective of this project is to develop new electrochemical interfaces for electrocatalytic reactions applied to lignin valorization.

Description: The post-doc will be recruited in the frame of the VALBIOELEC (Lignin VALorizations by BIO-ELECtro-refinery) project funded (2022-2025) by the French National Research Agency (ANR). The project aims to combine biocatalysis and electrocatalysis in order to design original reactors applied to biorefinery of lignins.

Lignins are considered as a bottomless source of aromatic molecules and thus have enormous potential as a renewable feedstock for the production of both commodity and fine chemicals. Unfortunately, their structural complexity and heterogeneity limit their valorization in biorefinery, thus lignins remain one of the most underutilized renewable sources on the planet. Many physical and chemical methods have been developed and applied in order to depolymerize and valorize lignins, but most of these treatments are highly energy-consuming, non-selective, uncontrollable, environmentally harmful, and economically unsustainable. In nature, white-rot fungi and certain species of bacteria use an enzymatic arsenal to degrade lignins to the point of complete mineralization to CO_2. Since several decades, strategies inspired by these ligninolytic microorganisms have been intensively studied and led to the development of new green biotechnologies aiming to depolymerize lignins in mild conditions with higher selectivity.

The post-doc will be in charge to develop and characterize electrochemical interfaces applied to lignin upgrading. The post-doc will investigate different strategies of electrode surface modification with different catalysts. On the other hand, the post-doc will work on the design and the characterization of bio-electrode with immobilized ligninolytic biocatalysts. To achieve the project, the successful candidate will have to work and communicate with different collaborators from USA and France and may also be required to assist in the supervision of Master students while giving seminars related to the project.

FARE lab offers an outstanding scientific and technical infrastructure (such as analytical and biochemical facilities, electrochemical equipment, etc.), a highly motivated research team, as well as an international and interdisciplinary working environment providing ideal conditions for successfully conducting the research project.

Requirements: Candidates should have a PhD in electrochemistry, biochemistry, or material science with strong skills in electrochemistry. Experiences in electrocatalysis, bio-electrochemistry, biochemistry are highly appreciated. Good communication skills are essential as the successful candidate will need to work in an interdisciplinary team gathering different researchers and write up their research work for presentations and publications.

Application: Applicants should send a letter of motivation and a detailed CV, including the contact details of at least two academic referees to: Dr. Sofiene ABDELLAOUI, sofiene.abdellaoui@univ-reims.fr, +33 (0)3 26 77 35 66

Salary: ca. 1900 euros net/month, including health insurance and 55 days paid annual leave, flexible working hours.