**Call for application for a doctoral position**

**Title: study of electrogenic potential of lignocellulolytic microbial communities.**

The laboratories UMR FARE (Fractionnement Agroressources Environnement), in collaboration with PROSE lab (Environmmental biOtechnology PRoceSses) and the LBE ( Laboratory of Environmental Biotechnology) are offering a PhD position in the study of electrogenic potential of lignocellulolytic microbial communities.

**Context:** The Fractionation of Agro-Resources and Environment (FARE) laboratory based in Reims and under the dual supervision of INRAE and the University of Reims Champagne-Ardenne is developing its research activities in the field of the characterization and valorization of plant biomass. The targeted application concerns the bioelectrochemical oxidation/depolymerization of lignocellulosic biomass and is a part of a research project involving 7 partners including FARE lab, PROSE lab, and the LBE. The candidate will work within the framework of the PEPR (priority research programs and equipment) project ElectroMIC (Electrochemically-assisted MICrobial community metabolic network optimization for biorefinery of organic waste) aiming to develop systems using electromicrobial technologies for the degradation and valorisation of organic waste and agricultural co-products, such as lignocellulosic biomass.The ElectroMIC project is part of the PEPR B-Best (Biomass, biotechnologies, technologies for green chemistry and renewable energies), which aims to bring together the scientific community to lay the foundations for technical, organisational and social innovations that will make it possible to both understand and activate the levers for the efficient transformation of biomass to produce biobased products and sustainable fuels.

**Objective of the PhD thesis:** The person will be in charge of studying the electrogenic potential of different communities and microorganisms during the degradation of the above-mentioned waste and co-products. Several approaches will be used: molecular approaches (NGS, ...) to study the microbial diversity from samples at different levels, characterization of initial and in-process co-products (FTIR, HPLC, ...), activities of lignocellulolytic enzymes, determination of the electrogenic potential of selected microbes/communities and characterization of them bioelectrochemical activities.

**Keywords:** Microbiology, bioelectrochemistry, microbial fuel cell, lignocellulose, microbial diversity

**Required profile:** The candidate should have a strong background in Biology with a solid foundation in Microbiology and a good command of omics tools and/or analysis, skill in any electrochemistry fields will be appreciated. The candidate should also have a highly motivation with good relational skills, he/she have to be able to work in a team, with a proven scientific curiosity and a sense of initiative. The candidate must be able to write and synthesize and be comfortable communicating scientific results. A good level of oral and written English will be appreciated.

**Address of FARE laboratory:** UMR FARE INRAE/URCA, 2 esplanade Roland Garros, 51100 Reims, <https://www6.nancy.inra.fr/fare/>

**PhD school**: ABIES (Agriculture, Alimentation, Biologie, Environnement, Santé)

**Duration** : 36 months (November 2023 – November 2026)

**Application deadline**: Friday 8th september 6pm .

**Documents required** (to all the people listed below**)**:

* C.V and cover letter
* Marks from your Master degree
* Reference letters both form a Master (lab) and a teaching supervisor

**Supervisors** (persons to contact):

Dr. Nicolas Bernet , LBE, INRAE INRAE (nicolas.bernet@inrae.fr)

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