Research subject for a 1-year Post-Doc position:
'Pulsed Electric Fields on microalgae – Electromagnetic simulations and experimental tests'

Université de Pau et des Pays de l'Adour

SIAME laboratory

1-year postdoctoral position in the framework of the project - MicroAlgae Continuous Extraction by Pulsed Electric Field: MiACE-PEF, co-funded by ADEME (Graine), led by ASMA (ARTZAINAK group) in collaboration with UPPA (SIAME laboratory and IPREM laboratory: MANTA chair) and APESA

General presentation:

The MIACE-PEF project consists in developing a continuous extraction process demonstrator to obtain extracts from microalgae biomass using pulse electric fields. The overall objective will be to propose an innovative method to extract various bioactive compounds that could be used in a broad range of application fields such as pharmaceuticals, cosmetics, green chemistry, agriculture…

Microalgae cultivation use very few arable land, the open-pounds or photo-bioreactor culture can be intensified and energy efficient. Furthermore, microalgae represent a seemingly limitless source of bioenergy, food or potentially bioactive compounds. All of these reasons make microalgae biomass a great interest and hope for the development of a new circular bioeconomy. Today, multiple research projects aim to develop innovative culture process but there are still few projects to develop innovative downstream processes to extract the bioactive compounds at an industrial scale. The MIACE-PEF project is divided in several tasks involving the different partners, from the production of the microalgal biomass to the development of the continuous process and construction of the industrial demonstrator. This 1-year postdoctoral position will be integrated in the overall MIACE-PEF project and will aim to develop electromagnetic simulations and experimental tests by applying strong pulsed electric fields on microalgae. This worked is related to the electrical engineering part of the project.

The position includes research, supervision of undergraduate students, write scientific reports and publications and meetings with partners/collaborators.

Host Lab:

This Post-Doc position will be hosted at SIAME laboratory headed by Professor L. Pecastaing that is a research unit located in Pau and Anglet, France. SIAME has an extensive and highly competitive research program that encompasses fundamental research in thermal transfer, mechanics and electrical engineering. This position will be a part of High Voltage Processes team. This team works particularly in the field of the physics and technology of pulsed power. More information on the research group is available in the website:
https://siame.univ-pau.fr/fr/organisation/equipes/equipe-procedes-haute-tension.html

Details of the Post-Doc position:
Contract duration: 12 months
Starting date: 01/09/2024
Work load (in percentage): 100 %.
Remuneration: according to UPPA rules
Deadline for the application: 07/05/2024

Diploma required: PhD Title or an equivalent foreign Diploma in the domain of electrical engineering (e.g., high-voltage, pulsed power or electromagnetism)

Desirable skills:

- Experience in the domain of pulsed power or high-voltage technology would be highly appreciated
- Experience with electric circuit solvers and/or electromagnetic software
- Good fundamental knowledge of electromagnetism
- The candidate must be capable to perform research without day-by-day guidance and to collaborate with foreign researchers (a good level of English is preferable)
- The candidate must be capable to produce reports and manuscripts to be send for publication to international renowned journals. The candidate should also be able to present oral contributions at conferences and present the research in front of sponsors at a general audience level.

Contact: For more information and for applying for this position, please contact Professor Laurent Pecastaing by email at laurent.pecastaing@univ-pau.fr. Please attach a detailed CV and a letter of motivation.