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Project: PRODUCTE – CellCO₂

Area leader: Prof. Joan Ramon Morante

Group: Energy Storage, Harvesting and Catalysis

Group leader: Prof. Joan Ramon Morante

First Stage Researcher (R1) in Materials for Energy Storage

The **Energy Storage, Harvesting and Catalysis** group, part of the Advanced Materials for Energy area, led by Prof. Joan Ramon Morante is seeking an engineer/researcher to work within the frame of an AGAUR Project, devoted with the *design and fabrication of an electrochemical cell for CO₂ conversion*.

Description: The candidate will work in a young and interdisciplinary team, with strong background in electrochemical processes for energy-related applications (hydrogen production and CO₂-electroconversion). Specifically, the job will be focused on the design, fabrication and operation of an optimized 500 cm² electrochemical cell prototype for CO₂ reduction. The know-how of the group, with more than 10 years working in this topic, will be the basis for the technology scale-up, with the main objectives of using the prototype:

- 1) To test novel catalysts in closer-to-industrial conditions
- 2) To be used as a strategic model to show potential applications to companies interested in decarbonization alternatives.

The candidate will be responsible for the preparation and implementation of high performance electrodes, design, fabrication and assembly of the electrochemical reactor, optimization, operation and evaluation of process parameters to obtain the goal energy efficiency of the project. Also, design a monitoring program for pressure, flow and temperature, in order to automatize the process. In the final months, the prototype will be tested in real operational conditions (in BPP facilities).

Requirements: We are looking for a motivated, methodical, with strong initiative and results-oriented candidate with good communication skills.

Selection criteria

- Academic background appropriate to the position: Degree in Chemical Engineering/ Mechanical Engineering / Industrial Engineering / Electrochemistry/ Materials Science or similar. A MSc or previous experience in related fields is a plus.
- Prior experimental/prototyping studies (TFG, TFM, practices) related to engineering design, flow reactors, fluid dynamics, electrochemistry, CO₂ electro-reduction, heterogeneous catalysis, etc...
- Knowledge of CAD software (e.g. Fusion 360, Autocad, Onshape, Solidworks, etc...).
- Knowledge of basic programming software (Matlab, Labview, etc...).
- Knowledge of basic electronics, implementation of sensors (pressure, temperature, etc...) and control valves.

- Fluent English is mandatory, Spanish is advantageous.
- Aimed at solving a problem related to IREC's R+D+i activities.

Contract duration: 18 months (with the possibility of extension).

Professional Category: First Stage Researcher (R.1.4). A salary commensurate with the characteristics of the candidate.

Incorporation: The candidates should be available for starting in 15th January 2023.

Workplace: Barcelona (IREC facilities).

Application: Applicants should send a detailed Curriculum Vitae, a motivation letter and bachelor/master transcripts to irecjobs@irec.cat (with copy to Nina M. Carretero, ncarretero@irec.cat). Please indicate the reference "PRODUCTE-CO2" in your mail.