Université de Paris

LABORATOIRE ELECTROCHIMIE MOLECULAIRE

Unité Mixte de Recherche CNRS 7591

Bât. Lavoisier, Case 7107
15, rue Jean Baïf
75013 Paris, France

Postdoc position -18 months – Starting date: no later than October 1st, 2021

Development of a flow cell incorporating molecular catalysts for electrochemical CO_2 reduction

Ongoing shift within the chemical industry to use electrical power instead of fossil fuels has started. Electricity can be used as energy input to drive reactions, or, as the next step, enable novel electrocatalytic conversions at mild conditions. A particularly promising route is the electrocatalytic conversion of CO_2 to CO (carbon monoxide). CO (annual production about 75 Mt, main feedstocks are methane and coal) is an important intermediate for the production of petrochemical products and plastics.

In this context, we develop a platinum group metal (PGM) free CO_2-electrolyzer with high selectivity at ambient temperatures in aqueous electrolytes using anion exchange membranes (AEM). The flow cell includes molecular catalysts (Fe, Co) at the cathode, a strong originality of the project. The post-doctorate associate will participate in developing novel catalysts and perform cell characterization in lab scale environment. In a collaborative effort, several international partners produce novel paper-based highly porous electrodes, assemble and test cells and stacks based on catalysts and electrodes from the project.

Position is at the LEM (Laboratoire d'Electrochimie Moléculaire) at Université de Paris. As mentioned above, this project is an international collaborative effort with academic and industrial partners (Air Liquide, Papiertechnische Stiftung (PTS), Forschungszentrum Jülich (FZJ)).

Profile: the candidate must possess research track record with several first authored publications in recognized international journals within the field of electrochemistry and/or electrocatalysis and electrochemical devices. Experience with industrial and scientific collaborations will be considered advantageous. Previous experience with supervision of doctoral students will be considered beneficial. Excellent communication skills in both written and spoken English is all-important.

Contact : Prof. Marc Robert, robert@u-paris.fr
Group web site : https://reacte.lem.univ-paris-diderot.fr/