

Post-doc position on “Time-resolved spectroscopic investigations on Fe-porphyrin catalysts for CO₂ reduction”.

Employer: CEA Institut JOLIOT

Contract type: fixed-term, 12 months

Workplace: Laboratory of Fundamental Mechanisms in Bioenergetics, Institut JOLIOT CEA Saclay, France

Salary range: 34000 - 37000 € annual gross, depending on experience

Stat date: February 2021

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This project, based on a strong collaboration between the groups of Winfried Leibl at CEA and Ally Aukauloo at ICMMO, aims at investigating the catalytic cycle of new bioinspired iron porphyrins in light-induced CO₂ reduction, to gain insight into the structure-function relationship for these molecular architectures, and proceed with a rational design of more efficient photocatalysts.

To achieve our goal, we intend to combine electronic and vibrational spectroscopy to identify the key intermediate species formed during the catalytic cycle, as well as to unravel the dynamics of the system. For the mechanistic investigation of CO₂ reduction by new metalloporphyrins complementary techniques and methodologies will be employed *in situ*: spectroelectrochemistry, steady-state and time-resolved absorption changes measurements, both at the electronic and vibrational energy domain. The new catalysts, benchmarked in photocatalytic conditions (TOF, TON and selectivity), will be investigated in single turn-over conditions, that is delivering stepwise electrons, substrate and protons, in order to collect the spectroscopic signatures, in the visible and infrared spectral regions, that are characteristic of the intermediates formed.

Candidate's profile:

- PhD in chemistry
- Solid background physical-chemistry
- knowledge of vibrational spectroscopy and electrochemistry will be appreciated.
- Ability to work with limited supervision as well as to work and communicate within an interdisciplinary team
- Proficiency in English, both written and spoken, is essential.

Application procedure: If interested please send a CV, a motivation letter and the name of two referees.