PhD and/or Master position in Caen January 2026

New hybrid photocatalytic materials for fuel production and CO_2 valorization

Energy production from fossil raw materials is an issue and alternative solutions have to be found for more eco-compatible processes in the field of energy production. In the main time, the products generated by combustion of the fossil raw materials are greenhouse gas and their transformations into new burnable sources or products of interest could offer a transitory solution before achieving their full replacement. But, both of these chemical processes require energy. In order to make a more sustainable energy cycle, the conversion of solar energy into chemical bonds for the production of fuels would be valuable processes. To bring solutions to these critical research topics, our project aims to **develop new hybrid photocatalytic materials and integrate them into flow chemistry process** for potential mass production.

Mission: The researcher will work in the group of Dr. Sylvain GAILLARD (CARMeN, ex LCMT, University of Caen - Normandy) and be in charge of the preparation of organometallic complexes and their immobilization on hybrid support. This multidisciplinary project is in collaboration with the team of Dr Barreau Mathias (LCS, University of Caen - Normandy) which is in charge of hybrid support and the team of Pr Marco DATURI (LCS, University of Caen - Normandy) which will develop the in-situ analytic part of the flow process.

Work context: The candidate will be supervised by Dr. Sylvain Gaillard (HDR, sylvain.gaillard@ensicaen.fr), member of the team "Catalysis and Applications" (CAAP) in the UMR 6464 Institut de Chimie Analytique et Réactivité Moléculaire en Normandie (ex LCMT).

Required skills: Organic synthesis, Transition metal complex synthesis, Catalysis, Structural and Photophysical Characterization

Application : For more details contact Dr GAILLARD Sylvain at sylvain.gaillard@ensicaen.fr
For application: CV, cover letter and recommendation letter(s) are required.