Seminar : Anis Tlili

Directeur de Recherche CNRS,
LHCEP, University of Lyon 1, Lyon, France

February, 07th 2025 at 2 PM

Salle Barriol (7ème étage FST)

Advancing CO_2 and SF_6 Conversion and Beyond: Harnessing New Opportunities in Small Molecule Valorization

Our research group is dedicated to developing novel methodologies and catalysts to activate and enhance the value of small molecules. In this regard, our presentation will highlight recent breakthroughs achieved in our laboratory focusing on the utilization of CO_2 and SF_6. Firstly, significant advancements have been made in developing an innovative carboxylative aminative cross-coupling process for the synthesis of Aryl carbamates using a dual nickel/organophotocatalysis approach. Additionally, we have demonstrated that CO2 could be used as a C1 unit to synthesize carbamoyl fluorides through unprecedented deoxyfluorination of CO_2. Carbamoyl fluorides are bench-stable compounds that serve as valuable building blocks. It is important to note that, in addition to commercially available deoxyfluorination reagents, we've successfully demonstrated that SF_6, as the most potent greenhouse gas, could also be used for deoxyfluorination purposes to access carbamoyl fluorides. Finally, the valorization of SF_6 in pentafluorsulfanylation reactions has also been undertaken to address major issues related to chloropentafluorosulfanylation of unsaturated compounds effectively tackling concerns regarding the availability and toxicity associated with Cl-SF_5. Additionally, we have developed a new class of shelf-stable reagents designed specifically for direct pentafluorosulfanylation reactions. The synthesis process for these reagents, along with their practical applications, will be presented in detail.

Séminaire organisé dans le cadre du projet de programme interdisciplinaire MAT-PULSE