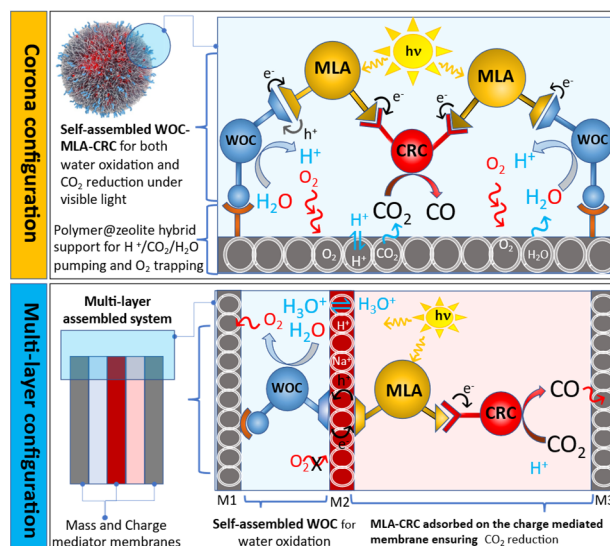


Label SunToChem (2022-2025): ***Self-Assembled Multi-Component Photocatalyst Systems for Efficient Storage of Visible Light Energy in Chemical Bonds: Toward a sustainable Artificial Photosynthesis***

Net Budget: k€528; Funding source: Label d'excellence RIN RECHERCHE 2022; (Project coordinator M. El-Roz)

SunToChems' project that aims, via a multidisciplinary team of Postdocs and research engineers, to develop a new approach for building a multi-components photocatalysts system by self-assembling molecular approach. The key of the success of SuntoChem project will be ensured by the combination of the molecular modeling with the experimental investigations at different time scales. The combination of modelling with synthesis strategy and advanced characterization, is therefore the guidelines of my group to design a new generation of sustainable artificial photosynthesis catalysts with enhanced performance. The first results of the project are very promising, showing e.g. the advantages of the preparation of the organometallic complexes based photocatalysts on zeolite (shell/core type form) for enhancing photocatalytic reduction of CO₂. Zeolite nanoparticles play as an active support to concentrate the reactant (CO₂/H₂O) and immobilize the photocatalyst. A demand of patent for protecting the building block monomer-based ligands, synthesized for preparing the catalysts is in preparation by the CNRS. On another hand, the self assembling of the Photosensitizer with a cocatalyst can shorten the energy/charge transfer enhancing then the overall yield of the photocatalytic reaction of CO₂. The results obtained from this project will serve for designig self-assembled multi-component systems combining photocatalysts moitey for OWS and other for CRC.



Bipyridines functionalized by acrylic functions, their preparation processes and their uses (EU, pending).