

Solar fuels from CO₂, H₂O and N₂ catalytic electrochemical and photochemical reduction. The revolution to come.

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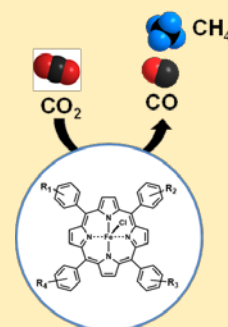
(Laboratoire Electrochimie Moléculaire, Université Paris Diderot, Paris, France)

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Amphithéâtre SOLEIL

Recent attention aroused by the reduction of ‘small molecules’ (carbon dioxide, water, nitrogen) has as main objective the production of useful organic compounds and fuels – the “solar fuels” – in which solar energy would be stored. One route to this goal consists in first converting sunlight energy into electricity that could be further used to reduce the substrate electrochemically. Another approach is to directly use the visible photons and photo-stimulate the reduction of the substrate. Both molecules and solid materials could be used as catalysts.

After a panorama of the field, some of our recent results regarding the CO₂ conversion to CO and then CH₄ in electrochemical and photochemical conditions while using Fe and Co based molecular complexes will be presented (Scheme).

From these examples, we will discuss the research directions that need to be explored for advancing the field and inventing technology applications. In this connection, mechanistic understanding upon combining various spectroscopy techniques, theory as well as *in operando* studies of the catalytic systems will be essential.



Ce séminaire sera suivi d'une pause café

Formalités d'entrée : accès libre dans l'amphi du pavillon d'Accueil.
Si la manifestation a lieu dans le Grand Amphi SOLEIL du Bâtiment Central merci de vous munir d'une pièce d'identité
(à échanger à l'accueil contre un badge d'accès)

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