

# Hybrid catalysis for efficient CO<sub>2</sub> reduction using molecular complex/carbon based materials

Marc Robert<sup>1</sup>

<sup>1</sup> *Laboratoire Electrochimie Moléculaire - UMR CNRS 7591, Université Paris Diderot, Sorbonne Paris Cité, 15 rue Jean de Baïf, 75013 Paris, France*  
robert@univ-paris-diderot.fr

Recent attention aroused by the reduction of carbon dioxide has as main objective the production of useful organic compounds and fuels – the “solar fuels” – in which solar energy would be stored. Molecular catalysts can be employed to reach this goal. One route consists in first converting sunlight energy into electricity that could be further used to reduce CO<sub>2</sub> electrochemically.(1-2) Another approach is to directly use the visible photons and photo-stimulate the electrochemical reduction of the gas in the presence of an appropriate sensitizer and a sacrificial electron donor.(3) Molecular catalysts may provide excellent selectivity but usually with less durability and more complex processability than solid materials. Hybrid systems in which a robust molecular catalyst is associated to a porous carbon material as conductive support may combine the advantages of both homogeneous and heterogeneous catalysis. By using state-of-the art CO<sub>2</sub> molecular Fe or Co catalysts and porous carbon material as conductive or semi-conductive support, efficient CO<sub>2</sub> reduction has been achieved. (4-5) Our most recent results will be discussed.

## References:

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