

Supervisor Expression of Interest MSCA-IF Marie Skłodowska Curie Actions-Individual Fellowship 2020

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Research Group webpage:	http://www.iciq.org/research/research_group/prof-antoni-llobet/
Research Topic:	Artificial photosynthesis, Solar fuels, Molecular redox catalysis, Electro- and photo-chemically induced catalysis, Coordination chemistry.

Brief description of the research project idea:

Artificial photosynthesis has the potential to solve today's energy and environmental crisis by storing sunlight into chemical bonds and generating solar fuels. A potential way to achieve this is by constructing of a photoelectrochemical cell (PEC) that efficiently achieves water oxidation at the photoanode and for instance CO₂ reduction to CO, MeOH or other useful reduced compounds at the cathodic site. Light induced redox catalysis is the key topic that needs to be understood and mastered in order to be able to come up with useful PEC devices. For this purpose, our approach is to combine powerful, rugged and properly functionalized molecular redox catalysts and anchor them the on light absorbing materials and/or molecular polymers.

The final goal is to build an efficient and cost-effective photoelectrochemical cell for the generation of clean and sustainable solar fuels.

Preferred skills or background

We are looking for a highly motivated, responsible and creative individual in the domain of molecular chemistry. The candidates must have an outstanding academic record and good command of English. Skills in the fields of coordination chemistry, spectroscopy, electrochemistry, catalysis, electrocatalysis and photocatalysis are highly appreciated.