

## Coupling photoredox with bioinspired molecular catalysts for O<sub>2</sub> and CO<sub>2</sub> activation

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One main thrust in bioinorganic chemistry is the design and making of chemical models of the active sites of many enzymes. The idea is to provide insights in the mechanistic functioning of the enzymes and importantly to replicate their unmatched catalytic properties. While often trapping intermediates following chemical and electrochemical pathways are tedious, using a photoredox module to interrogate the light driven activation processes can be alternative and elegant route.

We shall discuss on the light driven activation of :

- i) O<sub>2</sub> with non-hemic models for Oxygen Atom Transfer reactions<sup>1</sup>
- ii) CO<sub>2</sub> to CO transformation with iron porphyrins catalysts<sup>2,3</sup>

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<sup>1</sup> N-T. Vo, et al, *Angew. Chem. Int. Ed.*, **2019**, 16023-16027.

<sup>2</sup> P. Gotico, et al. *Angew. Chem. Int. Ed.*, **2020**, 59, 22451 –22455,

<sup>3</sup> E. Pugliese et al. *Angew. Chem. Int. Ed.*, **2022**, e202117530