

ally.aukauloo@u-psud.fr

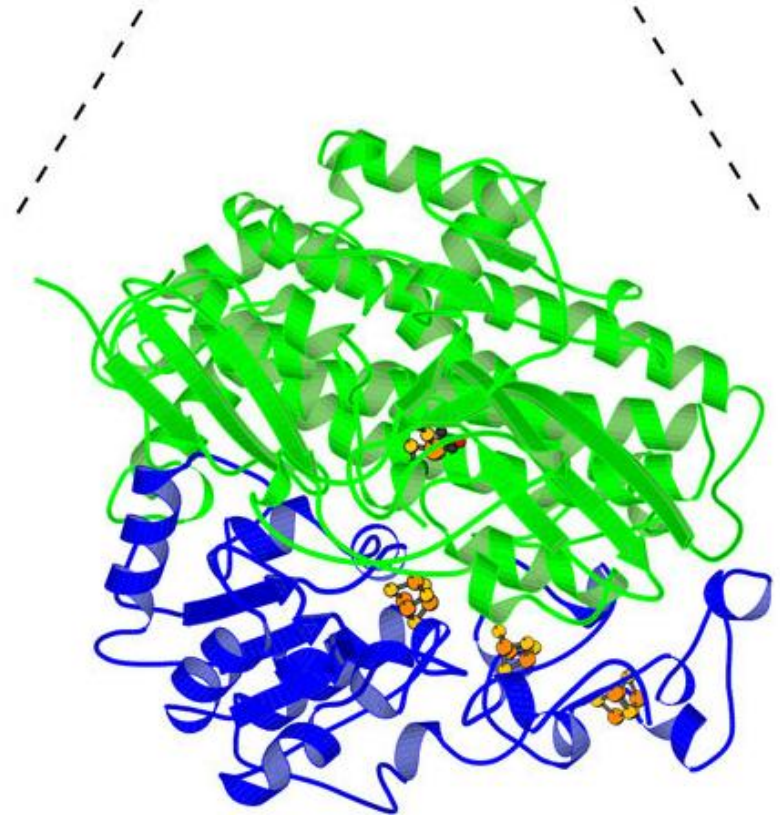
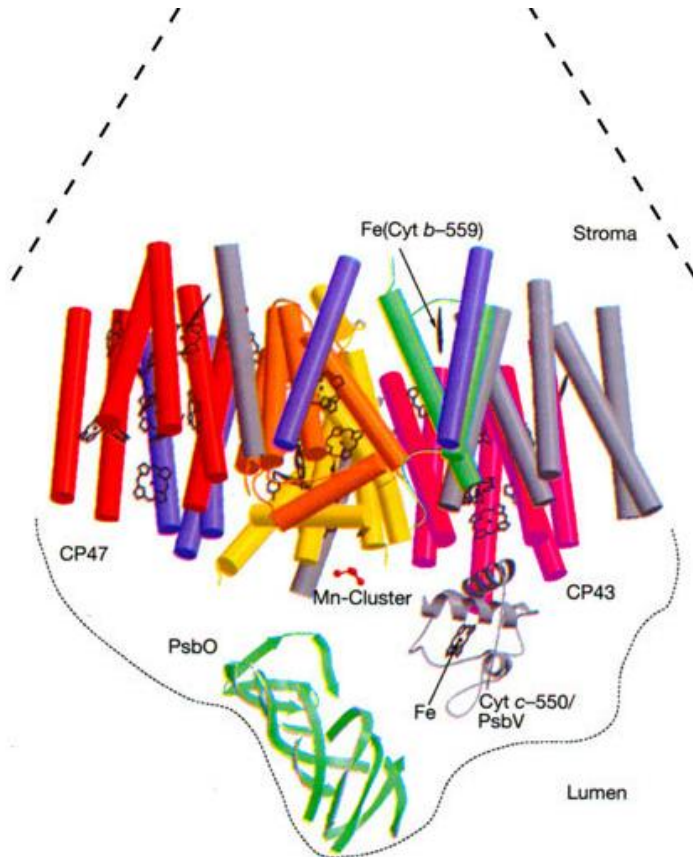
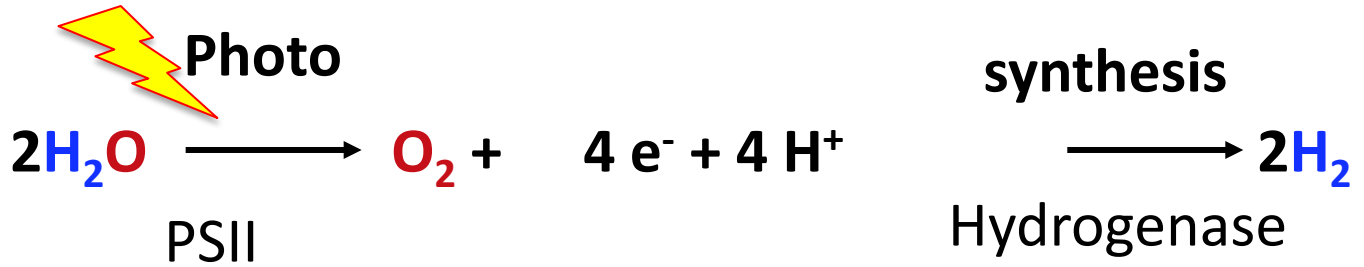
Université Paris Sud – Université Paris Saclay

Institut Joliot, CEA Saclay

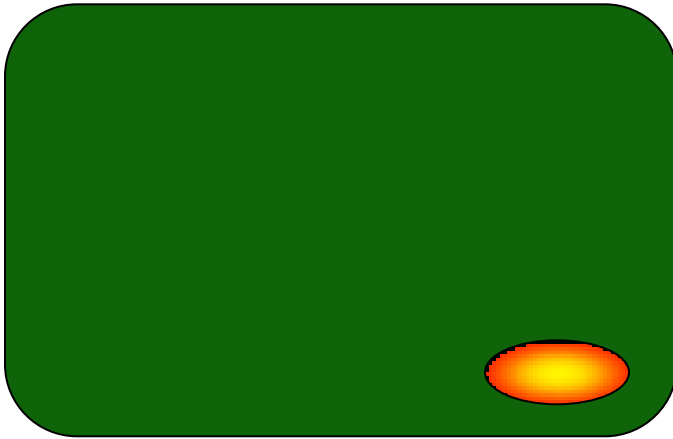
ENS

19/01/2019

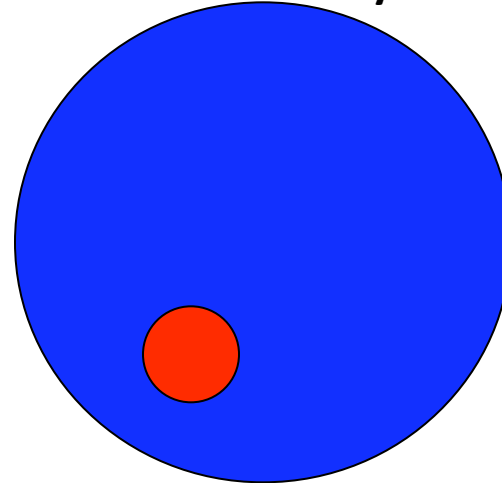
Nature as source of inspiration



Biology



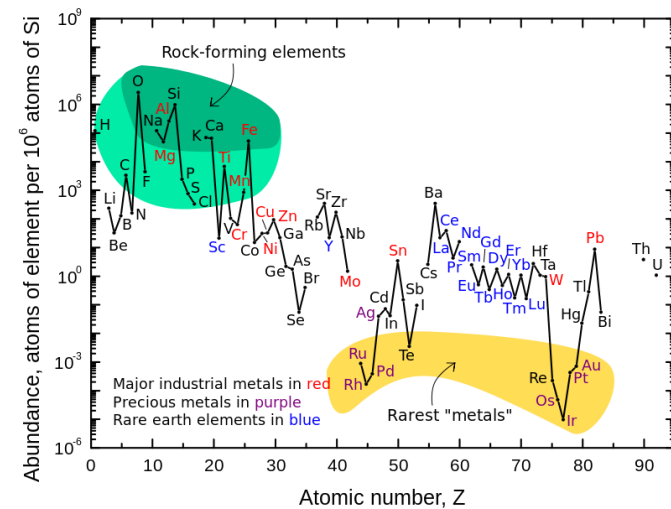
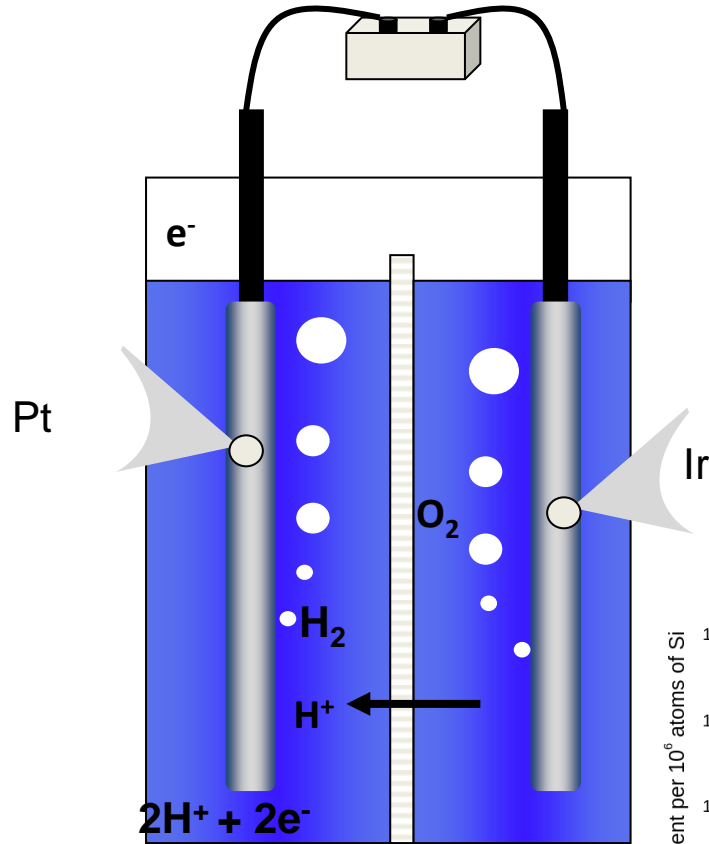
Chemistry



Ridley's Paradox

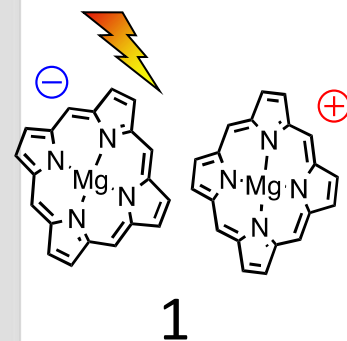
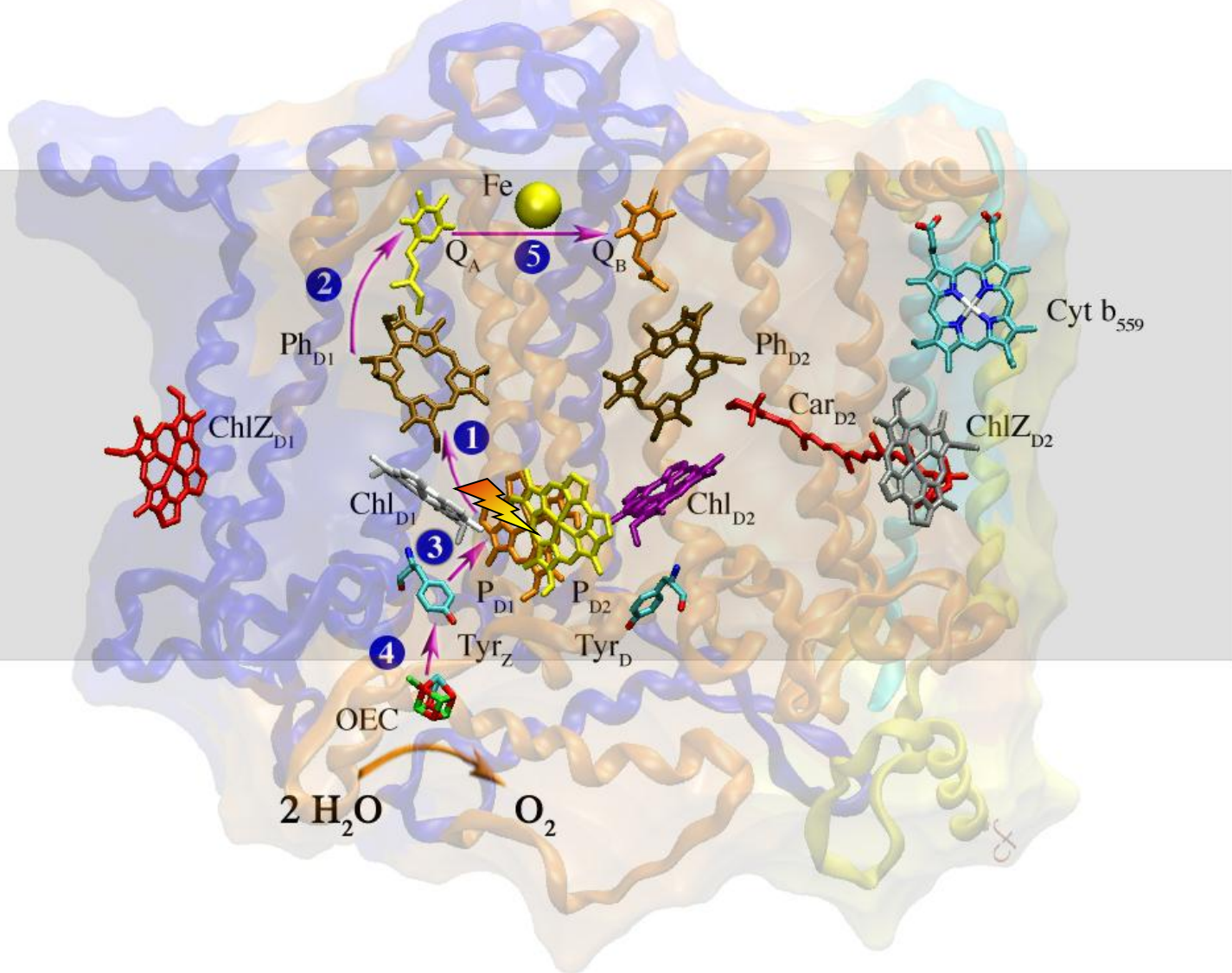
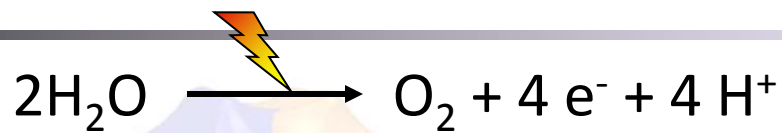


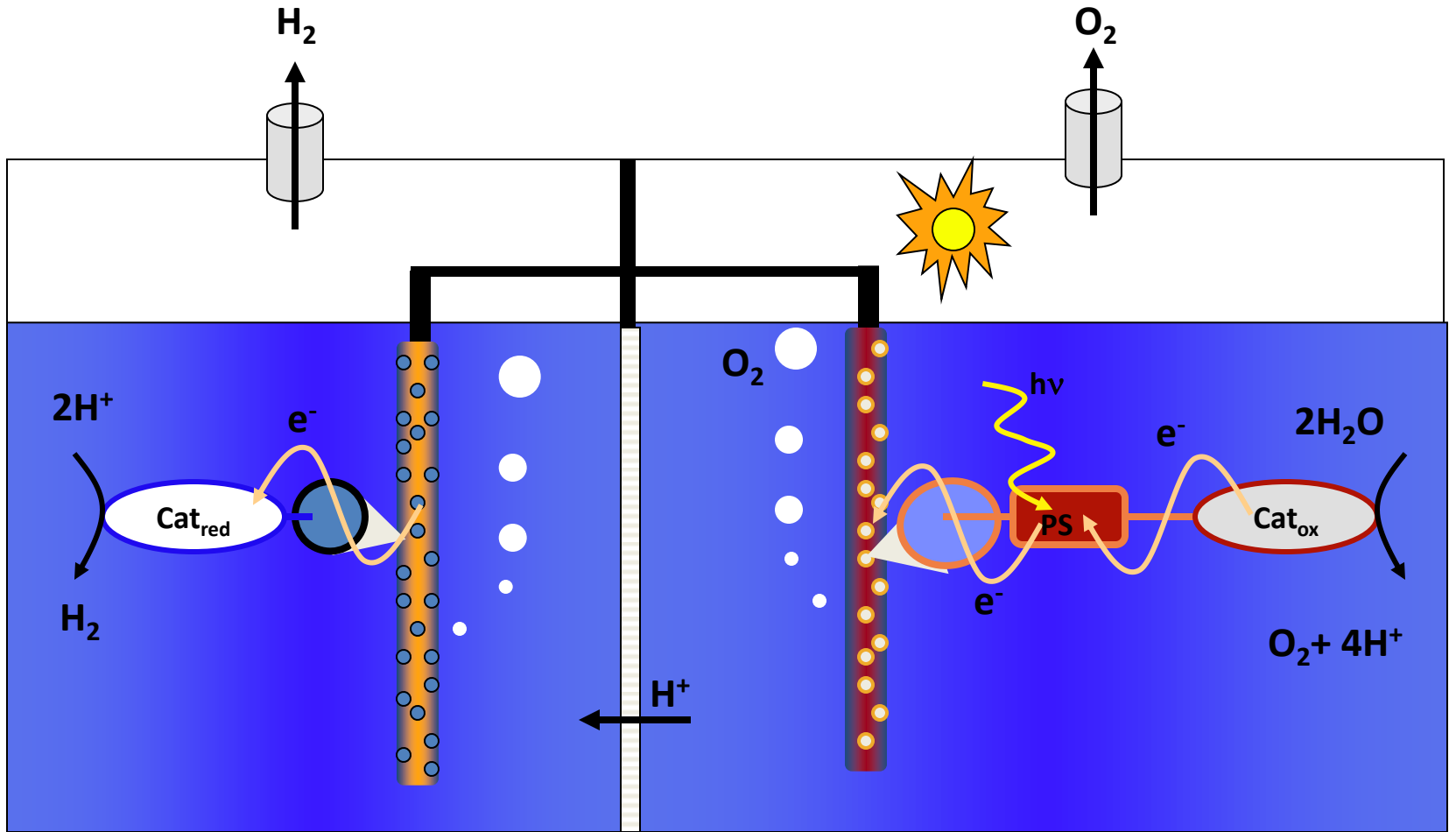
Electrolyser





Photosystem II

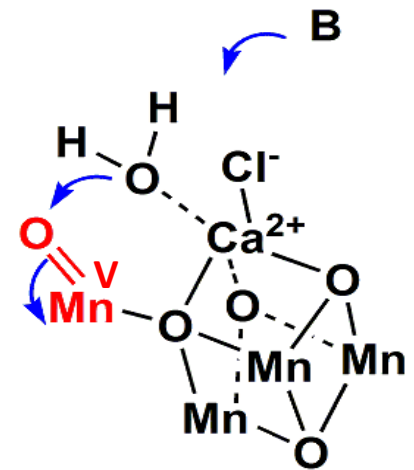
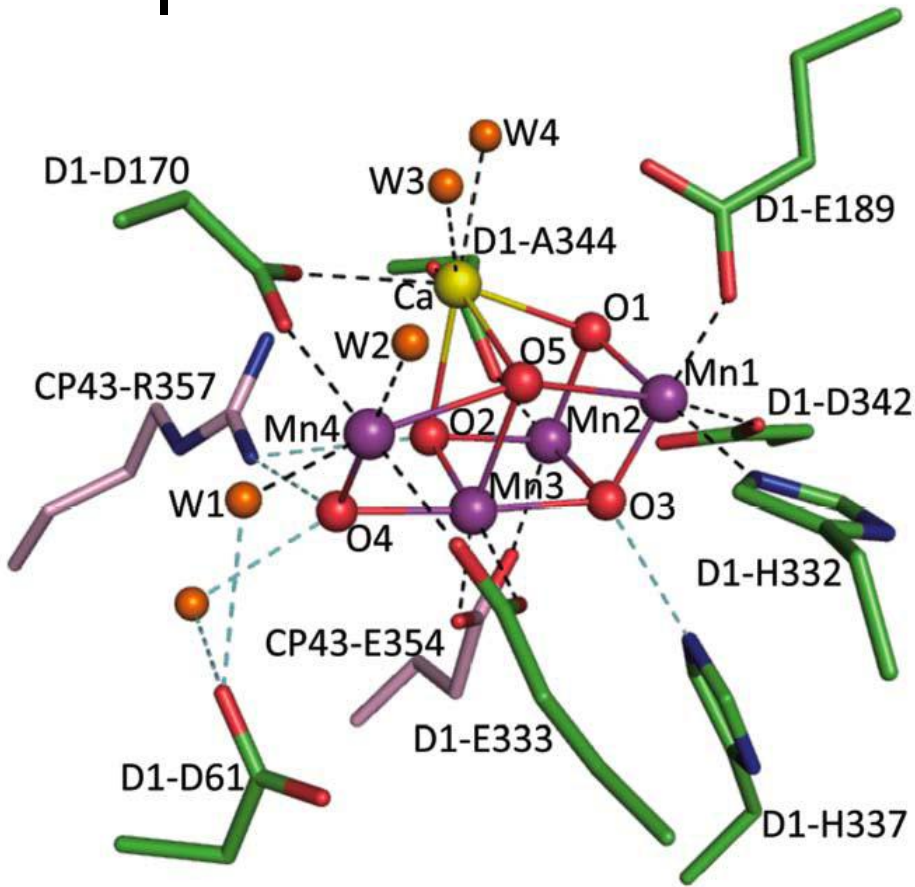




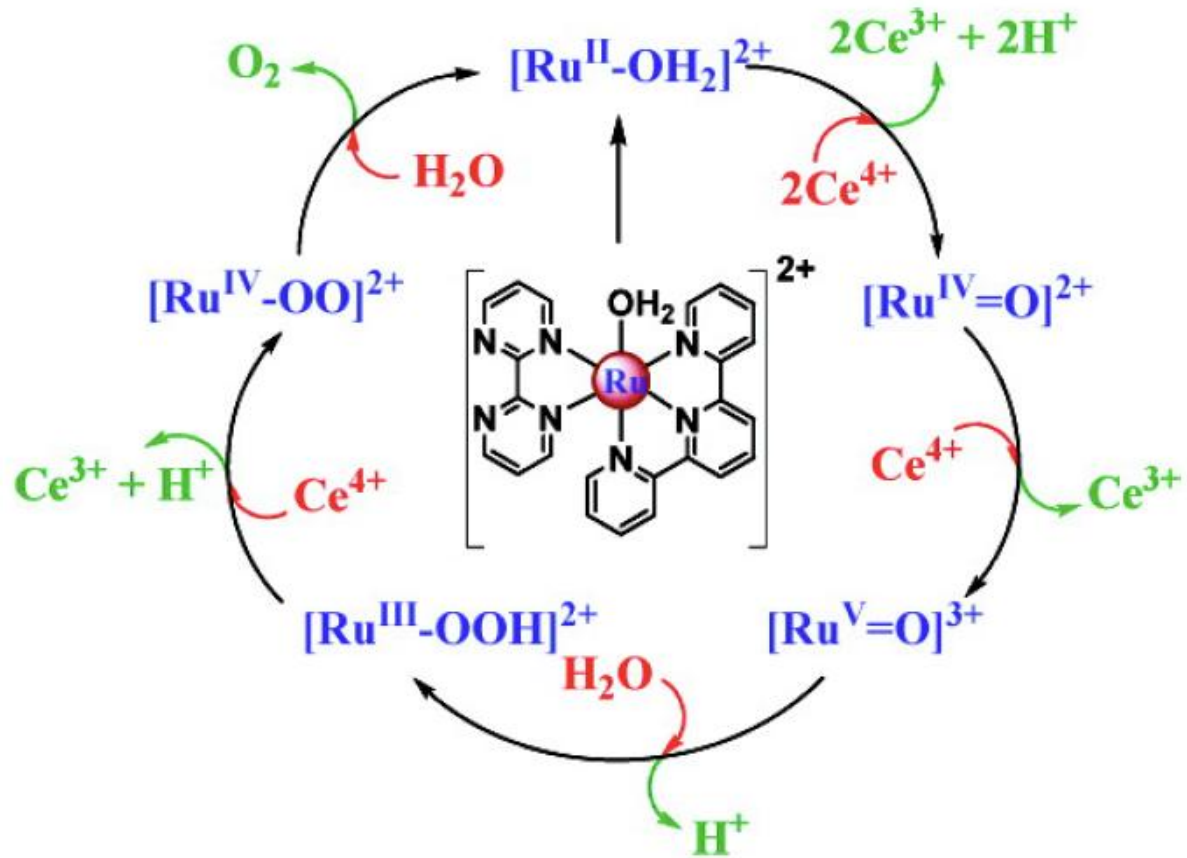
Cat_{red}: Catalyst for reduction

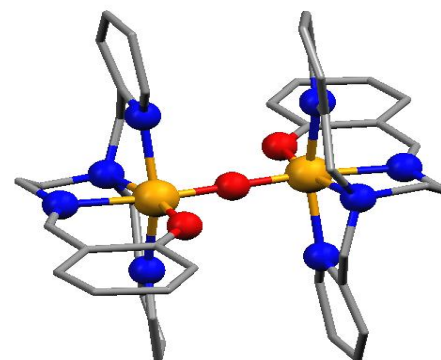
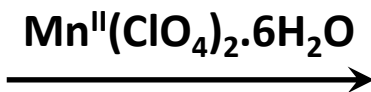
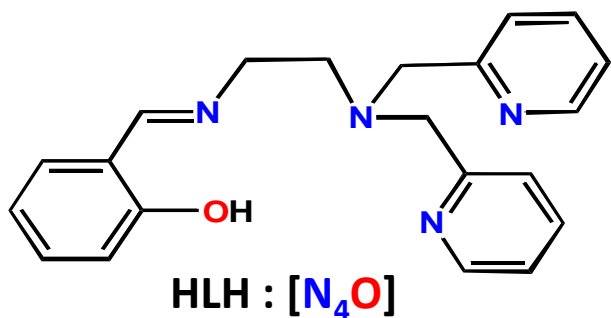
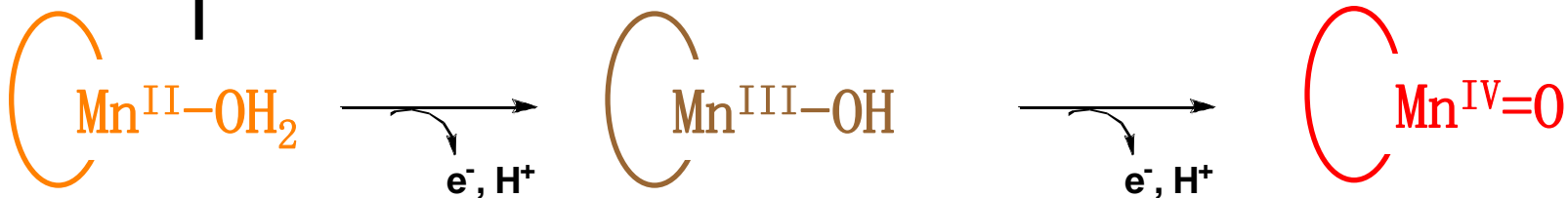
PS: Photosensitizer

Cat_{ox}: Catalyseur for WO



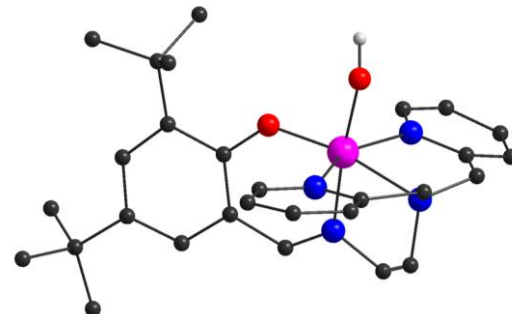
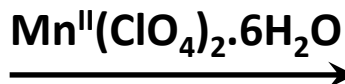
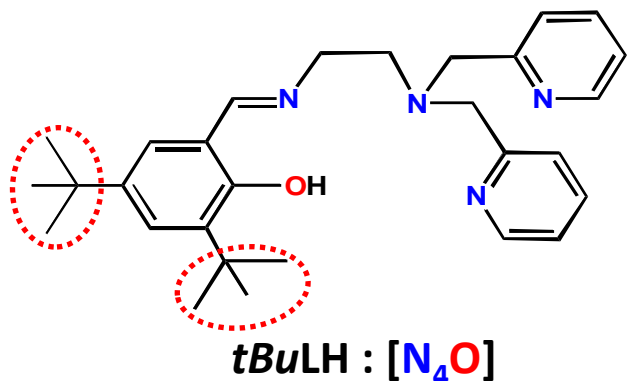
Catalyseur pour l'oxydation de l'eau



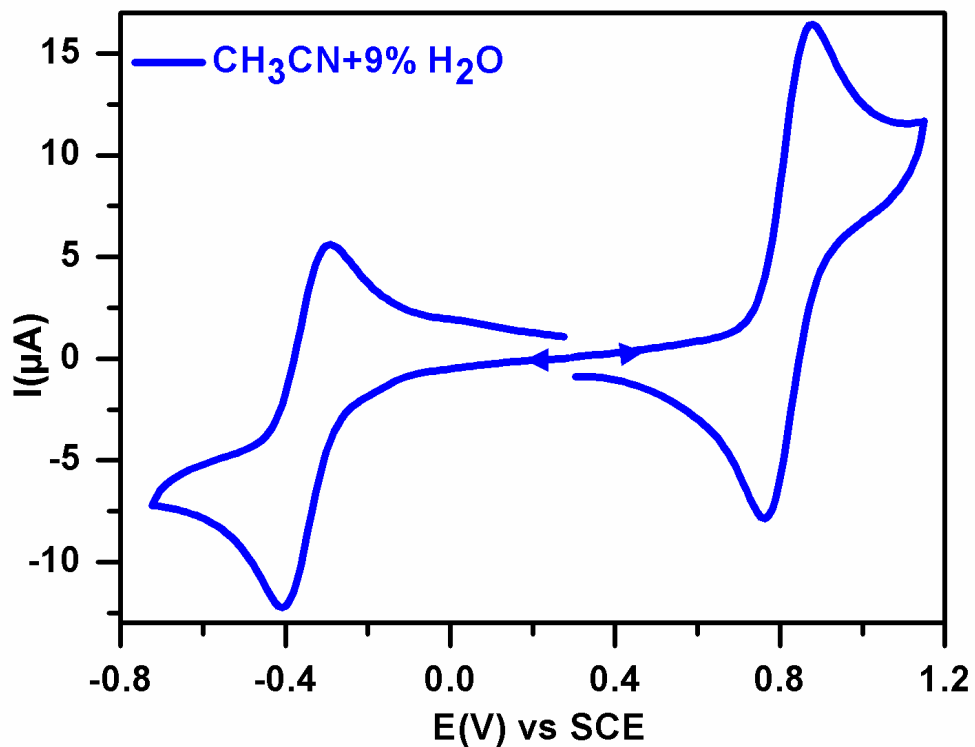


Dinuclear « mu-oxo »
 $\Rightarrow \text{LMn}^{\text{III}}-\text{O}-\text{Mn}^{\text{III}}\text{L}$

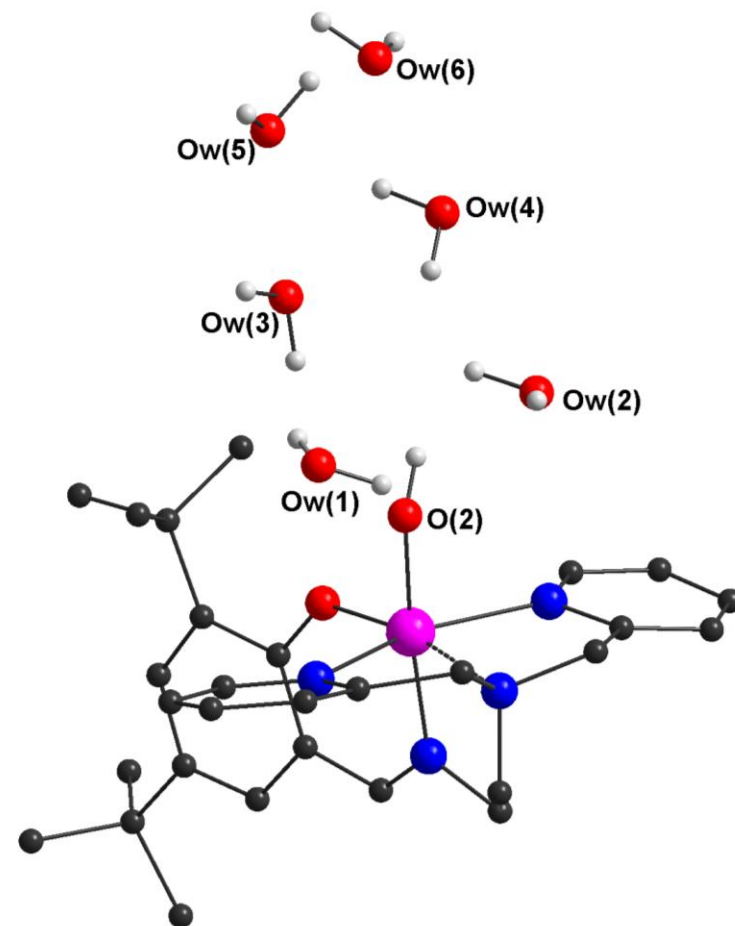
O. Horner et al, Inorg. Chem. 1999



Mononuclear
 $\Rightarrow \text{tBuLMn}^{\text{III}}-\text{OH}$

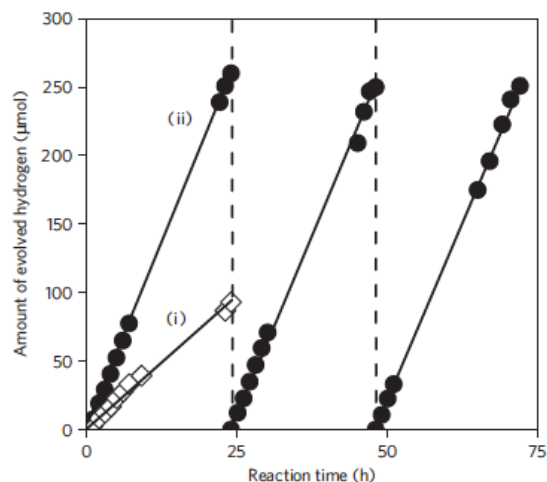
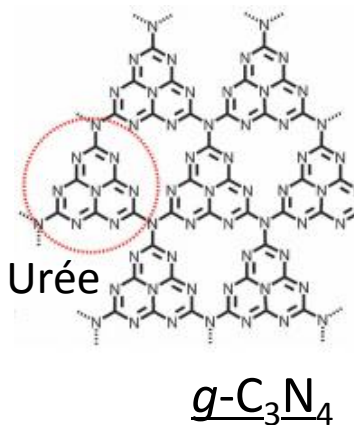


CH₃CN / H₂O

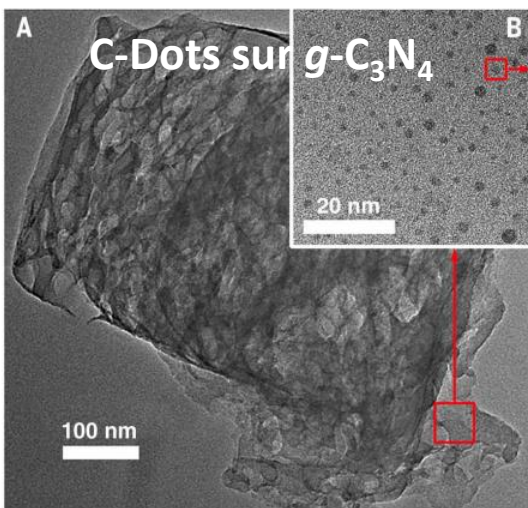
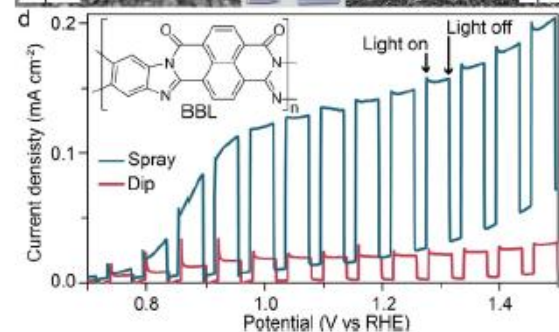
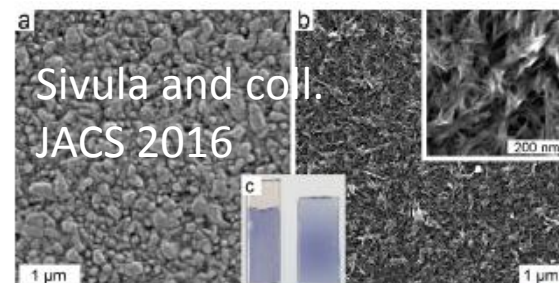


Gain in reversibility for both anodic and cathodic processes

M. Antonietti

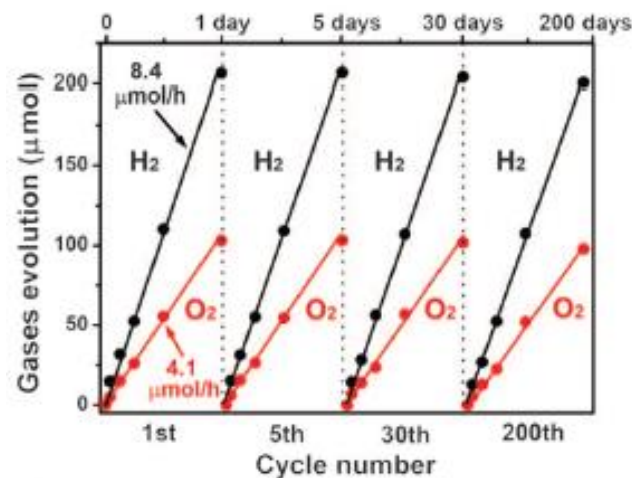


Pt, TEOA

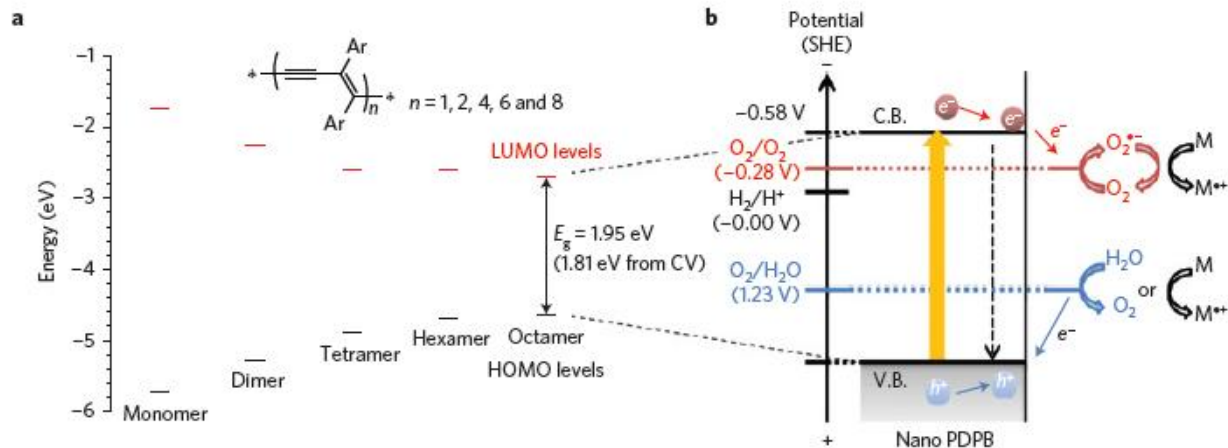
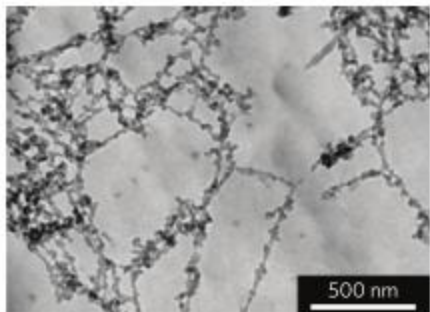


Water splitting under visible irradiation

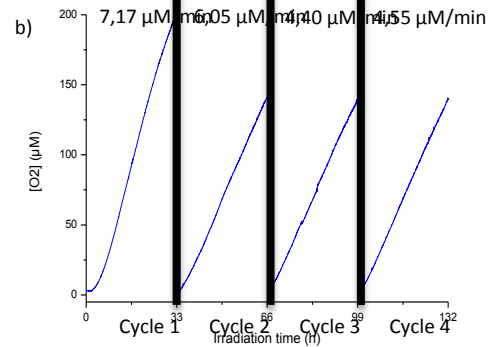
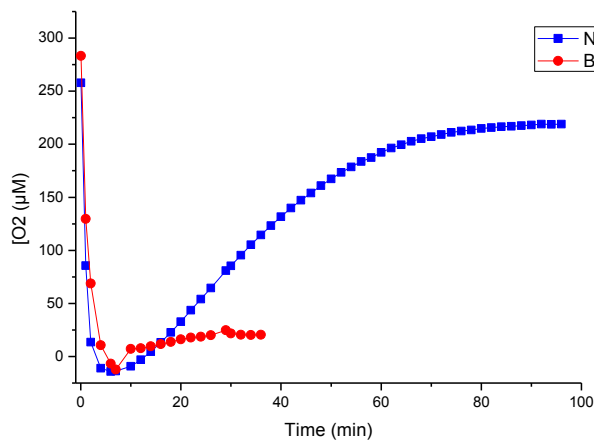
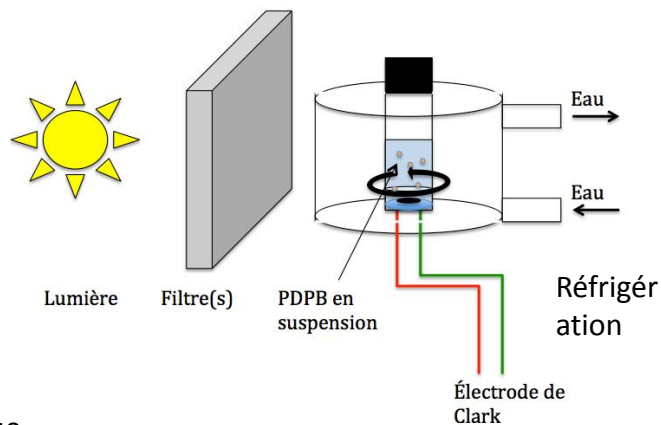
QE = 2% à 470 nm



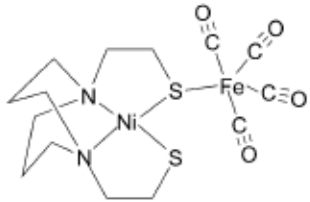
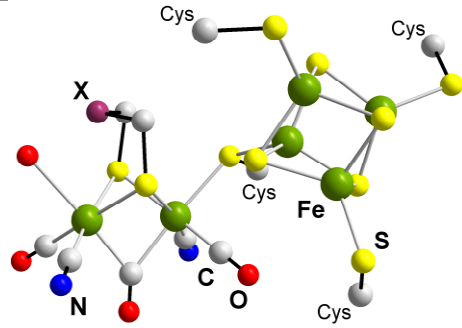
Liu and Kang, *Science*, 2015, 347, 970



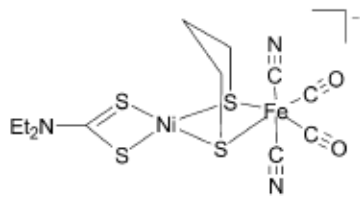
Photocatalysis of water oxidation



450nm-
800nm

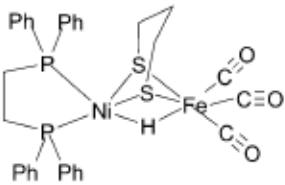


Darensbourg et al. 1996

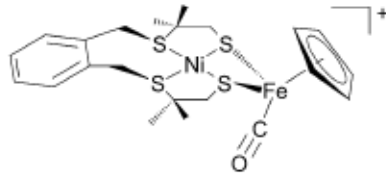


Tatsumi et al. 2005

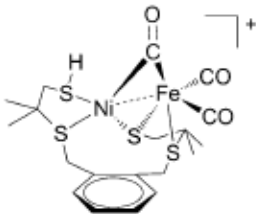
H₂-evolving mimics



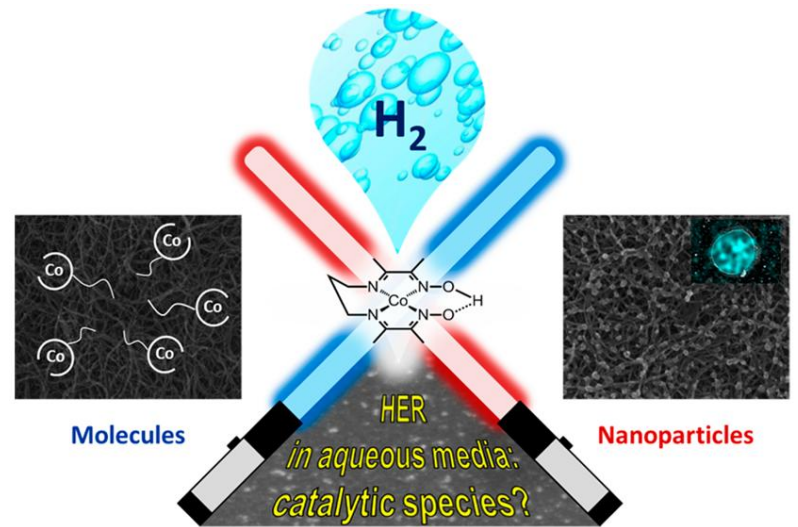
Rauchfuss et al. 2009

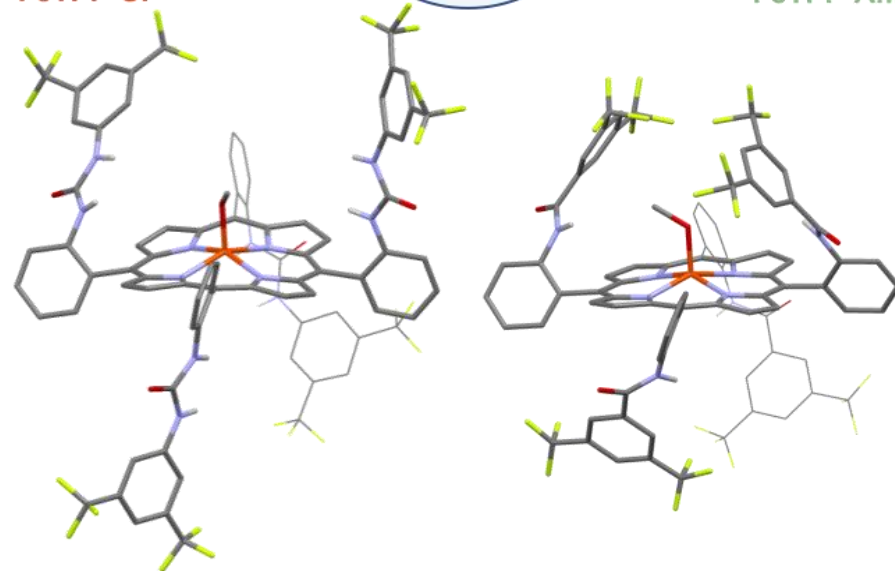
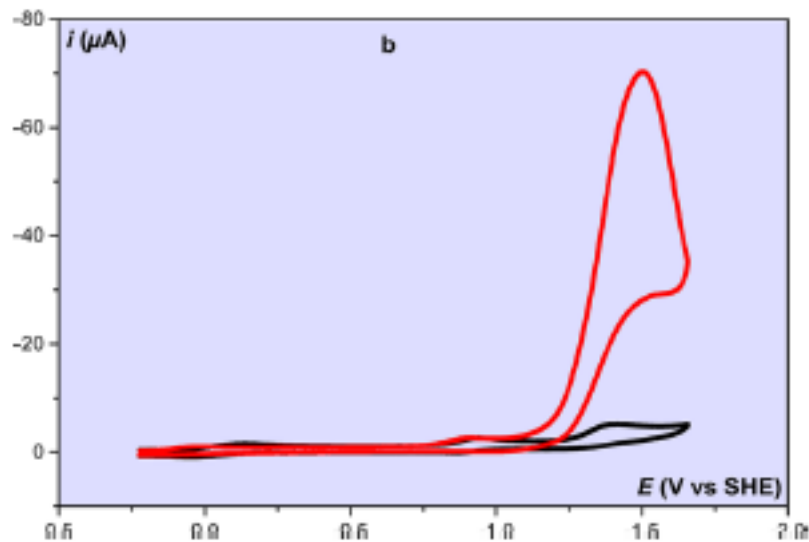
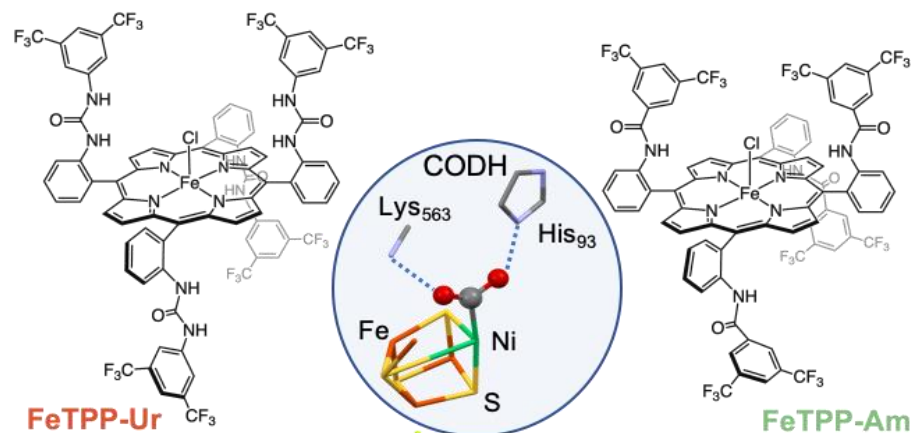
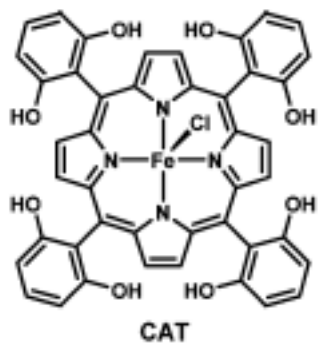


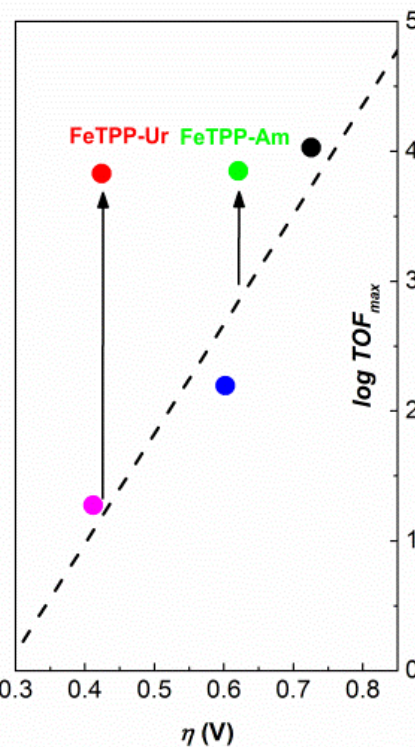
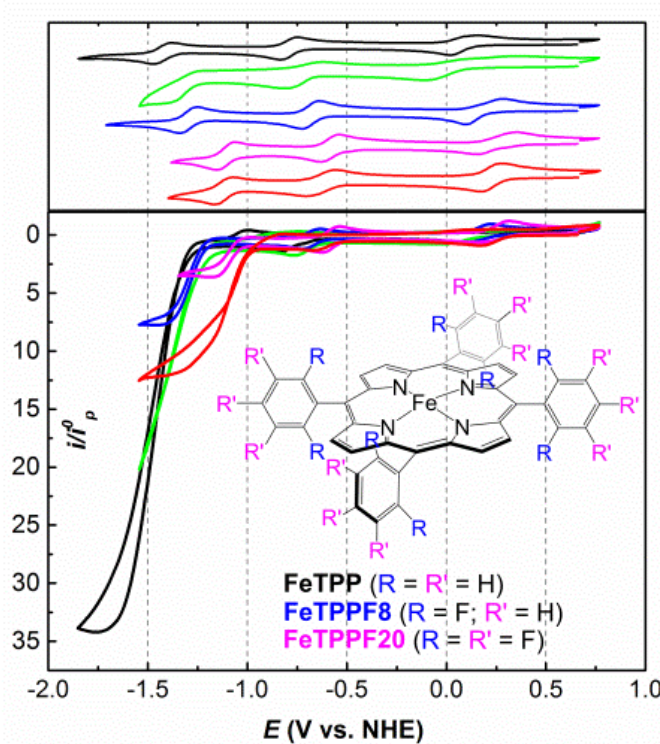
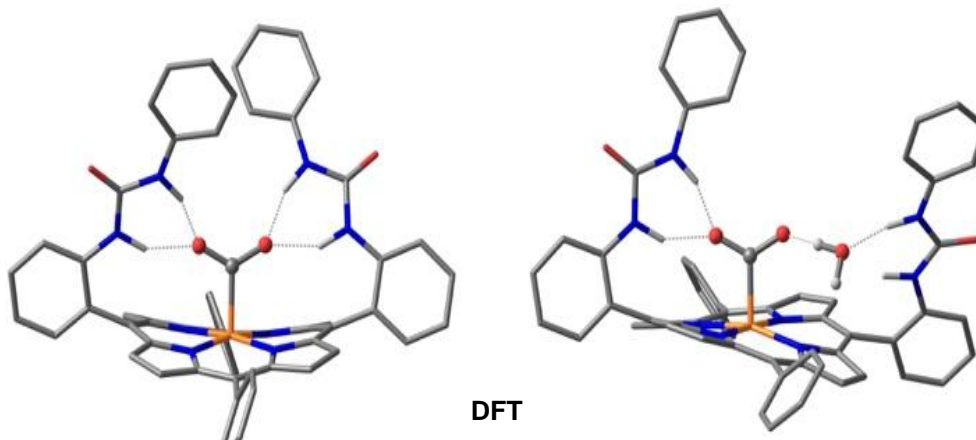
Canaguier et al. 2010

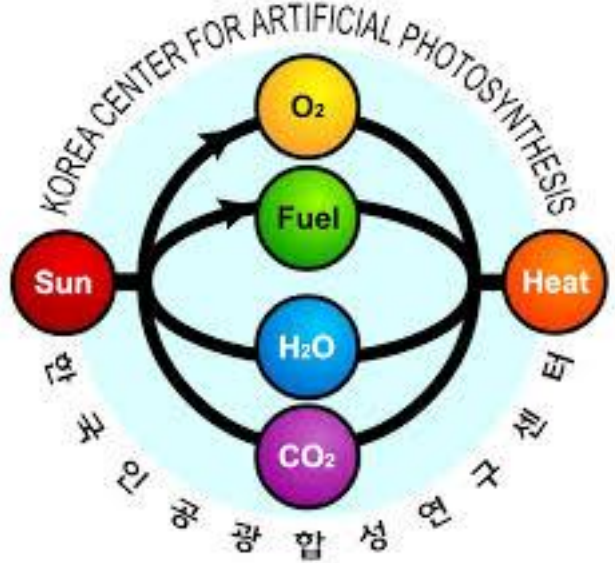
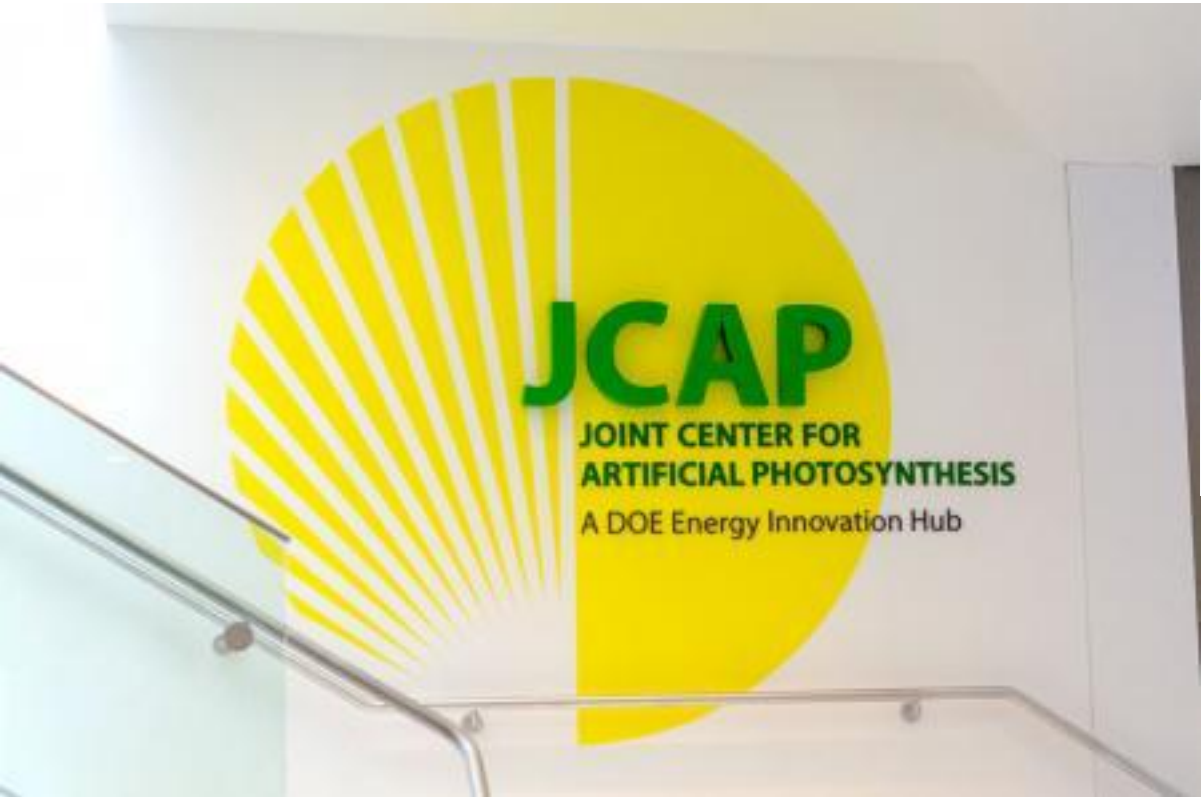


Lubitz et al. 2012

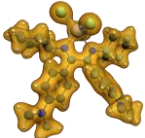








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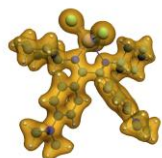
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Tr.XAS
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Cristallographic studies
Surface chemistry (PEM)
Theoretical study
Porphyrin Chemsitry

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Thank you for your attention



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