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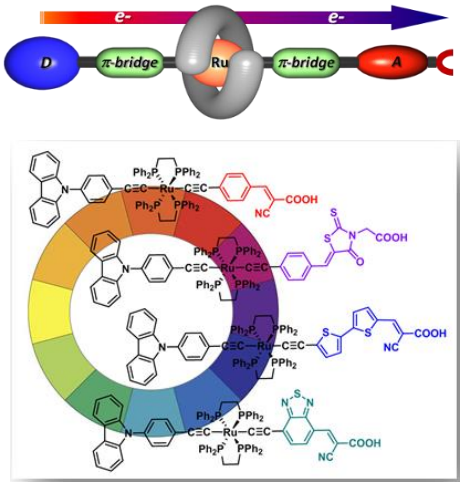
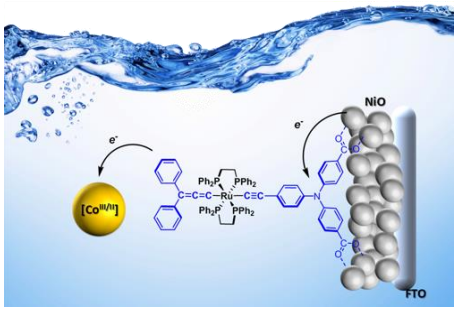
Design and Study of Organometallic Photosensitizers for Dye-Sensitized Solar Cells and Photo-Electrochemical Cells

Dr. Céline OLIVIER's group is involved in the design and synthesis of π-conjugated organometallic complexes as efficient dyes for photovoltaic and photo-electrochemical applications. In this context, new materials based on functionalized Ru-acetylide complexes are developed, that represent extended π-conjugated photoactive systems able to harvest a large part of the solar spectrum due to strong intramolecular charge transfers.

The new dyes are further embedded in different types of hybrid devices such as dye-sensitized solar cells (n-type and p-type DSSCs) and dye-sensitized photo-electrochemical cells (DS-PECs) designed for H_2 evolution from water. *Overall, the innovative π-conjugated systems show highly modular and advantageous optoelectronic properties with good performance in the different types of devices.*



Design of colorful push-pull dyes for DSSCs



Hybrid photocathode for DS-PEC

References

See : C. Olivier *et al. Chem. Eur. J.* **2014**, *20*, 7017 ; *J. Mater. Chem. A* **2015**, *3*, 18256 ; *RSC Advances* **2016**, 6, 19928 ; *Dalton Trans.* **2016**, 45, 2539 ; *Dyes and Pigments* **2018**, *158*, 326.