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IPCMS Institut de Physique et Chimie des Matériaux de Strasbourg

QMat mini-seminars

Auditorium, Institut de Physique et de Chimie des Matériaux de Strasbourg (IPCMS) – UMR 7504 CNRS, Cronenbourg Campus

Wednesday, June 12th 2024, 3pm – 4pm

15:00-16:00 Ronan VIEL,

"Iron Complexes for Water Photocatalysis".

Abstract

In order to be efficient, a metal-based photosensitizer needs to have a long-lived metal-to-ligand charge transfer state (MLCT state). Accordingly, Ruthenium-based photosensitizers are perfect, but are absolutely not suited for large-scale applications. On the other hand, Iron photosensitizers are cheap, but photophysically not as good as their noble metal counterparts. To make Iron the new Ruthenium -- photophysically speaking -- the solution is to design ligands that can retain the excited electron for at least a nanosecond. And as we first measured some Fe(II) photosensitizers with new ligand designs, they exhibited one excited state lifetime of more than 100ps. Then the question rised: is this long-lived excited state of MLCT nature? And the journey of measurements began, in order to answer this very question, journey that I will present during this talk.