UNIVERSITÉ DE GENÈVE
FACULTÉ DES SCIENCES

LE DEPARTEMENT DE CHIMIE PHYSIQUE

a le plaisir de vous inviter à la

CONFERENCE

Intitulée

LIGHT-DRIVEN TWO-ELECTRON STORAGE IN MOLECULAR SYSTEMS FOR ARTIFICIAL PHOTOSYNTHESIS

donnée par

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ISMO, UNIVERSITÉ PARIS SACLAY

le VENDREDI 3 JUILLET à 9h

SALLE 1S059 Tissières
Sciences III

30 quai Ernest-Ansermet ou 4 bld d'Yvoy

Responsable : Prof. Eric VAUTHEY

Abstract:

The storage of solar energy in chemical bonds is among the most promising strategies for producing sustainable solar-based fuels. These approaches require efficient systems capable of capturing sunlight to undergo multiple charge accumulation events, followed by multielectronic bond formation and breaking catalysis. Optimizing these systems demands a fundamental understanding of the detailed mechanistic events occurring during these multielectronic light-driven processes.
Time-resolved spectroscopic techniques are powerful tools to investigate the mechanisms underlying light-driven charge transfer and accumulation. While intense research efforts are dedicated to elucidate single photoinduced charge transfer processes, only few studies have reported the characterization of charge-accumulated states on photocatalytic systems generated through sequential photoexcitations, which is a crucial step toward catalyst activation. [1]
Here, we employ nanosecond pump-pump-probe spectroscopy combined with transient absorption and time-resolved resonance Raman spectroscopy to directly monitor sequential charge accumulation in various molecular systems. We demonstrate reversible two-electron accumulation in both model and photocatalytic molecular systems, investigating both covalently linked and multicomponent assemblies.[2,3,4] The insights gained from these studies provide a deeper understanding of photoinduced charge separation and accumulation, offering valuable guidance for the design of more efficient molecular photocatalysts for solar-to-fuel conversion.

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