

Ultrafast molecular dynamics in solutions

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Abstract: In this talk, I will present case studies of the photophysical and photochemical dynamics of coordination chemistry complexes using a toolbox of ultrafast methods: transient absorption from the infrared to the deep-ultraviolet, X-ray absorption and emission spectroscopy and photoelectron spectroscopy of liquid solutions. The systems that will be discussed include: ferric Iron hexacyanide showing an impulsive electronic-to-vibrational energy conversion,¹ ferrous Iron hexacyanide showing the mechanism of photoaquation² and diplatinum complexes with an emphasis on transfer of vibrational coherence in intersystem crossing events.³ Implications for the study of sensitized solar cells and perspectives for studies at Free Electron lasers will be discussed.

Key-words: Femtosecond, picosecond, metal complexes, 2-dimensional spectroscopy, core-level spectroscopy, infrared spectroscopy

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