

UniCat Colloquium

(Actual information on www.unicat.tu-berlin.de)

Lecturer: **Prof. Leif Hammarström**, Department of Photochemistry and Molecular Science, Uppsala University, Sweden

Title: **Controlling Coupled Electron Transfers in Artificial Photosynthesis for Solar Fuel Production**

Abstract: In the Swedish Consortium for Artificial Photosynthesis, we build on principles from the natural enzymes Photosystem II and FeFe-hydrogenases to construct synthetic molecular systems for Solar Fuel production.[1] An important theme in this biomimetic effort is that of coupled electron transfer reactions: (i) each absorbed photon leads to charge separation on a single-electron level only, while catalytic water splitting and hydrogen production are multi-electron processes; there is thus the need for controlling accumulative electron transfer on molecular components; (ii) water splitting and proton reduction at the catalysts requires management of proton release and/or uptake, which control the electron transfer processes by proton-coupled electron transfer (PCET). Regarding (i) we have designed the first molecular system that shows light-induced accumulative charge separation without sacrificial agents. Regarding (ii) we have demonstrated light-driven, proton-coupled oxidations at catalytic sites, and also analyzed in detail the intramolecular PCET reactions and effects of hydrogen bonds in model systems.

Magnuson et al. *Acc. Chem. Res.* (2009) **42**, 1899-1909.

Date: **Wednesday, 21 April 2010**

Time: **5:15 pm - around 6:45 pm**

Location: **TU Berlin, Institute of Chemistry,
Straße des 17. Juni 115, 10623 Berlin
Building C, room C 243**

Organiser: Prof. Holger Dau (FUB)

Coffee and tea will be served thirty minutes prior to the lecture start. Guests are cordially invited to attend!

Prof. Dr. Matthias Driess, Chair of the Cluster of Excellence UniCat