



April 22th 2014 – 15:00

CFEL Seminar room IV (Bldg. 99, 01.111)

Renske M. van der Veen

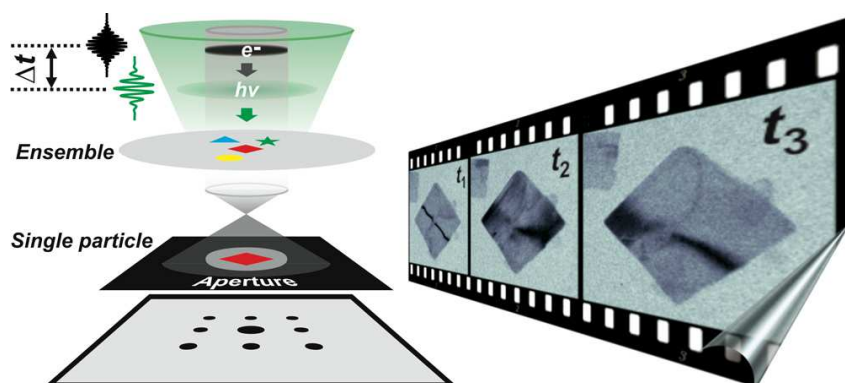
Deutsches Elektronen Synchrotron (DESY), Hamburg

Max Planck Institut für Biophysikalische Chemie, Göttingen

Ultrafast Electron Microscopy: a New Tool to Study Chemical Dynamics at the Nanoscale

Ultrafast electron microscopy (UEM) combines the high time resolution of conventional optical spectroscopy with the excellent spatial resolution of electron microscopy techniques. The structural and electronic changes are initiated by short (fs, ps, ns) laser pulses, which are followed by similarly short electron pulses for probing the dynamics by means of imaging, diffraction, or energy-loss spectroscopy (EELS).

The inherent spatial resolution and imaging capabilities of transmission electron microscopy are ideal to pinpoint individual nanostructures and to investigate size effects and the influence of the surroundings. In this seminar, I will present our results on the switching of spin-crossover nanoparticles, demonstrating for the first time the unique sensitivity of UEM for the in situ visualization of single-nanoparticle dynamics. In addition, I will discuss the potentials of time-resolved core-EELS experiments as an alternative to soft-X-ray spectroscopy.



Host: Andrea Cavalleri

