CFEL SCIENCE

Colloquium

27th April 2011 - 15:00

FLASH HALL, Seminar Room (28c)

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Attosecond time-resolved molecular electron dynamics

Using attosecond light sources based on high-harmonic generation (HHG), pump-probe experiments can be performed where electron dynamics is studied on its natural timescale, providing insight into the fundamental role that electrons play in photo-induced processes.

In my talk I will present some of the first applications of these techniques in molecular science, focusing on two-color experiments where several small molecules were exposed to a sequence of one or more attosecond pulses and an infrared field. In addition to the attosecond time-structure accompanying HHG, the short wavelengths in HHG allow to use ejected photoelectrons as a probe of the (time-evolving) molecular structure, which amounts to “illuminating the molecule from within”.

I will present the present status of our experiments on this topic using both a HHG source and the FLASH and LCLS free electron lasers.

Host: Jochen Küpper - Coherent Imaging Division - Controlled Molecule Imaging Group