

Laser Seminar

NCCR MUST Seminar

Monday, April 2, 2012



- Time:** 16:45
- Location:** ETH Zurich, Hönggerberg Campus, HPF G-6
- Speaker:** Amelle Zaïr, Blackett Laboratory, Imperial College, London
- Title:** **Probing molecular dynamics using trajectories control in high order harmonic generation**
- Abstract:** We investigate the possibility to access intra-molecular dynamics by resolving in the high order harmonic emission electron trajectories and observing. We examine the case of randomly aligned molecules (N_2 , CO_2 , O_2 , D_2 and H_2) where trajectories contributions are clearly discernible revealing the impact of cation nuclear dynamics taking place over a time interval of a few hundreds attoseconds to a few femtoseconds. Studying the case of aligned molecules first theoretically using Strong Field Approximation and Time Dependent Schrödinger Equation, we quantify the cation electron dynamics into the trajectories interferences in the modelled spectra. As a result we demonstrate the dependence of trajectories interference pattern upon which ionisation channels contribute. An interesting case is identified where not only multiple channels signature are encoded in the interferences but also the signature of field induced coupling between channels. Molecular quantum path interferences is therefore shown to be a promising new route for attosecond spectroscopy to resolve ultra-fast charge migration in molecules after ionisation.
- Host:** Ursula Keller, Ultrafast Laser Physics, IQE
- More Info:** www.opteth.ethz.ch/news/laser_seminar

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