

# Laser Seminar / NCCR MUST Seminar

## Monday, October 12, 2015

Time 16.45

Location ETH Zurich, Hönggerberg, HPF G6

Speaker Alexandra Landsman, Max-Planck Institut, Dresden, Germany

Title Resonant interaction between ultra-short laser pulses and matter

Abstract Resonant interaction of ultra-short laser pulses with matter can substantially reshape the laser pulse as well as affect the high harmonic generation spectra. Here, I will describe two very distinct physical phenomena, which, however, both result from a resonance between the central wavelength of a driving laser pulse and matter. The first case deals with Carrier Wave Rabi Flopping phenomena in atoms, which significantly affects the ground state population and the HHG spectra<sup>[1]</sup>. The 2<sup>nd</sup> case involves plasmonic nanoantennas, whose near-field properties are significantly modified due to a resonance with the driving laser<sup>[2]</sup>. For certain nano-structure parameters, this leads to the appearance of a second color in the near-field, which can be advantageous for attosecond pulse generation.

[1] "Carrier-Wave Rabi-Flopping Signatures in High-Order Harmonic Generation for Alkali Atoms", PRL 114, 143902, 2015

[2] "Active tailoring of nano-antenna plasmonic field using few-cycle laser pulses", submitted

Host Ursula Keller, Ultrafast Laser Physics, IQE

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