



10th May 2013 - 14:00
CFEL Seminar room I-III (Bldg. 99)

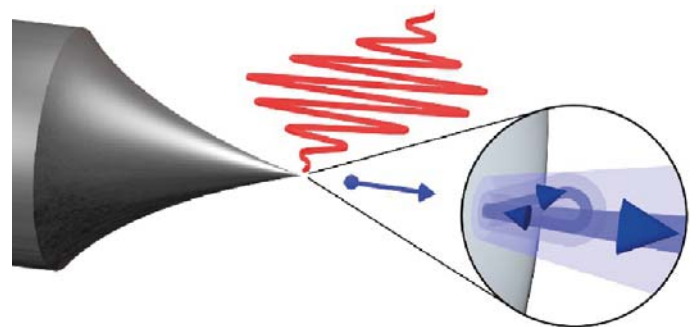
Peter Hommelhoff

Friedrich Alexander University of Erlangen & MPQ, Germany

From strong-field nano-optics to dielectric laser acceleration

Attosecond physics centers on the control of electronic matter waves within a single cycle of an optical driving field. It has led to the generation of XUV bursts of light with attosecond duration, to just name one highlight. Until recently, attosecond phenomena have only been observed at isolated objects in the gas phase.

We have observed essential attosecond phenomena at a metal nanotip, such as elastic recollision and electronic matter wave interference, which can be fully controlled by the electric field of the driving laser pulses. Because the metallic tip enhances the local electric field, a laser oscillator suffices to drive these strong-field processes. I will give an overview over attosecond physics at a solid nanotip and detail a first application: an electric field sensor based on the recollision process, with a resolving power of 1nm.



Host: Thorsten Uphues, UHH-ASG