

Physikalisches Kolloquium



Thursday, 22.11.2018, 16:15, HS 100
Reception with coffee & cookies 15:45
(For university staff: please bring your own cup for sustainability reasons)

Prof. Dr. Reinhard Kienberger, Technische Universität München:

Absolute timing of the photoelectric effect on the attosecond timescale

Abstract

The generation of single isolated attosecond pulses in the extreme ultraviolet (XUV) together with fully synchronized few-cycle infrared (IR) laser pulses allowed to trace electronic processes on the attosecond timescales. The energy shift experienced by the XUV-generated photoelectrons by the dressing IR-field is dependent on the delay between the XUV pulse and the dressing field and makes it possible to measure the respective delay in photoemission between electrons of different type (core electrons vs. conduction band electrons). The information gained in such experiments on tungsten triggered many theoretical activities leading to different explanations on the physical reason of the delay. We show measurements of time-resolved transport of different types of electrons through a defined number of adlayers on a bulk material on an attosecond timescale. Finally, using a sophisticated sub-monolayer-extrapolation, we were able to measure not only relative delays but the absolute time an electron needs to travel from A to B.

All of you interested in physics are cordially invited!

