



TECHNISCHE
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ANGEWANDTE PHYSIK
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IAP-SEMINAR

ANNOUNCEMENT

Date: **Tuesday, 16.12.2014**

Time: **16:00 p.m.**

Location: **Technische Universität Wien, Institut für Angewandte Physik, E134**
yellow tower „B“, 5th floor, Seminarraum 134A (room number DB05L03)
1040 Wien, Wiedner Hauptstraße 8-10

Lecturer: **Dr. Luca Castiglioni**

University of Zurich, Department of Physics, Zurich/Switzerland

Subject: **Temporal aspects of the photoelectric effect in solids**

Abstract:

The energetics of the photoelectric effect has been understood for a long time and photoelectron spectroscopy has become the preeminent tool to study the electronic structure of matter. The recent advent of optical pulses with attosecond time resolution has allowed the direct study of temporal aspects of the photoelectric effects. Pioneering experiments in noble gas atoms and condensed matter revealed that photoemission is not instantaneous and that a short time elapses between photon absorption and emission of the electron.

The few existing experiments were only able to assess relative delays between electrons emitted from different initial states due to lack of a proper temporal reference. We present an interferometric method that uses an external reference process to derive energy-dependent photoemission delays from solid surfaces. We studied noble metal surfaces and found an unexpected strong dependence of the observed delays on the photon energy in some materials. I will discuss possible origins of such attosecond delays in solids and give an outlook on new potential experiments that take advantage of light sources in the XUV range with attosecond pulse structure.

*All interested colleagues are welcome to this seminar lecture
(45 minutes presentation followed by discussion).*

*W. Werner e.h.
(Seminar-Chairperson)*

*H. Störi e.h.
(LVA-Leiter)*