

TR-ARPES by High Harmonic light pulses for the study of ultrafast dynamics in correlated materials

Monday 4 April 2011 16:30 (2h 30m)

Angle resolved photoelectron spectroscopy (ARPES) has proved to be a leading technique in identifying static key properties of complex electron systems. In a pump-probe scheme using femtosecond light pulses this application can be extended to monitor ultrafast changes in the electronic valence structure in response to an intense optical excitation, i.e. photo-induced phase-transitions of correlated systems [Talk Rossnagel]. Here we present an experimental setup for time-resolved ARPES using femtosecond XUV probe pulses. We will focus on the relevant details and specifications of our system such as time and energy resolution, XUV photon flux and harmonic selection by a multilayer mirror monochromator. The capabilities of the setup will be exemplified by selected data that we obtained when studying phase transition dynamics in 1T-TiSe₂. We particularly show that the application of XUV pulses is highly advantageous in recording photoemission transients covering the full size of the Brillouin zone.

Author: ROHWER, Timm (Christian-Albrechts-Universität zu Kiel)

Co-authors: ROSSNAGEL, Kai (Christian-Albrechts-Universität zu Kiel); BAUER, Michael (Christian-Albrechts-Universität zu Kiel)

Presenter: ROHWER, Timm (Christian-Albrechts-Universität zu Kiel)

Session Classification: Poster session