TECHNISCHE UNIVERSITÄT CHEMNITZ

PHYSIKALISCHES KOLLOQUIUM

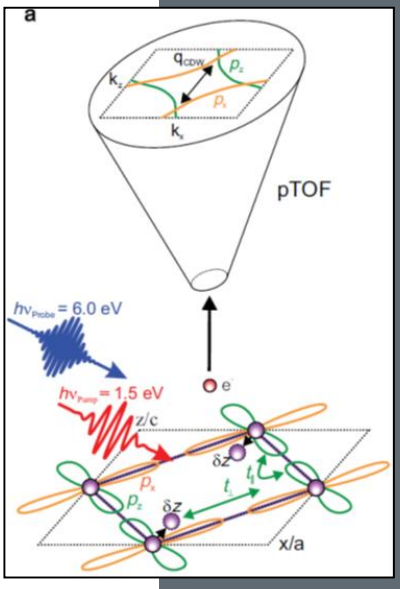
Mittwoch, 18.06.2014, um **16:00 Uhr**

Ort: Reichenhainer Str. 90; Neues Hörsaalgebäude, Raum: 2/N013

Prof. Dr. Uwe Bovensiepen
Fakultät für Physik
Universität Duisburg - Essen

Non- equilibrium electronic structure of transient states in solid materials driven by femtosecond laser pulses

Optical excitations in solid materials typically decay on femto- to picosecond time scales due to elementary interactions which lead to a redistribution of the excess energy among the electronic, the lattice, and the spin subsystem, before final dissipation. In the thermodynamic ground state interactions which compete with thermal excitations result in pronounced instabilities, fluctuations, and phase transitions. Here, we analyse the electronic structure of such materials like charge or spin density waves and Mott insulators in a highly non-equilibrium state by femtosecond time- and angle-resolved photoemission. Our results highlight (i) screening of local interactions to obtain a quantitative description of the ultrafast relaxation dynamics and (ii) the coexistence of ordered and disordered constituents under non-equilibrium conditions. The latter finding suggests such non-equilibrium studies as means to probe fluctuations in a superheated state under extreme conditions, which bear the potential to stabilize novel metastable non-equilibrium states.



Alle Zuhörer sind ab 15:45 Uhr zum Kaffee vor dem Hörsaal eingeladen.

Informationen zum Vortrag erteilt Prof. Dr. Thomas Seyller, Tel.: 0371 531 32898