



TRR 80 Sonderseminar

Am Mittwoch, den 31. Oktober um 11:00 Uhr

spricht

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Universität Konstanz

über das Thema

Studying correlated electron compounds with time-resolved electron diffraction

The well-established structural probes electrons and x-rays have seen their evolution into the femtosecond time domain within the last decade or so. Besides the study of melting processes on an atomic time scale, improved brightness and stability have just recently allowed for the study of complex phenomena in correlated electron compounds. This direct access to the lattice dynamics proved important to the discussion of intrinsic time scales of Charge-Density-Wave (CDW) formation, as pure optical time-resolved data leave too many degrees of freedom. In this talk I will present Femtosecond Electron Diffraction (FED) studies of the CDW dynamics in 1T-TaS₂ and 4Hb-TaSe₂. These data enable new insights into the CDW suppression and recovery time scales as well as their phase transitions; we were able to determine the according energetics and found interesting differences between the application of temperature or laser fluence as control parameter for the CDW phase transition. But also “simple” metals might uncover more on their excitation response once their structural dynamics are being mapped out. Here, FED might be able to serve as a stepping stone for still controversially discussed multi-temperature models. Finally I will address experimental approaches to mature the still young technique of FED towards improved temporal resolution and higher signal-to-noise ratio.

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum R-242 / Institut für Physik, Universität Augsburg statt.

Gastgeber: Dr. Marcus Kollar
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