TRR 80 Sonderseminar

Am Mittwoch, den 6. März um 16:00 Uhr

spricht

Dr. Tomislav Ivek

1. Physikalisches Institut, Universität Stuttgart

über das Thema

α-(BEDT-TTF)2I3: Complex electrodynamic response of the charge-ordered phase

Much experimental and theoretical attention has been attracted by organic systems with reduced dimensionality and strong Coulomb interactions, and deservedly so due to their novel broken-symmetry phases and corresponding excitations. Here we take a detailed look at the electrodynamics of one of the most prominent charge-ordered systems, the quasi-2D conductor α (BEDT-TTF)2I3. A semimetal at high temperatures, at 136 K this particular system transitions into an insulating, diamagnetic ground state. Within the insulating phase a long-range commensurate ordering appears in the BEDT-TTF molecular planes, the so-called "horizontal stripe" charge order. We characterize the charge response of the low-temperature phase using dc resistivity, dielectric and optical spectroscopy in different crystallographic directions within the BEDT-TTF layer. The observed response is complex and paints a picture of charge order as a cooperative bond-charge density wave with ferroelectric-like features. On the other hand, puzzling phenomena including negative differential resistance and voltage oscillations have been reported under high electric fields. We reexamine the nonlinear conductivity within the molecular plane of α (BEDT-TTF)2I3 and find an intriguing switching effect at high electric fields.

Gäste sind herzlich willkommen.
Der Vortrag findet im Seminarraum S-403 / Institut für Physik, Universität Augsburg statt.

Gastgeber: PD Dr. Peter Lunkenheimer
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