

Physikalisches Kolloquium

Direct look at charge, lattice and spin dynamics in solids with ultrafast terahertz spectroscopy

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Ultrafast terahertz spectroscopy allows one to observe the dynamics of charge, lattice and spin in solids on the most elementary timescale: in the regime $\omega \tau \sim 1$, where ω is the electromagnetic wave oscillation frequency, and τ is the characteristic sub-picosecond timescale at which the effects like electron momentum scattering, lattice oscillation, and spin precession occur. In this presentation, after a brief introduction, we will review two of our recent case studies: ultrafast electron transport in graphene [1,2], and observation of spin-controlled conduction by cold and hot electrons in ferromagnetic metals [3,4].

References:

- [1] Z. Mics et al., "Thermodynamic picture of ultrafast charge transport in graphene," Nature Commun. 6, 7655 (2015)
- [2] S. A. Jensen et al., "Competing ultrafast energy relaxation pathways in photoexcited graphene," Nano Letters 14, 5839 (2014)
- [3] Z. Jin et al., "Accessing the fundamentals of magnetotransport in metals with terahertz probes," Nature Phys. 11, 761 (2015)
- [4] T. Seifert et al., "Efficient metallic spintronic emitters of ultrabroadband terahertz radiation," Nature Photon. 10, 483 (2016)

Der Gast wird betreut von Frau Prof. Dr. Rethfeld

Gäste sind herzlich willkommen

Kaffeeauschank ab 17:00 Uhr

Montag, 07.05.2018, 17:15 Uhr

Gebäude 46, Hörsaal 270