TECHNISCHE UNIVERSITÄT WIEN

INSTITUT FÜR FESTKÖRPERPHYSIK
Institute of Solid State Physics

Wiedner Hauptstr. 8-10/138, 1040 Wien
www.ifp.tuwien.ac.at

EINLADUNG zum IFP-SEMINAR

Cyclotron resonance in Dirac-type materials

Milan Orlita

Laboratoire National des Champs Magnétiques Intenses - Grenoble, CNRS

Host: Andrei Pimenov

Termin: Dienstag, 08. November 2016, 15:00 Uhr

Ort: Institut für Festkörperphysik, TU Wien
Wiedner Hauptstraße 8-10, 1040 Wien
Seminarraum DC rot 07 (roter Bereich, 7. OG)

Abstract:

Cyclotron motion of electrons in a magnetic field, and the related resonant absorption of light at the cyclotron frequency, is probably the most representative magneto-optical effect, characteristic of any solid with non-zero free charge carrier density. In this talk, I will review selected results of cyclotron resonance measurements done on different materials which host conical (Dirac-type) features within their band structures (e.g., single and multilayer graphene, graphite, gapless HgCdTe, HgTe quantum wells [1-4]). In contrast to conventional systems with parabolic bands, such materials imply fairly complex, in general multimode, cyclotron resonance response, which allows us get relevant insights into the electronic states of these materials, as well as into particular elastic and inelastic (e.g. Auger [5]) scattering mechanisms.

References:

[1] M. Orlita and M. Potemski, Semicond. Sci. and Technol. 25, 063001 (2010)
[2] P. Neugebauer et al., Phys. Rev. Lett. 103, 136403 (2009)
[3] M. Orlita et al., Nature Phys. 10, 233 (2014)
[4] M. Orlita et al., Phys. Rev. Lett. 108, 017602 (2012)
[5] M. Mittendorff et al., Nature Phys. 11, 75 (2015)