

## MA 25 Kondo/Schwere-Fermionen

Zeit: Dienstag 12:30–13:00

Raum: TU A060

MA 25.1 Di 12:30 TU A060

**The split personality of the 5f-electrons in uranium intermetallics** — •ARNO HIESS — ILL, Grenoble, France

Information on the interplay between superconductivity and magnetism is key to our understanding of a large variety of materials such as high-temperature and heavy-fermion superconductors. Of importance are some uranium-based intermetallic compounds, in which a co-existence of both phenomena is observed at low  $T$ . Inelastic neutron scattering offers the possibility to measure the wavevector ( $q$ ) and energy ( $E$ ) dependent magnetic response. Comparing the magnetic response observed for the heavy-fermion superconductor  $UBe_{13}$ , the magnetic superconductors  $UPd_2Al_3$  and  $UNi_2Al_3$  as well as for the itinerant antiferromagnet  $UGa_3$  the unusual but intriguingly similar dynamic magnetic properties of such compounds are discussed. The magnetic response is structured in  $q$ - and  $E$ -space. It shows overdamped as well as propagating components, attributed to different degrees of freedom of 5f electrons. Furthermore, the magnetic response in  $UPd_2Al_3$  shows a  $T$ - and  $B$ -dependent behaviour that can be linked to the superconductivity. It reflects the characteristic properties of the electronic system and sheds light on the symmetry of the superconducting order parameter.

MA 25.2 Di 12:45 TU A060

**Electronic transport properties of single crystalline  $UPt_2Si_2$**  — •A. OTO<sup>1</sup>, R.W.A. HENDRIKX<sup>2</sup>, J.A. MYDOSH<sup>2,3</sup>, and S. SÜLLOW<sup>1</sup> — <sup>1</sup>IMNF, TU Braunschweig, Germany — <sup>2</sup>Kamerlingh Onnes Laboratory, Leiden University, The Netherlands — <sup>3</sup>Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany

We present a detailed study of the transport properties of single crystalline tetragonal  $UPt_2Si_2$ , for which we recently established the presence of crystallographic disorder on the Pt/Si sublattice. We carried out resistivity ( $\rho$ ), magnetoresistivity (MR) and Hall effect measurements ( $R_H$ ) in the temperature range from 2 to 300 K and in magnetic fields up to 5.5 T. In this range we observe a very pronounced anisotropy between  $a$  and  $c$  axis behavior. While along the  $a$  axis we find a common heavy fermion metallic resistivity, along the  $c$  axis  $\rho$  is disorder dominated. From our MR data we extract the magnetic scattering component of the electronic transport properties. With our Hall effect data we establish the metallicity for both crystallographic axes of our material. We discuss the relevance of the crystallographic disorder for the transport properties for this correlated electron material.

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