



EINLADUNG zum IFP-SEMINAR

Thema: **YbRh₂Si₂ at mK Temperatures**

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Host: Silke Bühler-Paschen

Termin: **Mittwoch, 23. 01. 2013, 16:00 Uhr**

Ort: TU Wien, Institut für Festkörperphysik
Freihaus Seminarraum 138B, Turm C, 7. OG (rote Leitfarbe)
Wiedner Hauptstraße 8-10, 1040 Wien

Abstract:

YbRh₂Si₂ is a widely studied heavy Fermion system with a variety of interesting properties among them a quantum critical point (QCP) at 60 mT for B//a,b plane. At low temperatures we previously found a new magnetically ordered phase below 2.2 mK. In addition to this "A" phase, we now observe a second, weaker phase transition below 15 mK and 5 mT which we call B phase. To study these phases of YbRh₂Si₂ at the lowest possible temperatures, we determined the dc magnetization in magnetic fields up to 60 mT using a home made rf SQUID magnetometer. The A phase is very robust and extends at least up to a magnetic field of 23 mT. Above this field it is suppressed to below our detection limit of 1 mK. The A transition is characterized by a reduced magnetic susceptibility in the ordered state and there is zero magnetization in the limit $B \rightarrow 0$. So we expect it to be an antiferromagnetic ordered state. The experiments were done in our low temperature cryostat at the Walther Meissner Institute in Garching which has a 0.9 mole PrNi₅ nuclear demagnetization stage and can reach a final temperature of 400 μ K. The present state of the experiment will be discussed in this work.

