



# EINLADUNG zum IFP-SEMINAR

Thema: **Lead Telluride doped with Thallium Impurities: a negative-U Kondo system**

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Host: Karsten Held

Termin: **Dienstag, 17. 06. 2014, 15:00 Uhr**

Ort: TU Wien  
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## Abstract:

Semiconducting PbTe is one of the most interesting materials for thermoelectric applications. When doped with a small concentration of Tl impurities, acting as acceptors, a number of anomalous properties are found: e.g. beyond a critical concentration of about 0.3 at.% Tl, the system exhibits superconductivity with remarkably high critical temperatures for such a low carrier system.

This, and other anomalous phenomena, prompted the idea that Tl impurities in PbTe act as negative-U centres giving rise to a charge Kondo effect and to superconductivity. We explore the consequences of this model for the normal state properties, and show that it can qualitatively explain the measured thermoelectric power, resistivity, carrier concentration and Abstract/point contact spectra.