



EINLADUNG zum IFP-SEMINAR

Thema: **Interplay of Superconductivity, Magnetism and Charge-Density Waves in Rare-Earth Tritellurides at High-Pressures**

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Termin: **Mittwoch, 29. Juni 2011, 15:00 Uhr**

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

Abstract:

It has recently been shown that the quasi-two-dimensional rare-earth tritellurides $R\text{Te}_3$ ($R = \text{La-Nd, Sm, Gd-Tm}$) enter an unidirectional, incommensurate charge-density-wave (CDW) state when cooled below a temperature $T_{CDW1} \sim 450 - 250$ K, which decreases with decreasing unit cell volume due to the lanthanide contraction. For the heavier rare-earths (Dy-Tm), a second CDW, orthogonal to the first, appears at $T_{CDW2} < T_{CDW1}$. We have recently found that the application of external pressure induces a superconducting state in GdTe_3 , TbTe_3 and DyTe_3 at low temperatures, coexisting or competing with the two CDWs and the magnetism arising from the lanthanide atoms. In this talk, we present the results of electrical resistivity, ac-calorimetry and ac-susceptibility experiments on these materials at high pressures and very low temperatures, to help develop an understanding of the origin of the superconducting state.

Work in collaboration with J. J. Hamlin, B. D. White and M. B. Maple (UCSD); J. -H. Chu and I. R. Fisher (Stanford).

