



Institutskolloquium

am Mittwoch, **15. Dezember 2004 um 16:00 Uhr** spricht:

Prof. Dr. Ludwig Schultz

Leibniz-Institut für Festkörper- und Werkstoffforschung (IFW) Dresden
Institut für Metallische Werkstoffe

über

**“High Temperature Superconductors: from Physical Principles to
New Materials and New Applications”**

(with experimental demonstration of superconductively levitated trains)

Starting from physical principles the requirements to the development of high temperature superconducting materials for applications in energy-related techniques will be presented. According to their differing physical properties like their behavior in magnetic fields or deformation properties, different areas of applications and different processing techniques can be deduced. BSSCO-Ag-tapes are produced by the "powder-in-tube" technique in lengths of several 100 meters and already tested in cable demonstrators. For applications at 77K in magnetic fields only YBCO is suited - either as biaxially textured tapes or as melt-textured massive samples, in which magnetic flux can be frozen in. The latter materials can be regarded as "cold permanent magnets". The maximally obtained remanences at 25 K can be about one order of magnitude higher than those of ferromagnetic permanent magnets. The effect of the frozen-in magnetic flux will be experimentally demonstrated by the presentation of different versions of superconductively levitated trains. Finally the SupraTrans project will be presented in comparison to the conventional TRANSRAPID.

Ort: Max-Born-Saal
MBI, Max-Born-Str. 2a

Interessenten sind herzlich eingeladen.

Prof. Dr. T. Elsässer

■ **Direktor Bereich A** ■ **Direktor Bereich B** ■ **Direktor Bereich C** ■ **Bereich Z**
Prof. Dr. Ingolf V. Hertel Prof. Dr. Wolfgang Sandner Prof. Dr. Thomas Elsässer Dr. Jörn Kändler

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