TECHNISCHE UNIVERSITÄT CHEMNITZ

PHYSIKALISCHES KOLLOQUIUM

Mittwoch, den 03.11.2010, um **15:30 Uhr**

Ort: Reichenhainer Str. 90; Neues Hörsaalgebäude, Raum: 2/N013

Prof. Dr. Wolfgang Kleemann

Universität Duisburg-Essen

Angewandte Physik

47048 Duisburg

Multiferroic and Magnetoelectric Materials – Fundamentals and Novel Developments

The magnetoelectric (*ME*) effect, *i.e*. cross-coupling between magnetization ***M*** and electric field ***E*****,** and between polarization ***P*** and magnetic field ***H***, respectively, as envisioned by Pierre Curie was discovered on antiferromagnetic Cr_2O_3 only 50 years ago. The recent revival of the field is accompanied by a systematic exploration of multiferroic materials, whose coexistence of (anti)ferro-magnetic and ferroelectric long-range order promises to maximize the *ME* effect. Strongest *ME* coupling is presently realized in stress-strain coupled composites like PZT/FeBSiC. Unconventional *ME* coupling occurs in *type II* multiferroics, whose electric polarization originates *e.g.* from spin spirals as in $TbMnO_3$. Nonlinear *ME* response dominates in disordered "*type III*" multiferroics, such as the „*multiglass*" $Sr_{0.98}Mn_{0.02}TiO_3$.
Challenging future applications comprise 4-bit memories in multiferroic spin valves and *ME* random access memories based on the electric field control of magnetism at minimum heat dissipation.

Alle Zuhörer sind ab 15:15 Uhr zum Kaffee vor dem Hörsaal eingeladen.

Informationen zum Vortrag erteilt Prof. Dr. Manfred Albrecht, Tel. 0371/531-36831