chemisch
physikalische
gesellschaft

Gegründet im Jahre 1869 von H. Hlasiwetz,
J. Loschmidt, J. Petzval und J. Stefan

EINLADUNG

zum Vortrag von

Prof. Dr. Wolfgang Kleemann

Angewandte Physik, Universität Duisburg-Essen

Multiferroic and magnetoelectric materials - fundamentals and novel developments

am

Dienstag, 19. Oktober 2010, um 17.00 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmanngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmanngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract:

The magnetoelectric (*ME*) effect, *i.e*. crosscoupling 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. Switching magnetization with electric fields at minimum heat dissipation comes into reach. Beside Cr_2O_3 the single phase *type I* multiferroic $BiFeO_3$ is a candidate for applications. Strongest *ME* coupling is presently realized in bi-phase multiferroics such as the stress-strain coupled composite PZT/FeBSiC. Much interest is focused onto *type II* multiferroics, which reveal electric polarization due to spiral (*e.g.* $TbMnO_3$) or modulated spin structure (*e.g*. $HoMnO_3$). My report will include disordered "*type III*" multiferroics, such as quantum paraelectric $EuTiO_3$, relaxor ferroelectric $PbFe_{0.5}Nb_{0.5}O_3$, and the „*multiglass*" $Sr_{0.98}Mn_{0.02}TiO_3$ with dominating nonlinear *ME* response.

CHEMISCH-PHYSIKALISCHE GESELLSCHAFT
c/o Universität Wien, Fakultät für Physik, 1090 Wien, Strudlhofgasse 4/Boltzmanngasse 5, Austria
Tel.: +43-(0)1-4277/51108 - Fax: ++43-(0)1-4277 9511 - E-Mail: Christl.Langstadlinger@univie.ac.at
http://www.cpg.univie.ac.at
Konto: Bank Austria Nr. 08644408000 - BLZ 12000 - IBAN: AT22 1100 0086 4440 8000 - BIC: BKAUATWW
Vorsitzender 2009/10: Ao.Univ.Prof. Dr. Wilfried Schranz, Nichtlineare Physik, Universität Wien