

## EINLADUNG

zum Vortrag von

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über

# Magnetoelectric Materials

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**Dienstag, 12. Juni 2007, um 17.30 Uhr**

Ort: Großer Hörsaal der Experimentalphysik, Universität Wien,  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

**Abstract:**

Magnetoelectric materials become magnetized when placed in an electric field and electrically polarized when placed in a magnetic field. This effect can occur in single phase materials (as e.g.  $\text{Cr}_2\text{O}_3$ ) which needs special symmetry conditions for the lattice. The ME effect obtained in composites is more than a hundred times that of single-phase ME material. An overview over these new family of materials will be given. Also the for the characterisation necessary measuring methods (magnetostriction as well as piezoelectric constant) will be described. The magnetoelectric constant is measured in a static field produced by an electromagnet superimposing an ac-field. In this case a voltage appears on the surface of the sample which can be detected using a lock-in amplifier. Additionally a pulsed field method which allows the direct observation of the magnetoelectric constant was developed. Representative results on composites of  $\text{CoFe}_2\text{O}_4$ - $\text{BaTiO}_3$  will be shown and discussed.