



EINLADUNG zum IFP-SEMINAR

Thema: **Realizing bulk magnetoelectricity in the hexagonal manganites and ferrites**

Vortragender: **Hena Das**
School of Applied and Engineering Physics, Cornell University
Ithaca, NY, USA

Host: Karsten Held

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

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Improper ferroelectricity (trimerization) in the hexagonal manganites RMnO_3 leads to a network of coupled structural and magnetic vortices that induce domain wall magnetoelectricity and magnetization (M) neither of which, however, occurs in the bulk. Here we combined First-principles calculations, group-theoretic techniques, and microscopic spin models to show how the trimerization not only induces a polarization (P) but also a bulk M and bulk magnetoelectric (ME) effect.

This results in the existence of a bulk linear ME vortex structure or a bulk ME coupling such that if P reverses so does M. To measure the predicted ME vortex, we suggest RMnO_3 under large magnetic field. We suggest a family of materials, the hexagonal RFeO_3 ferrites, also display the predicted phenomena in their ground state.

