



EINLADUNG zum IFP-SEMINAR

Detecting the Consequences of the CMR Effect in Electron Energy-Loss Spectrometry in TEM

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Host: Michael Stöger-Pollach
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Abstract:

Double perovskites have been of great interest over the last decades. One of its promising physical properties is the colossal magnetoresistance (CMR) effect. This effect is a metal-insulator transition describing the electronic and magnetic transformation of the material, such as the change in resistivity, when applying a magnetic field. In particular, $\text{La}_2\text{CoMnO}_6$ shows a CMR effect which is very sensitive to defects and strains as caused, e.g., by the lattice misfit between thin film and substrate. Thus, it is particularly important to characterise the CMR effect on the microscopic scale. In this presentation, a novel approach is introduced for detecting the CMR effect on the nanometre scale by means of electron energy loss spectrometry (EELS) in transmission electron microscopy. The combination of valence EELS and energy loss magnetic chiral dichroism gives precise results concerning the change of magnetisation and resistivity (both above and below the Curie temperature T_C).