

Colloquium Notice

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Lorentz phase microscopy and other TEM/STEM techniques for characterization of advanced functional nanomaterials

Understanding the structure and properties of many useful technological materials and, in particular, functional nanomaterials, has always been propelled by their in-depth studies with advanced TEM/STEM methods of the electron microscopy, trying to address their properties behind determination of atomic coordinates and composition. A brief review of some important materials examined with S/TEM methods (Pd-cluster catalysts, 1D-SbCrSe₃ and Nd₂Fe₁₄B ferromagnets, InGaAsP based IR-lasers/photovoltaics, Ca₃Co₄O₉ -thermoelectrics) will be presented. Phase imaging and phase microscopy, being developed along with conventional TEM/STEM methods, provide higher level of physical information, since they can probe electrostatic and magnetostatic potentials for magnetic materials, nanoparticles and hetero-structures at nanoscale resolution. Practical use of such methods named as Lorentz phase microscopy (LPM/TEM) and potential applications for novel position-sensitive diffractive imaging (PSDI/STEM) will be outlined.

Monday
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Starts at 12:15 PM
Physics Conference Room, SB B326