

Nanoscale Topologies – Magnetic Skyrmions, Conductive Domain Walls, and Near-Field THz Nanoscopy

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Topologies are known to play a prominent role in next-generation nanoscale devices. This talk will focus on two such areas, addressing our nanoscale inspection on the one hand to magnetic textures in multiferroic skyrmion materials [1], while secondly carefully analyzing the domain wall (DW) topologies that appear in such ferroelectric nanosystems [2]. This quantitative and non-invasive analysis is achieved by applying a set of dedicated scanning probe (SPM) techniques (such as MFM, PFM, KPFM, etc.). Additionally, ultra-low energetic excitations (in the spectral range of 75 THz to 100 GHz) of phonons and magnons is achieved by using scattering-type scanning near-field infrared nanospectroscopy (s-SNIM) that we have combined with the free-electron laser **FELBE** at the Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany [3].

References:

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