ICTS Seminar

Title : Coupling between magnetic and other degrees of freedom

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Time : 11:30 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Coupling between different degrees of freedom causes many emerging behaviors in functional materials. In this presentation, I will briefly discuss about the coupling of magnetization with other degrees of freedom from an application point of view. The process of magnetization reversal in magnetic thin films and multi-layers involves transferring angular momentum from the spin system to environmental degrees of freedom and is a focus in advanced information storage and data processing. Here I will mainly discuss a very special kind of magnetization reversal process, known as "inertia like switching," which we have been studying. Then, in the light of the so-called spin current model, using an effective Hamiltonian approach, I will discuss the coupling of magnetization and lattice degrees of freedom in multiferroic materials. At the end, I will briefly touch on our recent work involving the phase transition induced by spin-phonon coupling in a Heusler compound.