

Seminar: Hard Condensed Matter Theory

Room: Galilei Raum, 01-128 (Staudinger Weg 9)

Time: Mars 28th, 2017 at 14:00

Marie Hervé

Physikalisches Institut, Wolfgang-Gaede-Str. 1, Karlsruhe Institute of
Technology (KIT), 76131 Karlsruhe

Spin resolved scanning tunneling microscopy: Non-collinear magnetism and high frequency dynamic properties

In magnetic thin films the Heisenberg exchange interaction often leads to a parallel or antiparallel alignment of neighboring spins in the crystal. When inversion symmetry is broken e.g. by a surface or an interface, the non-collinear Dzyaloshinskii-Moriya interaction competes with the Heisenberg exchange interaction. This competition can lead, in some case, to the stabilization of complex spin textures such as spin spirals or skyrmions. Investigation of the local dynamic properties of magnetic structures - such as skyrmion or nano-skyrmionic lattice - require the implementation of experimental technique with a high spatio-temporal resolution (nm and sub-ns resolution). In this talk, I will first show that spin-polarized STM (SP-STM) is an ideal tool to probe such non-collinear magnetic structure. In a second part I will present our current progress in the development of a new experimental technique combining ferromagnetic resonance (FMR) with SP-STM.

All interested are cordially welcome!