MA 1: Invited Talk Wulfhekel

Time: Monday 10:15–10:45 Location: HSZ 04

Invited Talk MA 1.1 Mon 10:15 HSZ 04

Exciting magnetism : inelastic scanning tunneling spectroscopy on magnetic nanostructures — •Wulf Wulfhekel — Physikalisches Institut, Universität Karlsruhe (TH), Germany

When passing an electric current through a magnetic material, magnetic excitations can be created. In these inelastic scattering events, the spin of a hot electron of the current may be flipped and angular momentum is transferred to the magnetic system. Energy is required for such excitations, making inelastic scanning tunneling spectroscopy (ISTS) the method of choice to study these excitations in nanoscale metallic systems [1]. We have successfully applied ISTS to investigate the nature and size of the inelastic spin-torque effect in bulk Fe samples and Co films [2], to obtain magnon dispersions and life times in thin Mn, Co and Ni films with precision similar to neutron scattering [3] and to measure the magnetic anisotropy of single Co and Fe atoms and clusters on Pt(111) [4].

[1] T. Balashov et al., Phys. Rev. Lett. 97, 187201 (2006), [2] T. Balashov et al., Phys. Rev. B 78, 174404 (2008), [3] C.L. Gao et al., Phys. Rev. Lett. 101, 167201 (2008), [4] T. Balashov et al., submitted