3.3 Poster 3

Effects of heat current in magnetic nanostructures

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This work is aimed at investigating the interplay between spin dynamics and heat current in magnetic systems. We looked e.g. at Co/Cu granular films and conducted local ferromagnetic resonance (FMR) measurements at 4.4 GHz. The samples were in the famous Spin Seebeck geometry [1] and subjected to a temperature gradient of the order of 20K/cm. We studied also electrically detected FMR of electrodeposited Co/Cu/Co asymmetric spin valves positioned at the middle of Cu nanowires, when subjected to a strong heat current in order to extend the quasi-static study of switching field versus heat current. [2] This work is supported by the Polish-Swiss Research Program NANOSPIN under the grant number PSRP-05/2010.

References

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3.4 Poster 4

Modifying the thermal Boltzmann distribution in a nanoscale paramagnet using spin-polarized currents

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In future spintronics devices information will be transported by the spin instead of charge like nowadays. Also the ability to switch spins by means of spin currents opens up an interesting field of possibilities to design these devices. For those reasons the development of spintronics devices requires to understand the interaction between isolated magnetic moments and spin currents.

Because conducting experiments with a single spin proves to be difficult to perform, we investigate the possibility to control and characterize a system of non-interacting isolated magnetic moments.

These isolated magnetic moments can be stabilized by dispersing Cr^{3+} ions in MgO. In an external magnetic field the paramagnetic energy levels split up according to the Zeeman effect. At a resonant microwave frequency electrons are excited to the upper