KIDS TALK

The seminar for/by students, PhDs and postdocs

“Spin transport phenomena in a bilayer of YIG(magnetic insulator) and Pt (normal metal)”

Speaker: Victor Lauer, AG Hillebrands

Abstract: Our studies address the control of the spin-wave damping in the magnetic insulator Yttrium Iron Garnet (YIG), which is a promising material for future magnonic applications. The damping control is based on the exploitation of the Spin Hall Effect (SHE) and Spin-Transfer Torque (STT) in a bilayer of YIG and the normal metal Pt. In short, a charge current applied to the Pt layer generates a spin current due to the SHE, which consequently can exert an (anti-)damping-like STT on the magnetization in the YIG layer at the interface of both materials.

In our first experiment, we parametrically excite spin waves in a macroscopically large YIG/Pt sample, and reveal the impact of SHE-STT-driven damping variation on those spin waves. In our second experiment, we overcompensate the natural damping in a confined structure, a YIG/Pt microdisk, by means of the SHE and STT, and thus, trigger the onset of so-called magnetization auto-oscillations in the system. Brillouin light scattering spectroscopy is utilized to monitor the spin waves amplitudes in both experiments.

When: Friday, December 15th 2017, **10:00 am**

Where: Room 46-387/388

********** COFFEE, TEA AND COOKIES WILL BE SERVED **********

All undergraduate and graduate students as well as postdocs are welcome and encouraged to join our discussion!

For questions, comments or suggestions: matveeva@physik.uni-kl.de

MATERIALS IN MAINZ SCIENCE

TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

OPTIMAS TU Kaiserslautern