



JOHANNES GUTENBERG
UNIVERSITÄT MAINZ

Seminar: Hard Condensed Matter Theory

Room: Galileo room, 01-128 (Staudinger Weg 7)

Time: Tuesday, 24.01.2017, 14:00

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The influence of local ion implantation on magnetic domains, magnetoresistance and spin wave propagation

The influence of ion induced magnetic patterning on the anisotropic magnetoresistance (AMR) is investigated in the first part. The AMR directly depends on the angle between the applied current and the magnetization of the material. To investigate this relationship a Kerr microscope for visualizing the magnetic domains is combined with magneto-transport measurements. The investigated samples are magnetic hybrid structures from irradiated and non-irradiated permalloy.

In the second part ion implantation is used to create spin wave channels. Fe₆₀Al₄₀films in the B2 phase is paramagnetic. Starting from a FeAl film in the paramagnetic state the incident ions randomize the site occupancies and, thereby, transform it to the chemically disordered, ferromagnetic A2 phase. Spin waves, the eigen-excitations of ferromagnets, are promising candidates for spin transport in lateral devices. The aim is to investigate spin wave propagation in this ferromagnetic material in free standing structure as well as in structure within a paramagnetic matrix.

All interested are cordially welcome!

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