

Theoriekolloquium

Am **27. Januar 2011** um **14.15 Uhr** in **W2 1-143** hält

Herr Prof. Dr. Ulrich Nowak (Konstanz)

einen Vortrag mit dem Titel

Spin dynamics at finite temperatures

The understanding of the influence of the thermal properties of a material on its magnetic behaviour opens new perspectives for the control of magnetic domains and domain walls. Heat pulses can be used for ultrafast switching dynamics, as has been studied extensively as a possibility to improve the writing speed of magnetic data storage, and even spatial temperature gradients can lead to magnetisation dynamics, as has been demonstrated recently in connection with the so-called spin-Seebeck effect.

In this talk two different approaches for the description of the dynamics of coupled thermomagnetic properties are introduced, namely the stochastic Landau-Lifshitz-Gilbert equation, applied to atomistic spin models, and the Landau-Lifshitz-Bloch equation of motion, which describes the dynamics of the thermally averaged spin polarisation on micromagnetic length scales. Both approaches are applied to the investigation of two different types of thermally driven magnetisation dynamics, namely opto-magnetic switching, triggered by femtosecond laser pulses, and domain wall dynamics driven by spin currents which follow from a temperature gradient.

Interessierte sind herzlich eingeladen.

gez. Prof. Dr. Alexander Hartmann