

## EINLADUNG

zum Vortrag  
von

**Prof. Dr. Dieter Süss**

Universität Wien, Functional Materials und Christian Doppler Labor

# Functional Magnetic Nanostructures

**am Dienstag, 15. Mai 2018, um 17:30 Uhr**

**Ort:** Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,  
1090 Wien, Strudlhofgasse 4 / Boltzmanngasse 5, 1. Stock

*Barrierefreier Zugang: Boltzmanngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals*

### Abstract:

Within the talk I will review our activity on magnetic and spintronic applications.

In the first part of the talk, our research on state of the art heat assisted recording will be presented that is done in cooperation with Western Digital and Seagate. Here, fundamental problems in laser assisted recording (heat assisted recording) such as noise due to the elevated temperature will be discussed. Solutions to increase data density and noise that bases on multilayer materials with different Curie temperature will be presented.

A further part of the talk will be dedicated to the newest developments of the CD-lab "Advanced magnetic sensing and materials" with is done in cooperation with Infineon. One highlight that will be presented is the significant reduction of the noise in tunneling magnetoresistance sensors (TMR) that are used for speed wheel sensors for ABS systems in cars. The way from the idea of these new sensors to the development of a product that will enter the market in 2018 will be discussed.

Finally, I will give a review about our activity in additive manufacturing. We developed magnetic filaments that can be used in a commercial 3D printers that allows to print polymer bonded NdFeB magnets. The used 3D printing system is also capable to extrude two different filaments, which allows a gradual change in magnetic properties. Hence, a continuous change from a magnetic material to a non-magnetic can be realized as function of space. This capability allows generating magnetic field profiles which are not possible with other methods. In order to fully make use of these new production flexibility advanced algorithm are required to determine the shape of magnet as well as the local magnetic properties to obtain the required and predefined magnetic field.

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