



TECHNISCHE
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WIEN

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IAP-SEMINAR

ANNOUNCEMENT

- Date: **Tuesday, 25.11.2014**
Time: **16:00 p.m.**
Location: **Technische Universität Wien, Institut für Angewandte Physik, E134**
yellow tower „B“, 5th floor, Seminarraum 134A (room number DB05L03)
1040 Wien, Wiedner Hauptstraße 8-10
- Lecturer: **Michal Urbánek**
CEITEC BUT, Brno University of Technology, Brno/Czech Republic
- Subject: **Controlling spin vortex states in magnetic nanodisks by magnetic field pulses**
- Abstract: Magnetic vortices are curling magnetization structures formed in micro- and nanosized magnetic disks and polygons. They are known for having four different magnetization configurations (vortex states) that can be used for a multibit memory cell. The vortex states are defined by the polarity of the vortex core, pointing either up or down perpendicular to the disk plane and by the circulation of the magnetization in the plane of the disk, curling either counterclockwise or clockwise. They can be controlled by applying static out-of-plane (polarity control) or in-plane (circulation control) magnetic fields, although the amplitude of these fields is relatively large. In 2006 Van Wayenberge et al. demonstrated that the vortex polarity can be switched at much lower field amplitudes by using fast rising magnetic fields and we have recently demonstrated that a similar approach can be used for the circulation switching. In the talk I will describe static and dynamic magnetization reversal processes in magnetic vortices. Special emphasis will be given to the dynamic control of the magnetic vortex states and the use of magnetic vortices as multibit magnetic memory cells.

*All interested colleagues are welcome to this seminar lecture
(45 minutes presentation followed by discussion).*

*U. Diebold e.h.
(Seminar-Chairperson)*

*H. Störi e.h.
(LVA-Leiter)*