

## Magneto optical Kerr microscopy

evico magnetics GmbH  
Gostritzer Str. 61-6301217, Dresden, Germany

[\\*info@evico-magnetics.de](mailto:info@evico-magnetics.de)

Local responsible person:

Lukáš Flajšman

[\\*\\*lukas.flajsman@ceitec.vutbr.cz](mailto:lukas.flajsman@ceitec.vutbr.cz)

In this practical session we will investigate the static magnetization landscapes by utilizing the wide-field magneto optical Kerr microscope. The Kerr microscopy has rendered itself as one of the major investigation tools for magnetic thin films and micro/nanostructures. Stimulated by the advances of low noise cameras and high real-time data processing possibilities, it allows to visualize magnetization processes with high spatial resolution with vector capabilities.

**In the introductory part** of the practicals we will introduce the concept of magneto-optical Kerr effect and how it can be utilized in magnetic microscopy. We will introduce also the concept of vector Kerr magnetometry.

### **In the experimental part we will**

1. Introduce the setup for wide-field Kerr microscopy
2. See, how static domain images can be easily visualized by background subtraction – see how the contrast can be optimized for best SN ratio.
3. Measure local hysteresis loops on magnetic microstructures.
4. Explore the vector capabilities of the setup.

### **Recommended reading:**

- [1] H. Hopster, H. P. Oepen, *Magnetic Microscopy of Nanostructures*, Springer, Berlin, Heidelberg (2005) ISBN 978-3-540-40186-5
- [2] A. Hubert, R. Schäfer, *Magnetic domains*, Springer, Berlin, Heidelberg (1998) ISBN 978-3-540-64108-7