

VA 5: Gaede Prize Talk

Time: Wednesday 14:00–14:45

Location: HSZ 02

Invited Talk

VA 5.1 Wed 14:00 HSZ 02

Engineering surfaces, interfaces and structural phases to tailor magnetic properties — •JÜRGEN FASSBENDER — Institute of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf e. V., P. O. Box 51 01 19, D-01314 Dresden — Träger des Gaede-Preises

Surfaces and interfaces play an important role in order to determine the overall properties of ultrathin magnetic films and multilayers. In particular, the morphology and roughness of the surface and the sharpness of mutual interfaces between magnetic and non-magnetic thin films are crucial. All these parameters are easily accessible by means of ion irradiation [1,2], ion implantation [2,3] and ion erosion approaches

[4]. Also structural phase transitions can be accompanied by magnetic ones [5] which allow the creation of nanomagnets in the sub-100 nm regime [6]. In this talk I am going to present a survey of ion beam modifications of magnetic materials with special emphasis on the basic phenomena including some technological applications. Supported by DFG FA 314/3-1, FA 314/6-1 and FA 314/7-1.

[1] J. Fassbender, D. Ravelosona, Y. Samson, *J. Phys. D* 37, R179 (2004). [2] J. Fassbender, J. McCord, *J. Magn. Magn. Mat.* 320, 579 (2008). [3] J. McCord, L. Schultz, J. Fassbender, *Adv. Mater.* 20, 2090 (2008). [4] M. O. Liedke et al., *Phys. Rev. B* 75, 220407(R) (2007). [5] J. Fassbender et al., *Phys. Rev. B* 77, 174413 (2008). [6] E. Menendez et al., *Small*, in press.