Contribution submission to the conference Regensburg 2010

Preparation of Permalloy nanostructures using focused ion beam methods — •Saleh Getlawi, Michael R Koblischka, and Uwe Hartmann — Institute of Experimental Physics, Saarland University, Campus C 6 3, D-66123 Saarbrücken, Germany

Focused ion beam (FIB) milling is a powerful and versatile tool for the maskless fabrication of structures and devices at micro- and nanometer scales. The approach is based on the milling and deposition capabilities of a focused ion beam, where the latter is achieved by ion-beam-assisted decomposition of a metalorganic gas precursor of the specific material that has to be deposited. The combination of FIB and scanning electron microscopy in the same unit (so-called dual-beam unit) further expands the capabilities of the approach by the possibility of performing electron-beam-assisted deposition and inspection. Permalloy nanowires with electrical contacts patterned by FIB-Pt deposition were prepared in the dual-beam unit. Various types of notches to pin magnetic domain walls were additionally fabricated by means of FIB. The fabrication parameters for a structural modification of the Permalloy structures without too strongly affecting the material properties were determined previously [1]. Magnetic force microscopy was employed for an observation of the resulting magnetic domain structures.

[1] S.Getlawi et al., Superlatt. and Microstruct. 44 (2008) 699.

Part: MA
Type: Vortrag;Talk
Topic: Spinelektronik / Spininjektion in Heterostrukturen;Spinelectronics / Spininjection in Heterostructures
Email: s.getlawi@mx.uni-saarland.de