Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

**Strain Induced Switching of Magnetostrictive Dot Arrays** M.-T. BOOTSMANN, Research Center Caesar, 53175 Bonn, Germany, S. DOKUPIL, M. LÖHNDORF — For further miniaturization of magnetostrictive TMR strain sensors [1], it is necessary to analyze the switching properties of the magnetostrictive free layers under mechanical strain. Therefore, we have combined MEMS and thin-film technologies in order to fabricate highly magnetostrictive FeCo and amorphous CoFeSiB micro-/ nano-dot arrays on 0.5-1$\mu$m thick Si3N4-membranes with diameters of 50 to 300$\mu$m. By applying variable pressure to the membrane the dot arrays were exposed to compressive or tensile strain. MFM as well as MOKE measurements have been applied to resolve the micromagnetic structures and the corresponding hysteresis loops for different levels of applied mechanical strain. For 1$\mu$m CoFeSiB dots we observed a multi-domain state under stress free condition, whereas for 0.01% of tensile strain a single domain behavior has been observed with an alignment of the magnetization parallel to the strain direction. By changing to compressive strain the domains are rotated by 90$^\circ$ leading to a magnetization perpendicular to the strain direction as expected for positive magnetostrictive materials. [1] M. Löhndorf et al. APL 81(2), 313 (2002)

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Date submitted: 08 Dec 2004 Electronic form version 1.4