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Surface Magnetic Anisotropy of Vertical Ni Nano-Columns as Revealed by Magneto-Optical Kerr Effect. JUDAH HENRY, Grove City College, FU TANG, GWO-CHING WANG, Rensselaer Polytechnic Institute — The surface magnetic properties of vertical Ni nano-columns grown on a native oxide Si(110) substrate by oblique angle deposition with uniform substrate rotation were studied using the longitudinal Magneto-Optical Kerr Effect (MOKE). The vertical nature of the $\sim$250 *nm* high columns was verified using Scanning Electron Microscopy (SEM) imaging. X-ray diffraction showed that the bulk nano-columns exhibit a vertical (220) texture. Contrary to the magnetic isotropy observed from the vibrating sample magnetometer (VSM) measurements, the MOKE hysteresis loops display azimuthal magnetic anisotropy. Using the method proposed by Tang, *et al.*[1], the coupled hysteresis loops obtained in the MOKE experiment were decomposed into polar and longitudinal components by addition and subtraction of loops 180° apart. The polar part has an obvious azimuthal anisotropy while the longitudinal component shows an approximate isotropy. It is proposed that the oblique angle deposition results in the surface microstructure differing from the bulk microstructure, yielding magneto-crystalline or shape anisotropy on the surface. This work was supported by the NSF 0453231. [1]. F. Tang, et al. J. Appl. Phys. 93 (7), 4194 (2003).

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