

MAGNETO-OPTICAL STUDY OF NiFe/Au/Co/Au LAYERED FILMS

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9.7 cm

Sputtered NiFe/Au/Co/Au layered films with noncollinear magnetizations are of scientific interest for unusual magnetization behavior and their potential applications in spintronics. Magneto-optic ellipsometry is applied to separate magnetization contributions from Co and NiFe layers. Hysteresis loops measured by polar Kerr rotation and ellipticity show strong differences in shape, which originate from different material sensitivity of the complex magneto-optic effect to the Co and NiFe layers. Polar Kerr rotation and ellipticity from the sample Si/Au(buffer)/NiFe(0–2 nm)/Au(2 nm)/Co(0–1.7 nm)/Au(2 nm) with mutually perpendicular wedges of Co and NiFe were measured. Experimental study is combined with modeling of magneto-optic response from the system using Yeh's 4×4 matrix algebra. Effects of ferromagnetic layer thickness on magnetostatic coupling is demonstrated from analysis of magneto-optical data.

13.4 cm

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