MAGNETO-OPTICAL AND OPTICAL PROPERTIES OF Fe/Tb MULTILAYERS

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9.7 cm

Magneto-optical and optical spectroscopic properties of Fe/Tb multilayers (MLS) were studied both experimentally and theoretically. The complex Kerr rotation spectra were measured over the photon energy range 0.8-5.6 eV for the series of sputter deposited Fe/Tb MLS with constant Fe and variable Tb sublayer thicknesses. From low angle X-ray diffraction measurements it follows that the samples studied exhibit a well-defined layered structure. The investigations of the magnetization processes in the MLS under consideration indicate a complex magnetic structure and interactions in the systems. The magneto-optical response of the Tb/Fe MLS was simulated by applying a phenomenological model as well as examined on the basis of LMTO band structure calculations for various multilayer model structures. The results obtained are in qualitative agreement with the experiment. The crucial role of the interface structure in the formation of the magneto-optical response of Fe/Tb multilayers is established and discussed.

13.4 cm

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