Title: Magnetic nanostructures for recording and optical sensors

Author: Eva Lišková

Department: Institute of Physics, Charles University

Supervisor: Prof. Ing. Štefan Višňovský, DrSc.

Abstract: Magneto-optical (MO) spectra of multilayered structures with enhanced MO effect were studied using the polar and longitudinal Kerr spectroscopy with oblique angle of light incidence in the photon energy range 1.2 eV to 5 eV. The samples with Fabry-Perot cavity like architecture, were modeled using Yeh matrix formalism. Two sets of samples, with composition FeF_2/Fe/FeF_2 and AlN/Fe/AlN, were prepared by molecular beam epitaxy and sputtering. The relations were studied between the position of the enhanced peak in the MO spectra and the structure. Second part of this work was devoted to the Pt/Co/Pt structures and the influence of the ion implantation on MO spectra and structural composition. The studied multilayer structures present interest for MO sensor and memory applications.

Keywords: Magneto-optical Kerr effect, Magneto-optical sensor, Fabry-Perot resonator, Ion implantation