Magnetooptical analysis of ultrathin Co films modified by femtosecond laser pulses

W. Dobrogowski,1 J. Kisielewski,1 Z. Kurant,1 K. Kościuk,1 I. Sveklo,1 K. Postava,2 L. T. Baczewski,3 A. Wawro,3 and A. Maziewski1

1Faculty of Physics, University of Białystok, Poland
2VŠB - Technical University of Ostrava, Czech Republic
3Institute of Physics, Polish Academy of Sciences, Poland

Polar Kerr effect microscope-based setup with a CCD camera and a specially constructed electromagnet, supported by software for both data acquisition and image processing, was developed to investigate local magnetic and magnetooptical properties of ultrathin metallic systems with a micrometer resolution. Ultrathin cobalt films with femtosecond laser pulses-induced out-of-plane magnetization states [1] were studied using this method. The laser-annealed regions were characterized in detail by giving the two-dimensional maps of remanence, coercivity, saturation field, and maximal Kerr rotation, as well as some statistical information concerning distributions of these quantities.

References:

FNP Team Programme, European Regional Development Fund, OP1E 2007-2013; National Science Centre Poland (DEC-2012106/M/ST3/00475)