Ion driven magnetic and structural modifications of ultrathin Co films with various covers

P. Mazalski,1, 2 R.P. Socha,1 L. Ohnoutek,3 L. Beran,3 Z. Kurant,2 A. Wawro,4 J. Fassbender,5 M. Veis,3 and A. Maziewski2

1 Jerzy Haber Institute of Catalysis and Surface Chemistry of the Polish Academy of Sciences, Cracow, Poland
2 Faculty of Physics, University of Bialystok, Bialystok, Poland
3 Faculty of Mathematics and Physics, Charles University in Prague, Prague 2, Czech Republic
4 Institute of Physics Polish Academy of Sciences, Warsaw, Poland
5 Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

Magnetic and chemical properties of Co ultrathin films covered with Pt or Au cap and buffer layers magnetized in the sample plane were modified by ion irradiation. A strong dependence of the interface type on magnetic properties in irradiated films was observed. Anisotropy modification but no out-of-plane magnetization component were found for Au, contrary to Pt adjacent layers. Magnetic properties were correlated with chemical changes with use of magnetooptical and X-ray photoemission spectroscopies. Experimental observations were supported by calculations (Tridyn package) of layered structure evolution with the ion fluence.

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