ABSTRACT

Diploma work: 98 pages, 48 figures, 5 tables, 58 literature sources.

Purpose of research: to investigate the influence of Cu intermediate layer thickness and annealing atmosphere on the formation of structure and phase states of film compositions based on FePt alloy.

Object of research: the processes of structure and phase composition formation in nanoscaled $Fe_{50}Pt_{50}$(15 nm)/Cu(0, 15, 30 nm)/$Fe_{50}Pt_{50}$(15 nm) films compositions sputtered on SiO_2(100 nm)/Si(001) substrates.

Experimental methods: Magnetron sputtering, thermal treatment (annealing), X-ray analysis (using a X-ray diffractometer equipped with a 2-dimensional (2D) detector and with a scintillation counter), resistometry (four-probe method).

The practical importance: obtained results have practical importance for the development of new materials as magnetic recording medium with ultrahigh density. The calculations of economical efficiency of the research indicate expediency of this work implementation.

NANOSCALED FILM COMPOSITIONS; EASY MAGNETIZFTION AXIS; ULTRAHIGH DENSITY MAGNETIC RECORDING; MAGNETIC ANISOTROPY; PHASE TRANSFORMATION; $L1_0$-FePt PHASE.