ABSTRACT

Report: 72 pages, 21 figures, 4 tables, 40 literature sources.

Aim of work: to investigate the formation of hard magnetic $L1_0$-FePt phase in the $[FePt/Cu(7,5\ нм)/FePt]_2$ nanoscale film compositions annealed in hydrogen.

***Investigation methods*:** X-ray diffraction analysis, magnetron sputtering, heat treatment (annealing), electrical resistivity measurements.

Object of work: thermally activated processes of phase formation in $[FePt/Cu(7,5\ нм)/FePt]_2$ nanoscale film composition sputtered onto $SiO_2(100нм)/Si(001)$ substrate.

Practical importance: received results are important for practical application for the development of new materials promising for use as high-density magnetic recording storage.

NANOSCALE FILM; EASY MAGNETIZATION AXIS; DENSITY; ULTRA HIGH MAGNETIC RECORDING; MAGNETIC ANISOTROPY ENERGY; PHASE TRANSFORMATIONS; PHASE $L1_0$-FePt