

## ABSTRACT

**Attestation bachelor work:** 99 pages, 36 images, 11 tables, 60 literature sources.

**Aim of work:** to investigate phase formation in nanoscaled  $\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})/\text{Au}(7,5; 30\text{ nm})/\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})$  films on the  $\text{SiO}_2(100\text{ nm})/\text{Si}(001)$  substrates during annealing in hydrogen atmosphere.

**Investigation methods:** Rutherford backscattering spectrometry, X-ray diffraction, four-probe measurement electrical resistance.

**Object of work:** thermally activated phase formation processes in nanoscaled films  $\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})/\text{Au}(7,5; 30\text{ nm})/\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})/\text{SiO}_2(100\text{ nm})/\text{Si}(001)$ .

**Scientific novelty:** new knowledge about the regularities of diffusion formation processes of thermally stable nano-sized  $L1_0$ -FePt phase films in nanoscaled  $\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})/\text{Au}(7,5; 30\text{ nm})/\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})$  films when annealing in hydrogen.

**Practical importance:** considered in the work nanoscaled  $\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})/\text{Au}(7,5; 30\text{ nm})/\text{Fe}_{50}\text{Pt}_{50}(15\text{ nm})$  films on the  $\text{SiO}_2(100\text{ nm})/\text{Si}(001)$  substrate is a promising material for creating media with ultrahigh density magnetic recording.

ORDERED PHASE; ANNEALING; STRUCTURAL REFLEX; TEXTURE;  
COERCIVITY; NANOSCALED FILMS COMPOSITIONS; PHASE  $L1_0$ -FePt.