

## ABSTRACT

**Thesis:** 83 pages, 26 pictures, 9 tables, 38 references.

**The aim of the work:** to create biocompatible hydroxyapatite coating, reinforced with carbon nanotubes by deposition of nanotubes on a quartz substrate and subsequent laser thermochemical treatment, the coating research and modeling of pure hydroxyapatite crystal lattice and its compound with carbon.

**Subject of the study:** hydroxyapatite coating based on carbon nanotubes, which were previously deposited on the plate of SiO<sub>2</sub>.

**Experimental methods:** method of Cathodic Arc Evaporation, X-ray phase analysis using the method of Debye-Scherrer and using a scintillation counter, scanning electron microscopy, the method of laser alloying of the surface.

**Practical value:** biologically active hydroxyapatite coating, combined with carbon nanotubes, provides better durability of implants, the growth with biological tissues and does not cause the rejection.

HYDROXYAPATITE, CARBON NANOTUBES, BIOLOGICALLY ACTIVE  
COATING, LASER ALLOYING, X-RAY DIFFRACTION, SCANNING  
ELECTRON MICROSCOPY