

Abstract

Diploma work: 106 pages, 31 drawings, 7 tables, 86 literary sources.

Work purpose: to determine the patterns of phase composition, structure and mechanical stresses in nanoscale films CoSb_x (30 nm) ($3,0 < x < 3,5$), obtained by molecular beam deposition on substrates SiO_2 (100 nm) / Si (001) after deposition and after annealing in vacuum.

Research methods: heat treatment, X-ray phase analysis, resistometry, atomic force microscopy, scanning electron microscopy, X-ray strain gauges.

Research subject: $\text{CoSb}_{3,0}$ (30 nm) and $\text{CoSb}_{3,5}$ (30 nm) nanoscale films after deposition and heat treatment in vacuum.

Object of study: the processes of formation of structure, phase composition and mechanical stresses in $\text{CoSb}_{3,0}$ (30 nm) and $\text{CoSb}_{3,5}$ (30 nm) nanoscale films.

Practical value: The results are of practical importance for the development of new materials, advanced as a highly efficient thermoelectric converters provide autonomous power supply of low-power electronic devices and in the creation of film in refrigerators element base nanodimension range for computer technology and infrared sensors. Estimated value of the coefficient of economic efficiency scientific - research work (SRW) showed the feasibility of the implementation of this work

NANOSCALE FILM COMPOSITIONS CoSb ; THERMOELECTRICITY;
DIMENSIONLESS COEFFICIENT OF THERMOELECTRICAL EFFICIENCY