ABSTRACT

Thesis: 83 pages, 28 figures, 17 tables, 2 appendias, 33 literatures.

The object of the study: samples with Ni (60 nm) / Sn (30 nm) composition sputtered on NaCl substrate.

The subject of the study: to study the structure and phase formation features in nanoscale thin film compositions of Ni-Sn system.

The aim of the work: to study the structure and phase formation features in just prepared two-layer thin-film samples with Ni (60 nm) / Sn (30 nm) composition and after annealing within 90 sec at the temperature of 500 K.

The methods of the research: vacuum condensation method, heat treatment (annealing) in vacuum, method of electronography (ESR-100), the method of electron microscopy to the light (TEM 125-K).

Practical use: the results of this study can be used in future structure and phase formation researches of the same systems as well as for improving production technology of thin-film anodes for lithium-ion batteries. The obtained calculated value of index of scientific and technical efficiency of SRW (E_{ST}) shows the expeendency of the implementation of this work.

TIN, NICKEL, THIN FILM, Ni-Sn, PHASE TRANSFORMATIONS, INTERMETALLICS, STRUCTURE, THERMAL EVAPORATION, ANNEALING, ELECTRONOGRAPHY, ELECTRON MICROSCOPY.