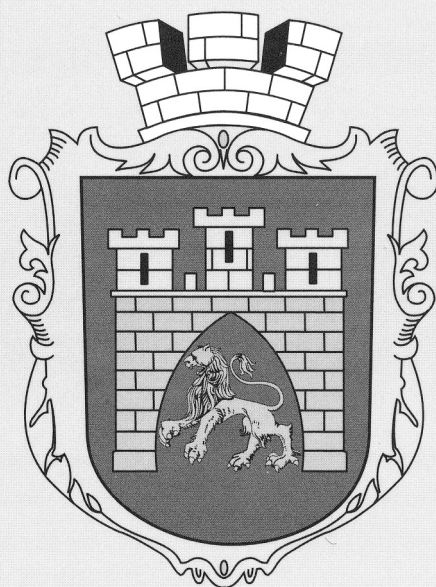


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## ABSTRACT BOOK

## Electrophysical Properties of Thin Layers of Intermetallic Compounds

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Influence of thickness and conditions of precipitation on electrophysical properties of Gd-Fe films was investigated. The films have been obtained by a thermal vacuum evaporation of a polycrystalline charge of the respective composition. Thickness of films has been determined with an optical interferometer (100–200 nanometers). The temperature of substrates carriers varied in the range of 300–500 K. Our investigations allowed us to conclude, that the value of electrical conduction, temperature coefficient of resistance and thermoelectromotive force depend on many factors: film thickness, preparation procedure and substrate temperature. Thermal annealing of films and subsequent ageing for 1–3 years under stable conditions did not result in significant changes of their electrophysical properties. This fact suggests that the character of scattering in the explored films remains invariable. Three mechanisms of current carriers dispersion, i.e. electron-phonon dispersion, dispersion due to the size effects (when the thickness of a film becomes comparable to a free path of electrons) and a dispersion of carriers at grain boundaries, contribute to the electrical conductivity of amorphous films. Furthermore, three different deposition modes resulted in amorphous, amorphous-crystalline and polycrystalline films.