

IVAN FRANKO NATIONAL UNIVERSITY OF LVIV
ЛЬВІВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ІМЕНІ ІВАНА ФРАНКА

**X-TH INTERNATIONAL SEMINAR
ON PHYSICS AND CHEMISTRY
OF SOLIDS
*BOOK OF ABSTRACTS***

**10-Й МІЖНАРОДНИЙ СЕМІНАР
З ФІЗИКИ ТА ХІМІЇ
ТВЕРДОГО ТІЛА
*ТЕЗИ ДОПОВІДЕЙ***

**LVIV / ЛЬВІВ
6 – 9 JUNE 2004 / 6 – 9 ЧЕРВНЯ 2004**

**STRUCTURE, PROCESSES OF REGULATING AND
PHYSICAL PROPERTIES OF SOME INTERMETALLIC
COMPOUNDS**

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Using methods of thermal vacuum evaporation and magnetron sputtering, amorphous and polycrystalline films of intermetallic compounds of systems Fe-Gd and Sc-Cu were obtained. Complex electron diffraction and electrophysical examinations of condensates were carried out for different types substrates and different condensing temperatures.

In particular:

- Temperature of substrate and mode of deposition influence on forming of a condensate is explored.
- The kinetics of crystallization of amorphous films is investigated.
- The proximate interatomic distances in amorphous condensates are estimated.
- Decoding of structure for polycrystal samples carried out.
- Determined that annealing in vacuum at temperatures smaller 600 K does not result in crystallization.
- Specific resistances of films obtained were gauged under different technological conditions. Essential effect of deposition conditions is discovered.
- In the range 300-500 K temperature dependences were built for an electrical conductivity of amorphous and polycrystalline films. They had a semiconductor or metal course of conductance depending on methods of reception and mode of deposition.
- The temperature coefficient of resistance and energy of thermal activation were calculated.
- Effect of annealing on an electrical conductivity is explored. The magnification of a specific resistance is detected. This fact could be explained by formation of nanocrystalline seeds in an amorphous matrix which gives in increase of localization of such seeds.
- In the range 300-450 K temperature dependences of thermoelectric power were built.
- The type of carriers was determined. In all cases it there were electrons.

The carried examinations enable as to state that physical properties of films depend on structure essentially.