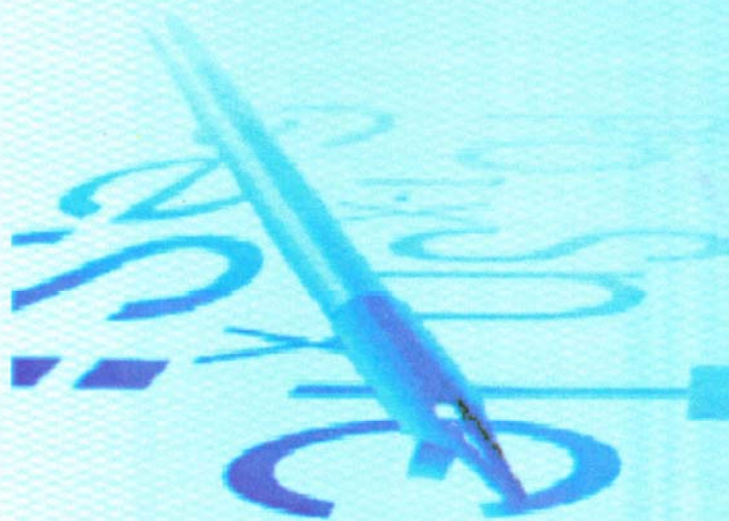


**PHYSICS AND TECHNOLOGY
OF THIN FILMS AND NANOSYSTEMS
XVI INTERNATIONAL CONFERENCE
dedicated to memory Professor Dmytro Freik**



**ICPTTFN-XVI
MATERIALS**



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Temporary Stability of Structure and Physical Properties of Films of Gd-Fe System

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Thin layers of intermetallic compounds of type a rare-earth element – iron are interesting due to their structural features, electrical and magnetic properties.

Films of binary compounds of Gd-Fe system were obtained by means of a thermal vacuum evaporation of polycrystal mix material of a corresponding composition. The films with by thickness of 50-60 nanometers were evaporated on splitting of NaCl, then NaCl dissolved in water. The part of films was picked up at once on copper electron diffraction grids. The second series of films transplanted on copper grids, prestressly coated thin collodion supports and in such way was maintained 3-6 years. Then recurring researches were carried out. For electrophysical measurings the films are condensed on glassceramics substrates. The thickness of films changed within 100-200 nanometers. The temperature of substrates had two values 300 and 500 K. For structural investigation the electron microscope UEMV-100K and high-temperature attachment PRON-2 were used. Angle dependence of atomic factors of electron scattering was considered by atoms of gadolinium and iron. All measurements were repeated in 3-6 years after the first stage of measurings.

By us it is explored structure, electrophysical and magnetic properties of films of different compounds of Gd-Fe system in the range of 3-6 years. It is revealed high temporary durability of physical performances of films of Gd-Fe compounds and lack of an oxidizing.