Magnetism of Gd-Fe System

Prysyazhnyuk V.I., Mykolaychuk O.G.

Ivan Franko National University of Lviv, Lviv, Ukraine

Investigation of magnetic properties of films of $GdFe_2$, $GdFe_5$ and Gd_2Fe_{17} compounds are complete. Films have been gained by a method of thermal evaporation on teflon substrates at room temperatures.

Values of Curie temperature, curves of specific magnetisation, and hysteresis curves for massive and thin-film samples are determined. It is spotted that the Curie temperature of massive samples corresponds to references. At examination of thin-film samples Curie temperature reduction was observed. Such depression of Curie temperature speaks expansion of a crystalline lattice owing to formation of microdefect (films were is amorphous-crystal).

Temperature dependences of magnetic saturation for compounds and films of Gd-Fe system are determined. The given dependences characteristic for materials of such class. Magnetic saturation of films Gd_2Fe_{17} and $GdFe_2$ at room temperature are measured.

1. Zinkevich M. Reassessment of the Fe-Gd (Iron-Gadolinium) System. / M. Zinkevich, N. Mattern, and H.J. Seifert // Journal of Phase Equilibria. – 2000. –V.21, No.4. –P.385–394.
2. Андреенко А. С. Магнитные свойства аморфных сплавов редкоземельных металлов с переходными 3d-металлами / А. С. Андреенко, С. А. Никитин // УФН. –1997. –Т.167, №.6. –С.605–622.