INFLUENCE OF γ-IRRADIATION ON INITIAL MAGNETIC PERMEABILITY OF AMORPHOUS AND NANOCRYSTALLINE Fe–Si–B-BASED ALLOYS

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By determining the inductance factor, the dependence of initial magnetic permeability μ_i of amorphous and nanocrystalline Fe–Si–B-based alloys on the γ-irradiation dose has been studied. The doping of amorphous Fe–Si–B alloys with nickel and molybdenum was found to enhance the radiation sensitivity of μ_i. The initial magnetic permeability of nanocrystalline magnetic alloys was found to be less sensitive to the action γ-radiation than that of doped amorphous ones. A hypothesis has been put forward that the influence of radiation on the initial magnetic permeability is associated with a creation of non-magnetic inclusions in the structure of amorphous alloys and in the amorphous matrix of nanocrystalline alloys.