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Study of Kinetic Coefficients of $(GeTe)_{1-x}$ - $(Ga_2Te_3)_x$ Solid Solutions

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Abstract: In this study, such kinetic cparametres as thermoelectro motor force (thermo e.m.f), electrical coductivity, heat conductivity, Hall and Nernst-Ettingshausen coeficients are investigated, as a function of chemical composition of $(GeTe)_{1-x}$-$(Ga_2Te_3)_x$ and temperature, by physicochemical methods and x-rays analysis. The kinetic parameters $(GeTe)_{1-x}$-$(Ga_2Te_3)_x$ solid solutions are investigated between x=0 and 0,015 and between 77 and 900 K. Adding of Ga_2Te_3 to GeTe reduces the phase transition temperature of β-GeTe to α-GeTe. It is observed that in the region of solid solution the rhombohedral modification of GeTe are protected. Doping of GeTe with Ga_2Te_3 does not affect the kinetic parameters of GeTe. Anomalies in the rhombohedral phase of solid solutions are related with splitting of cubic phase extremums due to deformation of the rhombohedral lattice. Decreasing of Hall coefficient while increasing thermo e.m.f near phase transition point, in the cubic phase were explained with changing of Hall factor A.