MAGNETIC PROPERTIES AND ELECRONIC STRUCTURE OF THE $\mathbf{Gd(Co_{1-x}Si_x)_2}$ AND $\mathbf{Gd(Co_{1-x}Ge_x)_2}$ LAVES PHASE COMPOUNDS

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Results of measurements of the magnetic susceptibilty, the electrical resistivity and the crystal structure of the polycrystalline intermetallic compounds $\mathrm{Gd(Co_{1-x}Si_x)_2}$ and $\mathrm{Gd(Co_{1-x}Ge_x)_2}$ with x=0; 0.05; 0.1; 0.15; 0.20 are presented. The effect of the partial substitution Co by Si and Ge is similar and reflects in the change of the Curie temperatures T_C and in the temperature dependence of the electrical resistivity. In both cases (Si, Ge) we cannot detect the change in the lattice parameters. In the condition of the fixed volume the hybridization between the Co d states and Si(Ge) p states seems to be responsible for the observed effects, what was confirmed by XPS measurements in the valence band regions.

9.7 cm

13.4 cm

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