Electronic structure and electric properties of $Gd(In_{1-x}Sn_x)_3$ compounds

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Results of measurements of the electrical resistivity, crystal and electronic structure of $Gd(In_{1-x}Sn_x)_3$ compounds are reported. The effect of partial substitution In by Sn atoms is reflected in the linear increase of the unit cell volume. The character of the change of the electrical resistivity ρ versus temperature T strongly depends on the composition. Two different types of $\rho(T)$ behaviour are observed. The electronic structure of all system was studied by using X–ray photoelectron spectroscopy (XPS). The chemical shift of the Gd 4*f* peak to the higher binding energy with the increase of Sn concentration was observed. The valence band near the Fermi level is dominated by hybridized Gd 5*d* and In/Sn 5*p* states.

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