

Magnetic and electronic properties in series of $\text{Gd}T_x\text{Ga}_{4-x}$ solid solutions ($T = \text{Ni}$ or Cu).

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Crystallographic and magnetic data have been reported only for GdNiGa_3 and $\text{GdCu}_{1.25}\text{Ga}_{2.75}$ [1, 2]. Here we present results of extensive measurements of magnetic susceptibility, electrical resistance, specific heat and thermoelectric power for ranges of doping x from 0.6 to 1 for $\text{GdNi}_x\text{Ga}_{4-x}$ and from 1 to 1.5 in case of $\text{GdCu}_x\text{Ga}_{4-x}$. All studied phases display Curie-Weiss behaviour of magnetic susceptibility and antiferromagnetic ordering at temperatures below 25 K. Substitution of gallium with transition metal atoms has strong influence on Néel temperatures of all studied phases, shifting them by few Kelvin, depending on x . Clear metamagnetic transitions are observed for some compositions. Behavior of resistivity reveals metallic nature of all samples and their magnetic ordering is reflected in low-temperature anomalies of resistivity and thermal properties.

References:

- [1] Yu.N. Grin, K. Hiebl, P. Rogl, H. Noël, J. Less-Common Met. **162**, 361 (1990).
- [2] Yu.N. Grin, K. Hiebl, P. Rogl, H. Noël, J. Less-Common Met. **162**, 371 (1990).

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