# INVESTIGATION OF GdPdSi COMPOUND

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9.7 cm

GdPdAl and GdNiAl exhibit an izostructural transition from HTM I (high temperature modyfication of ZrNiAl type structure) to HTM II (low temperature modyfication of ZrNiAl type structure) at 180K and 220K respectively. Silicon is the element with one more 3p electron in relation to aluminum. The aim of work was to check the role of the 3p electrons in such transitions. The intermetallic rare-earth silliconides GdPdSi crystallizes in the orthorhombic structure. A single crystal of this compound was grown by the Czochralski method. Lattice parameters were obtained as a=4.3305(7), b=7.4489(9), c=14.043(2). The electronic structure was measured using the XPS method. The valence band spectra of the GdPdSi compound and for comparison pure Gd and Pd were collected at T=300K and 190K. In the compound GdPdSi the valence band exhibits a shift away from the Fermi level and narrowing of the Pd 4d states and hybridization with Gd 5d and Si 3p. The electrical resistivity shows the transition related to ordering of Gd sublattice at 28 K. The ESR measurements was performed to describe the relaxation effects.

13.4 cm

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