

Abstract:

This thesis deals with magnetic properties of antiferromagnets Nd_2TIn_8 , where $\text{T} = \text{Rh}, \text{Ir}$ and Co . These compounds are members of a group of structurally related compounds RX_3 , RTX_5 and R_2TX_8 , crystallizing in tetragonal structure, and they reveal interesting magnetic properties, for example there was observed superconductivity for Ce-based compounds. In addition there are shown the results of measurement of NdPd_5Al_2 . Specific heat was measured on monocrystals. The order temperatures were determined. The dimensionalities of magnon excitations were estimated using an analysis of low-temperature dependence of specific heat. The magnetic entropies at order temperature were calculated and they were used for determining the ground states of ions Nd^{3+} and Tm^{3+} . The treatment of specific heat above the order temperature was used for determining the energy levels of ions in studied compounds. The NdPd_5Al_2 specific heat was measured at zero and nonzero external fields, this measuring reveals an antiferromagnetic order under the order temperature and the axis of an easy magnetization in direction of c axis.