

**Magnetic and electrical transport properties of the compounds
 $\text{Pr}T_2\text{Ge}_2$, where $T = \text{Ni, Ru, Rh, Pd}$ and Ag**

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The recent discovery of unconventional heavy-fermion superconductivity in the filled skutterudite-type compound $\text{PrOs}_4\text{Sb}_{12}$ has ignited much new interest in studying other Pr-based materials. Here we report our results obtained on polycrystalline samples of a few germanides forming with the tetragonal ThCr_2Si_2 -type crystal structure. Measurements of the magnetic susceptibility, magnetization, electrical resistivity, magnetoresistivity and specific heat were performed in wide ranges of temperature (down to 350 mK) and magnetic field (up to 9 T). They revealed antiferromagnetic ground state in PrPd_2Ge_2 , PrAg_2Ge_2 and PrNi_2Ge_2 , which sets in at $T_N = 5, 12$ and 24 K, respectively. The compound PrRu_2Ge_2 exhibits an antiferromagnetic phase transition at $T_N = 18$ K that is followed by a ferromagnetic transition at $T_C = 14$ K. The most complex magnetic behavior was observed for PrRh_2Ge_2 . In the latter compound an antiferromagnetic state develops below as high temperature as $T_N = 48$ K. In the ordered state the bulk characteristics exhibit some other singularities at about 38, 29 and 21 K, which probably manifest subsequent order-order phase transitions. The magnetic behavior of the entire series is discussed in terms of RKKY exchange interactions and crystal field effects.

9.7 cm

13.4 cm

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