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Transport and magnetic properties of the rare earth intermetallic cage compounds $\text{Sm}_3\text{Ru}_4\text{Ge}_{13}$

We present electrical resistivity and dc susceptibility measurements in the range of 1.8-300K on cubic $\text{Sm}_3\text{Ru}_4\text{Ge}_{13}$ semiconducting system. At higher temperature the resistivity follows activation type behavior and at lower temperature the onset of antiferromagnetic ordering at $T_N = 5\text{K}$. On the other hand the susceptibility measurement behaves as a Van-Vleck type paramagnet towards higher temperature $240 < T < 400\text{K}$ and modified Curie-Weiss type behavior between $10 < T < 240$, which corresponds to the excited states $J=5/2$ and $J=3/2$ above T_N respectively, under crystal-field interaction.

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