

Abstract Submitted
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Synthesis and Characterization of EuPtIn₄ single crystals¹

PRISCILA ROSA, TED GRANT, Univ of California - Irvine, CAMILO JESUS, MARIO PIVA, PASCOAL PAGLIUSO, Universidade Estadual de Campinas, ZACHARY FISK, Univ of California - Irvine — Rare earth-based intermetallics present a large variety of interesting phenomena ranging from magnetism to valence fluctuation and heavy fermion superconductivity. Here we report on the synthesis and characterization of EuPtIn₄ single crystals grown by In-flux. This compound adopts the orthorhombic YNiAl₄-type structure (space group Cmc2₁) with refined lattice parameters $a = 4.5424(8)$ Å, $b = 16.954(3)$ Å, $c = 7.389(1)$ Å. Electrical resistivity measurements reveal a metallic behavior at high temperatures with $\rho_{300\text{K}} = 0.02(1)$ mΩcm and a clear peak at 13.3 K. Magnetic susceptibility measurements show Curie-Weiss behaviour above 20 K followed by an antiferromagnetic phase transition at $T_N = 13.3$ K. The experimental magnetic moment $\mu_{\text{exp}} = 7.91(5) \mu_B/\text{Eu}$ is in excellent agreement with that of the free Eu⁺² ion $\mu_{\text{eff}} = 7.94 \mu_B$. Electron spin resonance measurements will shed light on the Eu⁺² spin dynamics in this compound.

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