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Magnetic Susceptibility, Electrical Resistivity, and Specific Heat Measurements of the filled Skutterudite $PrOs_4As_{12}$ TODD SAYLES, UCSD, WILLIAM YUHASZ, NEIL FREDERICK, NICHOLAS BUTCH, PEI-CHUN HO, M. BRIAN MAPLE, Institute for Pure and Applied Physical Sciences, UCSD, ZYGMUNT HENKIE, Inst. Low Temp. and Structure Research, Polish Acad. Sci. — Single crystals of $PrOs_4As_{12}$ were grown by a flux method. Measurements on single crystals of $PrOs_4As_{12}$ reveal antiferromagnetic ordering at a Néel temperature near 2.2 K. Low-temperature electrical resistivity, ρ(T), measurements indicate that T_N is completely suppressed by fields of 1.5 T, while ac magnetic susceptibility and magnetization measurements reveal a metamagnetic transition at temperatures near the Néel temperature for low fields. High temperature Curie-Weiss fits yield an effective moment, $\mu_{eff} = 3.8\ \mu_B$, higher than the Pr^{3+} free ion value $\mu = 3.58\ \mu_B$ derived from by Hund's rules. Fits to specific heat data above T_N reveal a moderately enhanced electronic specific heat coefficient, $\gamma \sim 100$ mJ/mol K^2. The temperature dependence of ρ and the negative magnetoresistance are indicative of Kondo lattice behavior. Research at UCSD supported by the U.S. DOE and NSF.

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