

## Quantum Fluctuations and Non-Fermi Liquid in Quasi-One-Dimensional $\text{PrAu}_2\text{In}_4$

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Needle-like single crystals of  $\text{PrAu}_2\text{In}_4$  have been grown from In flux and studied in detail by crystallographic, magnetic, transport, and specific-heat measurements down to very low temperatures. No clear phase transition can be observed in this compound, whereas both magnetic susceptibility and specific heat show broad hump at around 2 K, with a huge nuclear contribution to specific heat below 1 K. These observations indicate a significant magnetic correlation in this compound. With applying field along the magnetic easy axis b to about 2 T, intriguingly, non-Fermi liquid behavior is observed in resistivity within a wide temperature range above 2 K, where the electronic specific heat coefficient is also enhanced, although a Fermi liquid ground state is finally retained at the ground state and no quantum critical point can be resolved. These unconventional quantum critical behaviors will be discussed by considering the enhanced spin dimensional fluctuations and the orthorhombic crystal-electric-field splitting of the  $\text{Pr}^{3+}$  multiplet, which results in a singlet ground state with however very low-lying excited states.

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