

Abstract Submitted
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Investigation of quantum criticality in the new heavy fermion compound $\text{Ce}_2\text{PdAl}_7\text{Ge}_4$ ERIC BAUER, N. A. WAKEHAM, D. KIM, N. J. GHIMIRE, F. RONNING, R. MOVSHOVICH, J. D. THOMPSON, Los Alamos National Laboratory — Ce-based intermetallic compounds exhibit a variety of interesting ground states including magnetic order, heavy fermion behavior, unconventional superconductivity, and non-Fermi liquid behavior. When magnetic order is suppressed to $T=0$ K, or quantum critical point, by chemical substitution, pressure, or magnetic field, a dome of unconventional superconductivity is often found. Close to the quantum critical point, non-Fermi liquid temperature dependencies of the thermodynamic and transport properties are observed. Recently, a new family of tetragonal $\text{Ce}_2\text{MAl}_7\text{Ge}_4$ (M=Co, Ni, Pd, Ir) compounds was discovered. While the $\text{Ce}_2\text{MAl}_7\text{Ge}_4$ (M=Co, Ir, Ni) materials order magnetically between $T_m=0.8$ - 1.6 K, $\text{Ce}_2\text{PdAl}_7\text{Ge}_4$ exhibits non-Fermi liquid behavior at low temperature. Here, we discuss the quantum criticality in $\text{Ce}_2\text{PdAl}_7\text{Ge}_4$.

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