

Abstract Submitted
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Strongly-disordered hybridization and non-Fermi liquid behavior in $\text{CePt}_4\text{Ge}_{12-x}\text{Sb}_x$ studied with thermoelectric power¹ BENJAMIN WHITE, KEVIN HUANG, M. BRIAN MAPLE, University of California, San Diego — Non-Fermi liquid (NFL) behavior is commonly associated with the presence of a nearby quantum critical point, but can also be observed in other scenarios. In a clean system, hybridization between localized and itinerant electron states can be characterized by a single Kondo temperature T_K , but introducing chemical disorder can lead to a wide distribution of T_K values. Given sufficient disorder, the resulting distribution will tend to include an appreciable number of localized electron states which are characterized by $T_K \sim 0$ K, and NFL behavior emerges. A Kondo-disorder type of NFL behavior was recently reported in the filled skutterudite system $\text{CePt}_4\text{Ge}_{12-x}\text{Sb}_x$ in the vicinity of $x = 1$. We performed a study of the thermoelectric power $S(T)$ for this system and observed an evolution of $S(T)$ with x that is dramatic and broadly consistent with the boundaries of the proposed phase diagram. The effect of disordered hybridization is clearly observed in a low-temperature feature in $S(T)$ in the range $0.5 \leq x \leq 1.5$ and NFL behavior is also observed at $x = 1$. These results clearly demonstrate how sensitively $S(T)$ is able to probe a Kondo disorder system.

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Benjamin White
University of California, San Diego

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