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Thermoelectric Power Investigations of Heavy Fermion Antiferromagnet YbAgGe Across the Quantum Critical Point[1] EUNDEOK MUN, SERGEY L. BUD'KO, PAUL C. CANFIELD, Ames Laboratory/Iowa State University — The thermoelectric power (TEP), S, of the heavy fermion compound YbAgGe is studied across the field-induced quantum critical point. The temperature-dependent $S(T)$ curve in zero field is characterized by a large, negative, local minimum at temperature $T_{min} \sim 80$ K, and by an additional maximum at low temperature $T_{max} \sim 15$ K as well as a sharp minimum associated with the long range magnetic order below 0.8K. These extrema are associated with Kondo scattering with ground state and excited state crystal electric field energy levels. By applying a magnetic field along hexagonal ab-plane at low temperatures, antiferromagnetic order is suppressed for $H > H_c \sim 45$ kOe, where the sign of the TEP data also changes from negative to positive, reflecting a change of Fermi surface. Above H_c the observed large value of $S(T)/T$ is reminiscent of the heavy fermion state and a non-Fermi liquid state is evidenced from the logarithmic temperature dependence of $S(T)/T$, in agreement with previous $C(T)/T$ and resistivity results.

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