THERMOELECTRIC POWER AND THERMAL CONDUCTIVITY OF HEAVY FERMION $CeCu_4Al$

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9.7 cm

The thermal conductivity and thermopower are discussed for the heavy fermion $CeCu_4Al$ compound. $CeCu_4Al$ is paramagnetic and follows the Curie-Weiss law with $\mu_{\rm eff}$ = $2.53\mu_{\rm B}$/f.u. and $\theta_{\rm p}$ = -10 K indicating on the presence of well localized magnetic moments of Ce^{3+} ions. The determined electronic specific heat coefficient $\gamma = 2.2$ $\rm Jmol^{-1}K^{-2}$ confirms the heavy fermion character of this compound. Thermopower is positive over the whole temperature range and below $T_{\rm max}$ = 27 K falls rapidly. Based on a simple band model the position and width of the 4f peak nearest to the Fermi level have been estimated. The measured total thermal conductivity of the $CeCu_4Al$ compound increases almost linearly with increasing temperature.

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