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Thermal Transport in $ZrZn_2$ - Probing the Marginal Fermi Liquid State MICHAEL SUTHERLAND, R. SMITH, University of Cambridge, K. NORIAKI, Centre for Low Temperature Science, Tohoku University, Sendai, Japan, G.G. LONZARICH, University of Cambridge, S. TAKASHIMA, M. NOHARA, H. TAKAGI, Department of Advanced Material Science, University of Tokyo, Japan
— The electronic properties of metals on the border of magnetism are often found to exhibit unusual temperature dependencies, not easily understood within a conventional Fermi liquid picture. The weak itinerant ferromagnet $ZrZn_2$ is a notable example, where resistivity evolves at low temperatures as $T^{5/3}$ as a result of spin fluctuation scattering. Here we investigate the effects of these fluctuations on heat transport, by measuring thermal conductivity to low temperatures in high quality samples. We compare these results to expectations from spin fluctuation theory, and comment on the relative effectiveness of spin fluctuations at degrading heat and charge currents.

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