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Low temperature thermal conductivity of the noncentrosymmetric superconductor $LaRhSi_3$ C.F. MICLEA, N. KURITA, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, C. PUTZKE, Department de Physique, University of Montreal, Montreal, Québec H3T 1J4, Canada, G. SEYFARTH, Department de Physique, Universite de Montreal, Montreal, Canada; Department of Physics and Astronomy, University of California, Irvine, C. CAPAN, Department of Physics and Astronomy, University of California, Irvine, California 92697, USA, A. BIANCHI, Department de Physique, University of Montreal, Montreal, Québec H3T 1J4, Canada, Z. FISK, Department of Physics and Astronomy, University of California, Irvine, California 92697, USA, ROMAN MOVSHOVICH, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA — We report results of low temperature thermalconductivity, κ, on single crystalline LaRhsi3. This compound crystallizes in tetragonal structure which lacks space- inversion symmetry. It is a moderate type II superconductor with a superconducting transition temperature of T_c=2.26 K, an upper critical field of only $H_{c2} = 200$ Oe, and a first critical field $H_{c1} = 120$ Oe. Immediately below T_c, the thermal conductivity has an exponential temperature dependence down to $T = 0.4$ K. At low temperature κ adopts a quadratic temperature dependence which changes suddenly to a cubic behavior only for fields around $H = H_{c1}$ and then becomes linear at higher fields. The magnetic field dependence of the residual linear term of thermal conductivity suggests an $s-$wave symmetry of the superconducting order parameter.

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