

Abstract Submitted
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Thermal Transport in Nd-doped CeCoIn₅¹ DUK Y. KIM, SHI-ZENG LIN, FRANZISKA WEICKERT, P. F. S. ROSA, ERIC D. BAUER, FILIP RONNING, J. D. THOMPSON, ROMAN MOVSHOVICH, Los Alamos National Laboratory — Heavy-fermion superconductor CeCoIn₅ shows spin-density-wave (SDW) magnetic order in its superconducting state when a high magnetic field is applied. In this Q -phase, the antiferromagnetic order has a single ordering wave vector, and switches its orientation very sharply as magnetic field is rotated within the ab -plane around the [100] (anti-nodal) direction. This hypersensitivity induces a sharp jump of the thermal conductivity. Recently, the SDW with the same ordering wave vector was observed in Nd-doped CeCoIn₅ in zero magnetic field. We have measured the thermal conductivity of 5% Nd-doped CeCoIn₅ in the magnetic field rotating within the ab -plane. The anisotropy is significantly smaller in the doped material, and the switching transition is much broader. The superconducting transition near H_{c2} is first order, as for the pure CeCoIn₅, which indicates the Pauli limited superconductivity.

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