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Low-temperature magnetic and thermal properties of CePd₂In in magnetic fields

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Abstract

A detailed study of the low-temperature magnetization M and specific heat C of CePd₂In is reported. For $B \approx 0$, M and C show maxima at $T_N \approx 1.25$ K indicating an antiferromagnetic phase transition as observed previously. In a magnetic field B the transition seen in M is shifted to lower T while T_N as determined from the specific-heat maximum is essentially unaltered up to fields of 6 T. This different behavior is attributed to magnetic anisotropy of the polycrystalline samples. The hyperfine contribution to C is discussed in terms of nuclear quadrupole splitting as well as Zeeman splitting by applied and transferred hyperfine fields. A rough estimate of the Kondo temperature from C sufficiently above T_N yields $T_K \approx 1.5$ K.