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Magnetic Order in single-crystalline YbPtSi YUEN YIU, State University of New York at Stony Brook, YURI JANSSEN, Brookhaven National Laboratory, PETER KHALIFAH, MEIGAN ARONSON, Brookhaven National Laboratory, State University of New York at Stony Brook, MOOSUNG KIM, Brookhaven National Laboratory, MARCUS BENNETT, State University of New York at Stony Brook — We report the first measurements on YbPtSi, which we synthesized as single crystals by means of flux growth from Indium. Single crystal x-ray diffraction measurements find that the YbPtSi crystal structure is the orthorhombic Co_2Si-type, with one crystallographic site for Yb. Magnetic susceptibility measurements find Curie-Weiss behavior above 100 K with a moment of 4.35 μ_B, close to the 4.54 μ_B expected for trivalent Yb. Measurements of the heat capacity find a mean field-like magnetic ordering transition at T=4.65K. DC-susceptibility measurements show substantial single ion anisotropy, but also exhibit a peak at 4.65 K, indicating possible antiferromagnetic ordering. The electrical resistivity is metallic, and the magnetic ordering is accompanied by a change in slope. The magnetic entropy amounts to only about 65 % of Rln2 expected from an ordering Yb ground state doublet at the ordering temperature, suggesting a possible role for the Kondo effect. Our measurements indicate that YbPtSi is an unusual example of an Yb-based Kondo lattice system, ordering at an unusually high temperature.

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