

Abstract Submitted
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Kondo behavior in antiferromagnetic NpPdSn¹ K. SHRESTHA, Idaho National laboratory, K. PROKES, Helmholtz-Zentrum Berlin für Materialien und Energie, Germany, J.-C. GRIVEAU, R. JARDIN, E. COLINEAU, R. CACIUFFO, R. ELOIRDI, European Commission, Institute for Transuranium Elements, Germany, K. GOFRYK, Idaho National laboratory — Actinide-based intermetallics show a large variety of exotic physical phenomena mainly coming from 5f hybridization with both on-site and neighboring ligand states. Depending on the strength of these process unusual behaviors such as long-range magnetic order, Kondo effect, heavy-fermion ground state, valence fluctuations, and/or superconductivity have been observed. Here we report results of our extensive studies on NpPdSn. The compound crystallizes in hexagonal ZrNiAl-type of crystal structure and is studied by means of x-ray and neutron diffraction, magnetization, heat capacity, electrical resistivity, and thermoelectric power measurements, performed over a wide range of temperatures and applied magnetic fields. All the results revealed Kondo lattice behavior and antiferromagnetic ordering below 19 K. NpPdSn can be classified as a moderately enhanced heavy-fermion system, one of very few known amidst Np-based intermetallics.

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