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Magnetic structure of the Kondo lattice compound $\text{CeZn}_{0.6}\text{Sb}_2$ Y.

CHEN, J. W. LYNN, NIST Center for Neutron Research and University of Maryland, H. LEE, P. KLAVINS, Z. FISK, Dept. of Physics, University of California at Davis, S. NAKATSUJI, Dept. of physics, Kyoto University, W. BAO, J. THOMPSON, T. PARK, Los Alamos National Laboratory, R. MACALUSO, J. CHAN, Louisiana State University, B. CARTER, National High Magnetic Field Laboratory, Florida State University — The new Kondo lattice compound $\text{CeZn}_{0.6}\text{Sb}_2$ has a tetragonal structure with space group $P4/nmm$ and shows ferromagnetic behavior below 2.5 K. The Curie-Weiss temperature is 22 K along the tetragonal ab plane, indicating ferromagnetic interactions in the plane. Along the c axis, however, the Curie-Weiss temperature is -145 K, suggesting antiferromagnetic exchange interaction in this direction [1]. We determined the magnetic structure of $\text{CeZn}_{0.6}\text{Sb}_2$ using single crystal neutron diffraction. $(h,0,l)$ and (h,h,l) scattering planes were investigated. We found $\text{CeZn}_{0.6}\text{Sb}_2$ orders ferromagnetically at $T_C=2.5$ K. The magnetic structure is collinear with a low temperature ordered Ce moment of 1.3 (1) μ_B that lies in the ab plane. In addition, we measured the order parameter of the ferromagnetic transition. [1] Studies of the ferromagnetic Kondo lattice system of single crystal CeZnSb_2 , H. Lee, S. Nakatsuji, Y. Chen, W. Bao, R. Macaluso, J. Chan, T. Park, B. Carter, P. Klavins, J. Thompson, Z. Fisk, BAPS, Session L41, 2005.

Ying Chen
NIST Center for Neutron Research and University of Maryland

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