

Abstract Submitted
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Observation of a new magnetic anomaly in low field ac and dc magnetic measurements in $\text{Yb}_{14}\text{MnSb}_{11}$ S. SRINATH, P. PANKAJ, H. SRIKANTH, Department of Physics, University of South Florida, Tampa FL 33620, B.C. SALES, D. MANDRUS, Condensed Matter Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831 — $\text{Yb}_{14}\text{MnSb}_{11}$ is the first known example of a ferromagnetic Kondo lattice compound in the underscreened limit. Recent optical, Hall, magnetic, and thermodynamic measurements indicate that $\text{Yb}_{14}\text{MnSb}_{11}$ may be a rare example of an underscreened Kondo lattice. This heavily doped magnetic semiconductor is ferromagnetic below 52 ± 1 K. We report the first experimental observation of a new magnetic anomaly in this system at around 47 K, a few degrees below the Curie temperature. Systematic investigations of the AC and DC susceptibilities of $\text{Yb}_{14}\text{MnSb}_{11}$ single crystals reveal features associated with possible spin re-orientation at this temperature. This new anomaly is extremely sensitive to the applied field and is absent in DC magnetization measurements for fields above 50 Oe. The origin of this could be related to a change in magnetic anisotropy caused by the decoupling of energetically close FM and AFM sub-lattices.

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