Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Distinct Electronic Structure for the Extreme Magnetoresistance in YSb[1] JUNFENG HE, CHAOFAN ZHANG, Stanford University, NIRMAL GHIMIRE, Argonne National Laboratory, TIAN LIANG, CHUNJING JIA, Stanford University, JUAN JIANG, ALS,ShanghaiTech University, SHUJIE TANG, SUDI CHEN, YU HE, Stanford University, S.-K. MO, ALS, C. C. HWANG, Pohang University of Science and Technology, M. HASHIMOTO, D. H. LU, SLAC, B. MORITZ, T. P. DEVEREAUX, Stanford University, Y. L. CHEN, ShanghaiTech University, University of Oxford , J. F. MITCHELL, Argonne National Laboratory, Z.-X. SHEN, Stanford University, STANFORD UNIVERSITY COLLABORATION, ARGONNE NATIONAL LABORATORY COLLABORATION, ALS, LAWRENCE BERKELEY NATIONAL LABORATORY COLLABORATION, SHANGHAITECH UNIVERSITY COLLABORATION, SLAC NATIONAL ACCELERATOR LABORATORY COLLABORATION — An extreme magnetoresistance (XMR) has recently been observed in several non-magnetic semimetals. Increasing experimental and theoretical evidence indicates that the XMR can be driven by either topological protection or electron-hole compensation. Here, by investigating the electronic structure of a XMR material, YSb, we present spectroscopic evidence for a special case which lacks topological protection and perfect electron-hole compensation. Further investigations reveal that a cooperative action of a substantial difference between electron and hole mobility and a moderate carrier compensation might contribute to the XMR in YSb.

[1]US DOE, Office of Basic Energy Science

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Date submitted: 07 Nov 2016 Electronic form version 1.4