

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

The behavior of semi-metal Bi_4Te_3 under pressure JASON JEFFRIES, Lawrence Livermore National Laboratory, A.L. LIMA SHARMA, Sandia National Laboratory and San Jose State University, P.A. SHARMA, C.D. SPATARU, Sandia National Laboratory, S.K. MCCALL, Lawrence Livermore National Laboratory, J.D. SUGAR, Sandia National Laboratory, S.T. WEIR, Lawrence Livermore National Laboratory, Y.K. VOHRA, University of Alabama, Birmingham — As a member of the $(\text{Bi}_2)_m(\text{Bi}_2\text{Te}_3)_n$ adaptive series, Bi_4Te_3 exhibits identical crystallographic symmetry and similar electronic properties to the archetypal thermoelectric material Bi_2Te_3 . The extra Bi atoms in Bi_4Te_3 serve to increase the electronic density of states, making Bi_4Te_3 a semi-metal, as opposed to semiconducting Bi_2Te_3 , at ambient pressure. We will report the results of high-pressure structural and magnetotransport characterization of Bi_4Te_3 , focusing on the interplay between structural parameters and the underlying electronic properties. Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

Jason Jeffries
Lawrence Livermore National Laboratory

Date submitted: 18 Nov 2010

Electronic form version 1.4