

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

High Pressure XANES studies on Mn doped Bi₂Te₃ BRIAN LIGHT, RAVHI KUMAR, JASON BAKER, Univ of Nevada - Las Vegas, PRABHAKARAN DHARMALINGAM, Clarendon Laboratory, University of Oxford, UK, CHANGYONG PARK, Univ of Nevada - Las Vegas, UNLV TEAM, HPCAT AND CARNEGIE INSTITUTE OF WASHINGTON COLLABORATION — Bi₂Te₃, Bi₂Se₃, and Sb₂Te₃ are narrow band-gap semiconductors have been extensively studied along with their alloys due to their promising technological applications as thermoelectric materials. More recently pressure induced superconductivity and structural transition have been observed in these materials around 7 GPa [1,2]. Here we have performed high pressure x-ray near edge spectroscopy (XANES) measurements at Bi L-III edge on Mn (0.1) doped Bi₂Te₃ samples to understand the variation of the Bi valence across the pressure induced superconductivity regime. We have inferred notable changes in the Bi valence at high pressure conditions. The results will be discussed in detail. Work at the University of Nevada Las Vegas (ALC) is funded by U.S. Department of Energy Award DE-SC0001928. Portions of this work were performed at HPCAT (Sector 16), Advanced Photon Source (APS), Argonne National Laboratory. HPCAT is supported by DOE-BES, DOE-NNSA, NSF, and the W.M. Keck Foundation. APS is supported by DOE-BES, under Contract No. DE-AC02-06CH1135.

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Date submitted: 30 Nov 2015

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