Abstract Submitted
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Structural changes in Bi_2Te_3 under pressure.[1] MATHEW JACOBSEN, RAVHI KUMAR, ANDREW CORNELIUS, HiPSEC and Dep.Physics, University of Nevada Las Vegas, PETER LIERMANN, HPCAT, Argonne National Laboratory — Bi_2Te_3 based compounds continue to receive intense research activities due to the enhanced figure of merit observed in the super lattice structure with Sb_2Te_3 [1]. Synthesis of different chemical compositions with varying particle sizes and doping has gained importance subsequently. The thermo electric properties of the new compositions strongly depend on the structure and P-T phase diagram of the parent compound Bi_2Te_3. In order to understand the structural properties of Bi_2Te_3 in detail, we have performed pressure studies up to 30GPa using insitu angle dispersive and energy dispersive x-ray diffraction techniques using a diamond anvil cell with different pressure media. Bi_2Te_3 is found to undergo pressure induced structural transition around 7.8 GPa to a new high pressure phase from the ambient rhombohedral phase. This transition is found to be completely reversible with a large hysteresis observed during downloading. The details of the high pressure phase and the pressure medium dependence of the transition will be discussed further. [1]. Venkatasubramanian etal., Nature, **413**, 597 (2001)

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