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Two-carrier transport and multi-channel weak antilocalization in SnTe thin films grown by MBE BADIH A. ASSAF, Physics Dept. Northeastern University, FERHAT KATMIS, Physics Dept. and Francis Bitter Magnet Lab, MIT, PENG WEI, Francis Bitter Magnet Lab, MIT, BISWARUP SATPATI, Saha Institute of Nuclear Physics, ZHAN ZHANG, Advanced Photon Source, Argonne National Lab, JAGADEESH S. MOODERA, Physics Dept. and Francis Bitter Magnet Lab, MIT, DON HEIMAN, Physics Dept. Northeastern University — SnTe has recently been identified as a four-fold degenerate topological system where each (001) surface accommodates four identically-chiral Dirac surface states [1]. The surface states were successfully studied by ARPES and STM [2,3]. We perform magnetotransport measurements at 2K and up to 5T on epitaxial SnTe thin films grown by MBE on BaF_2 (001). We report the observation of a two-carrier contribution to the magnetotransport as well as a multi-channel weak antilocalization (WAL) correction to the low field magnetoresistance. Analysis of the WAL using the HLN model [4] yields $0.75<\alpha<2.5$ suggesting evidence of intervalley coupling on the surface of SnTe. Films grown under different growth conditions are discussed and compared. [1] T.H. Hsieh et al. Nature Commun. **3,** 982 (2012). [2] S.X. Yu et al. Nature Commun.**3,** 1192 (2012). Tanaka, Y. et al. Nature Phys.**8,** 800 (2012). [3] Okada, Y. et al. Science 1239451 (2013). [4] Hikami et al. Prog. Theor. Phys. **63** 707 (1980). Supported by NSF-DMR-0907007, partly by NSF-DMR-1207469, ONR-N00014-13-1-0301, and MIT MRSEC through NSF-DMR-0819762 and partly by DOE under Contract DE-AC02-06CH11357.

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