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Scanning Tunneling Microscopy of the Topological Crystalline Insulator SnTe DUMING ZHANG, TONG ZHANG, JEONGHOON HA, Center for Nanoscale Science and Technology, NIST, Gaithersburg, MD 20899/Maryland NanoCenter, University of Maryland, College Park, MD 20742, HONGWOO BAEK, Center for Nanoscale Science and Technology, NIST, Gaithersburg, MD 20899/Department of Physics and Astronomy, Seoul National University, Seoul, Korea, YOUNG KUK, Department of Physics and Astronomy, Seoul National University, Seoul, Korea, FRED SHARIFI, JOSEPH STROSCIO, Center for Nanoscale Science and Technology, NIST, Gaithersburg, MD 20899 — Topological insulators are a new state of matter characterized by a bulk insulating gap and gapless surface states protected by time reversal symmetry. This is realized by spin orbit coupling induced band inversion with an odd number of Dirac cones. Recently, the topological classification of states has been extended to a new class of matter called topological crystalline insulators. In contrast to topological insulators, topological crystalline insulators arise from crystal symmetry and are characterized by surface states with an even number of Dirac cones. Here, we report molecular beam epitaxy growth of SnTe thin films, a material recently predicted and experimentally confirmed as a topological crystalline insulator. The film morphology and SnTe (001) surface states were characterized *in-situ* by low temperature scanning tunneling microscopy and spectroscopy will be discussed in relation to the predicated topological properties of this material.

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