

Abstract Submitted
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Anomalous Aharonov-Bohm Oscillations in Bi_2Te_3 Nanotubes with disorders RENZHONG DU, YUEWEI YIN, Department of Physics, The Pennsylvania State University, SINING DONG, Hefei National Laboratory for Physical Sciences at Microscale, Department of Physics, University of Science and Technology of China, WENQING DAI, WEIWEI ZHAO, Department of Physics, The Pennsylvania State University, DUKSOO KIM, Department of Electrical Engineering, The Pennsylvania State University, SHIH-YING YU, Department of Materials Science and Engineering, the Pennsylvania State University, JIAN WANG, International Center for Quantum Materials, Peking University, XIAOGUANG LI, Hefei National Laboratory for Physical Sciences at Microscale, Department of Physics, University of Science and Technology of China, SUZANNE MOHNEY, Department of Materials Science and Engineering, the Pennsylvania State University, SRINIVAS TADIGADAPA, Department of Electrical Engineering, The Pennsylvania State University, NITIN SAMARTH, CHAOXING LIU, JAINENDRA JAIN, MOSES CHAN, QI LI, Department of Physics, The Pennsylvania State University — Topological insulator Bi_2Te_3 nanotubes have been synthesized and their magnetotransport properties have been studied on single nanotubes. The conductance of the nanotube can be characterized by Mott's variable range hopping model in a wide temperature range, indicating the system is in a strong disorder regime. Magnetoresistance oscillations with h/e period from the nanotube outer surface were observed, suggesting the presence of surface states due to anomalous Aharonov-Bohm effect. The results show for the first time that the topological surface states are robust against strong disorders.

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