

Abstract Submitted  
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**STM Studies of ternary topological insulators  $\text{GeBi}_2\text{Te}_4$  and  $\text{SnBi}_2\text{Te}_4$**  KATSUYA IWAYA, TETSUO HANAGURI, YUHKI KOHSAKA, YINGSHUANG FU, RIKEN-CEMS, LINDA YE, JOE CHECKELSKY, University of Tokyo, YOSHIO KANEKO, YOSHINORI TOKURA, RIKEN-CEMS — We investigate topological surface states (TSSs) of three-dimensional topological insulators,  $\text{GeBi}_2\text{Te}_4$  and  $\text{SnBi}_2\text{Te}_4$ , using low-temperature STM. Quasi-particle interference (QPI) patterns are clearly observed, as expected from the absence of back-scattering. The energy dispersions of the QPI are in good agreement with recent results from ARPES. We also find the energy of minimal local DOS, associated with the Dirac energy, spatially fluctuates due to n- and p-type atomic defects inherently existent in these intermixed systems. These results provide not only atomic-scale characterization of the defects but also a direct evidence for robust TSS against highly-disordered charged defects.

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