

Abstract Submitted  
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**Quasiparticle interference on the Surface of the topological Insulator  $\text{Bi}_2\text{Te}_3$**  WEI-CHENG LEE, Department of Physics, University of California, San Diego, CONGJUN WU, DANIEL P. AROVAS, Department of Physics, University of California, San Diego, SHOU-CHENG ZHANG, Department of Physics, Stanford University — The quasiparticle interference of the spectroscopic imaging scanning tunneling microscopy has been investigated for the surface states of the large gap topological insulator  $\text{Bi}_2\text{Te}_3$  through the T-matrix formalism. Both the scalar potential scattering and the spin-orbit scattering on the warped hexagonal isoenergy contour are considered. While backscatterings are forbidden by time-reversal symmetry, other scatterings are allowed and exhibit strong dependence on the spin configurations of the eigenfunctions at k points over the isoenergy contour. The characteristic scattering wavevectors found in our analysis agree well with recent experiment results. Ref: W.-C. Lee, C. Wu, D. P. Arovas, and S.-C. Zhang, arXiv:0910.1668

Wei-Cheng Lee  
Department of Physics, University of California, San Diego

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