Junction between surfaces of two topological insulators[1] DIPTIMAN SEN, OINDRILA DEB, Indian Institute of Science, Bangalore, India — We study scattering from a line junction which separates the surfaces of two three-dimensional topological insulators; some aspects of this problem were recently studied in Takahashi and Murakami, Phys. Rev. Lett. 107, 166805 (2011). The velocities of the Dirac electrons on the two surfaces may be unequal and may even have opposite signs; in the latter case, we find that the electrons must, in general, go into the two-dimensional interface separating the two topological insulators. We also study what happens if the two surfaces are at an angle ϕ with respect to each other. We find in this case that there are bound states which propagate along the line junction with a velocity and direction of spin which depend on the bending angle ϕ.

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