Abstract Submitted
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Signature of Majorana Fermions in Josephson Junctions of Bi2Se3[1] JAMES WILLIAMS, ANDREW BESTWICK, Stanford University, PATRICK GALLAGHER, Harvard University, JAMES ANALYTIS, IAN FISHER, DAVID GOLDHABER-GORDON, Stanford University — At the surface of a three-dimensional topological insulator lie Dirac fermions. Placing a superconductor in proximity to these surface fermions has been theoretically shown to produce Majorana fermions, an as-yet unobserved elementary particle. We report on the fabrication and low-temperature transport of a topological insulator in proximity to two superconductors – a device forming a Josephson Junction with a topological insulator (Bi2Se3) as a weak link. Several departures from conventional Josephson Junctions are observed and evaluated in the context of the presence of a one-dimensional wire of Majorana fermions induced in the device.

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