

Abstract Submitted
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Superconductivity in Bi₂Se₃ coupled with Nb islands¹ YANG BAI, CAN ZHANG, BRIAN MULCAHY, JAMES ECKSTEIN, University of Illinois at Urbana Champaign — Topological Materials contain bulk bands as well as surface states that have a spin-momentum locked band structure in the vicinity of the bulk band gap. The surface states hybridize when the layers are thin. Superconducting correlation can be introduced via proximity coupling to a normal superconductor. The superconductivity spreads in both the planar and vertical directions as the temperature is reduced. A lot of work has been done on the proximity effect between superconductors and normal metals. We performed a transport experiment to measure the proximity effect in devices consisting of an array of many niobium islands on a Bi₂Se₃ film. We did some preliminary analysis to extract parameters describing the Berezinskii Kosterlitz Thouless (BKT) phase stiffening transition in the resistance-temperature dependence.

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