

Abstract Submitted
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The effect of disorder on the superconducting state of the candidate topological superconductor $\text{Nb}_x\text{Bi}_2\text{Se}_3$ ¹ KRISTIN WILLA, M. P. SMYLIE, H. CLAUS, U. WELP, A. SNEZHKO, W.-K. KWOK, Argonne National Laboratory, Y. QIU, Y. S. HOR, Missouri University of Science and Technology, P. NIRLA, E. BOKARI, A. KAYANI, Western Michigan University — The effects of disorder and electron scattering in topological superconductors are largely unknown. Aiming at eliminating this deficiency we study the influence of proton irradiation on the candidate topological superconductor $\text{Nb}_x\text{Bi}_2\text{Se}_3$. As the irradiation-deposited defect density increases we observe a rapid suppression of T_c and a strong increase in residual resistivity in both magnetization and transport measurements. These results are inconsistent with a fully gaped superconductor; they rather suggest a nodal order parameter, in agreement with penetration depth measurements [1]. We interpret our data in terms of a nematic superconducting state with E_u symmetry. [1] M. P. Smylie *et al.*, arXiv:1608.08164.

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