

Abstract Submitted  
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**TEM analysis of superconducting Pd doped  $\text{Bi}_2\text{Se}_3$**  JEROME T. MLACK, GOPINATH DANDA, SARAH FRIEDENSEN, University of Pennsylvania, ATIKUR RAHMAN, NATALIA DRICHKO, NINA MARKOVIC, Johns Hopkins University, MARIJA DRNDIC, University of Pennsylvania — We investigate the material properties of  $\text{Bi}_2\text{Se}_3$  doped with Pd via thermal annealing, which can be used to induce localized superconductivity<sup>1</sup>. We utilize a transmission electron microscope and combine electron diffraction with energy-dispersive X-ray spectroscopy (EDS) mapping to better understand how the Pd extends into the  $\text{Bi}_2\text{Se}_3$  as well as to reveal the atomic composition of both the Pd-doped and the intact  $\text{Bi}_2\text{Se}_3$  regions. The results show a high concentration of Pd entering the nanostructures, exceeding atomic ratios of dopants (for example Cu) found to induce superconductivity in the more commonly measured Cu-doped  $\text{Bi}_2\text{Se}_3(\text{Cu}_x\text{Bi}_2\text{Se}_3)$ . 1. J. T. Mlack et. al. "Patterning superconductivity in a topological insulator", arXiv:1610.08642 [cond-mat.mes-hall]

Jerome T. Mlack  
University of Pennsylvania

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