

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Enhancement of  $T_c$  by disorder in FeSe<sup>1</sup>** PETER HIRSCHFELD, University of Florida, VIVEK MISHRA, Oak Ridge National Laboratory — A recent electron irradiation experiment on FeSe single crystals has shown an unusual effect of disorder on superconductivity in this system. Point-like impurities introduced by electron irradiation increase  $T_c$ , while the structural transition temperature ( $T_s$ ) gets suppressed. FeSe has strong nematic order below  $T_s$ , but there is no magnetic order, where one might expect  $T_c$  enhancement by impurities. Here we examine the effect of disorder on the competition between nematicity and superconductivity. We find that the impurities can under some circumstances increase  $T_c$ , furthermore that show that the  $T_c$  enhancement put constraints on the gap structure in FeSe.

<sup>1</sup>PH was supported by NSF-DMR-1407502. VM was supported by the Laboratory Directed Research and Development Program of Oak Ridge National Laboratory, managed by UT-Battelle, LLC, for the U S Department of Energy.

vivek mishra  
Oak Ridge National Laboratory

Date submitted: 10 Nov 2016

Electronic form version 1.4