

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Magnetic response and pair-breaking effect in superconducting transition metal dichalcogenides¹ JUNHUA ZHANG, EVAN SOSENKO, VIVEK AJI, University of California, Riverside — The low-energy physics of monolayer transition metal group-VI dichalcogenides is significantly affected by the strong spin-orbit interaction in company with inversion symmetry breaking. As a result, the superconducting state in this system exhibits different physical behaviors compared to the conventional superconductors. Motivated by this, we study in detail the effects of the in-plane magnetic field and the non-magnetic disorder on this superconducting state. In particular, we discuss the unusual magnetic response and the pair-breaking effect in this system and their indication to experiments.

¹We acknowledge support from ARO W911NF1510079.

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Date submitted: 06 Nov 2015

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