Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Superconductivity in non-centrosymmetric BiPd ANA MALDONADO, University of St Andrews, ZHI-XIANG SUN, MOSTAFA ENAYAT, Max-Planck-Institut fuer Festkoerperforschung, CALUM LITHGOW, University of Edinburgh, ED YELLAND, University of St Andrews, DARREN PEETS, Seoul National University, ALEXANDER YARESKO, ANDREAS SCHNYDER, Max-Planck-Institut fuer Festkoerperforschung, PETER WAHL, University of St Andrews — In non-magnetic bulk materials, inversion symmetry protects the spin degeneracy. If the bulk crystal structure lacks a center of inversion, however, Rashba-type spin-orbit interactions lift the spin-degeneracy, leading to a Rashba metal whose Fermi surfaces exhibit a intricate spin texture. In superconducting Rashba metals a pairing wavefunction constructed from these complex spin structures will generally contain both singlet and triplet character. We examine possible triplet components of the order parameter in non-centrosymmetric BiPd, combining macroscopic characterization, atomic-scale ultra-low temperature scanning tunneling spectroscopy and relativistic first-principles calculations. The superconducting state of BiPd appears topologically trivial, consistent with Bardeen-Cooper-Schrieffer theory with an order parameter governed by a single isotropic s-wave gap.

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Date submitted: 17 Nov 2014 Electronic form version 1.4