

Abstract Submitted
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Field Induced Superlattice Modulation in Hole-Doped Iron-Pnictide Superconductors¹ HONG-YI CHEN, National Taiwan Normal University, C.S. TING, University of Houston — Based upon a phenomenological model with competing spin-density-wave and extended $s\pm$ pairing superconductivity, the vortex states in $Ba_{1-x}K_xFe_2As_2$ are investigated by solving Bogoliubov-de Gennes equations. Our results for the optimally doped compound with slightly induced SDW at the center of the vortex are in agreement with STM experiments. We also propose that in the underdoped compound the field induced superlattice modulation. The emergence of the superlattice modulation with period $12a_0$ results in a band reconstruction around the Fermi energy. We found out that the reconstructed band has particle-hole symmetry. The symmetric particle-hole band causes a zero bias resonance peak. The band reconstruction can be also used to explain the absence of the peak at the vortex center in $Ba(Fe_{1-x}Co_x)_2As_2$ electron doped pnictide.

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