

Abstract Submitted
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Quasi-particle spectrum around vortex core states in iron-selenide superconductors QIANEN WANG, FUCHUN ZHANG, Department of Physics, the University of Hong Kong — We study electronic structure of vortex core states of iron-selenide superconductors based on a three-orbital model by solving the Bogoliubov-de Gennes equation self-consistently. The absence of hole pocket at Gamma point and multi-orbital band structure are two special features of FeSe superconductors. We calculate quasi-particle wavefunctions and local density of states of the vortex core states for isotropic s-wave, anisotropic s-wave, and $d_{x^2-y^2}$ -wave pairing symmetries, respectively. It turns out that the orbital-resolved vortex core states in different pairing symmetries manifest themselves as distinguishable structures due to different behavior of the quasi-particle wavefunctions.

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