

Abstract Submitted
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Three-dimensionality and orbital characters of Fermi surface in $\text{Tl}_{0.5}\text{Rb}_{0.3}\text{Fe}_{1.63}\text{Se}_2$ ¹ SHANCAI WANG, Renmin University of China, PIERRE RICHARD, NAN XU, GANG XU, Institute of Physics, Chinese Academy of Sciences Beijing 100190, China, YU LI, GENFU CHEN, Renmin University of China, TIAN QIAN, HONG DING, Institute of Physics, Chinese Academy of Sciences Beijing 100190, China — We report a comprehensive study of the tridimensional electronic bands in the recently discovered Iron-selenide superconductor $\text{Tl}_{0.5}\text{Rb}_{0.3}\text{Fe}_{1.63}\text{Se}_2$ ($T_c \sim 32$ K) with angle-resolved photoemission spectroscopy (ARPES). We determined the orbital characters and the k_z dependence of the low-energy electronic structure by tuning the polarization and the photon energy of the incident photons. We observed a small 3D electron pocket near the Brillouin Zone (BZ) center and a 2D like electron pocket near the zone boundary. The photon energy dependence, the polarization analysis and the LDA calculations suggest a significant contribution from the Se $4p_z$, Fe $3d_{xy}$ and the Fe $3d_{z^2}$ orbitals. Comparing with iron-pnictide superconductors, the emergence of Se $4p_z$ states may be the cause of the different magnetic properties between iron-chalcogenides and iron-pnictides.

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