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Electronic properties of $CaFe_2As_2$ CHANG LIU, TAKESHI KONDO, ARI PALCZEWSKI, GERMAN SAMOLYUK, YONGBIN LEE, NI NI, SERGEY BUD'KO, PAUL CANFIELD, ADAM KAMINSKI, Ames Laboratory and Iowa State University, AARON BOSTWICK, ELI ROTENBERG, Advanced Light Source, Berkeley National Laboratory — $CaFe_2As_2$ is a parent compound of a new family of FeAs based high-T_c superconductors. It undergoes a first-order structural transition from low-T orthorhombic to high-T tetragonal phase [Ni *et al.*, Phys. Rev. B **78**, 014523]. Moderate pressure lowers the transition temperature, and turns on the superconductivity [Torikachvili *et al.*, Phys. Rev. Lett. **101**, 057006]. Study on its electronic properties is of crucial importance for understanding the pairing mechanism of the FeAs based superconductors. Here we present angle-resolved photoemission spectroscopy (ARPES) results on both the orthorhombic and the tetragonal phase of $CaFe_2As_2$. In the orthorhombic phase, we find strong k_z dispersion on the Fermi surfaces, showing a three dimensional electronic structure. We also find dramatic difference of the Fermi surface structure between the orthorhombic and the tetragonal phase.

Chang Liu
Ames Laboratory and Iowa State University

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