Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

ARPES Study on the Electronic Structure of FeTe ZHONGKAI LIU, MING YI, YULIN CHEN, RUIHUA HE, DONGHUI LU, ROB MOORE, Stanford University, SUNG-KWAN MO, Advanced Light Source, LBNL, TIJIANG LIU, ZHIQIANG MAO, Tulane University, ZAHID HUSSAIN, Advanced Light Source, LBNL, ZHI-XUN SHEN, Stanford University, STANFORD UNIVERSITY TEAM, TULANE UNIVERSITY COLLABORATION, LBNL COLLABORATION — Among the iron-based superconductors, iron chalcogenides $FeSe_xTe_{1-x}$ (T_c $\sim$20K) are special for their structural simplicity. FeTe, the parent compound for iron chalcogenides, though without superconducting transition, shows a unique antiferromagnetic order below tetragonal-orthorhombic structural phase transition temperature. Here we present recent ARPES results on this material, including measurements on electronic band structure and Fermi surface topology. We discovered strong k_z dispersion of the Fermi surface and observed electronic band evolution through phase transition. The comparison of iron chalcogenides and other iron-based superconductor families helps us identify the governing physics in this new family of superconductors.

Zhongkai Liu

Date submitted: 20 Nov 2009 Electronic form version 1.4