

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Insulator to Superconductor Transitions and Strong Electronic Correlations in Single-Layer FeSe/SrTiO₃ Films LIN ZHAO, JUNFENG HE, XU LIU, WENHAO ZHANG, DEFA LIU, SHAOLONG HE, DAIXIANG MOU, FANSEN LI, CHENJIA TANG, ZHI LI, LILI WANG, YINGYING PENG, YAN LIU, CHAOYU CHEN, LI YU, GUODONG LIU, XIAOLI DONG, JUN ZHANG, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, CHUANGTIAN CHEN, ZUYAN XU, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, XI CHEN, State Key Lab of Low-Dimensional Quantum Physics, Department of Physics, Tsinghua University, Beijing, XUCUN MA, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, QIKUN XUE, State Key Lab of Low-Dimensional Quantum Physics, Department of Physics, Tsinghua University, Beijing, XINGJIANG ZHOU, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences — There has been a debate on whether an appropriate starting point in describing these compounds should go from an itinerant picture or a localized picture. The single-layer FeSe/SrTiO₃ films have recently generated great interest for its simplicity of crystal structure and electronic structure, as well as possible high superconducting transition temperature. In this talk, by performing detailed doping-dependent measurements with ARPES, we report an insulator-metal-superconductor transition in the S phase of the single-layer FeSe/SrTiO₃ films. The results indicate that strong electronic correlations should be considered in the single-layer FeSe/SrTiO₃ films that might be on the verge of Mott physics.

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Date submitted: 12 Nov 2013

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