

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**In situ electrical resistivity of FeSe thin films** BRENDAN FAETH, JOCIENNE NELSON, Cornell University, JASON KAWASAKI, University of Wisconsin-Madison, SHUOLONG YANG, Cornell University, CHEN LI, Peking University, DARRELL SCHLOM, KYLE SHEN, Cornell University — Thin films of FeSe grown on SrTiO<sub>3</sub> substrates have recently attracted great attention due to the dramatic superconducting T<sub>c</sub> enhancement (70-100K) observed in monolayer films in comparison to bulk (9K). Despite substantial research efforts the transport evidence of superconductivity and its systematics remain difficult to obtain, as the extremely air-sensitive nature of these thin films precludes direct observation of superconductivity via traditional ex situ transport measurements without the addition of a potentially damaging capping layer. To circumvent this issue we construct an *in situ* UHV four-point electrical contact probe in conjunction with angle-resolved photoemission spectroscopy to directly study the intrinsic macroscopic superconducting behavior of FeSe thin films. In particular, we investigate the thickness-dependence of the FeSe superconducting T<sub>c</sub> as manifested in both transport and photoemission experiments.

Brendan Faeth  
Cornell Univ

Date submitted: 11 Nov 2016

Electronic form version 1.4