Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Electron correlation tuned superconductivity in iron chalcogenide superconductors MING YI, MENG WANG, Univ of California - Berkeley, DONGHUI LU, Stanford Synchrotron Radiation Laboratory, ALEXANDER KEMPER, Lawrence National Laboratory, SUNG-KWAN MO, Advanced Light Source, Lawrence National Laboratory, ZHI-XUN SHEN, Stanford University, ROBERT BIRGENEAU, Univ of California - Berkeley — The iron chalcogenide superconductors, $A_xFe_{2-y}Se_2$ (A=K, Rb, Cs), is an interesting system where superconductivity occurs without the existence of hole Fermi pockets, hence lacking the nesting conditions needed under a spin fluctuation mediated pairing scenario. It is then important to understand the ingredients needed for superconductivity in these materials. It has been shown that sulfur substitution for selenium in this system can continually reduce the T_C from 30K to zero, providing an opportunity for understanding the occurrence of superconductivity in these materials. In this talk, I will present angle-resolved photoemission spectroscopy data on the $Rb_xFe_2(Se_{1-y}S_y)_2$ series, where we show that electron correlation strength is the crucial parameter that tunes superconductivity in this family.

Ming Yi
Univ of California - Berkeley

Date submitted: 13 Nov 2014 Electronic form version 1.4