Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Pressure-induced shift of T_c in $K_xSr_{1-x}Fe_2As_2$ (x = 0.2, 0.4, 0.7): Analogy to the high-T_c cuprate superconductors MELISSA GOOCH, Texas Center for Superconductivity at the University of Houston and Department of Physics, BING LV, Texas Center for Superconductivity at the University of Houston and Department of Chemistry, BERND LORENZ, Texas Center for Superconductivity at the University of Houston and Department of Physics, ARNOLD GULOY, Texas Center for Superconductivity at the University of Houston and Department of Chemistry, CHING-WU CHU, Texas Center for Superconductivity at the University of Houston; Lawrence Berkeley National Laboratory; Hong Kong University of Science and Technology — Through a systematic study of $K_xSr_{1-x}Fe_2As_2$ (x = 0.2, 0.4, 0.7), by pressure shifts of the T_c, similarities between the FeAs and high T_c superconductors can be observed. These similarities develop directly from the layered structure seen in both superconductors, which consists of an active superconducting layer and a charge reservoir block. The pressure coefficient of Tc depends on the doping level: dTc/dp>0 (underdoped, x=0.2), dTc/dp=0 (optimally doped, x=0.4), and dTc/dp<0 (overdoped, x=0.7). This is understood in terms of a pressure-induced charge transfer between the active and charge reservoir layers. In addition to the measured pressure shift in the T_c, the suppression of the spin density wave can clearly be demonstrated for the x = 0.2 case.

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Date submitted: 26 Nov 2008 Electronic form version 1.4