Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Why is KC_8 superconductor and LiC_6 is not?[1] Z.-H PAN, J. CAMACHO, Brookhaven National Laboratory, M.H. UPTON, Argonne National Laboratory, A.V. FEDOROV, Lawrence Berkeley National Laboratory, A.C. WALTERS, C.A. HOWARD, M. ELLERBY, University College London, T. VALLA, Brookhaven National Laboratory — Superconductivity in graphite intercalated compound(GIC) has been studied for decades. Discovery of CaC_6 with $T_c = 11.5K$ has resurged the intense study of GICs.Many GICs have been found to be superconducting with T_c ranges from milikelvins to more than 10 kelvins, however there is not a clear trend. We performed a systematic angle resovled photoemission spectroscopy(ARPES) study on both KC_8 and LiC_6, the former is superconductor while the latter is not. We found a trend that superconductivity is correlated to electron phonon coupling and doping. Our result gives a natural explanation of why the KC_8 is superconductor and LiC_6 is not.

[1]This work was supported by the US Department of Energy and the UK Engineering and Physical Science Research Council

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Date submitted: 19 Nov 2009 Electronic form version 1.4