Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Two-Dimensional Superconducting Fluctuations in Stripe-Ordered $La_{2-x}Ba_xCuO_4$[1] QIANG LI, Brookhaven National Laboratory, MARKUS HUCKER, GENDA GU, ALEXEI TSVELIK, JOHN TRANQUADA — Recent spectroscopic observations of a d-wave-like gap in stripe-ordered $La_{2-x}Ba_xCuO_4$ with x=1/8 have led us to critically analyze the anisotropic transport and magnetization properties of this material. The data suggest that concomitant with the spin ordering is an electronic decoupling of the CuO_2 planes. We observe a transition (or crossover) to a state of two-dimensional (2D) fluctuating superconductivity. Thus, it appears that the stripe order in $La_{2-x}Ba_xCuO_4$ frustrates three-dimensional superconducting phase order, but is fully compatible with 2D superconductivity and an enhanced T_c –[Ref. Q. Li, et al., PRL **99,** 067001 (2007)]

[1]This work was supported by the Office of Science, U.S. DOE under Contract No. DE-AC02-98CH10886.

Qiang Li
Brookhaven National Laboratory

Date submitted: 25 Nov 2007 Electronic form version 1.4