

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Mean-Field Nematic Phase Diagram for the Three-Band Hubbard Model MARK H. FISCHER, LASSP, Department of Physics, Cornell University, MICHAEL J. LAWLER, Department of Physics, Applied Physics and Astronomy, Binghamton University, EUN-AH KIM, LASSP, Department of Physics, Cornell University — We map out the phase diagram of the three-band Hubbard model of a CuO_2 plane for nematic order in the parameter space of various on-site and nearest-neighbor interactions. For this, we define an intra-unit cell nematic order parameter in terms of a charge imbalance between the two oxygen sites in the unit cell and employ a self-consistent mean-field analysis. This study is motivated by recent STM experiments on high- T_c cuprate superconductors pointing towards intra-unit cell nematicity.

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Date submitted: 18 Nov 2010

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