

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Exact two-band model of Cu-O planes with charge stripes and plaquettes STELLAN ÖSTLUND, MATS GRANATH, Gothenburg University — A standard model of the Cu-O planes of high T_c superconductors suggests the relevance of a three-band model of electrons with strong Coulomb repulsion. Particularly dominant is the copper site interaction and charge fluctuations are most strongly suppressed on these sites. We simplify this model further by *completely* suppressing the charge fluctuations on the copper sites and replacing the copper spins by a spin texture that couples to the local hopping. The resulting generic two-band model of electrons is then studied for various spin textures on the copper atoms. For general values of the effective hopping parameters, the low energy eigenstates strongly favor charge stripe and plaquette ordering, with a complex multiply connected Fermi surface with the possibility of both pockets and open orbits coexisting. Particularly striking is the emergence of multiparticle ground states that are both delocalized and still effectively minimize nearest neighbor density correlations.

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Date submitted: 09 Dec 2008

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