Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Charged Stripes in the Two-Orbital Hubbard Model for Pnictides[1] DAO-XIN YAO, State Key Lab of Optoelectronic Materials and Technologies, Sun Yat-sen University, QINLONG LUO, Department of Physics and Astronomy, The University of Tennessee, and Materials Science and Technology Division, Oak Ridge National Lab, THOMAS PRESTEL, MARIA DAGHOFER, IFW Dresden, Germany, ADRIANA MOREO, ELBIO DAGOTTO, Department of Physics and Astronomy, The University of Tennessee, and Materials Science and Technology Division, Oak Ridge National Lab — The two-orbital Hubbard model for the pnictides is studied numerically in the real-space Hartree-Fock approximation. Upon electron doping, states with a nonuniform ditribution of charge are stabilized. The patterns observed correspond to charge stripes that run perpendicular to the direction of the spin stripes of the undoped magnetic ground state. These striped states are robust when the undoped state has a gap, although with a decreasing amplitude as the gap decreases. Results for hole doping and implications for recent experiments that reported electronic nematic states and spin incommensurability in the pnictides are also discussed.

Dao-Xin Yao

Date submitted: 18 Nov 2010   Electronic form version 1.4