Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Effect of competing orders on superconductivity in the Hubbard model WEEJEE CHO, Stanford University, SRINIVAS RAGHU, Rice University, STEVEN KIVELSON, Stanford University — We study the superconducting transition in the repulsive Hubbard model incorporating different competing orders at the mean field level. To the model on the square lattice with nearest and next-nearest neighbor hopping amplitudes, we add appropriate modulations of the hopping terms or onsite energies, such that they produce the desired broken symmetry. We then study the superconducting instability in the (theoretically tractable) limit in which the onsite repulsion U is small compared to the bandwidth. We obtain the pairing symmetry and strength as a function of the magnitude of the order parameter. Specific cases of broken symmetry states we study include antiferromagnetism, ferromagnetism, nematic order, d-density wave, and orbital loop order.

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Date submitted: 18 Nov 2010 Electronic form version 1.4