

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**Ferromagnetism and d+id superconductivity in 1/2 doped correlated systems on triangular lattice** BING YE, ANDREJ MESAROS, YING RAN, Boston Coll — We investigate the quantum phase diagrams of t-J model on triangular lattice at 1/2 doping with various lattice sizes by using a combination of density matrix renormalization group (DMRG), variational Monte Carlo and quantum field theories. To sharply distinguish different phases, we calculated the symmetry quantum numbers of the ground state wave functions, and the results are further confirmed by looking into correlation functions. Our results show there is a first order phase transition from ferromagnetism to d+id superconductor, with the transition taking place at  $J/t = 0.4 \pm 0.2$ .

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Date submitted: 06 Nov 2015

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