

Abstract Submitted
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Antiferromagnetism, Superconductivity and Pseudogap of the 2D Hubbard Model¹ XI CHEN, EMANUEL GULL, JAMES LEBLANC, Univ of Michigan - Ann Arbor — The phase diagram of the two-dimensional Hubbard model in the strongly correlated regime captures some important features that have been observed in high T_c cuprate superconductors such as superconductivity and pseudogap states. We study the model on a square lattice using dynamical mean field theory and dynamical cluster approximation at various doping, temperature and next nearest neighbor hopping. By measuring the two-particle correlation functions we are able to extend beyond previous work to determine the antiferromagnetic and d-wave superconducting phase transition temperatures. Further, the pseudo gap crossover is estimated by the density of states obtained via analytic continuation, and also from the imaginary time Green's function. We will discuss the relation between pseudo gap and superconductivity based on the simulation results.

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