

Abstract Submitted
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Finite temperature Gutzwiller approximation and equation of states for Hubbard model WEI ZHANG, ZIQIANG WANG, Boston Coll —
We generalize the Gutzwiller approximation to finite temperatures in the grand canonical ensemble and study the Mott transition in the half-filled Hubbard model on the square lattice in both the paramagnetic and antiferromagnetic phases. We found that the Mott transition at finite temperature is first order, terminating at two second order points. We determined the coexisting region of metallic and insulating phases and obtain the equation of states for the strongly correlated electrons at low temperatures. We calculate the Neel temperature as a function of the Hubbard repulsion U and compare to the results obtained by dynamic mean field theory.

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