

Abstract Submitted
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The Strong Coupling Limit of the Hubbard Model LI LIU, Stanford University, HONG YAO, Berkeley, STEVE KIVELSON¹, Stanford University, DOE COLLABORATION — We carry out a coordinated study of the two dimensional Hubbard model in the extreme strong-coupling limit, $\frac{U}{t} \rightarrow \infty$. The resulting problem has no parameters other than the mean electron concentration per site, n . As is well known, for $n=1$, the infinite U limit is singular, in that interactions of order $\frac{t^2}{U}$ must be included to resolve the 2^N fold degeneracy of the ground state found for infinite U . For any other value of n , however, the infinite U limit is well behaved, but incompletely understood. We have applied a combination of exact diagonalization and variational methods to explore the phase diagram of this paradigmatic model of strongly interacting electrons.

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