

Abstract Submitted  
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**Theoretical Evidence for the Equivalence between the Ground States of the Strong-Coupling BCS Hamiltonian and the Antiferromagnetic Heisenberg Model**<sup>1</sup> KWON PARK, University of Maryland — By explicitly computing wavefunction overlap via exact diagonalization, we show that, in the limit of strong coupling, the ground state of the Gutzwiller-projected BCS Hamiltonian (accompanied by proper particle-number projection) is identical to the exact ground state of the 2D antiferromagnetic Heisenberg model on the square lattice. This identity is adiabatically connected to a very high overlap between the ground states of the projected BCS Hamiltonian and the  $t$ - $J$  model at moderate doping.

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