

Abstract Submitted
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Symplectic-

N, the t-J1-J2 model, and the iron-based superconductors¹ REBECCA FLINT, PIERS COLEMAN, Rutgers University — Symplectic- N has proven to be a useful large N technique for spin Hamiltonians, and here we extend it to treat charge fluctuations by introducing symplectic Hubbard operators. Requiring that the anti-commutator of two symplectic Hubbard operators generate a symplectic spin flip yields a large N generalization of Wen and Lee's $SU(2)$ slave boson Hubbard operators[1]. As a test application to the iron-based superconductors, we solve the symplectic $t - J_1 - J_2$ model, motivated by the observation that a 45 degree rotation of the extended s-wave order parameter gives an s_{\pm} order parameter. [1] X.G. Wen and P. Lee, *Phys. Rev. Lett.* **76**, 503-506 (1996).

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