

Abstract Submitted
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Mott-insulator to superfluid transition in the strong coupling regime and in the presence of a minority component WEI WANG, BARBARA CAPOGROSSO-SANSONE, Univ of Oklahoma, VITTORIO PENNA, Depat. of applied science, Politecnico of Torino — By means of perturbation theory, we study the Mott-insulator to superfluid transition in the strong coupling regime and in the presence of a minority second component. In the limit of zero hopping, ground-states are in general degenerate. This degeneracy is not always lifted by the first order perturbation theory. In such cases, the standard perturbation theory does not uniquely determine the ground-state correction. To resolve this issue, we proved that the ground state energy of the Hamiltonian is non-degenerate, and used this property along with symmetry properties of the lattice to determine the first order correction to the ground state.

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