Erratum: Quantum liquid of repulsively bound pairs of particles in a lattice [Phys. Rev. A 76, 033606 (2007)]

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(Received 16 March 2008; published 28 March 2008)

DOI: 10.1103/PhysRevA.77.039908 PACS number(s): 03.75.Lm, 03.65.Ge, 05.30.Jp, 71.35.Lk, 99.10.Cd

We have detected an error in the definition of dimer energy. Given a single dimer (pair of bosonic particles) at site j, $|2_j\rangle$, an adiabatic elimination of nonresonant state $|1_j\rangle|1_i\rangle$ (with i denoting a site adjacent to j) results in an energy shift of the dimer state $|2_j\rangle$ equal to $J^{(2)}$. Since the dimer is surrounded by $2d$ empty sites, each shifting its energy by $J^{(2)}$, the correct expression for the dimer energy is $2\varepsilon+U+2dJ^{(2)}$.

Thus, at the end of Sec. II, the expression $2\varepsilon+U+J^{(2)}$ should be replaced by $2\varepsilon+U+2dJ^{(2)}$.

Next, in Eq. (6) the first term on the right-hand side should read $(2\varepsilon+U+2dJ^{(2)})\Sigma_j\hat{m}_j$, which also follows from the (correct) Eq. (2).

Finally, after Eq. (8), the effective magnetic field should read $h_z=2dJ^{(2)}-\frac{1}{4}(2\varepsilon+U+2dJ^{(2)})$.

These errors do not alter the results and conclusions of the paper.

