Solvable model for pair excitation in trapped Boson gas at zero temperature

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Corrigendum

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There is a minor error in equations (23) and (24) on page 6, which does not affect the analysis, results and conclusions presented in the rest of the paper. Equation (16) on page 6 is valid for $\mathbf{R} \in \mathcal{R}_{\text{in}}$, as stated correctly by Wu [11]. For $\mathbf{r} \in \mathcal{R}_{\text{out}}$, the evolution equation for $\mathcal{K}^0$ reads

$$i\,\partial_t \mathcal{K}^0(\mathbf{r}, \mathbf{R}, t) = -2\Delta_{\mathbf{r}}\mathcal{K}^0 + 2[-Z + V_e(\mathbf{R})]\mathcal{K}^0 \,.$$

Solving this equation via the Fourier transform in $\mathbf{r}$ yields the correct form of (23):

$$\widehat{\mathcal{K}^0}(\mathbf{k}, \mathbf{R}, t) = \widehat{f}(\mathbf{k}, \mathbf{R})\, e^{-2i[k^2 - Z + V_e(\mathbf{R})]t}, \qquad \mathbf{R} \in \mathcal{R}_{\text{out}} \,. \tag{23}$$

Accordingly, the correct form of (24) is

$$\begin{aligned} \mathcal{K}^0 &= \int \mathrm{d}\mathbf{r}'\, f(\mathbf{r}', \mathbf{R})\, \frac{e^{i|\mathbf{r}' - \mathbf{r}|^2/(8t)} e^{-2i[-Z + V_e(\mathbf{R})]t}}{(8i\pi t)^{3/2}} \\ &\sim \frac{e^{ir^2/(8t)} e^{-2i[-Z + V_e(\mathbf{R})]t} e^{-i3\pi/4}}{(8\pi t)^{3/2}} \int \mathrm{d}\mathbf{r}'\, f(\mathbf{r}', \mathbf{R}) \,. \end{aligned} \tag{24}$$

These corrections do not affect any other result of the paper.

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