www.nature.com/scientificreports

SCIENTIFIC REPORTS

OPEN

Corrigendum: Anderson localization and Mott insulator phase in the time domain

Krzysztof Sacha

Correction to: *Scientific Reports* https://doi.org/10.1038/srep10787; published online 15 June 2015; updated 28 February 2018

This Article contains typographical errors. In the Results section under subheading 'Mott insulator phase in the time domain'.

"In order to describe behaviour of the interacting many-body system we may truncate the Hilbert space to a subspace spanned by Fock states $|n_1, \ldots, n_s\rangle$ where the occupied modes correspond to localized wave-packets ψ_j moving along a s-resonant trajectory. Then, the many-body Floquet Hamiltonian reads

$$\hat{H}_F \approx -\frac{1}{2}\sum_{i=1}^{s}(J_i\hat{a}_{i+1}^{\dagger}\hat{a}_i + h.c.) + \frac{1}{2}\sum_{i,j=1}^{s}U_{ij}\hat{n}_i\hat{n}_j, \tag{2}$$

where $\hat{a}_i$ and $\hat{a}_i^{\dagger}$ are bosonic anihilation and creation operators and $\hat{n}_i = \hat{a}_i^{\dagger}\hat{a}_i$. The coefficients $U_{ij} = g_0\langle\langle\phi_i|\phi_i\phi_j^*|\phi_j\rangle\rangle$ describe interactions between particles that ocupy the same mode (for $i=j$) and between particles in different modes ($i \neq j$)."

should read:

"In order to describe behaviour of the interacting many-body system we may truncate the Hilbert space to a subspace spanned by Fock states $|n_1, \ldots, n_s\rangle$ where the occupied modes correspond to localized wave-packets ϕ_j moving along a s-resonant trajectory. Then, the many-body Floquet Hamiltonian reads

$$\hat{H}_F \approx -\frac{1}{2}\sum_{i=1}^{s}(J_i\hat{a}_{i+1}^{\dagger}\hat{a}_i + h.c.) + \frac{1}{2}\sum_{i,j=1}^{s}U_{ij}\hat{a}_i^{\dagger}\hat{a}_j^{\dagger}\hat{a}_i\hat{a}_j, \tag{2}$$

where $\hat{a}_i$ and $\hat{a}_i^{\dagger}$ are bosonic anihilation and creation operators. The coefficients $U_{ii} = g_0\langle\langle\phi_i|\phi_i\phi_i{}^*|\phi_i\rangle\rangle$ describe interactions between particles that occupy the same mode (for $i=j$) and $U_{ij} = 2g_0\langle\langle\phi_i|\phi_i\phi_j^*|\phi_j\rangle\rangle$ between particles in different modes ($i \neq j$)."

In the Legend of Figure 2,

"Proper superpositions of the eigenstates allows one to extract 4 individual wave-packets, ψ_j, that are numbered in (**a**) and (**b**)."

should read:

"Proper superpositions of the eigenstates allows one to extract 4 individual wave-packets, ϕ_j, that are numbered in (**a**) and (**b**)."

In the Legend of Figure 3,

"The coefficients α_n, in H', are chosen so that the set of $\langle\langle\phi_j|H'|\phi_j\rangle\rangle$ reproduces a chosen set of numbers E_j, where ψ_j's are the wave-packets described in Fig. 2."

should read:

"The coefficients α_n, in H', are chosen so that the set of $\langle\langle\phi_j|H'|\phi_j\rangle\rangle$ reproduces a chosen set of numbers E_j, where ϕ_j's are the wave-packets described in Fig. 2."

and

"The wave-packets ψ_j arrive at a given position z in equidistant intervals in time, thus, the AL length in time is $l_t = lT$."

should read:

"The wave-packets ϕ_j arrive at a given position z in equidistant intervals in time, thus, the AL length in time is $l_t = lT$."