Erratum: Suppression of the pseudoantisymmetry channel in the conductance of telescoped double-wall nanotubes [Phys. Rev. B 72, 045413 (2005)]

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The saturation effect reduces $W_{i,j}$ in Eq. (6) for the AB bonds compared to the BB and AA bonds. Owing to errors of the calculation code, this reduction was imperfect. In the calculation code, $W_{BB}-W_{AB}$ was set to zero when $|z_i-z_j|=0.5a\pm\Delta z$, though the correct value of $W_{BB}-W_{AB}$ was used when $|z_i-z_j|=|\Delta z|$. Nonetheless, the corrected numerical calculations do not
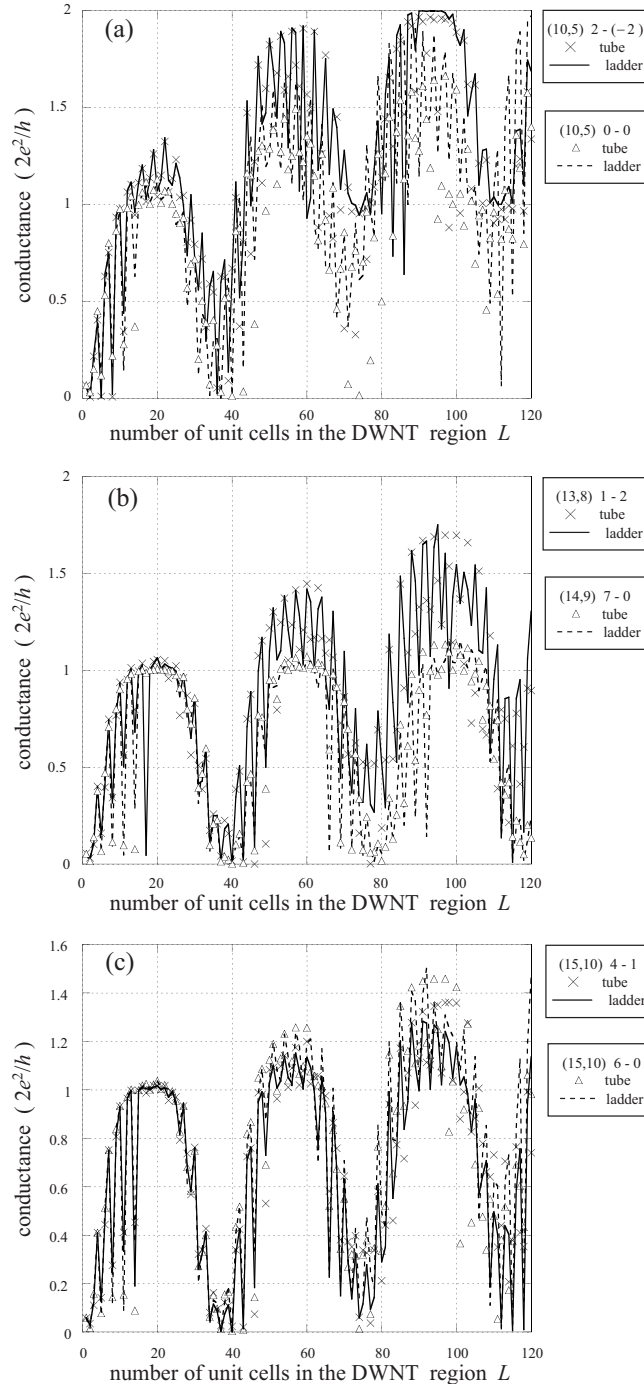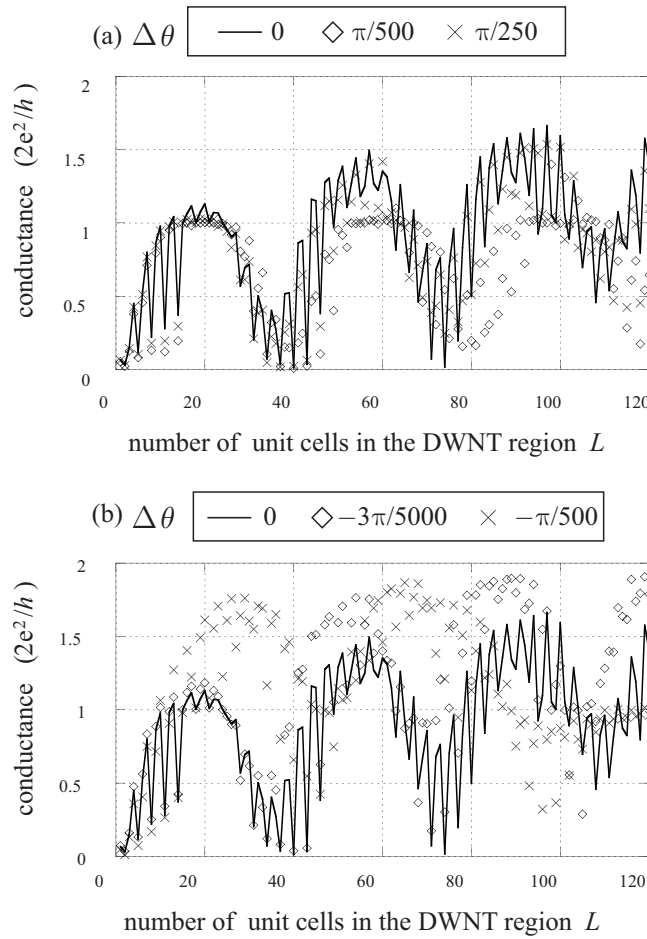

FIG. 6. Corrected.

(a) $\triangle\theta$ | —— 0   ◇ $\pi/500$ × $\pi/250$

conductance $(2e^2/h)$

number of unit cells in the DWNT region L

(b) $\triangle\theta$ | —— 0   ◇ $-3\pi/5000$ × $-\pi/500$

conductance $(2e^2/h)$

number of unit cells in the DWNT region L

FIG. 7. Corrected.

change the essential results (i)–(v) shown below. Here max(T_σ) denotes the maximum T_σ as a function of the number of unit cells in the double wall nanotube region.

(i) max(T_+)=1 irrespective of n_O. (ii) max(T_-)=1 when n_O=10. (iii) max(T_-) tends to decrease as n_O increases. (iv) When the size of the Hamiltonian matrix is reduced by replacing the tubes with ladders, the transmission rate T_σ corresponding to the

W_{BB} (eV)   0.36 ◇   0.18 ----   0.09 ——

(b) $W_{AB}/W_{BB} = 0.4$

conductance $(2e^2/h)$
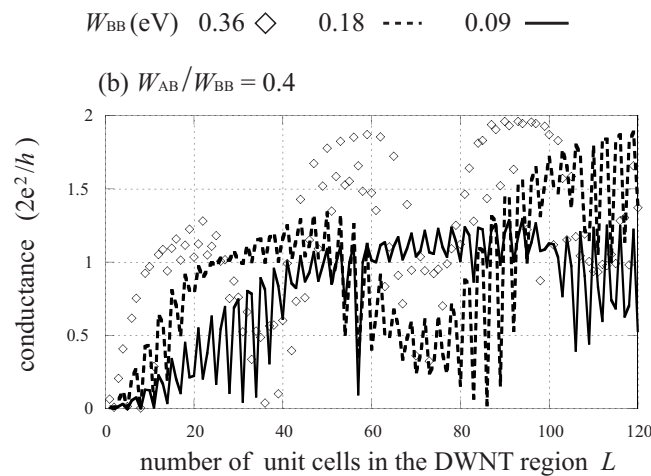
number of unit cells in the DWNT region L

FIG. 8. Corrected Fig. 8(b). Figure 8(a) does not need correction.
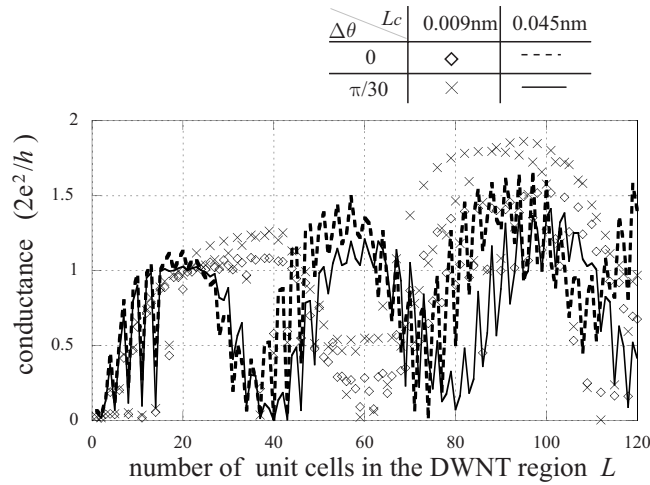
FIG. 9. Corrected.

reduced Hamiltonian coincides well with that of the original Hamiltonian. (v) When either n_O or $n_I = n_O - 5$ is a multiple of three, $\max(T_-)$ is particularly low (or exactly zero if $W_{BB} - W_{AB}$ is set to zero).

In Fig. 6, "tube" and "ladder" denote the original and reduced Hamiltonian, respectively. These coincide well with each other. Since the reduced Hamiltonian (ladder) was determined by the original Hamiltonian (tube), the numerical results labeled
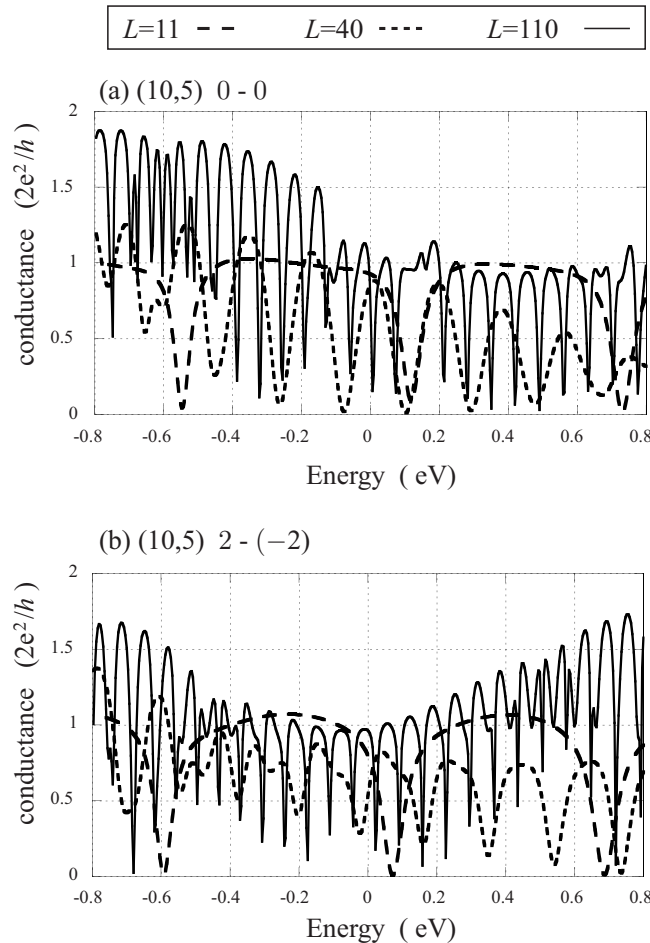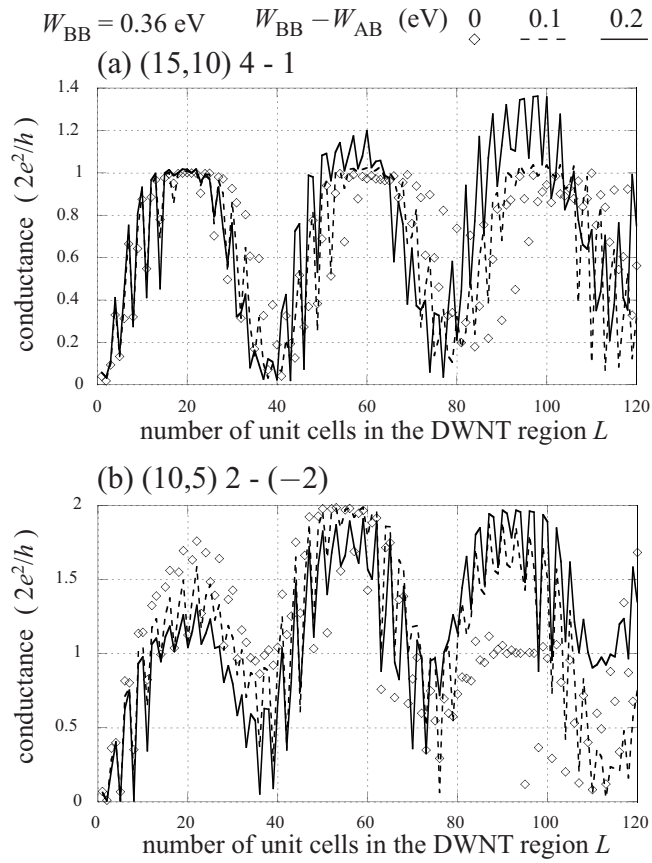

FIG. 10. Corrected.

FIG. 13. Corrected.

"ladder" also change compared to the original Fig. 6. All the formulas, however, are correct, and only the numerical output required correction. Figs. 7, 8(b), 9, 10, and 13 are presented here corrected.