

Erratum: Breakdown in the Wetting Transparency of Graphene [Phys. Rev. Lett. 109, 176101 (2012)]

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(Received 30 June 2015; published 22 July 2015)

DOI: 10.1103/PhysRevLett.115.049901

PACS numbers: 68.08.Bc, 68.03.Cd, 68.65.Pq, 99.10.Cd

In our Letter, errors were made in Eqs. (6) and (12). The corrected Eqs. (6) and (12) are given below:

$$\Phi_{\text{NL}} = \sum_{i=1}^N \left\{ \int_{\delta_{\text{GL}}}^{\infty} \rho_{\text{NL}}(z) w_{\text{GL}}[z + (i-1)d_0] dz \right\} \quad (6)$$

$$\Phi_{\text{SNL}} = \sum_{i=1}^N \left\{ \int_{\delta_{\text{GL}}}^{\infty} \rho_{\text{SNL}}(z) w_{\text{GL}}[z + (i-1)d_0] dz \right\} + \int_{\delta_{\text{GL}}}^{\infty} \rho_{\text{SNL}}(z) w_{\text{SL}}[z + (N-1)d_0 + \delta_{\text{SG}}] dz, \quad (12)$$

where $\rho_{\text{SNL}}(z) = \rho_{\text{L0}} \exp[-w_{\text{SNL}}(z)/k_{\text{B}}T]$, $w_{\text{SNL}}(z) = (\sum_{i=1}^N w_{\text{GL}}(z + (i-1)d_0)) + w_{\text{SL}}(z + (N-1)d_0 + \delta_{\text{SG}})$, and δ_{SG} is the equilibrium contact separation between graphene and the underlying solid substrate.

The errors in the original Eqs. (6) and (12) result in an *underestimation* of the vdW interactions between water and an N -layer graphene sheet. After utilizing the corrected Eqs. (6) and (12), the following model parameters were determined and used in our subsequent calculations: (i) $A_{\text{CL}} = 8.698 \text{ eV } \text{\AA}^6$ (in the Letter, $A_{\text{CL}} = 8.914 \text{ eV } \text{\AA}^6$). (ii) The predicted highest attainable contact angle of water on a graphene-coated solid substrate is $\theta = 98.6^\circ$ (in the Letter, $\theta = 96^\circ$). (iii) For water on the bare solid substrate, we now assume a constant value of $\delta_{\text{SL}} = 3.7 \text{ \AA}$ (in the Letter, $\delta_{\text{SL}} = 5 \text{ \AA}$).

Using the revised model parameter values, the predicted contact angle values are slightly different from those reported in the Letter, and therefore, we have revised Figs. 1 and 3(a) accordingly, as shown below.

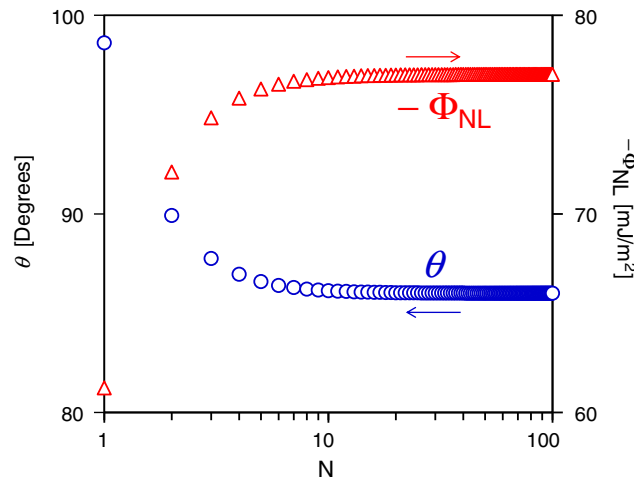


FIG. 1 (color online). Calculated $-\Phi_{\text{NL}}$ and the corresponding contact angle, θ , as a function of N on a suspended N -layer graphene.

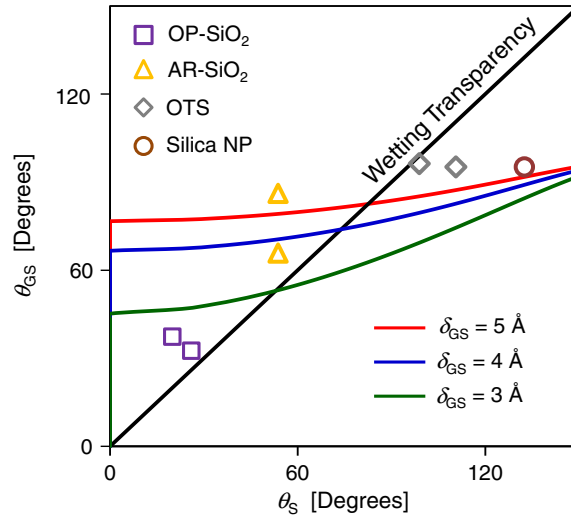


FIG. 3(a) (color online). Calculated θ_{GS} as a function of θ_S for the three values of δ_{SG} considered (color curves) and experimentally measured values of θ_{GS} and θ_S on various substrates (color symbols). The line of $\theta_{GS} = \theta_S$ (black line), which corresponds to the wetting transparency, is shown as a reference.

Note that (i) the corrections above only lead to minor *quantitative* changes, and (ii) the central conclusions and methodology presented in the Letter remain valid.