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Erratum: Structural transitions in a ring stain created at the contact line of evaporating nanosuspension sessile drops [Phys. Rev. E **87**, 012301 (2013)]

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In our recent article, we presented in Fig. 2 the evolution of excess free energy of an evaporating drop, per unit length of triple line, $\delta\bar{G}$, vs time. The calculation of $\delta\bar{G}$ was based on Eq. (3). Although Eq. (3) is correct, the values of $\delta\bar{G}$ presented in Fig. 2 were miscalculated and we here present the corrections in Fig. 1 below.

This miscalculation leads to the following corresponding changes in the text of the article: The third and fourth sentences in the last paragraph of page 2 that read “At ~ 800 s, $\delta\bar{G}$ reaches a maximum value of $\sim 1.7 \times 10^{-5}$ N, which is an order of magnitude larger than what has been reported previously for a similar system [6]. This could be attributed to the more refined calculation of $\delta\bar{G}$, here.” should be changed to “At ~ 800 s, $\delta\bar{G}$ reaches a maximum value of $\sim 7.5 \times 10^{-6}$ N, which is compatible with what has been calculated previously for a similar system [6]. It may be noted that our calculation of $\delta\bar{G}$ here is more refined.” Furthermore, part of the eighth sentence of the same paragraph (on page 3) should be changed from “. . .the first jump requires slightly higher energy, 1.7×10^{-5} N compared to $\sim 1.2 \times 10^{-5}$ N for the rest of the jumps, . . .” to “. . . the first jump requires slightly higher energy, 7.5×10^{-6} N compared to $\sim 6.5 \times 10^{-6}$ N for the rest of the jumps, . . .”. The rest of the results and the conclusions of the paper remain unaffected.

A small typographical mistake in Eq. (5) was also found. In the denominator of the first fraction inside the square bracket, radial distance r is missing a power of 2. The correct formula is

$$\bar{v}(r, t, P) = \frac{4\Delta c R(t)}{\pi \rho r \theta(t)} \left[\frac{1}{\sqrt{R^2(t) - r^2}} - \frac{R^2(t) - r^2}{R^3(t)} \right] \frac{D_{\text{ref}} P_{\text{ref}}}{P}. \quad (5)$$

This mistake does not affect any results or conclusions.

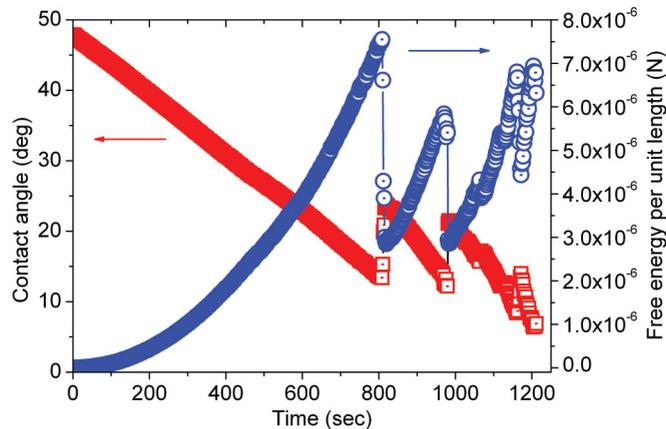


FIG. 1. (Color online) Corrected version of Fig. 2.

We would like to express our thanks to M. Öksüz and the group of Professor H. Yildirim Erbil for bringing the error in the $\delta\bar{G}$ calculation to our attention.