Additions and Corrections

Effective Spring Constant of Bubbles and Droplets

In our previous analysis of bubble and droplet deformation,1 an algebraic error occurred. The quantity \( d \) that first appears in eq 30 should be defined as

\[
d = 2 - 2 \cos \theta - \sin^2 \theta \cos \theta
\]  

Consequently, the change in the radius of curvature, eq 33, should be

\[
\rho = \frac{-F/2\gamma}{2 - \cos \theta - \cos^2 \theta}
\]  

which is negative and agrees with that subsequently given by Bardos.2 The deformed profile near the dimple rim, eq 34, should be

\[
z(r) = z_0(r) + \frac{F}{2\gamma} \left( \frac{1 + \cos \theta}{2 + \cos \theta} + \frac{r}{2R_0 \sin \theta} \ln \frac{r(1 + \cos \theta)}{2R_0 \sin \theta} \right)
\]  

With the intervening equations unchanged, the deformed profile at the apex, eq 51, becomes

\[
z(0) = z_0(0) + \frac{F}{4\gamma} \left( \frac{\cos \theta}{2 + \cos \theta} + \ln \left( \frac{R_p (1 + \cos \theta)^2}{2 \times R_0^2 \sin^2 \theta} \right) \right)
\]  

and the effective spring constant of the bubble or droplet, eq 52, is given by

\[
k = \frac{4\gamma}{\cos \theta} \left( \frac{1 + \cos \theta}{2 + \cos \theta} + \ln \left( \frac{R_p (1 + \cos \theta)^2}{2 \times R_0^2 \sin^2 \theta} \right) \right)
\]  

This result for the interfacial spring constant should also replace that given in ref 3, but the algorithm for analyzing atomic force microscopy data for bubbles and droplets that is given there is otherwise unchanged. This result differs from the spring constant given by Bardos.2 The latter depends on the applied load, whereas the present quantity is a constant, as one would expect for a Hookean interface.

These are the only equations in ref 1 affected by the error. (None of the results in refs 4 and 5 is affected.) The main conclusions of ref 1, that drops and bubbles behave as Hookean springs, that analytic expressions for the deformation can be obtained in the small force asymptotic regime, and that atomic force microscopy measurements are typically performed in this regime, remain unchanged.


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Voltammetric Characterization of Ruthenium Oxide-Based Aerogels and Other RuO2 Solids: The Nature of Capacitance in Nanostructured Materials

The specific capacitance values reported in Table 1 were incorrectly calculated at twice their actual value. The trends reported remain valid, as do the normalized comparisons between various hydrous ruthenium oxide solids. We have recently re-evaluated these data as part of an extended paper describing the sticky carbon electrode method (J. Electroanal. Chem. 2002, 522, 58–65). We sincerely thank Min-Kyu Song (University of South Carolina) for alerting us to this error.

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