

# Erratum: Theory of Vesicles and Droplet Type Microemulsions...

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We made two errors that quantitatively influence the conclusions stated:

I. Eq. (5.2) should read

$$(Kc_0)_{cl} = \frac{-kT}{2\pi Q} \ln((q+1)/2) \quad (5.2)$$

Implementation of this correct expression for the electrical contribution to  $Kc_0$  in the procedure described in section 5.3 leads to different values of  $(Kc_0)_{ch}$  in Table 1, i.e. 0.365 kT/nm for system with octane, 0.334 kT/nm for systems with decane, and 0.255 kT/nm for systems with dodecane. The agreement between theory and experiments is still satisfactory, that is, Fig. 6 does not become qualitatively different. However the values of  $\bar{K}$  that were necessary to describe the experimental data in Fig. 6 change significantly:  $\bar{K}=0.80 kT$  for octane systems, 0.35 kT for decane systems, and 1.20 kT for dodecane systems. We believe that these values are considerably more plausible than the much higher values that were obtained originally.

One of us (WKK) applied the theory (with the correct Eq. (5.2)) to experimentally obtained [1] droplet radii as a function of the salt concentration. The agreement between our theory and these experiments, without any adjustable parameters being used (i.e. the only adjustable parameter,  $\bar{K}$ , is fixed by using the procedure as described in section 5.3) is quite good. The results will be reported in a separate paper [2].

II. Our definition of the radius  $R_w$  is inappropriate if to be compared to experiments. It should be the number density averaged radius, and not the volume fraction aver-

aged radius, as implied by Eqs. (3.12) and (4.22). In other words, the average radius should read

$$\begin{aligned} \langle R^i \rangle &= \left( \sum_{j=1}^{\infty} R_j^i \rho_j \right) / \left( \sum_{j=1}^{\infty} \rho_j \right) \\ &= \left( \sum_{j=1}^{\infty} R_j^i \left( \phi_j / \left( \frac{4}{3} \pi R_j^3 \right) \right) \right) / \left( \sum_{j=1}^{\infty} \left( \phi_j / \left( \frac{4}{3} \pi R_j^3 \right) \right) \right), \end{aligned}$$

with  $\rho_j$  the number density of droplets of category  $j$ . This implies that, in order to be consistent with experiments, in the final expression for the average radii Eqs. (4.22–4.24), the quantity  $z$  should be replaced by  $(z - \frac{3}{2})$ . The quantitative difference between these radii is only small. However, comparison to experiments, as in section 5.2, but implementing the proper definition of  $R_w (= \langle R^3 \rangle / \langle R^2 \rangle)$  with the  $\langle R^i \rangle$  as defined above), leads to a comparable agreement with the theory as in Figs. 5a and 5b, but only if the parameters are slightly adjusted:  $\bar{K} = 0.22 kT$  and  $c_0 = 0.035 \text{ nm}^{-1}$  for the best agreement. The inappropriate definition does not affect our estimate of the quantity  $z$ , the inequality (5.1). We also mention that Eq. (4.22) contains a typographical error: the signs of  $f(x^*)$  and  $f(x_1^*)$  in the exponent should be interchanged.

## References

- [1] H. Kellay, J. Meunier, and B.P. Binks, *Phys. Rev. Lett.* **70**, 1485 (1993).
- [2] W.K. Kegel, J.T.G. Overbeek, and H.N.W. Lekkerkerker, To Appear in 'Microemulsions, Fundamental and Applied Aspects', ed. by P. Kumar and K.L. Mittal.

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