Erratum: Salt-Dependent Rheology and Surface Tension of Protein Condensates Using Optical Traps [Phys. Rev. Lett. **121**, 258101 (2018)]

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In our Letter, we have determined the surface tension γ and the complex modulus $G^*(\omega)$ of protein condensates. We measured a spring constant of droplet response χ^* for different frequencies ω which is related to the material properties G^* via (see our Letter and [1])

$$\chi^* = \frac{\pi R(1 - \cos(\theta_0))}{\sum_{\substack{\ell \geq 2 \\ \ell \text{ even}}} \frac{(P_{\ell-1}(\cos(\theta_0)) - P_{\ell+1}(\cos(\theta_0)))}{2G^*(\omega) \frac{(\ell-1)(2\ell^2+4\ell+3)}{\ell(2\ell+1)} + \frac{\gamma}{R}(\ell-1)(\ell+2)}}. \quad (1)$$

Here P_ℓ denotes the Legendre polynomial of degree ℓ , R denotes the droplet radius, and θ_0 quantifies the size of regions where force is applied at the droplet poles. In our Letter, we used a truncation of the series (1) at $\ell = 10$ which for $\theta_0 \approx 0.1$ led to an underestimation of elastic moduli and surface tensions by roughly a factor of 2 or 1.25, respectively. We have now numerically evaluated the series to $\ell = 100$ which provides accurate values of inferred parameters. In Figs. 1(a)–1(h), we show plots with corrected data points corresponding to Figs. 3(c)–3(j) in our Letter.

Furthermore, the approximation given by Eq. (10) in our Letter for the limit $|G^*|R \ll \gamma$ should be improved by using [1]

$$\gamma \approx \frac{\chi'(\omega)}{\pi} (-\ln(\theta_0) + 0.68). \quad (2)$$

FIG. 1. Salt-dependent material properties of PGL-3 droplets. For revised data analysis, surface tension was determined from $\chi'(\omega)$ in the low frequency regime ($f \leq 0.2$ Hz) by Eq. (2). For $f \geq 4$ Hz, G^* was determined numerically by inversion of $\chi^*(\omega)$ using Eq. (1) truncating the series after $\ell = 100$. For the frequency range $f < 4$ Hz, G'' was obtained by inversion of the imaginary part $\chi''(\omega)$ using Eq. (1) truncating after $\ell = 100$ and setting $G' = 0$. (a)–(h) correct the panels (c)–(j) in Fig. 3 of our Letter. (f) Critical salt concentration c_{cr} was fitted as 244 mM.

The approximation Eq. (11) in our Letter for the limit $\gamma \ll |G^*|R$ can be improved by the following approximation:

$$G^*(\omega) \approx \frac{\chi^*(\omega) - (1.25 + 4.36\theta_0^2)\gamma}{R(5.47\theta_0^5 - 29.28\theta_0^4 + 23.29\theta_0^3 - 5.08\theta_0^2 + 3.79\theta_0 - 0.02)}. \quad (3)$$

For the experimentally relevant parameter range of θ_0 between 0.05 and 0.3, Eqs. (2) and (3) approximate Eq. (1) within 2% accuracy in the limit cases $G^* = 0$ and $\gamma = 0$, respectively. In the same range of θ_0 but for finite values of γ in the range $\gamma \leq 0.05|G^*|R$, Eq. (3) provides an estimate of G^* which deviates up to 15% from the exact solution, i.e. relative errors $\Delta G'$, $\Delta G''$ fulfill $\Delta G'/|G|$, $\Delta G''/|G| \leq 0.15$.

We also report two typographical errors in the Supplemental Material: In Eq. (12), second line, a factor $1/\sin(\theta)$ is missing on the right-hand side of the equation for v_θ . In Eq. (14), $u_r(R, 0)$ should be replaced by $-u_r(R, 0)$.

[1] H. Zhou, *J. Phys. Chem. B* **124**, 8372 (2020).