

Erratum: Nonlinear electrokinetic flow about a polarized conducting drop [Phys. Rev. E **87**, 041002(R) (2013)]

Ory Schnitzer and Ehud Yariv

(Received 25 April 2013; published 3 May 2013)

DOI: [10.1103/PhysRevE.87.059901](https://doi.org/10.1103/PhysRevE.87.059901)

PACS number(s): 47.55.D-, 47.55.nb, 47.57.jd, 47.65.-d, 99.10.Cd

In Eq. (22), a term is missing in the mean-curvature expression (see Ref. [1]). This equation, instead, should read

$$\kappa\mu\mathcal{U}_E \left[2R(\theta) + \frac{1}{\sin\theta} \frac{d}{d\theta} \left(\sin\theta \frac{dR(\theta)}{d\theta} \right) \right] = -S(\theta). \quad (22)$$

Result (24) is thus discarded. The deformation parameter $\mathcal{D}$, defined in Eq. (23), is calculated, instead, by a direct solution of the present Eq. (22). Consequently, the weak-field approximation (25) should be corrected to

$$\mathcal{D} = \frac{9(4 + \bar{\mu}/\mu)}{320(1 + \bar{\mu}/\mu)} \text{Ca} \left(\frac{aE_0}{\varphi_T} \right)^2. \quad (25)$$

The numerical calculation of $\mathcal{D}$ for arbitrary fields is presented in Fig. 1 herein, which replaces Fig. 4.

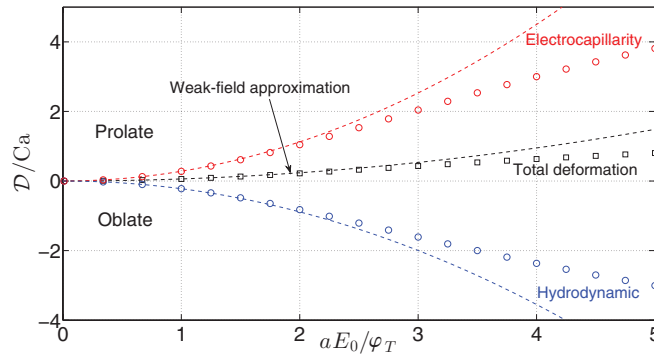


FIG. 1. (Color online) Corrected Fig. 4.

- [1] L. D. Landau and E. M. Lifshitz, *Fluid Mechanics: Course of Theoretical Physics*, 2nd ed. (Butterworth-Heinemann, Oxford, 1987), Vol. 6.