Erratum: Effects of chiral dopants on double-twist configurations of lyotropic chromonic liquid crystals in a cylindrical cavity [Phys. Rev. E 100, 012702 (2019)]

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We misused the same symbol q_0 both for an inverse pitch $2\pi/p_0$ and for a dimensionless inverse pitch $2\pi/(p_0/R)$. p_0 and R are a helical pitch imposed by chiral dopants and the radius of a cylindrical cavity, respectively, both in a dimension of length. Thus, q_0 in all the dimensionless equations, including Eqs. (2) and (A3)–(A10) should be replaced by $\tilde{q}_0 = 2\pi/(p_0/R)$. Because they are typographical errors, all of our results remain unaffected.

The correct Eq. (2) should be

$$s^2 \frac{d^2 \beta(s)}{ds^2} + s \frac{d\beta(s)}{ds} - \frac{1}{2} \sin 2\beta(s) \cos 2\beta(s) - \frac{2 \sin^3 \beta(s) \cos \beta(s)}{K_2/K_3} + s \tilde{q}_0 [\cos 2\beta(s) - 1] = 0, \quad (2)$$

where s is the normalized radius r/R and $\tilde{q}_0$ is $2\pi/(p_0/R)$. The following boundary conditions should be also read as $\beta(s=0) = 0$ and $\left. \frac{d\beta(s)}{ds} \right|_{s=1} = \frac{K_{24}-K_2}{2K_2} \sin 2\beta(s=1) + \tilde{q}_0$.

q_0 in the equations from Eq. (A3) to (A10) should be changed into $\tilde{q}_0$,

$$f = \frac{F}{\pi L K_3} = \int_0^1 ds \left[\frac{k_2 [-\tilde{q}_0 s + s\beta'(s) + \sin \beta(s) \cos \beta(s)]^2 + \sin^4 \beta(s) - k_{24} s \sin 2\beta(s) \beta'(s)}{s} \right]. \quad (A3)$$

$$f = \int_0^1 ds \left[-k_2 \tilde{q}_0 \sin 2\beta(s) + \frac{k_2 \cos^2 \beta(s) \sin^2 \beta(s)}{s} + \frac{\sin^4 \beta(s)}{s} - 2k_2 \tilde{q}_0 s \beta'(s) + k_2 s \beta'^2(s) \right] + \frac{1}{2} [k_2 - k_{24} + k_2 \tilde{q}_0^2 - (k_2 - k_{24}) \cos 2\beta(1)]. \quad (A4)$$

$$0 = \frac{\partial L}{\partial \beta} - \frac{d}{ds} \frac{\partial L}{\partial \beta'} = -2k_2 \tilde{q}_0 s \cos 2\beta(s) + \frac{k_2 \sin 4\beta(s)}{2} + 4 \sin^3 \beta(s) \cos \beta(s) - [-2k_2 \tilde{q}_0 s + 2k_2 s \beta'(s) + 2k_2 s^2 \beta''(s)]. \quad (A7)$$

$$s^2 \beta''(s) + s \beta'(s) - \frac{\sin 2\beta(s) \cos 2\beta(s)}{2} - \frac{2 \sin^3 \beta(s) \cos \beta(s)}{k_2} + s \tilde{q}_0 [\cos 2\beta(s) - 1] = 0. \quad (A8)$$

$$0 = \left(\frac{\partial L}{\partial \beta'} + \frac{\partial K}{\partial \beta} \right) \Big|_{s=1} = -2k_2 \tilde{q}_0 - (k_{24} - k_2) \sin 2\beta(1) + 2k_2 \beta'|_{s=1}. \quad (A9)$$

$$\beta'|_{s=1} = \tilde{q}_0 + \frac{(k_{24} - k_2)}{2k_2} \sin 2\beta(1). \quad (A10)$$

The last sentence following Eq. (A10) should be “Eqs. (A8) and (A10) can be solved analytically to give Eq. (1) when $\tilde{q}_0 = 0$, i.e., no chiral dopant.”