


## Author Correction: Spontaneous shear flow in confined cellular nematics

G. Duclos, C. Blanch-Mercader, V. Yashunsky, G. Salbreux, J.-F. Joanny, J. Prost and P. Silberzan 

Correction to: *Nature Physics* <https://doi.org/10.1038/s41567-018-0099-7>, published online 16 April 2018.

In the version of this Letter originally published, the system was identified as ‘contractile’ ( $\zeta\Delta\mu < 0$ ) on the basis of the dynamics of the  $+1/2$  defects. However, the direction of the shear flow of the cells with respect to the orientation of the cell bodies is one of an ‘extensile’ system and corresponds to  $\zeta\Delta\mu > 0$ . This change of sign does not affect the physics of the phenomenon or our conclusions. Accordingly, the following two sentences have been amended: (1) “RPE1 cells in dense monolayers organize together in an active contractile nematic phase (Supplementary Fig. 1).” to read as “RPE1 cells in dense monolayers organize together in an active nematic phase.”; and (2) “Indeed, despite the obvious practical differences, our confined cells share the same fundamental symmetries as a contractile acto-myosin network powered by ATP hydrolysis between parallel plates<sup>29</sup>.” to “Indeed, despite the obvious practical differences, our confined cells share the same fundamental symmetries as an acto-myosin network powered by ATP hydrolysis between parallel plates<sup>29</sup>.” In addition, in Fig. 4, values have been changed in the following places: panel a, top graph,  $y$  axis, panels c–e,  $y$  axes and in the legends. In the last sentence of Fig. 4 caption, in the first equation, the minus sign in the term ‘ $\zeta\Delta\mu$ ’ has been deleted and a minus sign added to the term ‘ $-\frac{\nu}{2}$ ’, and in the second equation ‘ $\zeta_{PC}$ ’ changed to ‘ $\zeta_{PC}\Delta\mu$ ’; both equations now read ‘ $K = \gamma = \zeta\Delta\mu = \eta = -\frac{\nu}{2} = W_\zeta = 1$ ’ and ‘ $\xi = k = \zeta_{PC}\Delta\mu = \lambda_{PC} = 0$ ’.

In addition, the Supplementary Information has been updated accordingly.

In Supplementary Fig. 1 caption, the sentence “The defects migrate toward the ‘tail’ of their comet-like structure meaning that these systems are contractile.” now reads “The defects migrate toward the ‘tail’ of their comet-like structure.”

In the Supplementary Note, the following sentences have been amended: (1) “The cell types used in the experiments have been identified as contractile elements ( $\zeta < 0$ ) in Ref. [7] (see also Fig. (SM1)) and so  $\nu + 1 > 0$ .” now reads “Although  $+1/2$  defects move toward their tails as expected for a contractile system (Fig. (SM1)), the flow direction relative to the cells’ orientation is characteristic of an extensile system ( $\zeta > 0$ ) and, therefore,  $\nu + 1 < 0$ .”; (2) “The wavevector  $q_c$  depends in a non-trivial manner of the size of the system  $L$ .” now reads “The wavevector  $q_c$  depends on the size of the system  $L$ .” (3) “Friction forces can suppress the spontaneous-flow transition, above a critical friction coefficient  $\xi_c = -\gamma\zeta\Delta\mu(\nu + 1)/2K$ .” now reads “Friction forces can suppress the spontaneous-flow transition above a critical friction coefficient, which for strong anchoring reads  $\xi_c = -\gamma\zeta\Delta\mu(\nu + 1)/2K$ .”; (4) “The shear flow is then weaker than the convergent flow and thus the angle at the center line of the tissue approaches  $\theta = 0$  for  $\nu > 1$  and large widths  $L$ , as suggested from Fig. (2, B-C) in the main text.” now reads “In this case, the shear flow is weaker than the convergent flow and thus in the absence of chirality the angle at the center should approach  $\pi/2$  for  $\nu < -1$  at large widths  $L$ , Fig. (2). In our experiments, this increase of the angle at large widths is, however, not observed (Fig. (2B-C)).”

The sentence “Thus, without any loss of generality, we fix the active coefficients  $\zeta_1 = \zeta_2 = 0$ .” has been deleted.

The section ‘Estimation of the parameters’ has been modified in several places to reflect that  $\zeta$  has a positive sign (characteristic of an extensile system) and  $\nu$  has a negative sign.

Supplementary Figs. 8 and 9 have been replotted using a parameter set of an extensile system ( $\zeta = 1$ ,  $\nu = -2$ ); the previous versions were plotted using a parameter set of a contractile system ( $\zeta = -1$ ,  $\nu = 2$ ). And in Supplementary Fig. 9 caption the sentence “Figure (B) evidences a regime at intermediate friction characterized by the presence of a shear flow only in a finite range of widths.” now reads “Figure (B) evidences a regime at small enough friction characterized by the presence of a shear flow for large enough widths.”

The right panel of Fig. 2 in the Supplementary Note has been replotted to correct a mistake in the numerical integration of the advection of the director field.

The original and corrected Fig. 4 and the Supplementary figures are shown in the [Supplementary Information](#) for this correction notice.

### Additional information

Supplementary information is available for this paper at <https://doi.org/10.1038/s41567-019-0544-2>.

Published online: 28 June 2019

<https://doi.org/10.1038/s41567-019-0544-2>