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Supplementary Materials for

Prolate and oblate chiral liquid crystal spheroids

Monirosadat Sadati, Jose A. Martinez-Gonzalez, Ye Zhou, Nader Taheri Qazvini, Khia Kurtenbach, Xiao Li, Emre Bukusoglu, Rui Zhang, Nicholas L. Abbott, Juan Pablo Hernandez-Ortiz, Juan J. de Pablo*

*Corresponding author. Email: depablo@uchicago.edu

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The PDF file includes:

Figs. S1 to S6

Other Supplementary Material for this manuscript includes the following:

(available at advances.sciencemag.org/cgi/content/full/6/28/eaba6728/DC1)

Movies S1 and S2

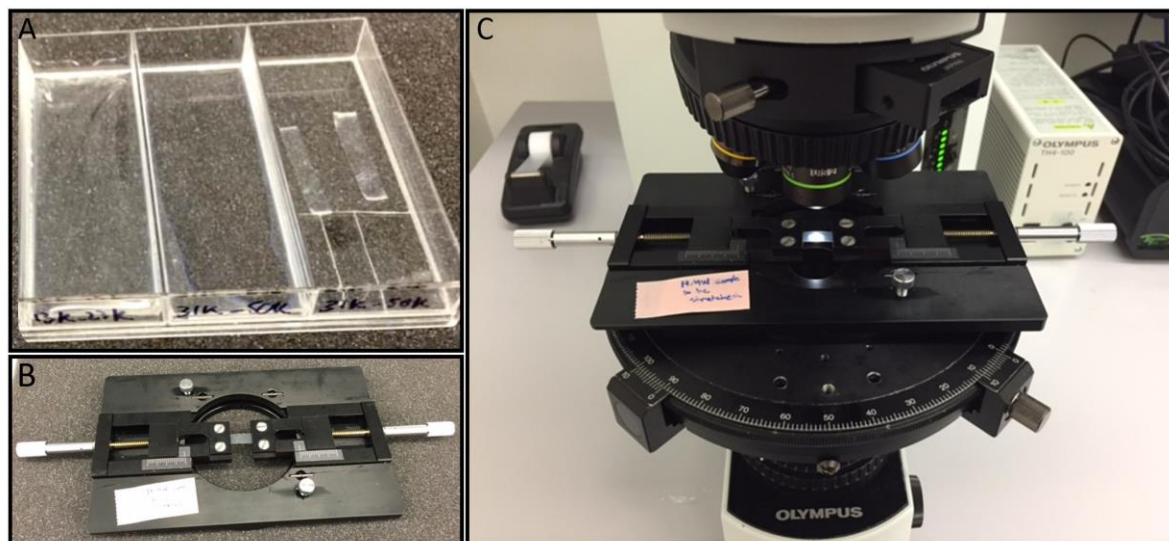


Fig. S1 PDLC film and experimental set-up. (A) PVA film cast on a plastic dish (or glass substrate). (B) Manual tensile machine, (C) Tensile machine mounted on the optical microscope's stage.
Photo Credit: Monirosadat Sadati, The University of Chicago.

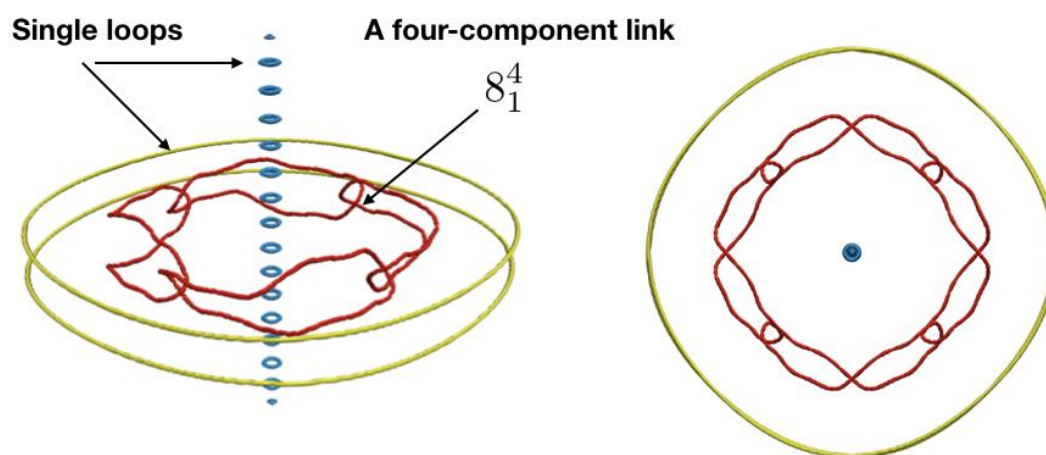


Fig. S2 Lateral and top view of the knots of the DOS (Fig. 2G). We can identify a series of single unlinked loops along the diametrical axis (blue); two unlinked single loops in the outer region (yellow); and a four-component link that can be seen as three connected Hopf links (red). This latter knot is responsible for the petal-like appearance in the simulated cross polarized images.

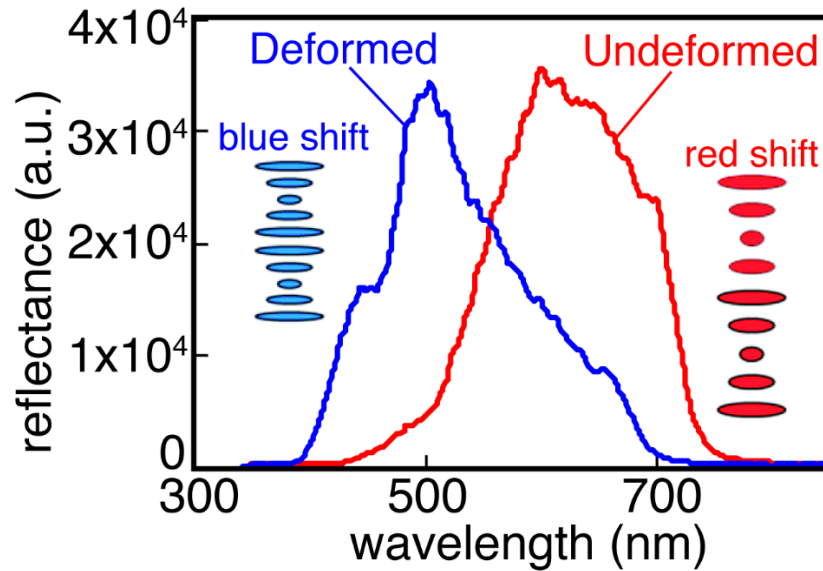


Fig. S3 Measured reflectance spectra of the liquid crystal droplet with low chirality before and after deformation. Upon uniaxial stretch, the reflection band of the confined chiral liquid crystal shifts towards a lower wavelength, which is attributed to the change in the pitch length.

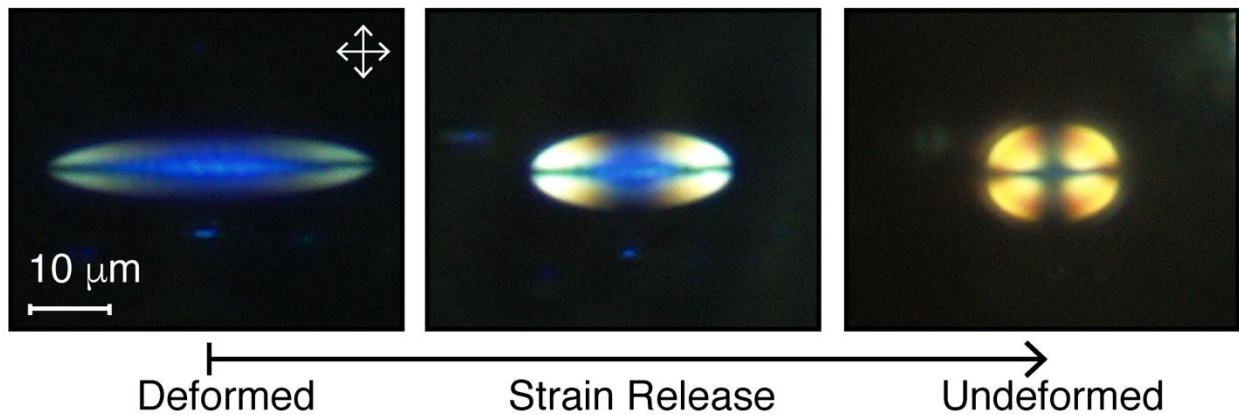


Fig. S4 releasing strain. The chiral liquid crystal droplet recovers its original color upon retraction.

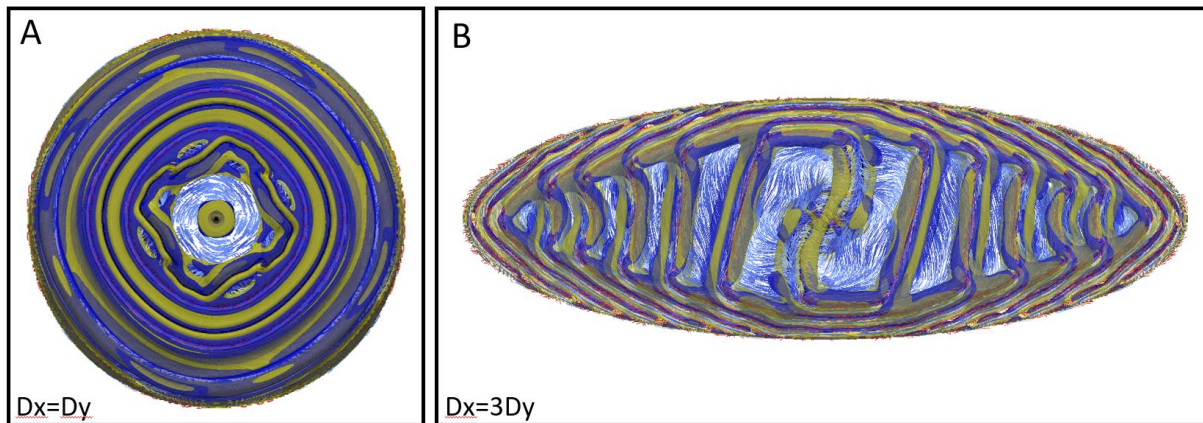


Fig. S5 Isosurfaces of splay (blue) and bend (yellow) order parameter for (A) an ablate ($Dx=Dy$) and (B) a stretched geometry ($Dx=3Dy$).

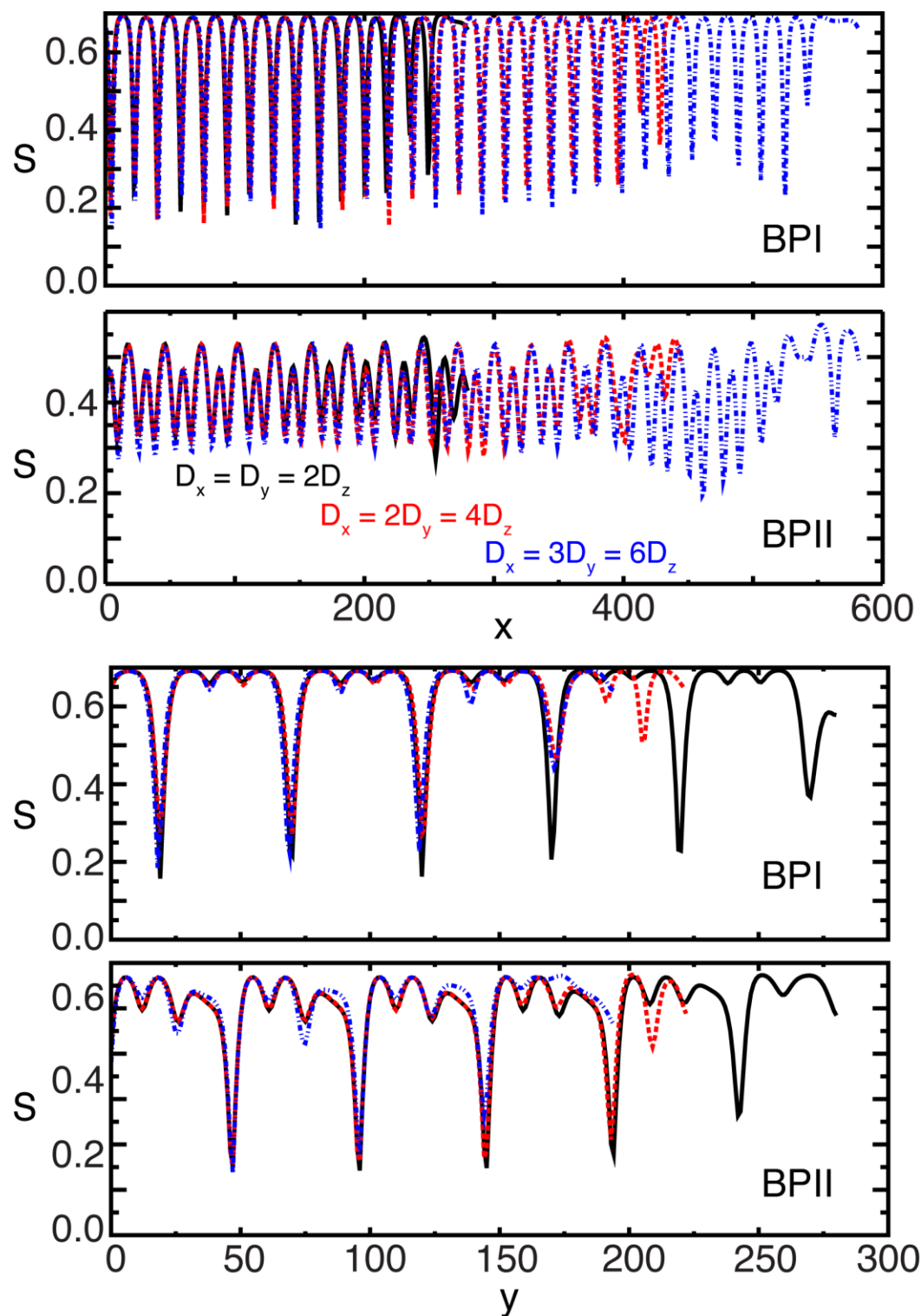


Fig. S6 Scalar order parameter along the x and y axes for BPI and BP II, respectively. The scalar order parameter of the initial oblate spheroid geometry (black solid line) has been compared with two representative stretched geometries (red and blue dashed lines).