

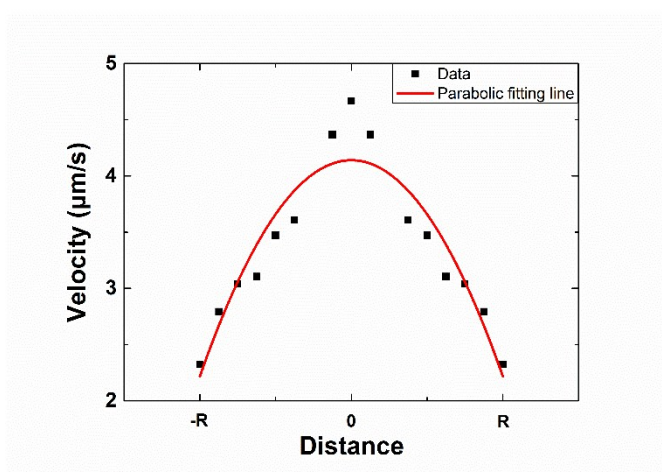
Flow-Driven Disclination Lines of Nematic Liquid Crystals inside a Rectangular Microchannel

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Supplementary Information

Fig. S1-S3

Fig. S1. Velocity profile of LC flowing inside a rectangular microchannel with an inner dimension of 1 mm × 50 μm (width × height). Tracer silica particles were applied to obtain the velocity profile of the flowing LC. The flow velocity of the LC is 4.8 μm s⁻¹ and 2.3 μm s⁻¹ at the centre and at the edge, respectively.



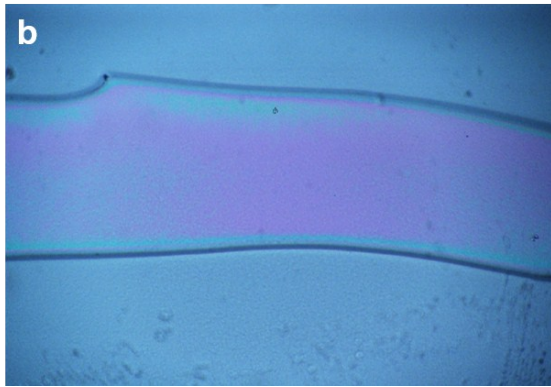
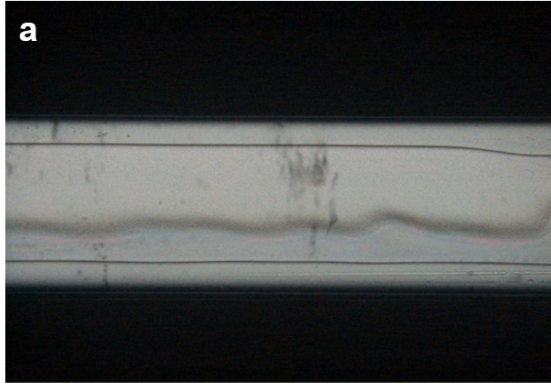


Fig. S2. Optical images of flowing LC in two microchannels with two different dimensions: (a) $1\text{ mm} \times 100\text{ }\mu\text{m}$ and (b) $2\text{ mm} \times 100\text{ }\mu\text{m}$. In both cases, two disclination lines appeared when the Ericksen number reached a critical value of 8.5.

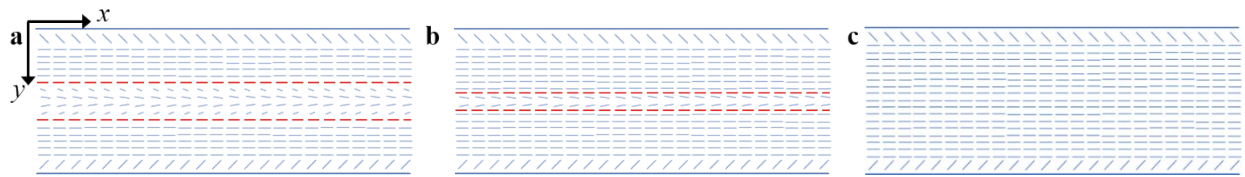


Fig. S3. Orientational profile of LC when Ericksen number reached (a) 8.5 (b) 8.7 and (c) 9.0, respectively, similar to that in Fig. 3. Orientation of the LC near two side walls were parallel to the direction of the flow, whereas orientation of the LC at the centre was tilted away from the homeotropic orientation by the shear stress with increasing Ericksen number. Red lines represent disclination lines which separate the two domains.