

Supplementary Materials

Annealing and melting of active two-dimensional soliton lattices in chiral nematic films

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Supplementary Figures

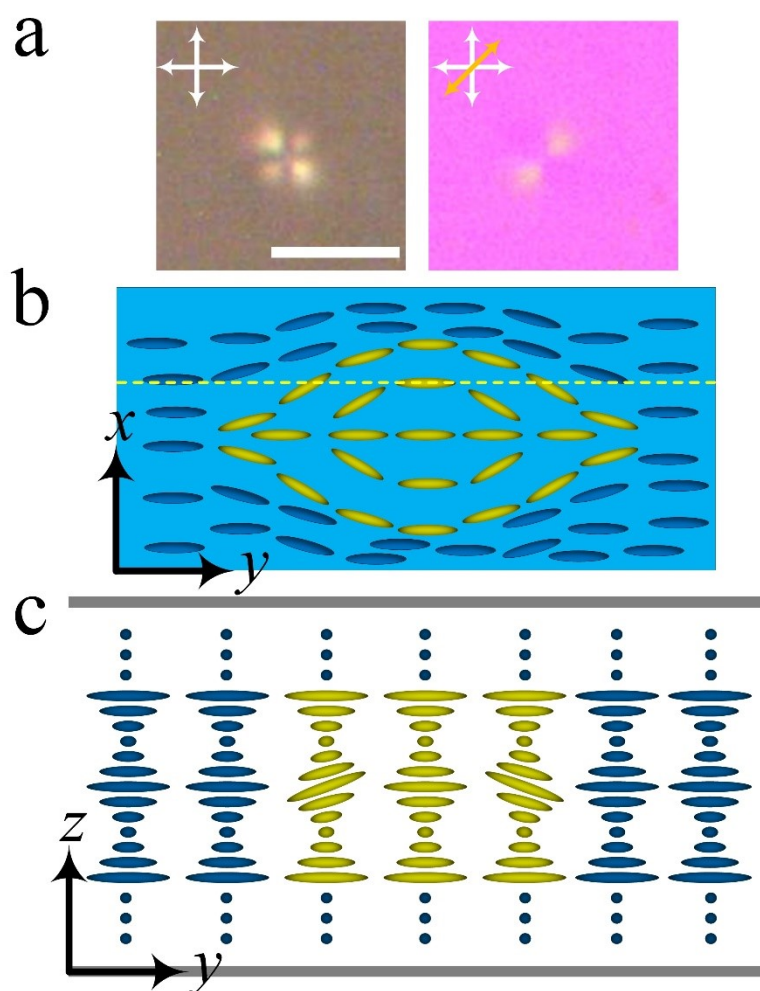


Figure S1. (a) Polarizing microscopy images of a directron. The white arrows represent the polarizers and the yellow arrow represent the optical axis of the λ -plate. Scale bar 10 μm . (b) The schematic director structure of a directron in the middle layer of the chiral nematic sample. (c) The schematic director structure of a directron in the yz plane of the cross section along the

dashed yellow line in (b). The director field within the directron is represented as yellow ellipses and the homogeneous director field outside the directron is represented as blue ellipses. The top and bottom sections of the sample in (c) are homogeneously aligned helical structures and are represented by blue dots.

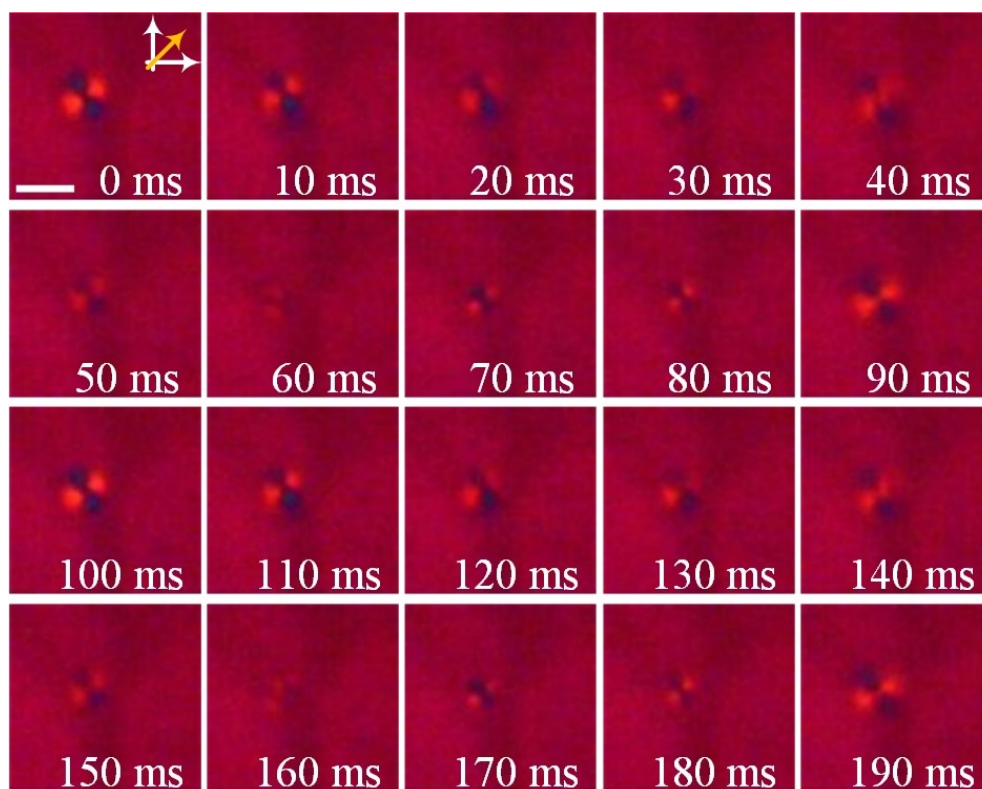


Figure S2. Time series of polarizing micrographs of a directron. The directron is modulated by an AC electric field of $U = 14$ V, $f = 10$ Hz. The crossed white arrows represent polarizers and the yellow arrow represent the optical axis of the λ -plate. Scale bar $10 \mu\text{m}$.

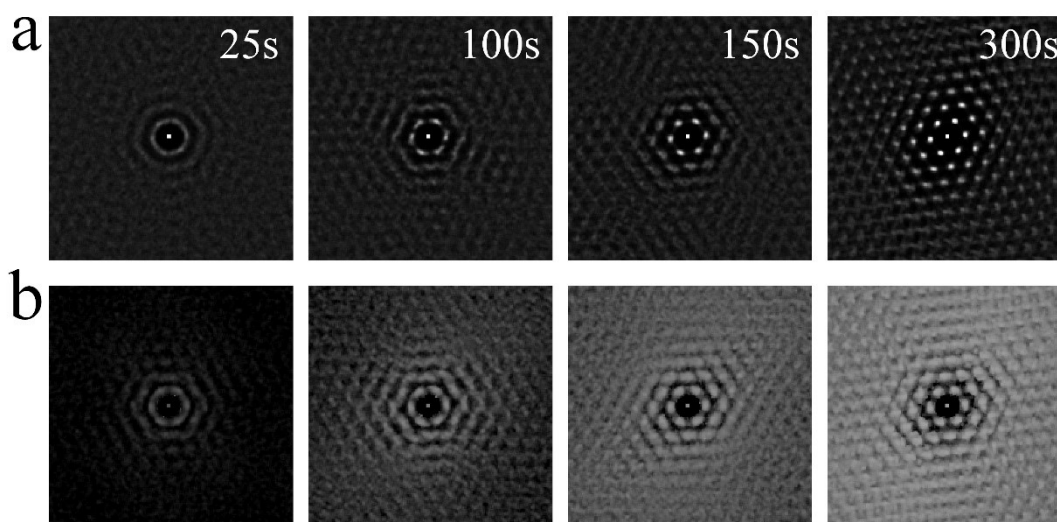


Figure S3. (a) 2D radial distribution functions and (b) 2D orientational correlation functions of the soliton lattice at different moments in time as indicated in the top row of figures.

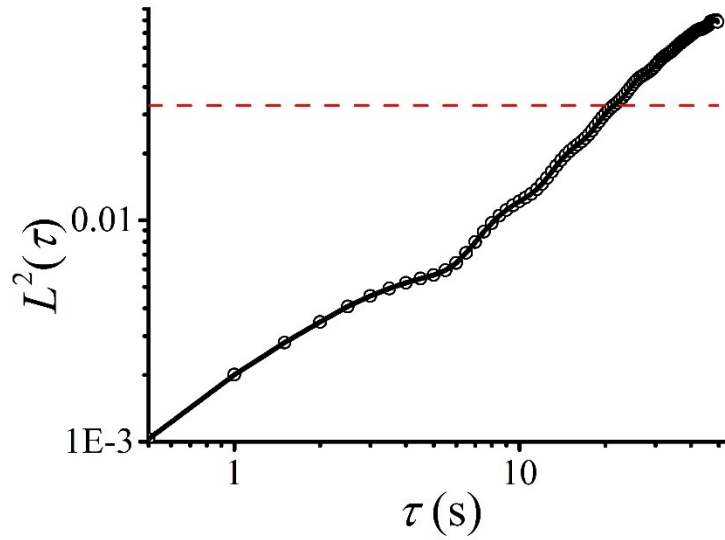


Figure S4. Time lag (τ) dependence of the square of the dynamic Lindemann parameter (L^2) of the sample at $t = 300$ s. The red-dashed line indicates a critical value of $L_c^2 = 0.033$.

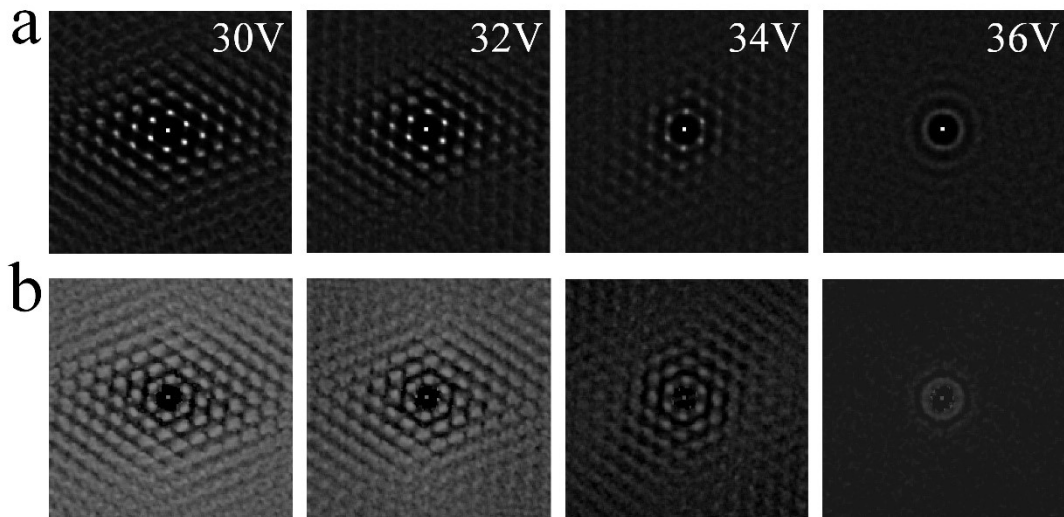


Figure S5. (a) 2D radial distribution functions and (b) 2D orientational correlation functions of the soliton lattice at different applied voltages as indicated in the top row of figures.

Supplementary Movies

Movie S1. Annealing of a 2D soliton lattice with time at $U = 20$ V, $f = 100$ Hz. The movie is played at $10\times$ the original speed.

Movie S2. Voronoi diagram evolution of the soliton lattice corresponding to the one in Supplementary Movie 1, colored according to the number of nearest neighbors (4 = red, 5 = green, 6 = yellow, 7 = blue, others = black). The movie is played at $10\times$ the original speed.

Movie S3. Melting of a 2D soliton lattice with increasing applied voltage from 20 V to 40 V in steps of 2 V. $f = 100$ Hz. The movie is played at $2\times$ the original speed.

Movie S4. Voronoi diagram evolution of the soliton lattice corresponding to the one in Supplementary Movie 3, colored according to the number of nearest neighbors (4 = red, 5 = green, 6 = yellow, 7 = blue, others = black). The movie is played at $2\times$ the original speed.