

Supporting Information *for*

**Light regulation and long-lived stability of RGB colors in
cholesteric liquid crystal physical gels via a mixing strategy**

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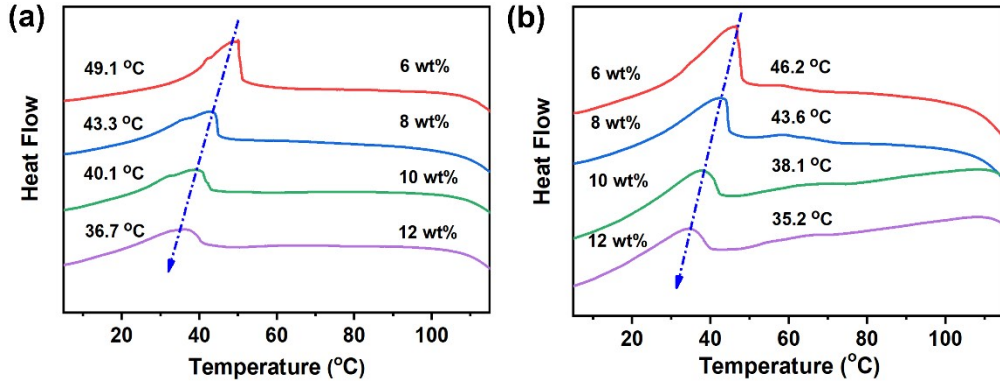


Figure S1. DSC cooling curves for (a) 0.5 wt% DBS/CC/P0616A and (b) 1.3 wt% DBS/CC/P0616A CLC physical gels with different dopant CC concentration.

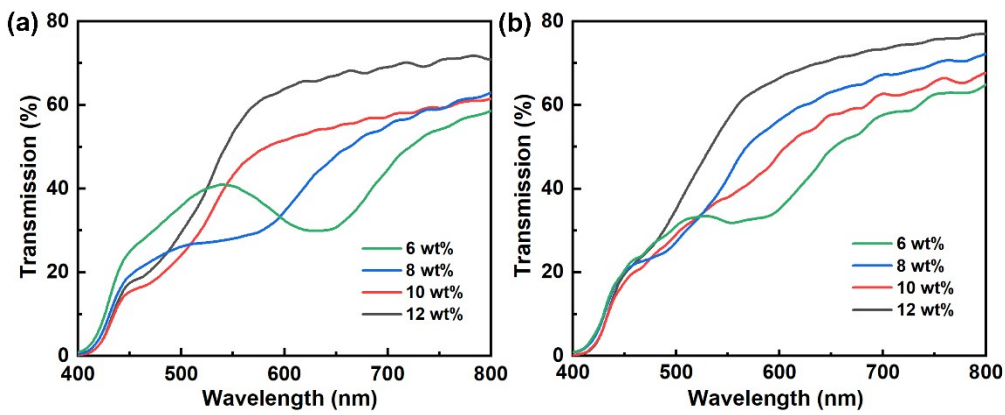


Figure S2. Transmission spectra for (a) 0.5 wt% DBS/CC/P0616A and (b) 1.3 wt% DBS/CC/P0616A CLC physical gels with different dopant CC concentration.

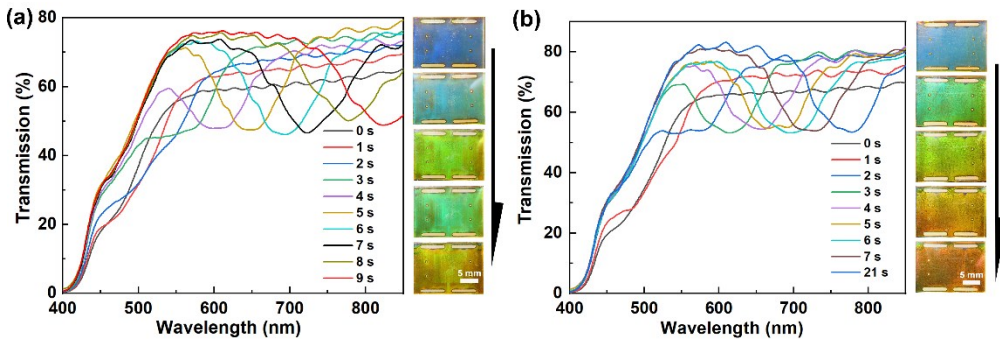


Figure S3. Reflection color photos and transmission spectra for the CLCs of (a) 12 wt% CC/P0616A upon UV light at 365 nm (8 mW cm^{-2}) with different time, and (b) 14 wt% CC/0.5 wt% D-4F/P0616A upon green light at 550 nm (7 mW cm^{-2}) with different time. The CLCs are filled in a 5 μm planar cell. The background is black.

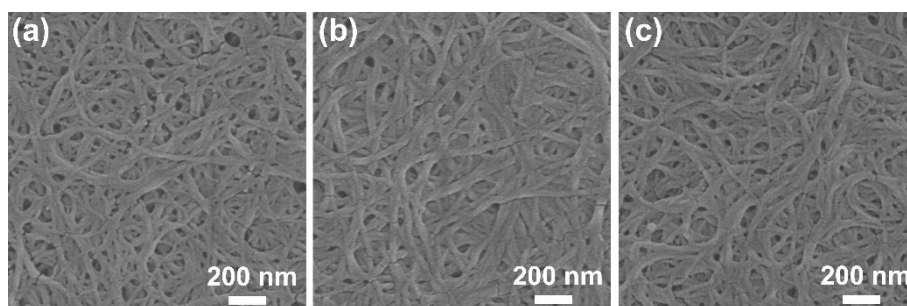


Figure S4. FE-SEM (Nova NanoSEM 450, FEI) images of xerogels after the removal of LCs in hexane for 72 h at 25 °C. (a) 1.3 wt% DBS/CC/P0616A, (b) 0.5 wt% DBS/CC/P0616A, (c) 0.5 wt% DBS/CC/D-4F/P0616A.

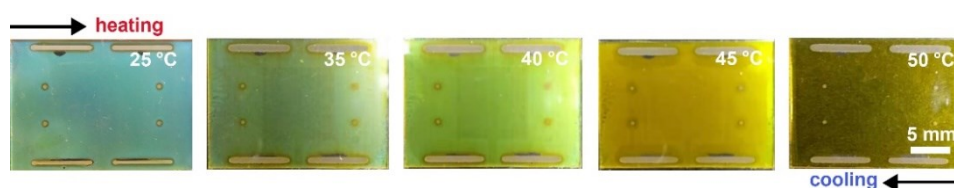


Figure S5. Reflection colors of the CLC gel (0.5 wt% DBS/14 wt% CC/0.5 wt% D-4F/P0616A) upon heating and cooling at different temperature. The background is black.

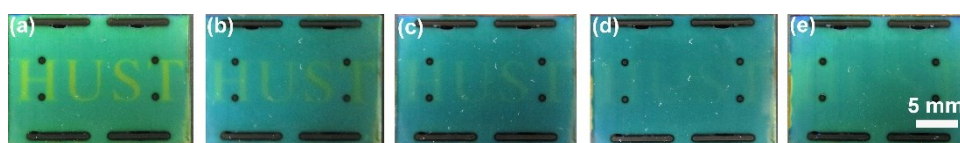


Figure S6. (a) The CLC physical gel of 0.5 wt% DBS/12 wt% CC/P0616A in a 5 μm thick LC cell is written by UV light with a mask of “HUST” letters until the photo-stationary state. Then, the CLC cell is kept in the dark at room temperature for (b) 24 h, (c) 48 h, (d) 72 h, (e) 96 h, respectively. The background is black.

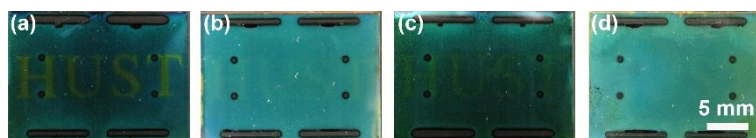


Figure S7. (a) 12 wt% CC/P0616A CLCs and (c) 14 wt% CC/0.5 wt% D-4F/P0616A CLCs in a 5 μm thick LC cell is written by 550 nm green light with a mask of “HUST” letters until the photo-stationary state. Then, the CLC cell is kept in the dark at room temperature for (b, d) 24 h, respectively. The background is black.