Supplementary Information

Color selectivity lent to a cholesteric liquid crystal by monitoring interface-induced deformations

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Characteristics of Bragg band

At normal incidence, the bandwidth is $\Delta\lambda = p\Delta n$, where $\Delta n = n_e - n_o$ is the birefringence (n_e and n_o are the extraordinary and ordinary refractive indices, respectively). The bandwidth is measured at half maximum. Figure S1 shows the evolution of the mean position and width of the Bragg band as a function of annealing time. We deduce that the evolution of the optical properties mainly corresponds to a band shift toward shorter wavelengths without a significant broadening of the bandwidth.

Periodicity measurements in TEM micrographs

The fingerprint periodicity is the distance between two lines with same contrast and represents the half pitch. Figure S2 shows the variation of the periodicity as a function of the z position as a function of annealing time. The periodicity is everywhere measured in a direction perpendicular to the lines using numerical two-dimensional Fourier transform from TEM cross-sectional images. The periodicity is quite constant throughout the volume. We deduce that an eventual pitch variation does not apply to the optical behavior.
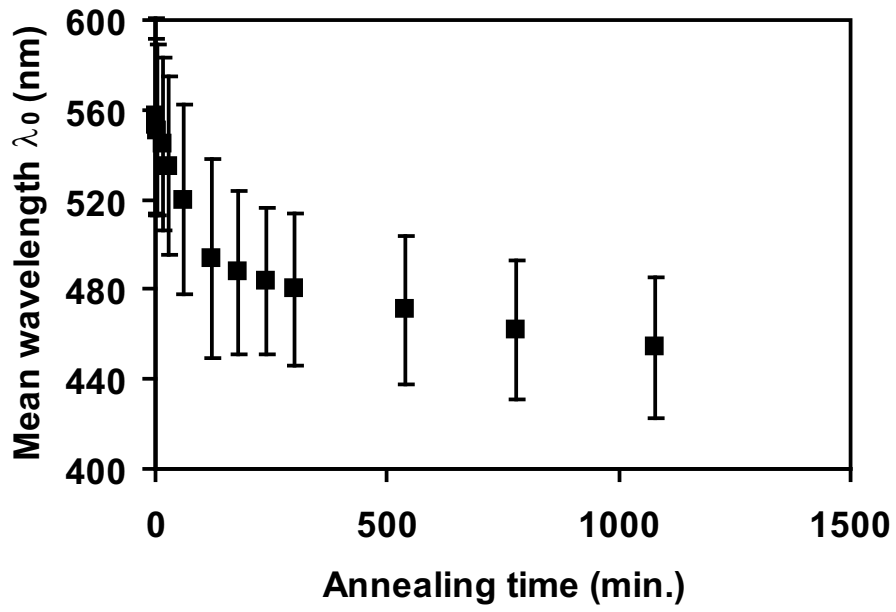
Fig. S1. Position and width (bars) of the band gap as a function of the annealing time.
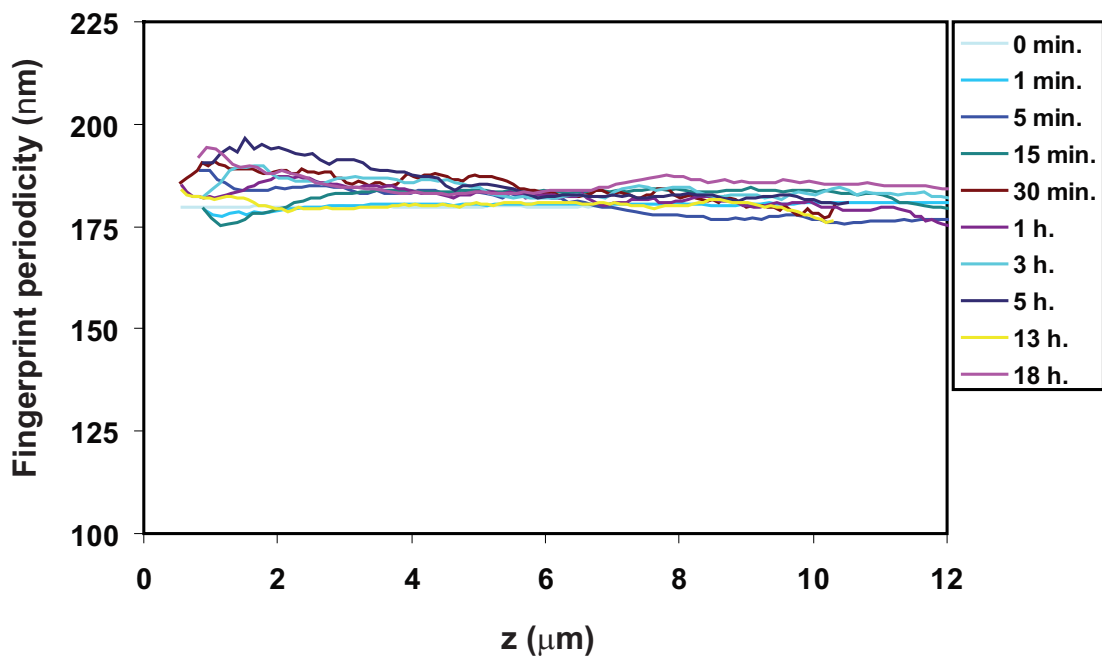

Fig. S2. Fingerprint periodicity as a function of the height z within the film and for different annealing times.

Supplementary Movie Legend: Movie illustrating the microlens effect (transmission mode, annealing time = 9 h). (A, upper part) The movie is built from a stack of optical micrographs of polygonal texture. Each image has been recorded with the microscope focus varying from below to above the free surface (the counter indicates the depth of focus z). (B, lower part) Orthogonal view of the stack extracted from the dashed line as shown in A. The dynamic yellow line gives the correspondence between the depth of focus z and the current x-y slice displayed in A. It emphasizes that the focus point is located very close to the free surface ($z = 0$). (QuickTime; 1.18 MB).