Electronic Supplementary Information for

Chiral Nematic Latex-GO Composite Films with Synchronous Response of Color and Actuation

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Additional data

**Fig. S1** Photos (a) and TEM image (b) of the aqueous dispersion of GO (0.1 mg·mL\(^{-1}\)).

**Fig. S2** A typical TEM image of an aqueous dispersion of the as-prepared latex particles. The scale bar corresponds to 200 nm.

**Fig. S3** Photographs of aqueous dispersions of CNCs (4 wt%, a) and latex (40 wt%,
b).
Fig. S4 N$_2$ adsorption/desorption isotherms (a) and BJH pore size distribution (b) of the composite films after alkali treatment followed by SCCO$_2$ drying. The content of GO for each film is shown inset.

Fig. S5 XRD diffraction patterns of LGC3 and LG3.
Fig. S6 FTIR spectra of LGC3 and LG3.

Fig. S7 Summary of $\lambda_{\text{max}}$ of the reflection spectra on the top and bottom surfaces for LGC (a) and LG (b) films.
Fig. S8 SEM images of the fracture surfaces of LGC0-2 at different regions as indicated. The magnification of all the images is the same with the scale bar to be 1 μm.
Fig. S9 SEM images of the fracture surfaces of LG0-2 at different regions as indicated. The magnification of all the images is the same with the scale bar to be 1 μm.

Fig. S10 Variation of extra weight fraction ($\Delta m/m_0$) as a function of $V_{H2O}$ for the film bar of LG3 immersed in H$_2$O/n-PrOH mixtures.
**Fig. S11** Photos of the film bar of LG3 immersed in H$_2$O/MeOH mixtures with varying $V_{H2O}$. Photos denoting the color change of the film bar are also given.

**Fig. S12** Photos of the film bar of LG3 immersed in H$_2$O/acetone mixtures with varying $V_{H2O}$. Photos denoting the color change of the film bar are also given.