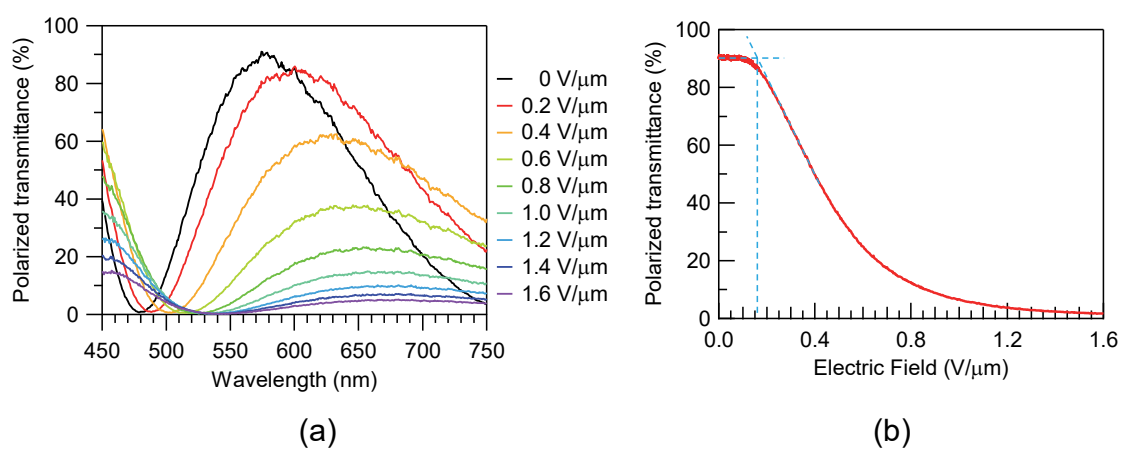


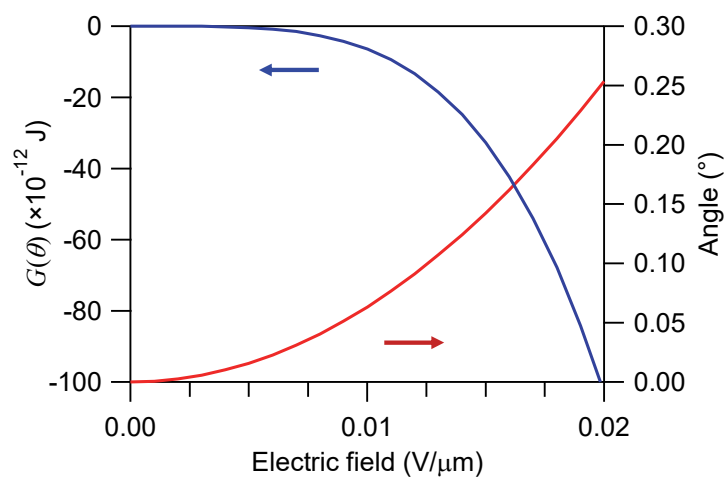
Electronic Supplementary Information

Reversible switching of liquid crystal micro-particles in a nematic liquid crystal

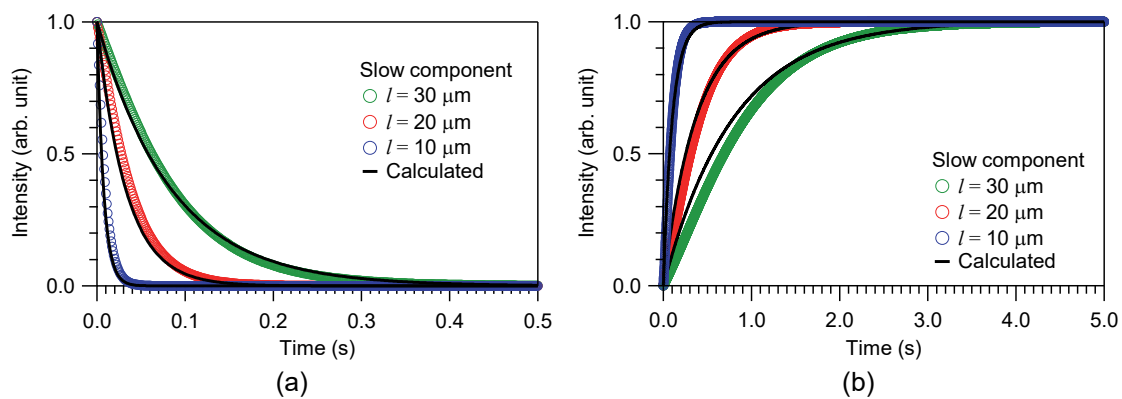
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Supplementary Figure 1: (a) Polarized transmittance spectra of host 5CB (in the absence of particles) at various electric fields measured with a multichannel spectrometer (Hamamatsu Photonics, PMA-11). (b) Electric field dependence of the polarized transmittance at 580 nm, which corresponds to the transmittance peak at 0 V/μm. A threshold is observed at $\sim 0.16 \text{ V } \mu\text{m}^{-1}$ (judging from the dashed blue lines).



Supplementary Figure 2: Calculated free energy $G(\theta)$ and rotation angle of particles at low fields.



Supplementary Figure 3: (a) Applied and (b) removed electric field dependence of slow component of response curve and its calculated value with different sizes of particles.

Supplementary Movie 1: Demonstration of the reversible switching of a $10 \mu\text{m}$ particle driven by an electric field ($1.0 \text{ V } \mu\text{m}^{-1}$). The motion of the particle is recorded on a polarized optical microscope equipped with a video camera.