Electronic Supplementary Information

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

Koki Imamura, Hiroyuki Yoshida,* and Masanori Ozaki

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 ~ 0.16 V μm⁻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 $\mu$m particle driven by an electric field (1.0 V $\mu$m$^{-1}$). The motion of the particle is recorded on a polarized optical microscope equipped with a video camera.