Support Information

For

Enhanced Bandwidth Broadening of Infrared Reflector Based on polymer Stabilized Cholesteric liquid Crystals with Poly(N-vinylcarbazole) Used as Alignment Layer

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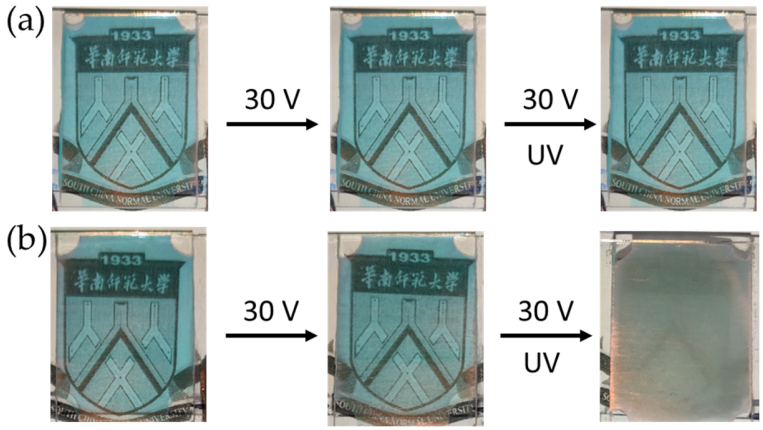

Fig. S1 For both PVA–PVA-based CLC cell and PVA–PVK-based CLC cell, at applied voltage of 30V, both cells stay in colored and transparent state due to cholesteric texture. When shining UV light with intensity of 10 mW/cm² for 60s: (a) the PVA–PVA-based CLC keeps initial state; (b) the PVA–PVK-based CLC cell turns opaque due to focal conic state.

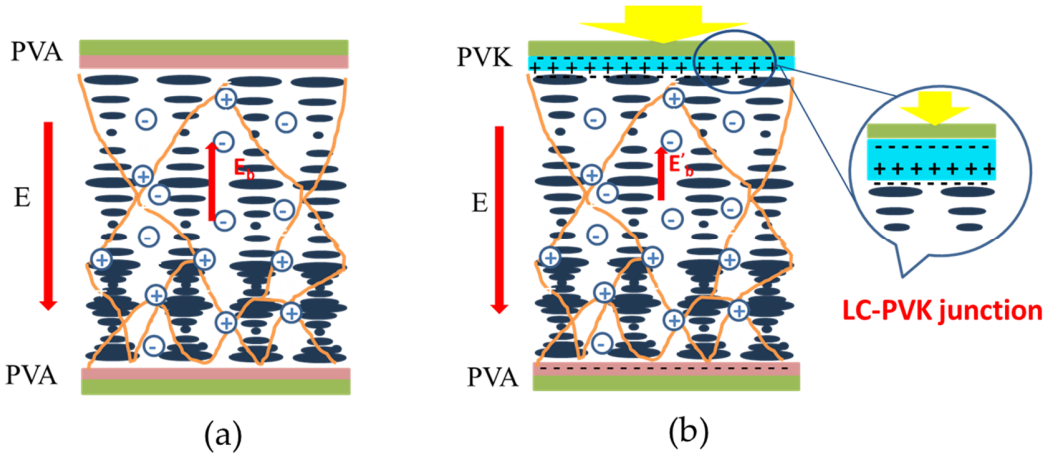

Fig. S2 In the PVA–PVK cell (b), the generated hole–electron pairs in the PVK layer in the presence of UV light can neutralize the impurity electrons in the LC–PVK junction; therefore, the built-in electric field E_b'in the PVA–PVK cell is smaller than that (E_b) in PVA–PVA cell (a). On application of the same electric field, the effective electric field (E_{eff}) in the PVA–PVK cell is larger than that in PVA–PVA cell, which results in enhanced bandwidth broadening.

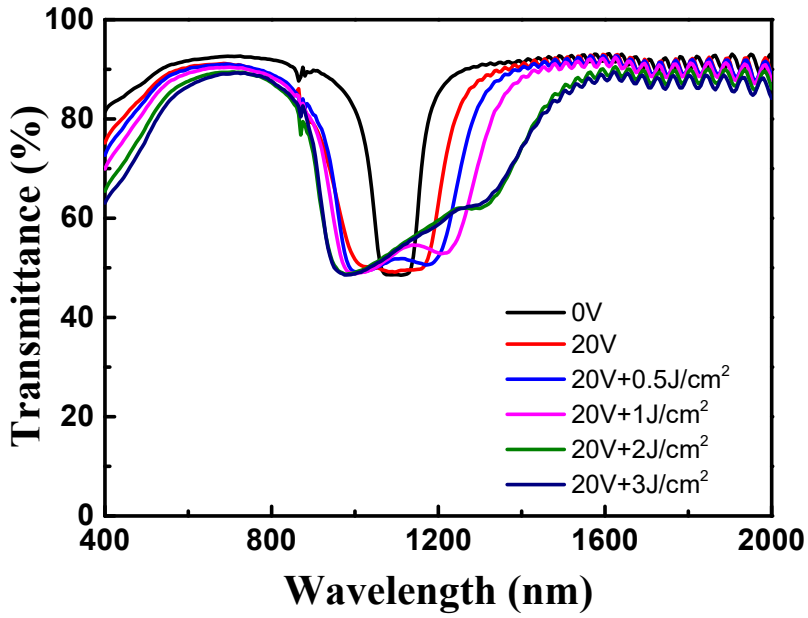

Fig.S3 The transmission spectra of IR reflector with PVA–PVK alignment layer under extra UV irradiation with different UV dose.