

“RGB reflector using single-pitched cholesteric liquid crystal”

“Fabrication of a simultaneous red-green-blue reflector using single-pitched cholesteric liquid crystals” N. Y. Ha, Y. Ohtsuka, S. M. Jeong, S. Nishimura, G. Suzuki, Y. Takanishi, K. Ishikawa and H. Takezoe,

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Cholesteric liquid crystals are known to exhibit reflection of circularly polarized light, which has the same handedness and wavelength as the cholesteric helix; selective reflection. In this work, we fabricated films consisting of thin cholesteric films and isotropic (PVA) films and succeeded in getting Red-Green-Blue reflection. (Fig. 1)

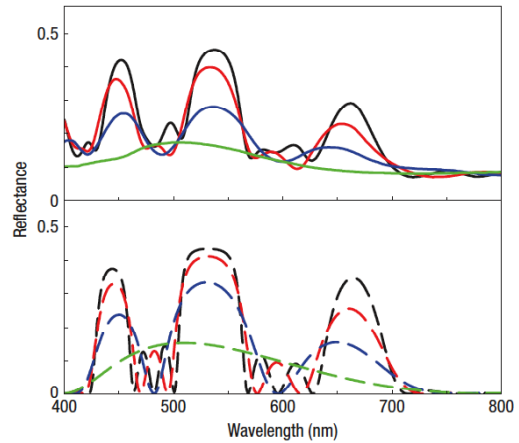


Fig. 1 Reflection spectra from multi-cholesteric films with different thicknesses (upper: experiment, lower: simulation).

We can control reflection wavelength and reflectance by changing thicknesses of cholesteric liquid crystal and PVA, number of layers, angle of incidence. Figure 2 shows comparison between normal film and the present multi films.

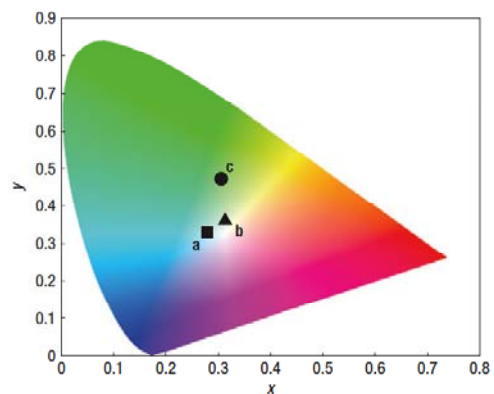
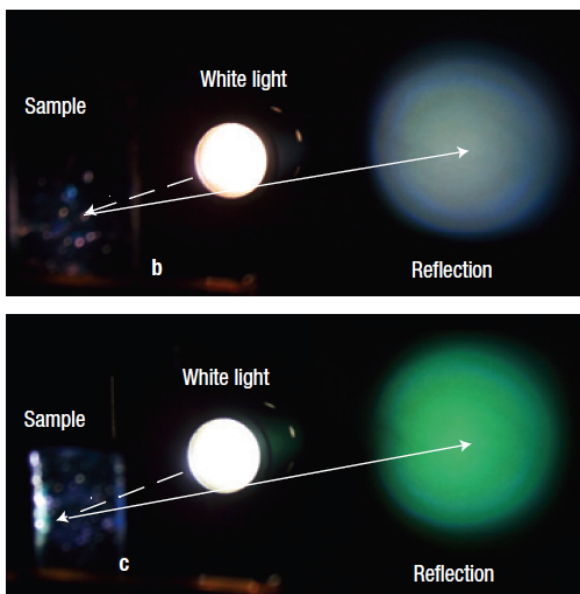


Fig. 2 Reflection images of the two kinds of films and the comparison of positions in a color coordinate.