

Enhanced color reflector with the micro pattern array

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Generally, in reflective displays, the color of the reflected light is controlled by the color filter in the display¹⁻⁴. When light passes through the color filter, light loss is produced by the selective transmission. To improve the light efficiency of the reflective display, a photoluminescent dye doped cholesteric liquid crystal (PLCLC) film by the reactive mesogen (RM) was proposed. This material is a photopolymerizable monomer which can be applied to various optical films¹⁻³. The cholesteric film can be fabricated using the RM with a chiral nematic phase. The color of the selectively reflected light can be controlled by tuning the chiral pitch of the cholesteric layers. Photoluminescent (PL) dyes were doped into the RM mixture to improve the reflectance by energy conversion.

Figure 1 shows the fabricated PLCLC film with micro pattern array. In this paper, we demonstrate the fabrication process of the photoluminescent dye doped cholesteric liquid crystal (PLCLC) layers with the micro pattern array and their optical properties are discussed.

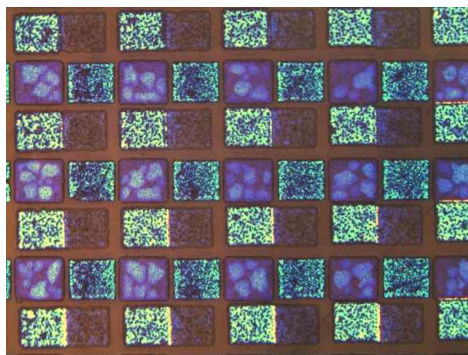


Fig. 1. The fabricated color reflector with micro pattern array

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