

## Color Polymer Dispersed Liquid Crystal Device with Color Core-Shell Structure

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The polymer dispersed liquid crystal (PDLC) device has attracted attention due to the low cost and simple process. The PDLC mode is one of promising candidate for the flexible displays.<sup>1,2</sup> It also has used in various type of display such as the switchable windows and the light shutter devices.<sup>2</sup> The typical PDLC switches between the transparent state and the light scattering state by the electric field. However, the conventional PDLC cannot achieve color without the color filter. The color realization method of the PDLC is using the color filter or the PDLC with the guest-host mode, in which the dichroic dyes are mixed with the liquid crystals.<sup>3</sup> The method of using the color filter requires the additional step. The fabrication process becomes complicated and cost also increases.<sup>4</sup> In the case of the dichroic dye doped PDLC, the color shift occurs between the transparent state and the hazy state.

In this paper, we propose the color PDLC device with color core-shell structure. Liquid crystal droplets are encapsulated by the complex coacervation microencapsulation process.<sup>5, 6</sup> By the coacervation process, we fabricated color core-shell structure with the aqueous solution of the gelatin and color pigment in the shell materials. The electro-optical properties of the color PDLC device is discussed.

### References

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