

# Enhanced Reflectance of Cholesteric Liquid Crystal Device with Quantum Dots

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Generally, the structure of cholesteric liquid crystals (CLC) is helically twisted which is left-handed or right-handed [1]. By the right-handed CLC layer, left handed polarized light is reflected and vice versa. In the single CLC layer, the reflectance is theoretically limited to about 50% because of reflectance by circularly polarized light in only direction.

Quantum dot is nanocrystal that are small enough to display quantum mechanical properties [2]. This creates a bowl-like potential in which the conduction electrons are trapped. Recently, in addition to the many possible technological applications, quantum dot has been studied to improve the efficiency of device application [3].

In this paper, to improve the reflectance of CLC layer, the CLC layer is combined with the quantum dots. We demonstrate the coupling effects between the selective reflection by the CLC layer and the fluorescence from the quantum dots.

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## References:

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