

Fabrication from the Hybrid Quantum Dots of CdTe/ZnO/G.O Quasi-core-shell-shell for the White Light Emitting Diodes

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Recently, many researchers have shown an increased interest in colloidal quantum dots (QDs) due to their unique physical and optical properties of size control for energy band gap, narrow emission with small full width at half maxima (FWHM), broad spectral photo response from ultraviolet to infrared, and flexible solution processing. QDs can be widely used in the field of optoelectronic and biological applications and, in particular, colloidal QDs based light emitting diodes (QDLEDs) have attracted considerable attention as an emerging technology for next generation displays and solid state lighting. A few methods have been proposed to fabricate white color QDLEDs. However, the fabrication of white color QDLEDs using single QD is very challenging. Recently, hybrid nanocomposites consisting of CdTe/ZnO heterostructures were reported by Zhimin Yuan et al.[1] Here, we demonstrate a novel but facile technique for the synthesis of CdTe/ZnO/G.O(graphene oxide) quasi-core-shell-shell quantum dots that are applied in the white color LED devices. Our best device achieves a maximum luminance of 484.2 cd/m² and CIE coordinates (0.35, 0.28).

Keywords: QDLEDs, CdTe, ZnO, G.O, White Color LEDs

