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Fabrication Process of Light Emitting Diodes Using CdSe/CdS/ZnS Quantum Dot

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Red color light emitting diodes were fabricated using CdSe/CdS/ZnS quantum dots (QDs). Patterned indium-tin-oxide (ITO) was used as a transparent anode, and oxygen plasma treatment on a surface of ITO was performed. Poly(3,4-ethylenedioxythiophene):poly(styrenesulfonate) (PEDOT:PSS) was spin coated on the ITO surface as a hole injection layer. Then CdSe/CdS/ZnS QDs was spin coated and thermal treatment was performed for the cross-linking of QDs. TiO₂ was coated on the QDs as an electron transport layer, and 150 nm of aluminum cathode was formed using thermal evaporator and shadow mask. The device shows a pure red color emission at 606 nm wavelength. Device characteristics will be presented in detail.

Keywords: Quantum-dot, Cross-link