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

Nam Kwang Cho, Seong Jun Kang*

Department of Advanced Materials Engineering for Information and Electronics, Kyung Hee University, Yongin 446-701, Korea

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