

## The Effects of Oxygen Plasma and Cross-link Process on Quantum-dot Light Emitting Diodes

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Red color light emitting diodes (LEDs) were fabricated using CdSe/CdZnS quantum dots (QDs). During the device fabrication process, oxygen plasma treatment on the ITO surface was performed to improve the interfacial contact between ITO anode and the hole injection layer. CdSe/CdZnS quantum dots were cross-linked to remove their surrounded organic surfactants. The device shows red emission at 622 nm, which is consistent with the dimension of the QDs (band gap=1.99 eV). The luminance shows 6026% improvement compared with that of LEDs fabricated without oxygen plasma treatment and quantum dots cross-linking process. This approach would be useful for the fabrication of high-performance QLEDs with ITO electrode and PEDOT:PSS hole injection layers.

**Keywords:** Quantum-dots, Light emitting diodes, Oxygen plasma, Indium-tin-oxide, hole injection

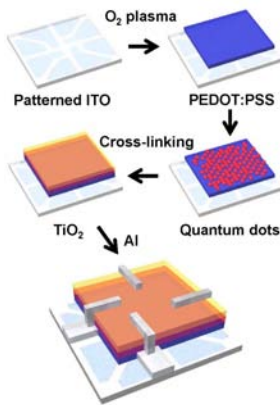


Fig. 1.

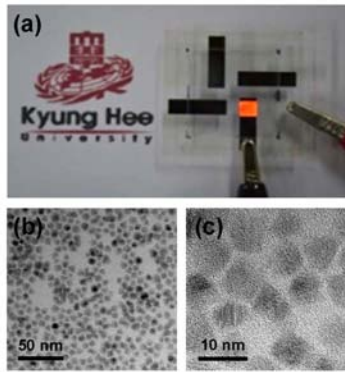


Fig. 2.

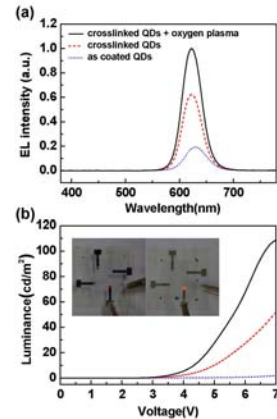


Fig. 3.

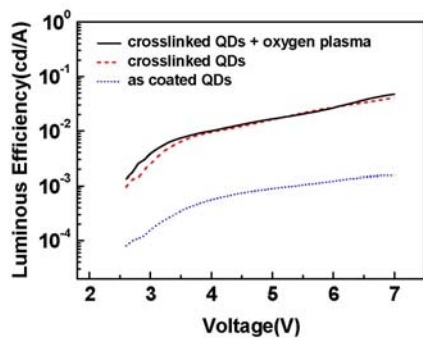


Fig. 4.

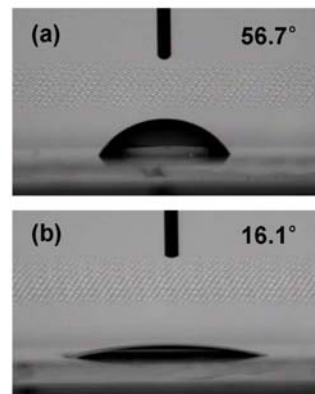


Fig. 5.