

In(Ga)P based Core/Shell Quantum Dots for Enhancement of Blue Light Absorbance

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Quantum dots (QDs) have emerged as next-generation material in display device, showing highly narrow bandwidths and color reproducibility. Also, QDs can be synthesized by using cost-effective solution-based methods without difficulty. Because of these prominent advantages, QDs have got a lot of attention recently. Now, QD-LCD TVs which use photoluminescence (PL) are commercialized in Samsung Display, and also high-resolution display based on QD-OLED and QNED research are actively in full swing. In these PL based structures, main issue is leakage of blue backlight in red and green QDs emissive layer. Thus, we synthesize In(Ga)P based core/shell QDs, using InP based QDs which are great candidate as a light emitting material. To synthesize these QDs, we control concentration of gallium precursor, composition of shell precursor, temperature and so on. In conclusion, we analyze blue light absorbance and photoluminescence quantum yield (PL QY) of In(Ga)P based QDs for highly efficient PL device in display.