InGaP quantum dots for enhanced blue light absorption

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Quantum dots (QDs) have high color purity and photostability compared to organic fluorophore. Also, they can be synthesized by solution process without difficulty. Because of these prominent advantages, QDs have received much attention recently. Now, QD-LCD TVs which use photoluminescence are commercialized in Samsung Display, and high-resolution display based on QD-OLED and QNED research are actively in the works. At this time, main problem is leakage of blue backlight in red and green QDs emissive layer. Thus, we synthesize InGaP alloy QDs that have large bandgap, using InP-based QDs which are great candidate as a light emitting material. To synthesize these QDs, we control concentration of Ga precursor, injection time, temperature and so on. In conclusion, we analyze blue light absorption of InGaP QDs depending on composition of Ga.