

SYNTHESIS OF QUANTUM DOT BY A MICROCHANNEL REACTOR

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Semiconducting quantum dot nanocrystals were synthesized in continuous flow by microchannel reactor. The microchannel reactor was used due to its possibility of continuous process and reproducibility of narrow size distribution in nanocrystal synthesis. The synthesis was carried out in microchannel (800 μ m diameter) made from PTFE. Lead oleate and TOP-Se were used as organic precursor and diphenyl ether as high-temperature organic solvents. Lead selenide particles with a size of less than 10nm could be continuously prepared by this method. The nanocrystals have been characterized by X-ray diffraction, TEM, optical absorption and image analyzer. The relationship between particle size and experimental variables including reaction temperature and time were investigated.

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