NW-P022

Synthesis of CdSe Multi-shell Structured Nanocrystal Quantum Dot through the Continuous Flow Reactor

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For desired optical properties of QDs, it is very important to reduce the presence of defects on their surfaces. Passivation of surface defects using larger band gap materials is the most effective way. Some groups successfully synthesized Cd based multi-shell structured quantum dots and improved its optical properties. However, its productivity has limit because of the amounts of glass ware and space. In this research, we try to synthesize Cd based multi-shell structured nanocrystal quantum dots to overcome demerits of conventional batch synthetic method. This reactor composed pump, SUS reaction part (3.2 mm stainless steel and furnace) and batch mixer. We successively synthesized CdSe/CdS/ZnS quantum dot at this reactor in one step.

Keywords: quantum dot, flow reactor