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Structural and Optical Properties of ZnSe:Eu/ZnS Quantum Dots depending on Interfacial Residual Europium

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Highlights

- ZnSe:Eu/ZnS core/shell quantum dots (QDs) prepared in situ for the first time.
- Luminescence intensity of core/shell QDs three times that of uncoated core QDs.
- The core/shell system showed no Eu²⁺ emission but only the sharp peaks in the red at 579, 592, 615, 651, and 700 nm due to the electronic transitions of $^5D_0 \rightarrow ^7F_n$ ($n = 0, 1, 2, 3, 4$) depending on leisurely decreased with increased reaction time..
- The core and core/shell QDs both have a zinc blende structure, and their respective sizes were about 3.19 and 3.44 nm.

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