

Supplementary information for

CuInS₂/ZnS Core/Shell Quantum Dots by Cation Exchange and Their Blue-Shift of Photoluminescence

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Experimental

Materials: Silver acetate (99%) was purchased Strem. Indium acetate (In(OAc)₃, 99.99%), 1-dodecanethiol (DDT, 98%), zinc acetate (matal basis, 99.99%) and octadecene (ODE, 90%) were purchased Sigma-Aldrich

Synthesis of AgInS₂ (AIS) QDs: Silver acetate (0.1mmol), indium acetate (0.1mmol), dodecanethiol (1ml), and octadecene 8ml were loaded into a 25ml three-necked flask and degassed at 90°C for 1h. The mixture was then slowly heated to 170°C~ 210°C under N₂ atmosphere and maintained for 1h.

Synthesis of AIS/ZnS core/shell QDs: The core solution was cooled to room temperature. Zinc acetate (0.5mmol) was added into the flask as powder. The solution was heated up to 230 °C, and then maintained about 2 hours.

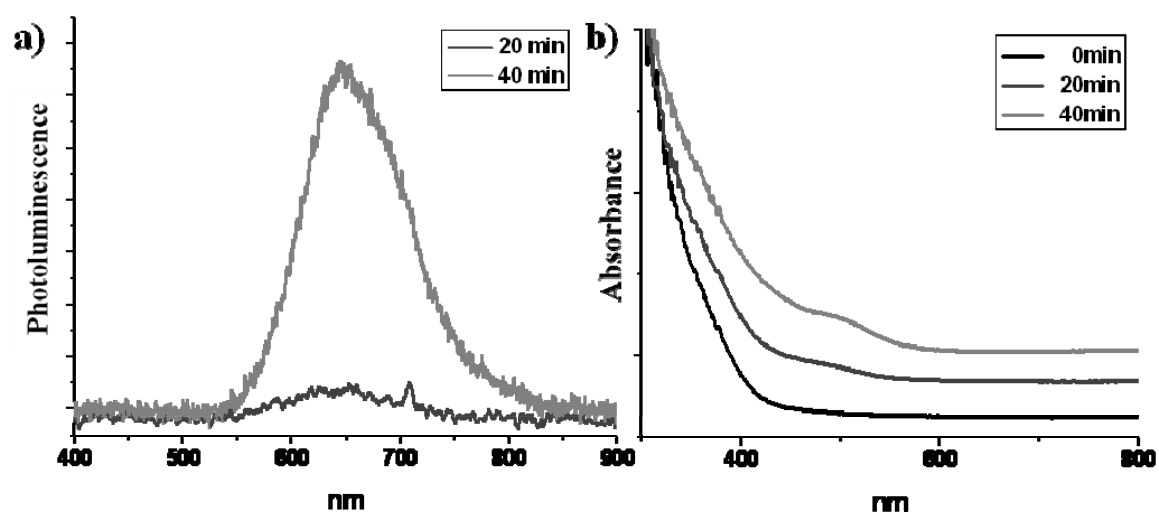


Fig. S1 Early stage emission (a) and absorption (b) spectra of CIS.

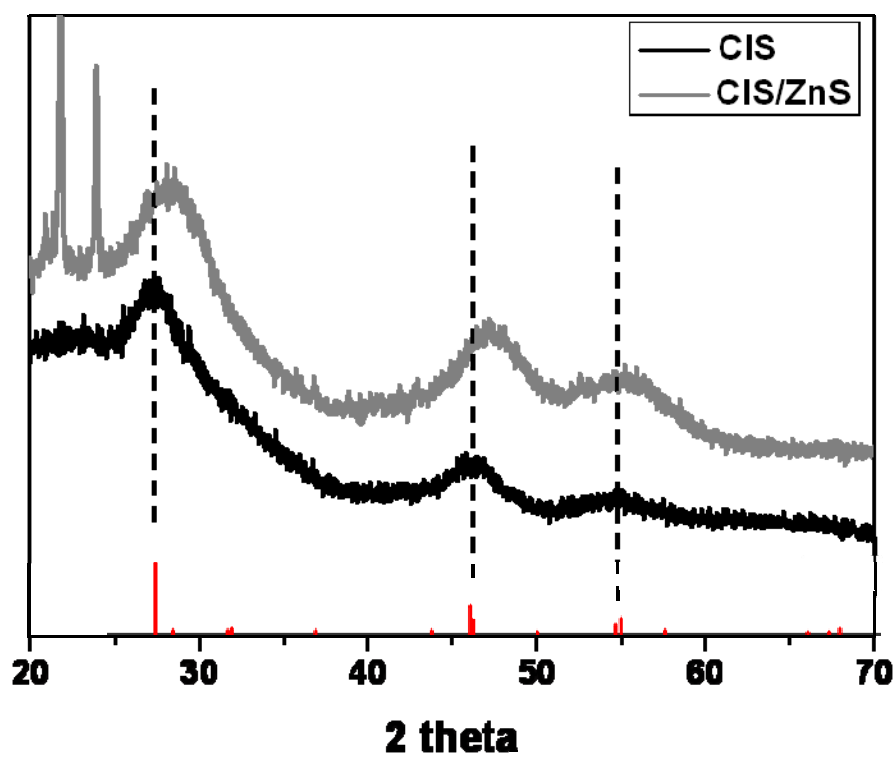


Fig. S2 PXRD patterns of CIS core and CIS/ZnS core/shell without work up process.

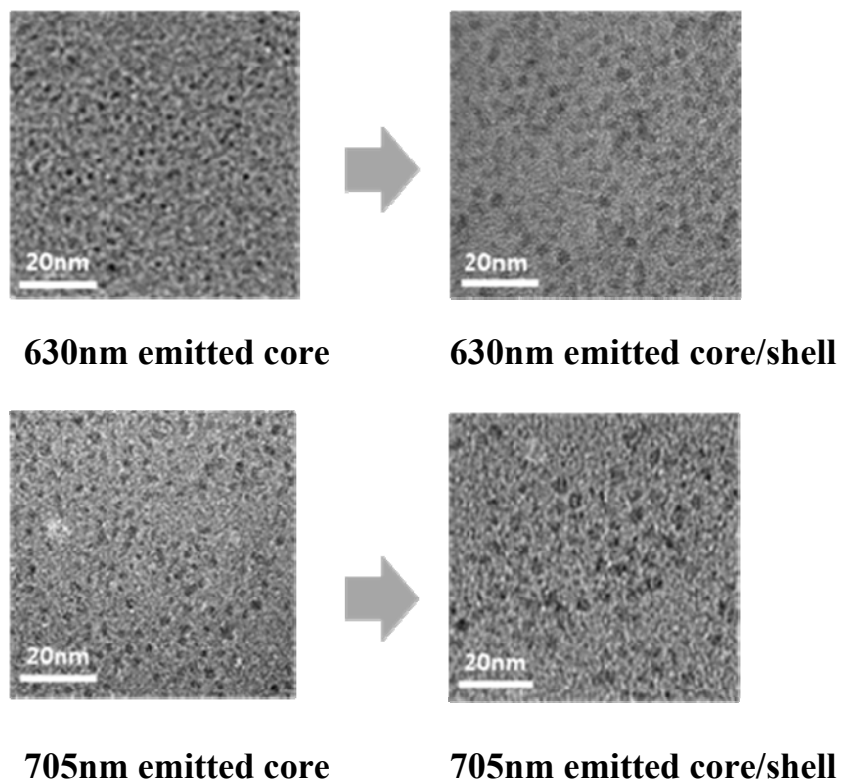


Fig. S3 TEM images of 630 nm and 705 nm emitted CIS core and CIS/ZnS core/shell without work-up process

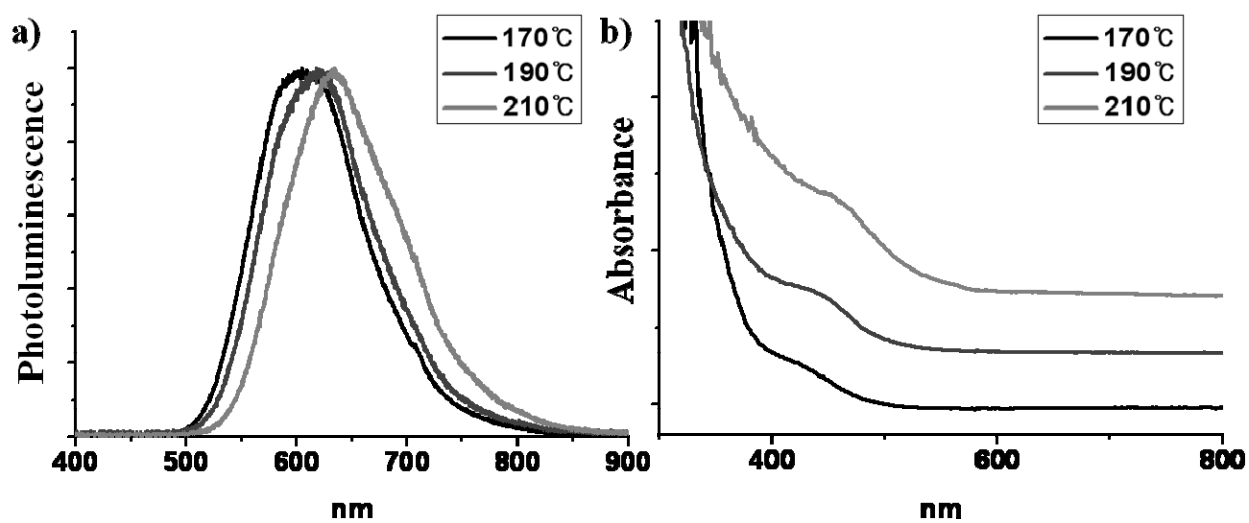


Fig. S4 Emission (a) and absorption (b) spectra of AIS with temperature change.

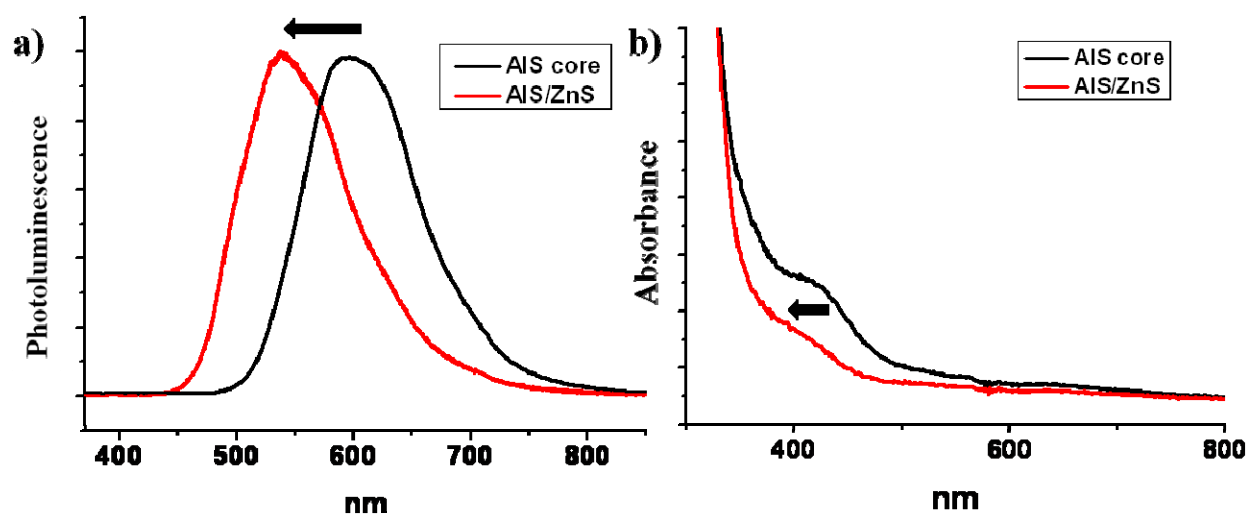


Fig. S5 Blue shifted emission (a) and absorption (b) in AIS.

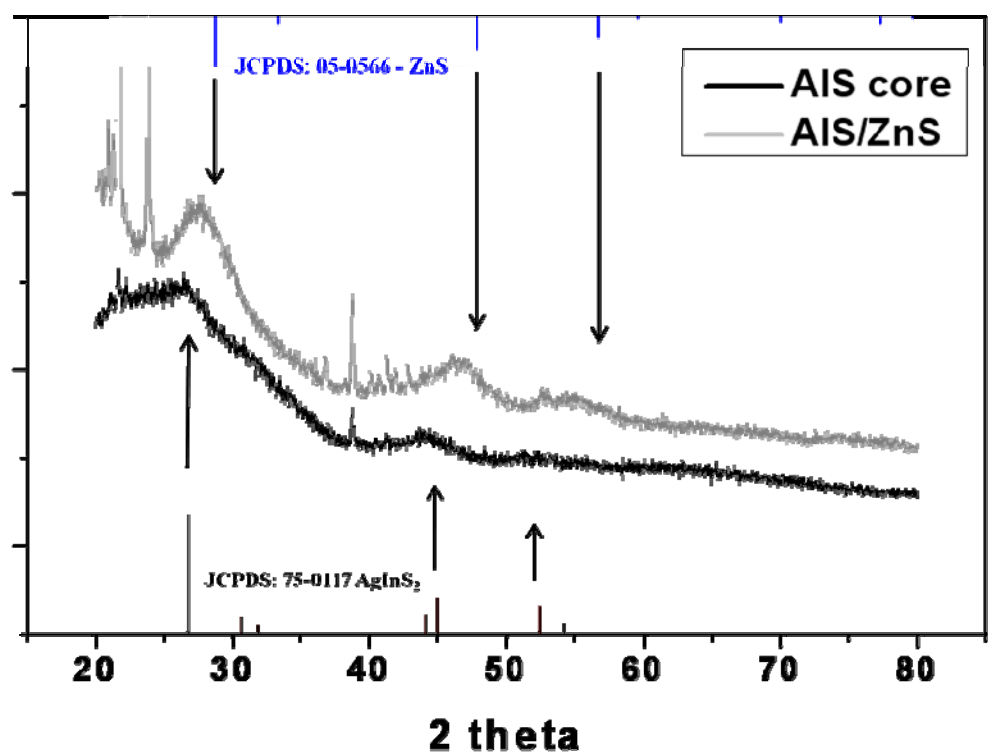


Fig. S6 PXRD patterns of AIS core and AIS/ZnS core/shell