

Supporting Information to

Highly Luminescent, Size- and Shape-Tunable Copper Indium Selenide Based Colloidal Nanocrystals

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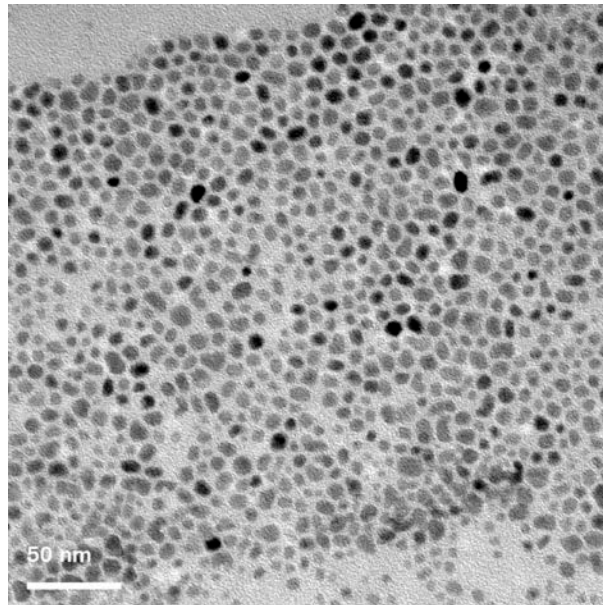


Figure S1. TEM image of CISE NCs prepared by silylamide-promoted synthesis in oleylamine solution ($T_{\text{growth}} = 285\text{C}$; $t_{\text{growth}} = 5\text{ s}$).

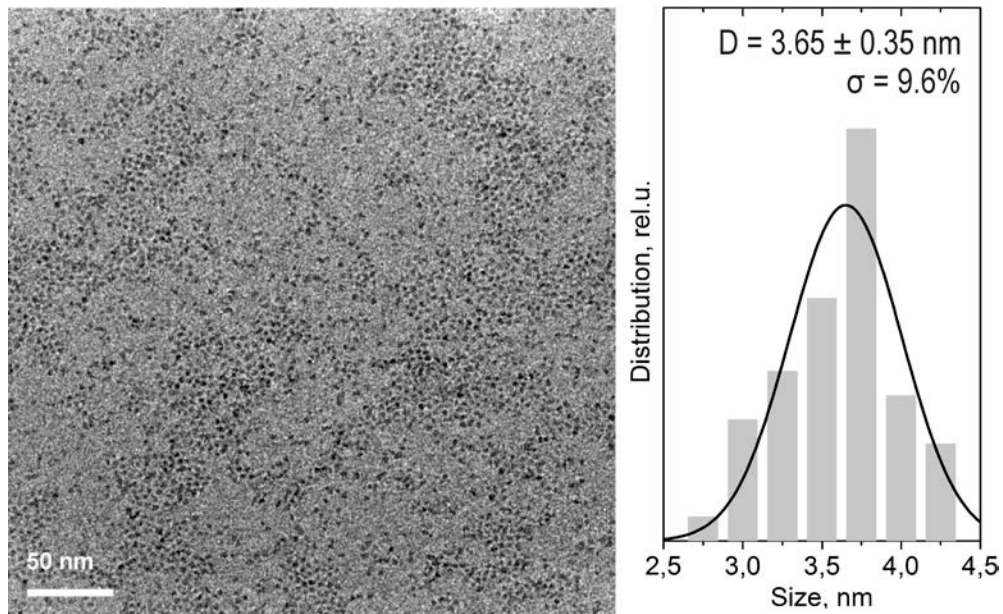


Figure S2. (Left) Low magnification TEM image, showing excellent size uniformity of CISE NCs prepared in TOP solution. (Right) Size distribution analysis of the same sample.

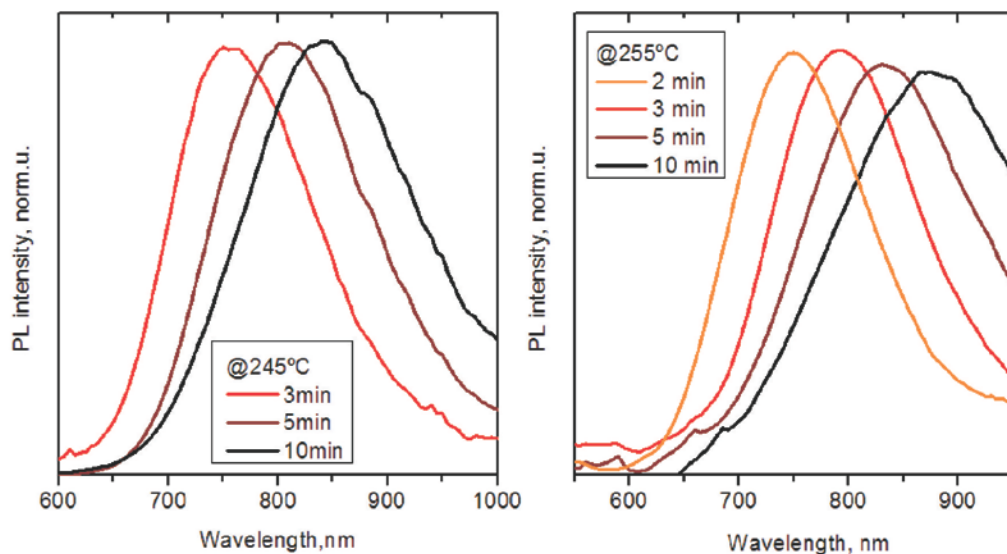


Figure S3. PL spectra of spherical CISE NCs for different growth times at 245°C and 255°C.

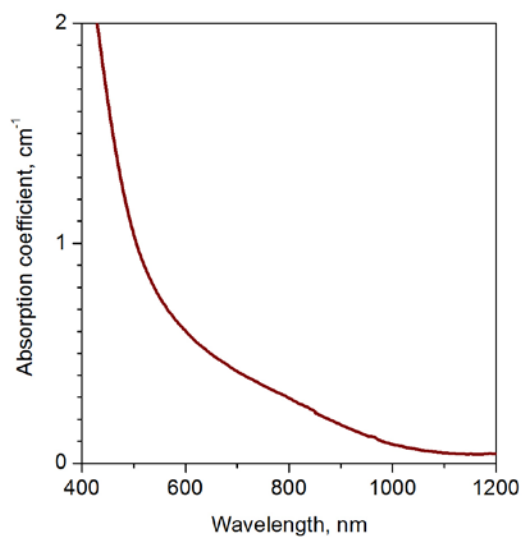


Figure S4. Absorption spectrum of ~6 nm CISE NCs, showing a broad feature centered around 800-850 nm.

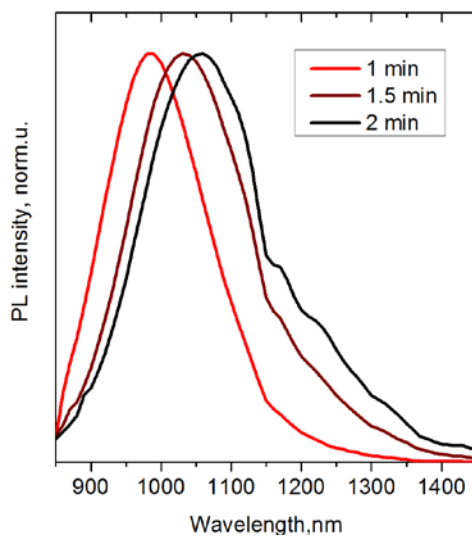


Figure S5. PL spectra of tetrahedral CISE NCs at different growth times.

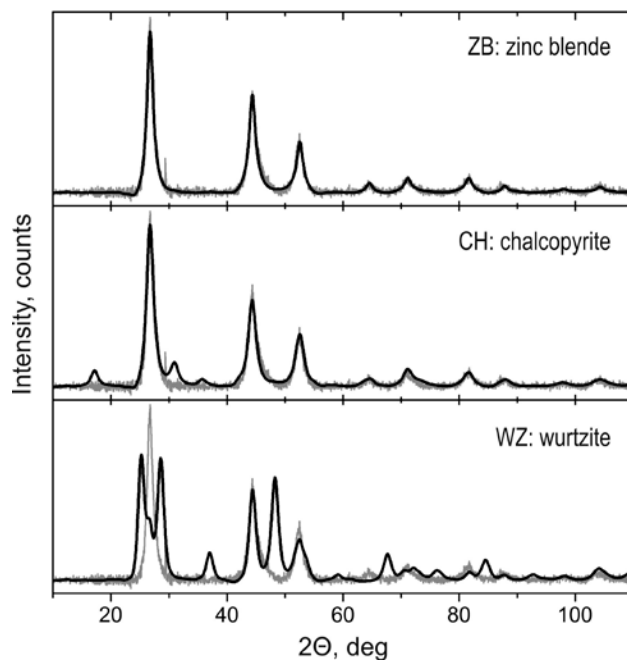
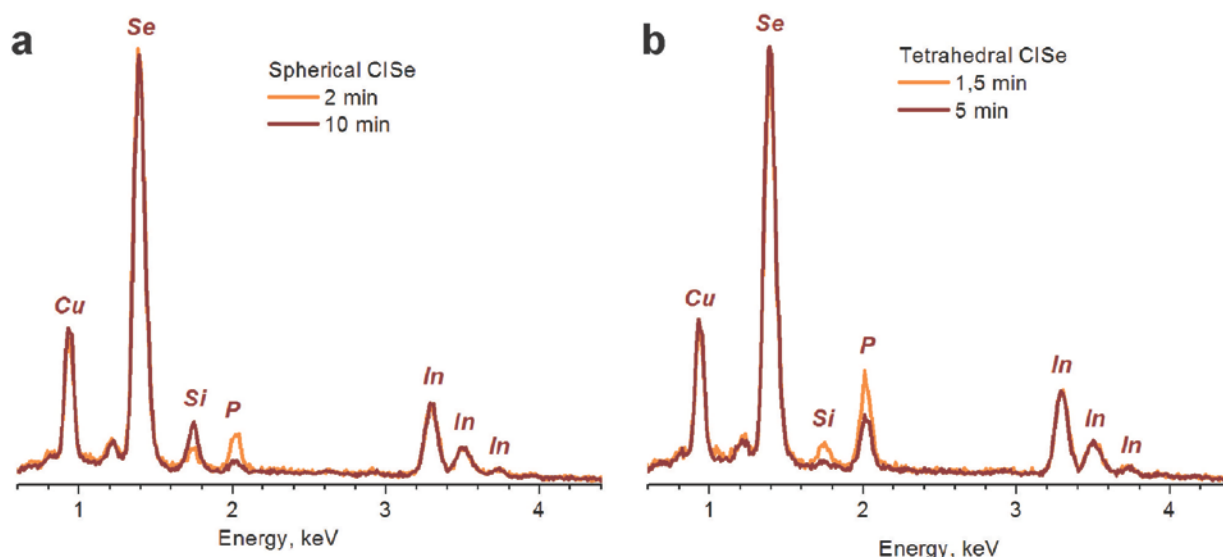


Figure S6. XRD spectrum for 8.0 nm CISE NCs, presented along with simulated spectra of 3 documented crystal structures of CuInSe_2 (#154410, #154411, and #167015 in ICSD database).



Spherical CISE NCs

Growth time	Cu	In	Se
2 min	21.21	27.63	51.16
10 min	21.83	24.94	53.23

Tetrahedral CISE NCs

Growth time	Cu	In	Se
1.5 min	20.37	28.98	50.64
2 min	20.15	29.49	50.36
3 min	21.96	26.82	51.22
5 min	21.10	27.56	51.33

Figure S7. EDX spectra of spherical (a) and tetrahedral (b) CISE NCs and a quantification table, showing a constant Cu:In ratio for different growth times and both morphologies. Si signal is from substrate and P from TOP ligands. Lower values of P associated with bigger sizes of CISE NCs.

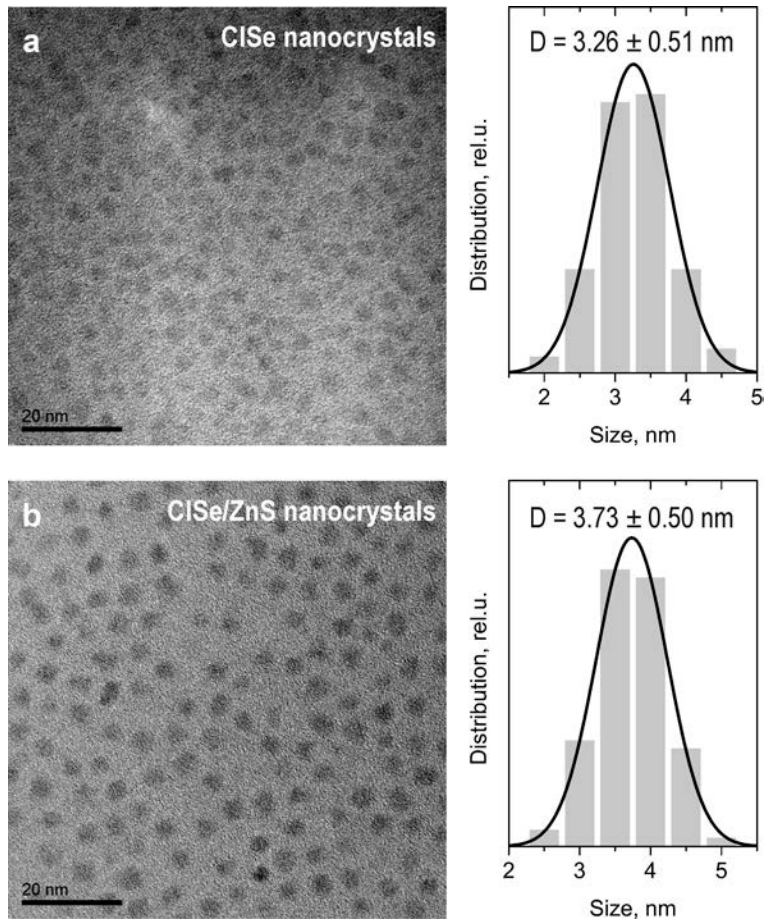


Figure S8. TEM images and size distribution histograms of CISE nanocrystals before (a) and after (b) ZnS shell growth.

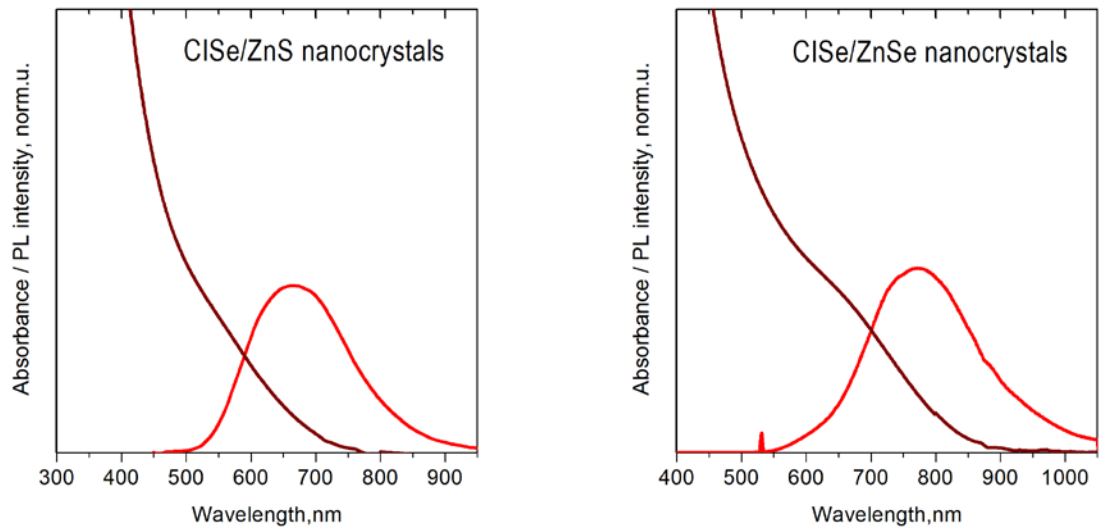


Figure S9. Absorbance and luminescence spectra of CISE/ZnS and CISE/ZnSe NCs.