

Supplementary Information

Design of low-lattice-mismatch and type-I heterostructures of zinc chalcogenide and synthesis of ZnTeS quantum dots as key materials for realizing green and red emission

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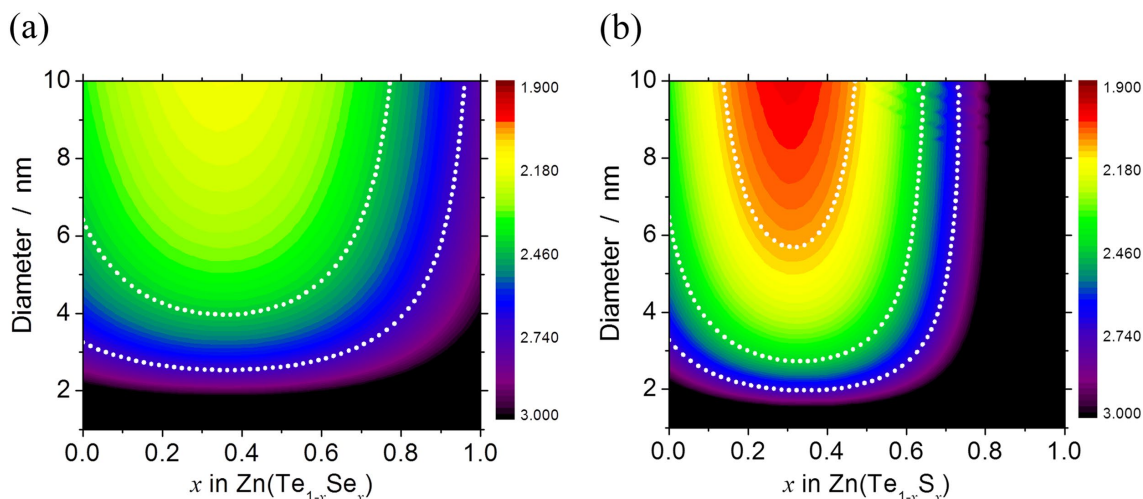


Figure S1. Two-dimensional contour plots of optical gap of (a) Zn(Te_{1-x}Se_x) and (b) Zn(Te_{1-x}S_x) alloyed QDs as a function of composition and size. Colors correspond to the energy indicated by the color bar. White dotted lines indicate size and composition of alloyed QDs expected to emit blue, green, and red light assuming 100 meV of Stokes shift.^{S1}

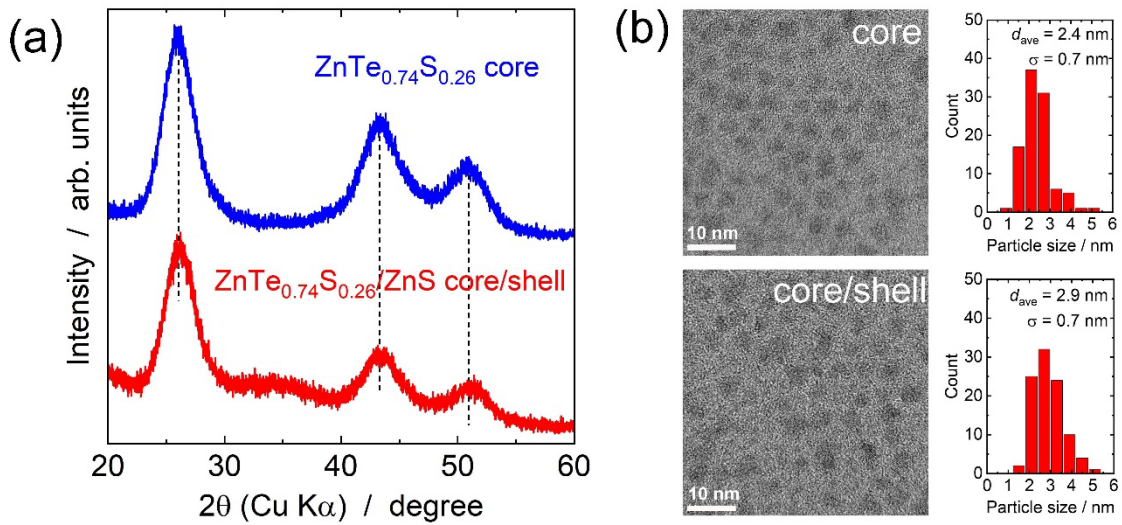


Figure S2. (a) X-ray diffraction patterns and (b) High resolution transmission electron microscopy (HRTEM) images and particle size distribution obtained from the HRTEM images of ZnTe_{0.74}S_{0.26} core and ZnTe_{0.74}S_{0.26}/ZnS core/shell QDs.

References

- (S1) Asano, H.; Omata, T. Design of cadmium-free colloidal II–VI semiconductor quantum dots exhibiting RGB emission. *AIP Adv.* **2017**, *7*, 045309. <https://dx.doi.org/10.1063/1.4982256>