

## Electronic Supplementary Information

# Enhancing Optical Properties through Zinc Halide Precursor Selection: Interfacial Optimization of InZnP Quantum Dots

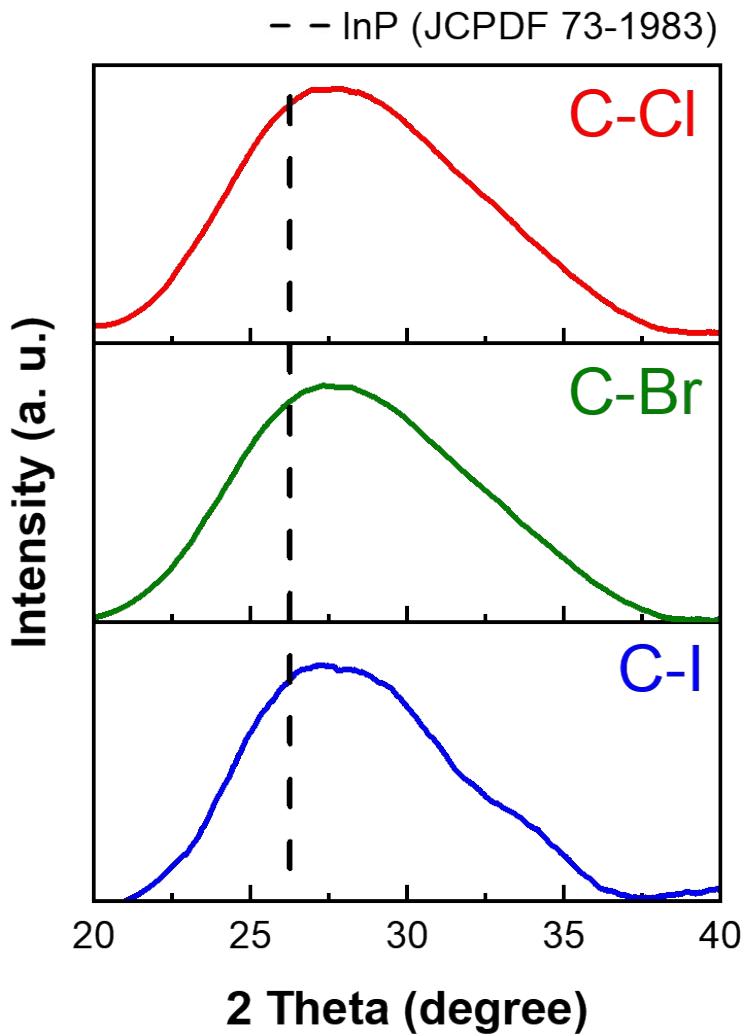
Chien-Chi Huang,<sup>a</sup> Shu-Ru Chung<sup>b\*</sup> and Kuan-Wen Wang<sup>a\*</sup>

<sup>1</sup> Institute of Materials Science and Engineering, National Central University, Taoyuan 320, Taiwan

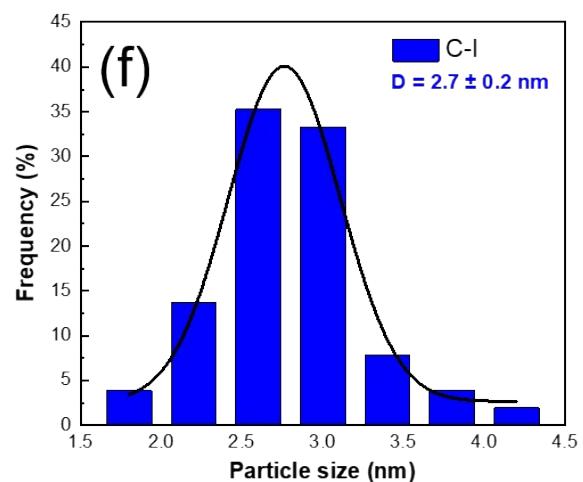
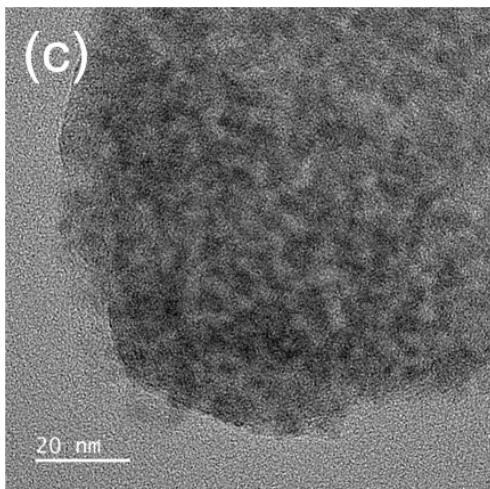
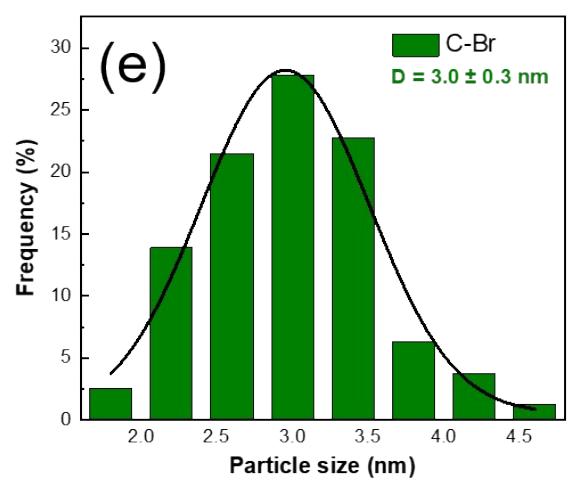
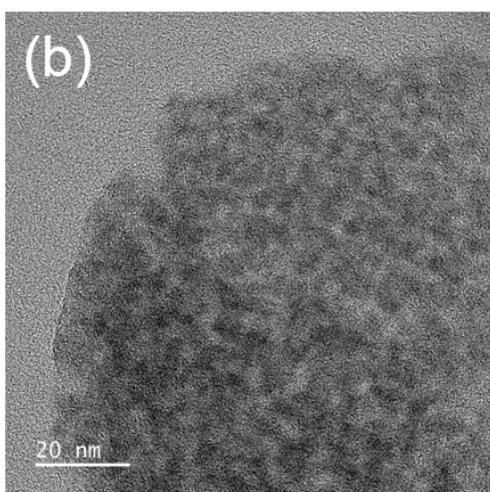
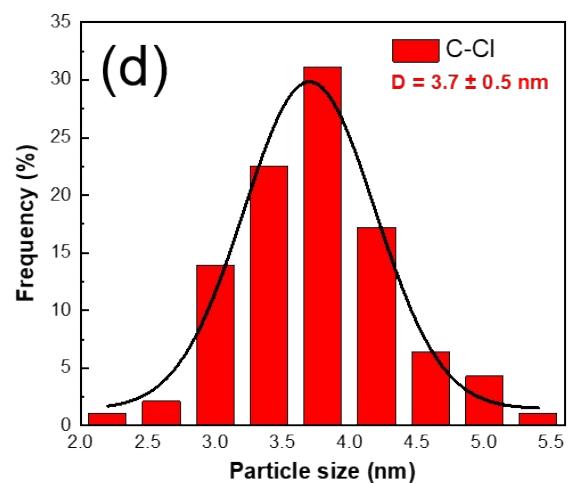
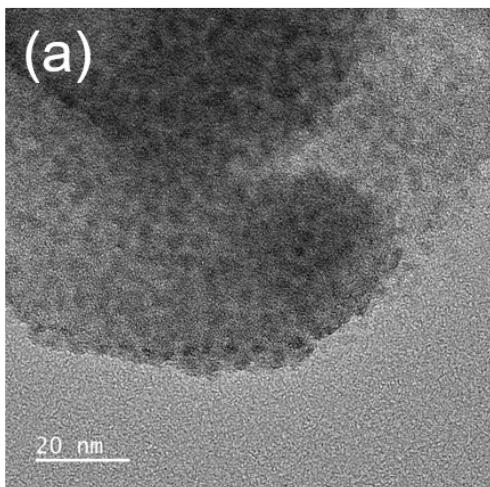
<sup>2</sup> Department of Materials Science and Engineering, National Formosa University, Yunlin 632, Taiwan

Corresponding Authors: Shu-Ru Chung ([srchung@nfu.edu.tw](mailto:srchung@nfu.edu.tw))

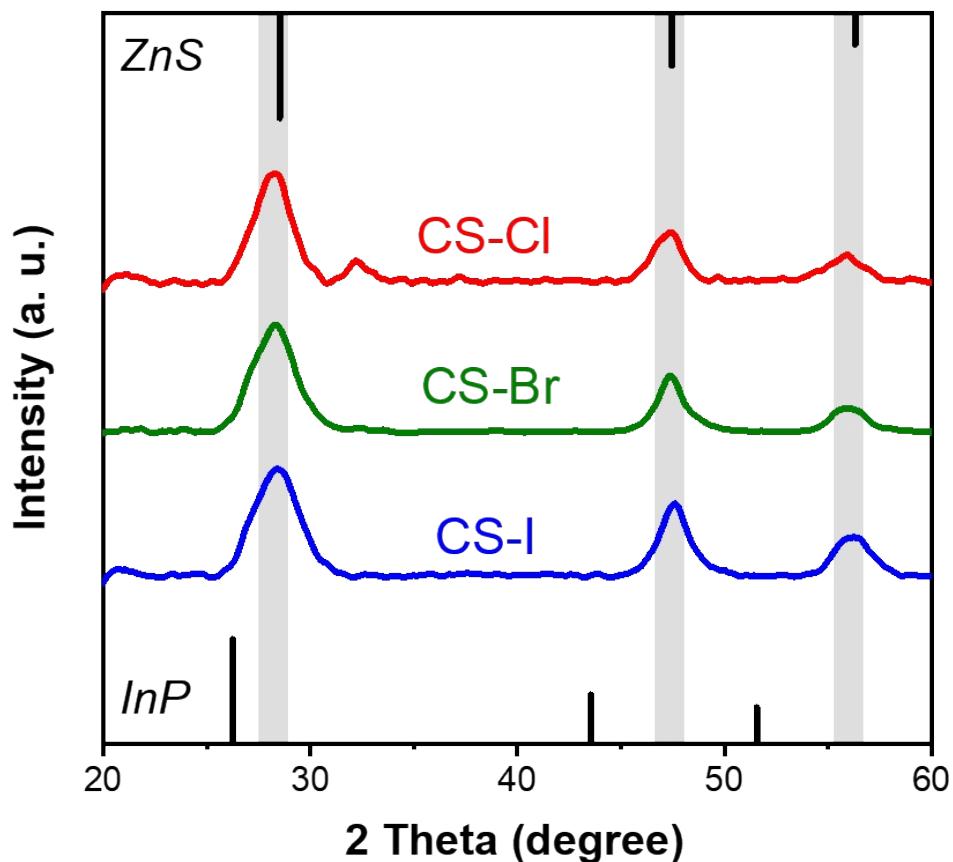
Kuan-Wen Wang ([kuanwen.wang@gmail.com](mailto:kuanwen.wang@gmail.com))



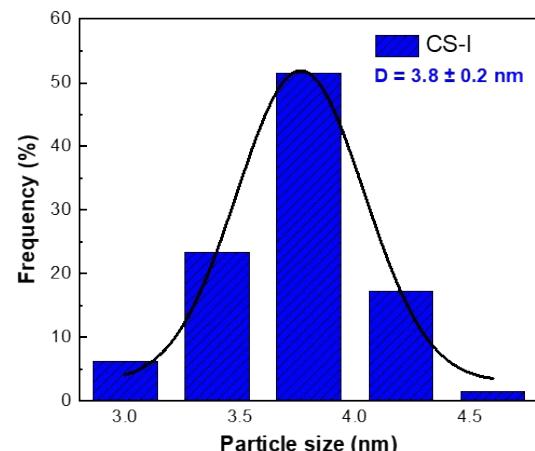
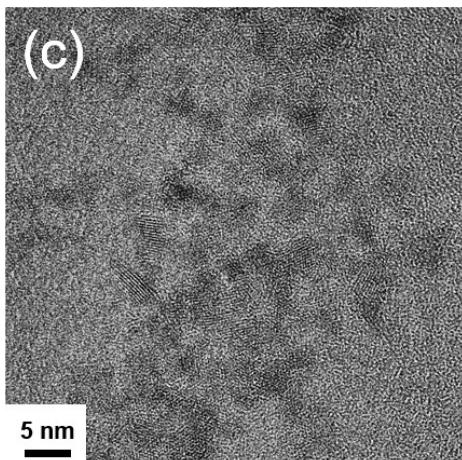
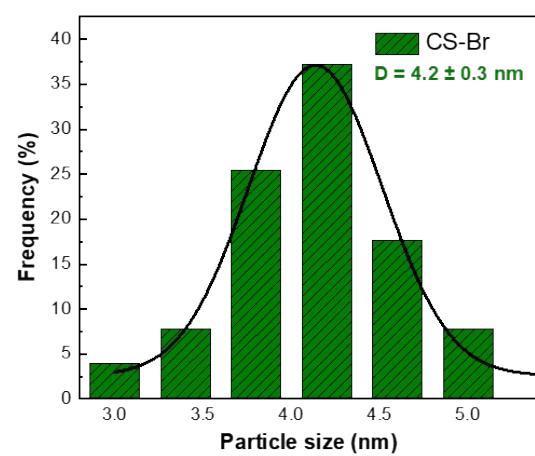
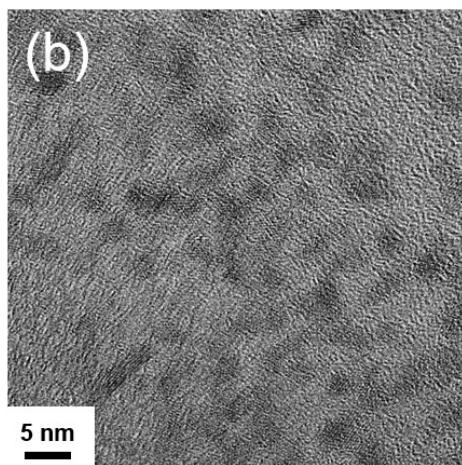
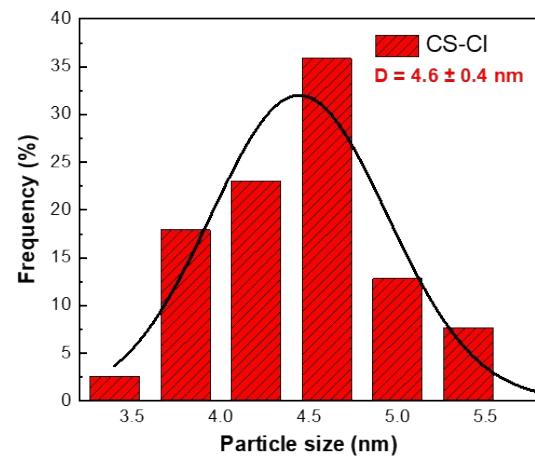
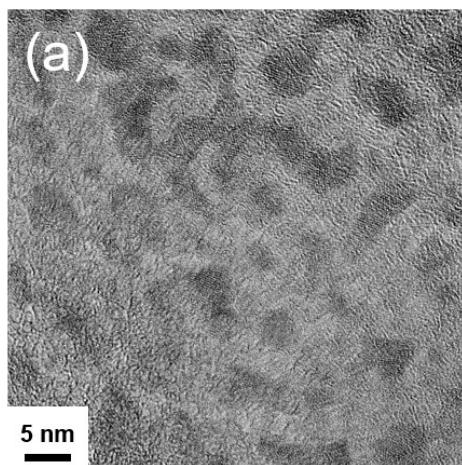
**Fig. S1** The XRD patterns of C-Cl, C-Br, and C-I QDs, magnified to show the range of 20-40 degrees.



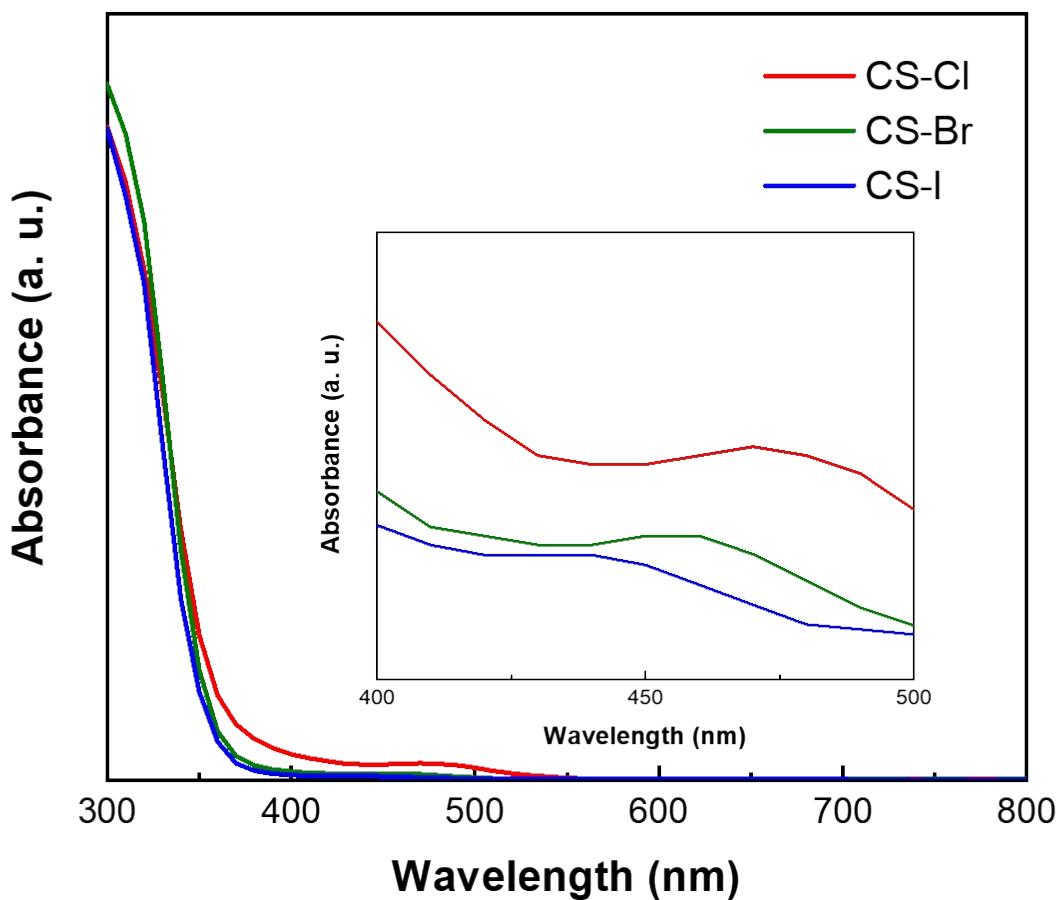
**Fig. S2** HRTEM images and the distribution of particle sizes of (a) C-Cl, (b) C-Br, and (c) C-I.



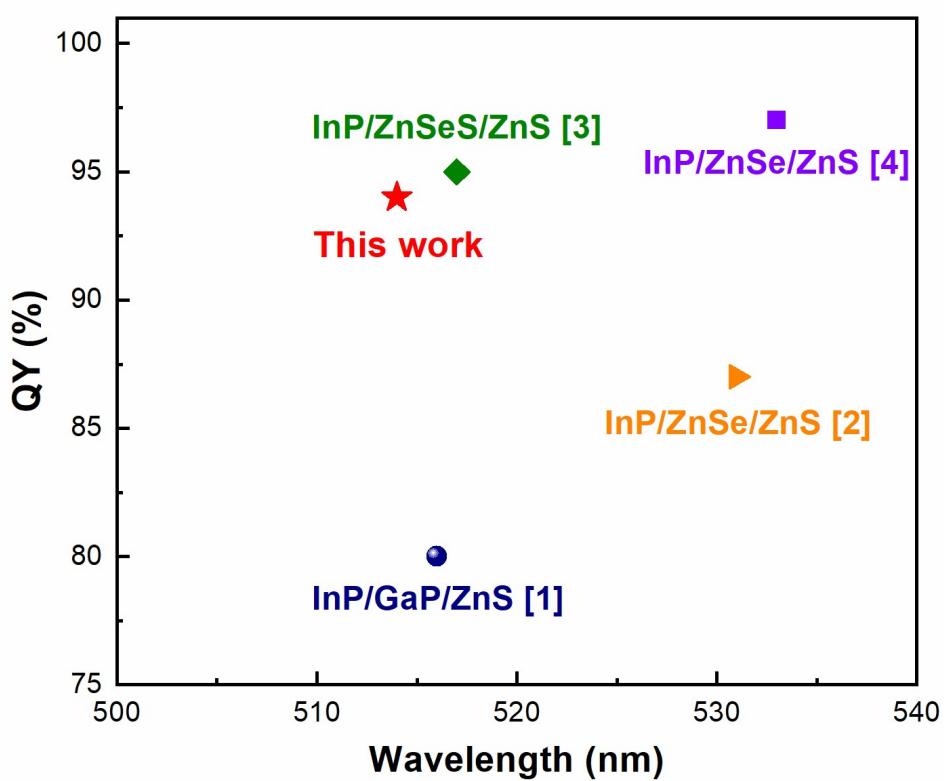
**Fig. S3** The XRD patterns of CS-Cl, CS-Br, and CS-I QDs.



**Fig. S4** HRTEM images and the distribution of particle sizes of (a) CS-Cl, (b) CS-Br, and (c) CS-I.



**Fig. S5** UV-vis absorption spectrum of CS-Cl, CS-Br, and CS-I QDs.



**Fig. S6** Comparison of QY of InZnP/ZnS in this study and other InP-based QDs from literature.

<b>Sample</b>	<b>Wavelength (nm)</b>	<b>FWHM (nm)</b>	<b>QY (%)</b>
<b>CS-Cl</b>	514	61	94
<b>CS-Br</b>	493	39	80
<b>CS-I</b>	481	28	31

**Table S1** Physical properties of CS-X QDs.

**Table S2** Stability results of CS-X QDs.

<b>Sample</b>	<b>As-prepared</b>	<b>2 months</b>	<b>4 months</b>
	<b>QY (%)</b>		
<b>CS</b>	-	-	-
<b>CS-Cl</b>	94	97	96
<b>CS-Br</b>	80	86	89
<b>CS-I</b>	31	35	37

## References

1. H. Zhang, N. Hu, Z. Zeng, Q. Lin, F. Zhang, A. Tang, Y. Jia, L. S. Li, H. Shen and F. Teng, *Adv. Opt. Mater.*, 2019, **7**, 1801602.
2. S. Y. Yoon, Y. J. Lee, H. Yang, D. Y. Jo, H. M. Kim, Y. Kim, S. M. Park, S. Park and H. Yang, *ACS Energy Lett.*, 2022, **7**, 2247-2255.
3. P. Liu, Y. Lou, S. Ding, W. Zhang, Z. Wu, H. Yang, B. Xu, K. Wang and X. W. Sun, *Adv. Funct. Mater.*, 2021, **31**, 2008453.
4. P. Yu, Y. Shan, S. Cao, Y. Hu, Q. Li, R. Zeng, B. Zou, Y. Wang and J. Zhao, *ACS Energy Lett.*, 2021, **6**, 2697-2703.