

Supporting Information

Colloidal Synthesis and Optical Properties of Cs₂CuCl₄ Nanocrystals

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Table S1. Summary of the optical performance of the lead and lead-free perovskite NCs.

Emitting Materials	PL peak	Fabrication Technology	PLQY	Ref.
CsPb(Cl/Br) ₃ quantum dots	452 nm	Hot injection	60%	11
CsPb(Cl/Br) ₃ quantum dots	465 nm	Hot injection	100%	12
Cs ₃ Bi ₂ Br ₉ quantum dots	414 nm	Modified recrystallization	22%	26
Cs ₃ Sb ₂ Br ₉ quantum dots	408 nm	Modified recrystallization	51.2%	28
Cs ₃ Cu ₂ I ₅ NCs	441 nm	Hot injection	87%	16
Cs ₂ CuCl ₄ quantum dots	385 nm	Modified recrystallization	51.8%	35
Cs ₂ CuCl ₄ nanoplates	434 nm	Modified recrystallization	31.52%	36
A mixture of Cs ₂ CuCl ₄ and CsCuCl ₃ nanoplates	527 nm	Hot injection	14%	37
Ag: Cs ₂ CuCl ₄ NCs	434 nm	Hot injection	42%	This work

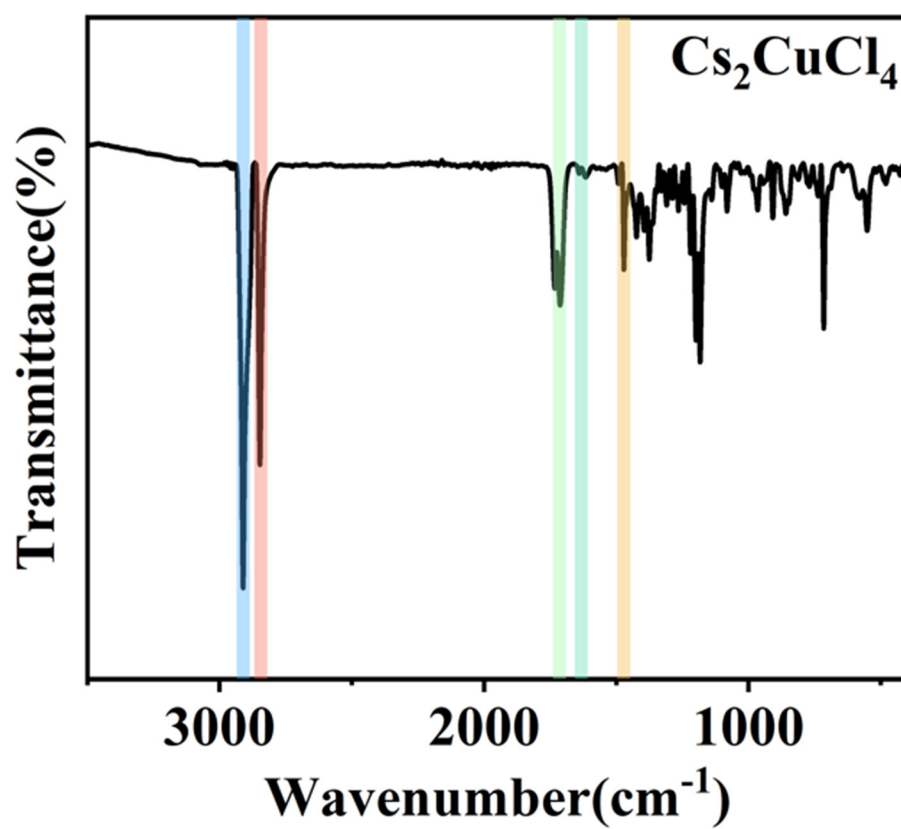


Figure S1. The FTIR spectra of Cs_2CuCl_4 NCs.

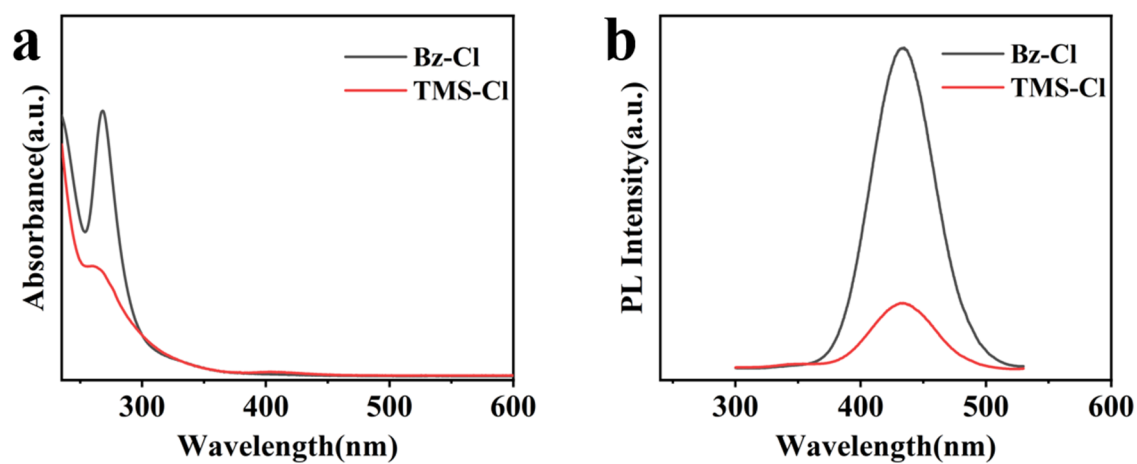


Figure S2. (a) UV-Vis spectra from NCs synthesized using different precursors (Bz-Cl and TMS-Cl). (b) PL spectra for samples synthesized using different precursors (Bz-Cl and TMS-Cl).

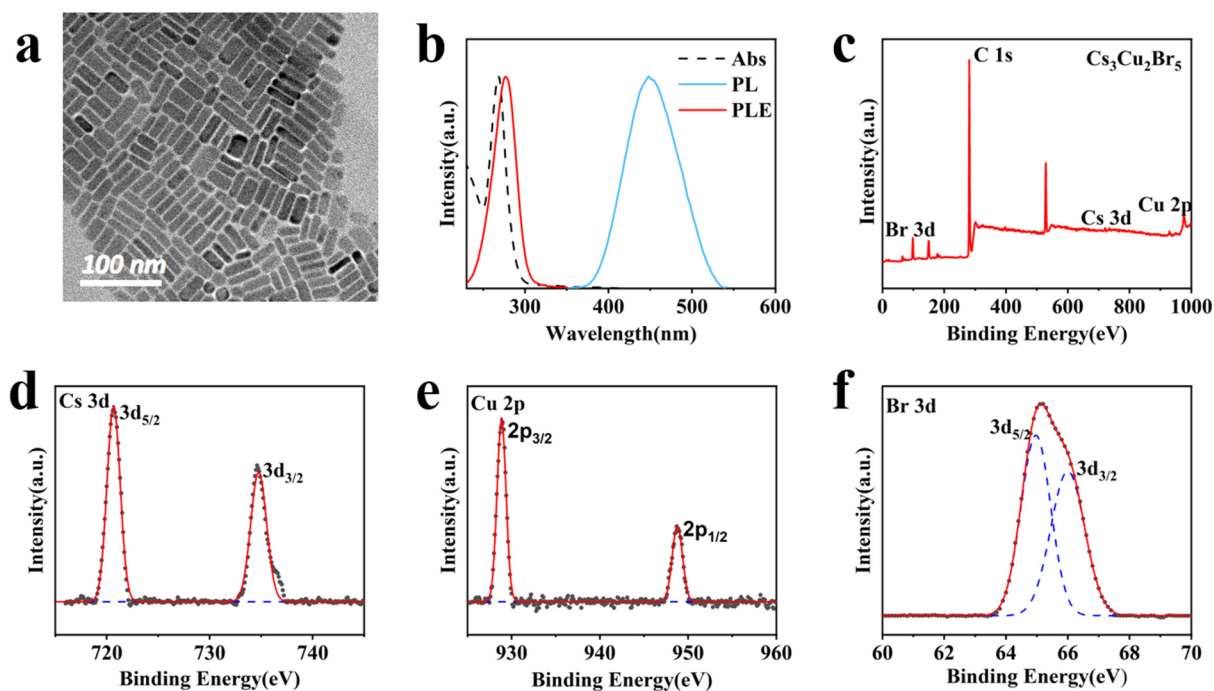


Figure S3. (a) TEM images of the $\text{Cs}_3\text{Cu}_2\text{Br}_5$ NCs. (b) UV-Vis absorption, PLE and PL spectra of $\text{Cs}_3\text{Cu}_2\text{Br}_5$ NCs. (c) XPS survey scan of $\text{Cs}_3\text{Cu}_2\text{Br}_5$ NCs. (d,e,f) The high-resolution XPS spectra corresponding to Cs 3d, Cu 2p and Br 3d, respectively.

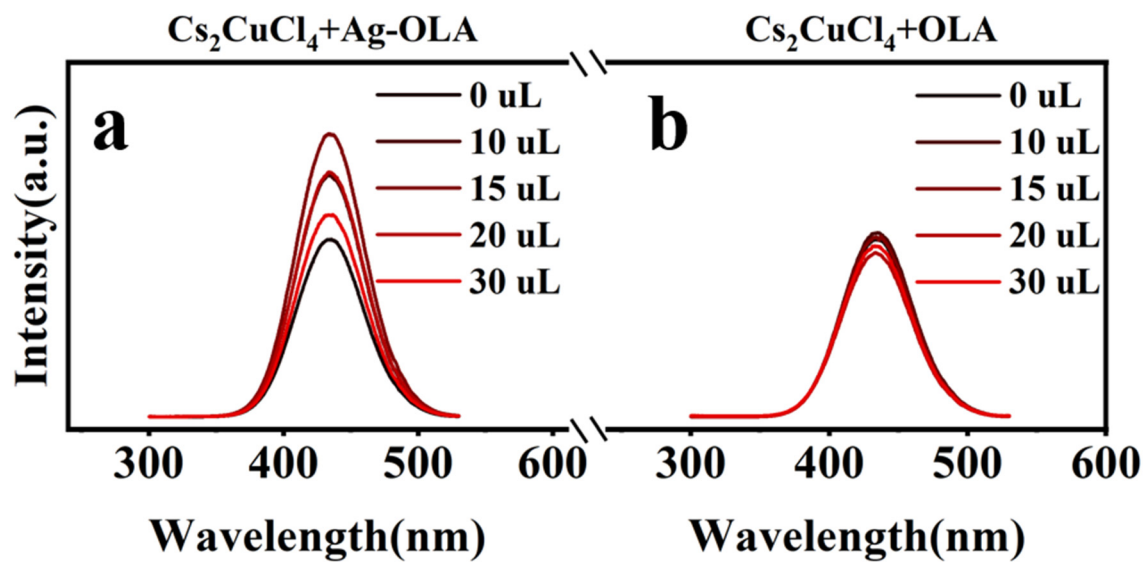


Figure S4. (a) PL spectra for Cs_2CuCl_4 NCs and Ag-treated samples. (b) PL spectra for Cs_2CuCl_4 NCs and Cs_2CuCl_4 -OLA.

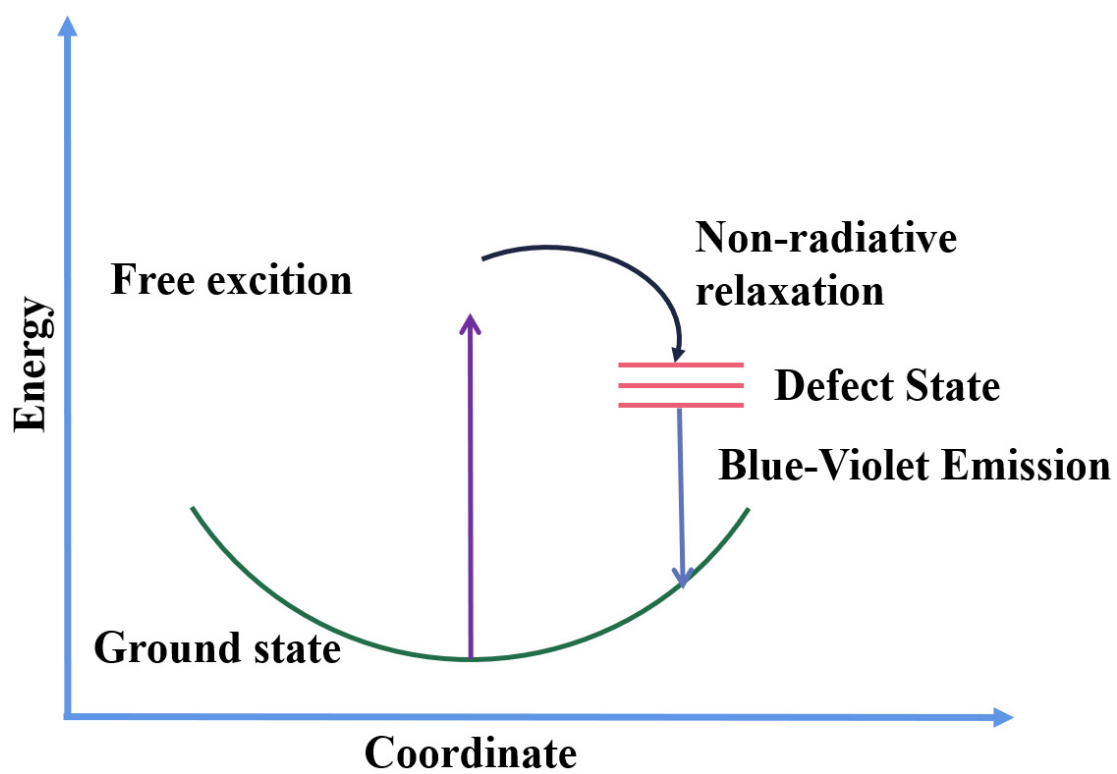


Figure S5. Schematic model representing the emission mechanism.