## Supporting Information for

## Self-assembled CsPbBr<sub>3</sub> quantum dots with wavelength-tunable photoluminescence for efficient active jamming

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**Fig. S1** (a) Width distribution histogram of nanospheres (NSs). (b) Width distribution histogram of NSs self-assembly into nanocubes (NCs) shape evolution after THF addition for 20 min.



**Fig. S2** (a) Transmission electron microscopy (TEM) image of NSs self-assembly into NCs shape evolution after THF addition for 10 min. (b) High-resolution transmission electron microscopy (HRTEM) image of the NC after THF addition for 1 h, where the insert shows the corresponding fast Fourier transform (FFT) patterns. (c) TEM image of NSs self-assembly into NCs shape evolution after THF addition for 120 h. (d)

Corresponding selected area electron diffraction (SAED) pattern image of NC.



Fig S3 (a) TEM image of NSs. (b) Selected area atomic distribution and (c) cell diagram.



**Fig. S4** (a) X-ray diffraction (XRD) patterns of NCs and NSs. Energy-dispersive x-ray spectroscopy (EDS) spectrum of NSs (b) and NCs (c).



Fig. S5 Structure and simulated surface energy of CsPbBr3 quantum dots (QDs) with

CsBr and PbBr<sub>2</sub> terminated (110) surfaces.



Fig. S6 PL spectra of NSs (a) and NCs (b) that had been recently prepared and stored for one week.

Table. S1 The first-principles density functional theory (DFT) simulated surface

	energies for CsPbBr <sub>3</sub>	QDs with CsB	r and PbBr <sub>2</sub> terminated (	(110)	) and (	(100)	) surfaces.
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Orthorhombic	(110)	(100)
CsBr Termination	$0.30 \text{ J/m}^2$	0.09 J/m <sup>2</sup>
PbBr <sub>2</sub> Termination	0.43 J/m <sup>2</sup>	0.12 J/m <sup>2</sup>

Table. S2. Biexponential fitting results of time-resolved photoluminescence (PL)

decays of NCs and NSs.	
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Samples	A <sub>1</sub> (%)	$\tau_1(ns)$	A <sub>2</sub> (%)	$\tau_2(ns)$	$\tau_{avg}(ns)$
NSs	78.33	1.41	18.92	17.67	13.61
NCs	54.88	2.26	42.82	25.73	23.35



**Fig. S7** Gray distribution histogram of the control group with only ultraviolet (UV) lamp irradiating charge coup devices (CCD) (a), or only QDs placed. The instrument position was not moved during the experiment.