Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

Blue-emitting and self-assembled thinner perovskite $CsPbBr_3$ nanoplates: Synthesis and formation mechanism

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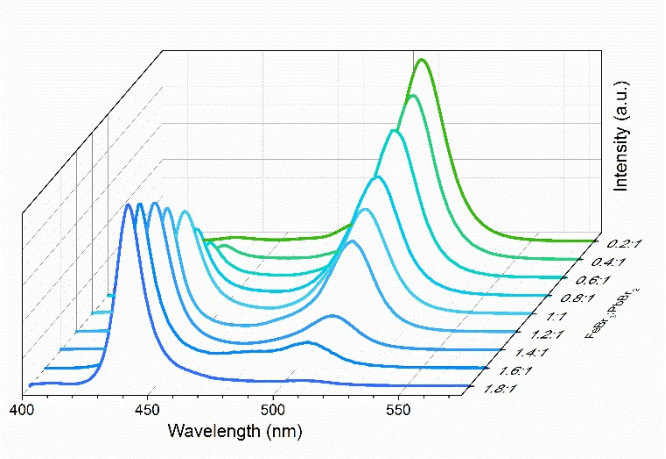


Figure S1. The UV–vis absorption, PL spectra of $CsPbBr_3$ nanocrystals synthesized with the [$FeBr_3$:$PbBr_2$] ratio from 0.2:1 to 1.8:1

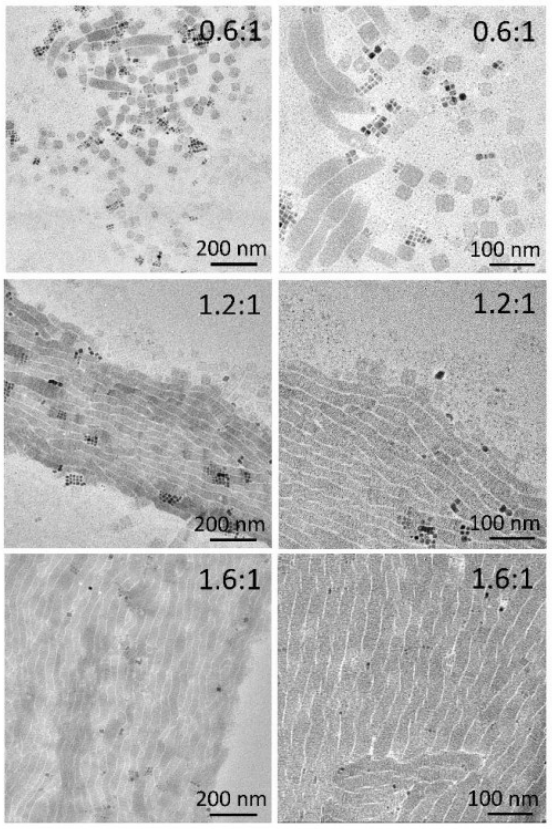


Figure S2. TEM images of $CsPbBr_3$ nanocrystals with [$FeBr_3$:$PbBr_2$] of 0.6:1, 1.2:1 and 1.6:1

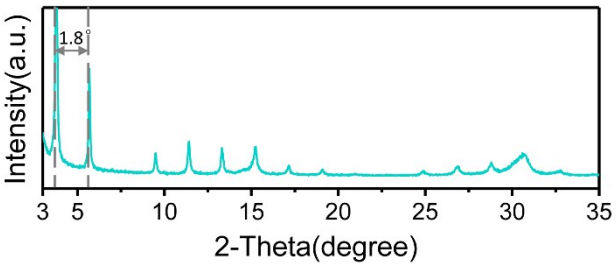


Figure S3. Small-angle XRD spectra of $CsPbBr_3$nanocrystals ($FeBr_3$:$PbBr_2$=0.8:1)

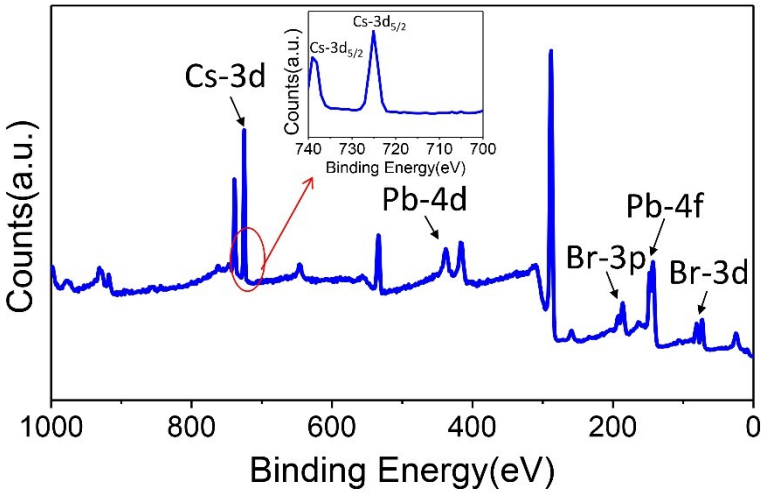
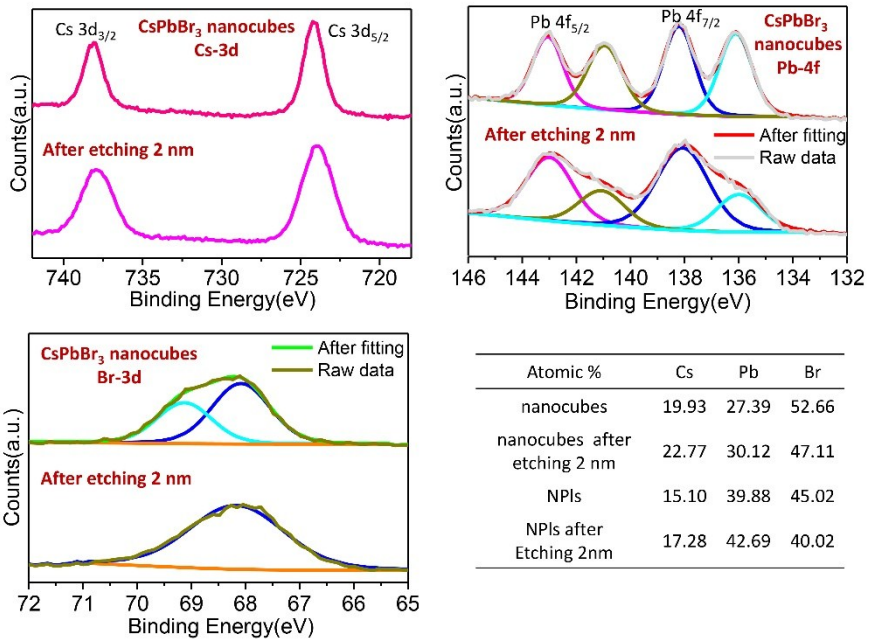


Figure S5. XPS spectra of NPls and the detail in Cs 3d section



Atomic %	Cs	Pb	Br
nanocubes	19.93	27.39	52.66
nanocubes after etching 2 nm	22.77	30.12	47.11
NPIs	15.10	39.88	45.02
NPIs after Etching 2nm	17.28	42.69	40.02

Figure S6. XPS spectra of $CsPbBr_3$ nanocubes before and after etching 2 nm and specific atomic percentage of nanocubes and NPIs.

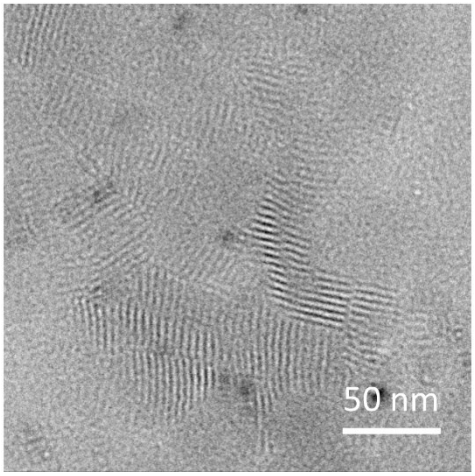


Figure S7. TEM image of $CsPbBr_3$ nanocubes and NPIs by introducing 0.6 mL OLA-HBr

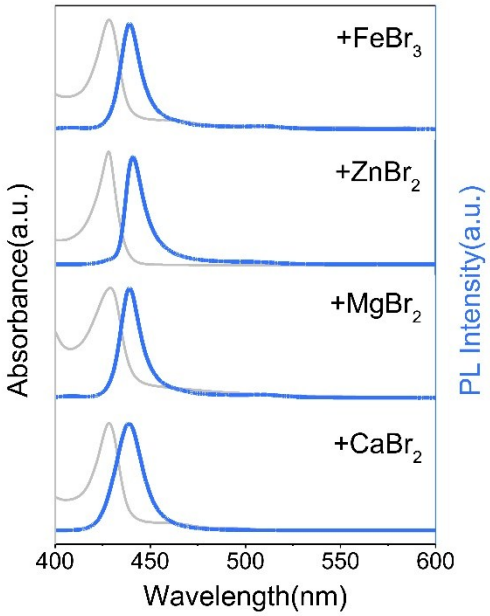


Figure S8. UV-vis absorption, PL spectra of $CsPbBr_3$ NPls synthesized with different types of metal bromides

Table S1. Absorption and PL peak of $CsPbBr_3$ NPls synthesized with different types of metal bromides

	Additional metal halide	PL peak (nm)
$CsPbBr_3$ NPls	$FeBr_3$	437
	$ZnBr_2$	440
	$MgBr_2$	437
	$CaBr_2$	438

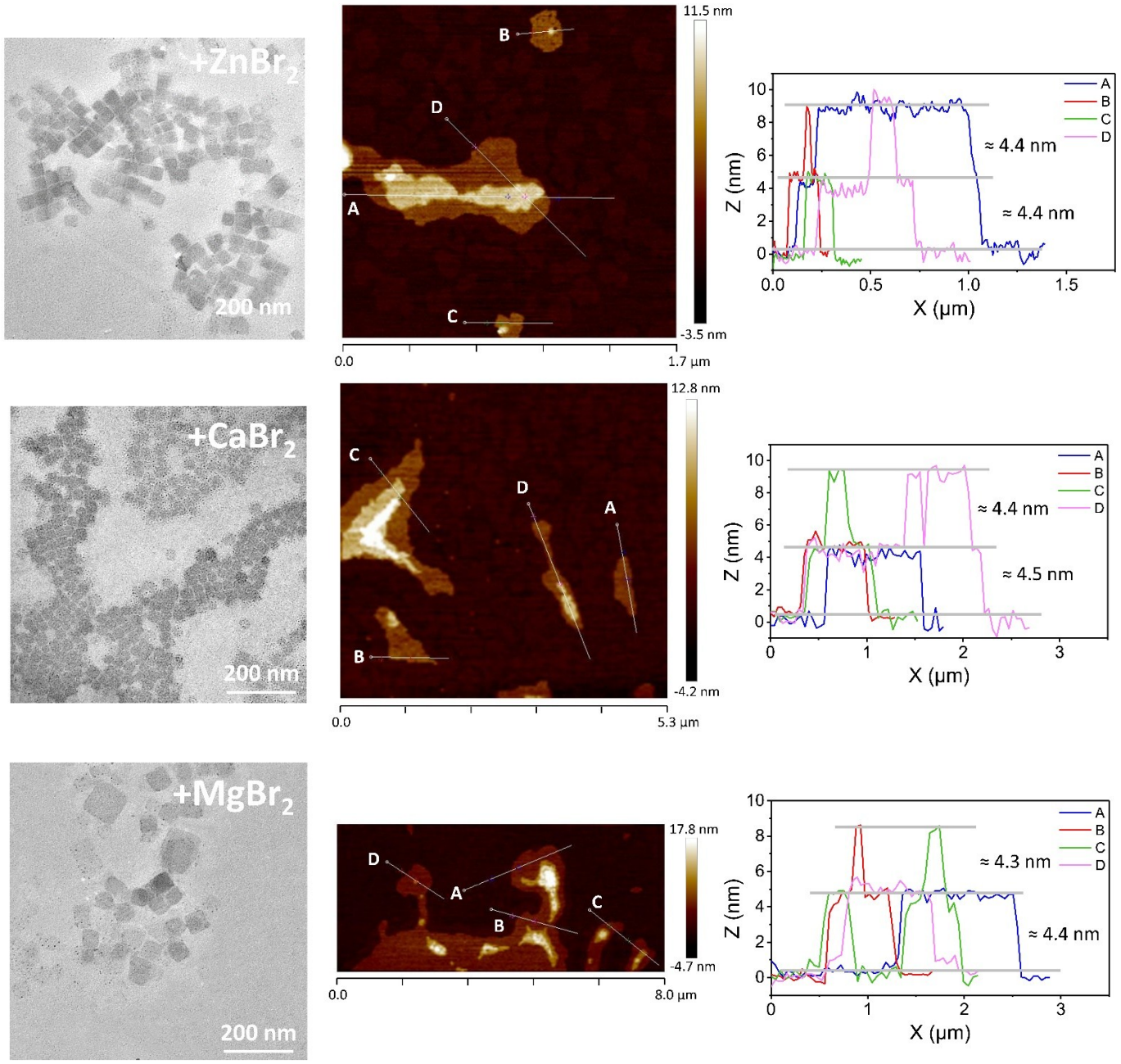


Figure S9. TEM images of NPls lying flat on the TEM copper substrate, AFM topography image and line profiles of (layers of) $CsPbBr_3$ NPls synthesized with $ZnBr_2$, $CaBr_2$, $MgBr_2$ respectively.

Table S2. Amounts of chemicals for synthesizing $CsPbBr_3$ with additional metal bromides or OLA-HBr

Sample	$PbBr_2$(367.01)		additional reagent(MBr_x/OLA-HBr)		CsOA	OA	OLA	ODE
$CsPbBr_3$	0.188mmol	0.069g	0mmol	0 g	0.4mL	0.5mL	0.5mL	5mL
$FeBr_3$:$PbBr_2$=0.2:1	0.188mmol	0.069g	0.0376mmol	0.0111g	0.4mL	0.6mL	0.6mL	5mL
$FeBr_3$:$PbBr_2$=0.4:1	0.188mmol	0.069g	0.0752mmol	0.0222g	0.4mL	0.7mL	0.7mL	5mL
$FeBr_3$:$PbBr_2$=0.6:1	0.188mmol	0.069g	0.1128mmol	0.0333g	0.4mL	0.8mL	0.8mL	5mL
$FeBr_3$:$PbBr_2$=0.8:1	0.188mmol	0.069g	0.1504mmol	0.0445g	0.4mL	0.9mL	0.9mL	5mL
$FeBr_3$:$PbBr_2$=1:1	0.188mmol	0.069g	0.1880mmol	0.0556g	0.4mL	1.0mL	1.0mL	5mL
$FeBr_3$:$PbBr_2$=1.2:1	0.188mmol	0.069g	0.2256mmol	0.0667g	0.4mL	1.1mL	1.1mL	5mL
$FeBr_3$:$PbBr_2$=1.4:1	0.188mmol	0.069g	0.2632mmol	0.0779g	0.4mL	1.2mL	1.2mL	5mL
$FeBr_3$:$PbBr_2$=1.6:1	0.188mmol	0.069g	0.3008mmol	0.0889g	0.4mL	1.3mL	1.3mL	5mL
$FeBr_3$:$PbBr_2$=1.8:1	0.188mmol	0.069g	0.3384mmol	0.1000g	0.4mL	1.4mL	1.4mL	5mL
$ZnBr_2$:$PbBr_2$=2.7:1	0.188mmol	0.069g	0.5076mmol	0.1143g	0.4mL	1.4mL	1.4mL	5mL
$MgBr_2$:$PbBr_2$=2.7:1	0.188mmol	0.069g	0.5076mmol	0.0934g	0.4mL	1.4mL	1.4mL	5mL
$CaBr_2$:$PbBr_2$=2.7:1	0.188mmol	0.069g	0.5076mmol	0.1014g	0.4mL	1.4mL	1.4mL	5mL
OLA-HBr-1	0.188mmol	0.069g	0.2mL		0.4mL	0.5mL	0.5mL	5mL
OLA-HBr-2	0.188mmol	0.069g	0.4mL		0.4mL	0.5mL	0.5mL	5mL
OLA-HBr-3	0.188mmol	0.069g	0.6mL		0.4mL	0.5mL	0.5mL	5mL