

Supporting Information

Table S1: The elemental analysis. The Br/I atom ration was detected by the EDS.

CsPbBr ₃ perovskite		CsPbBr _{1.5} I _{1.5} perovskite	
Atom	Atom ratio (%)	Atom	Atom ratio (%)
Br	1.73	Br	0.74
Pb	0.49	I	0.53

Table S2: Detailed information of different composition samples.

Samples	Emission peak /nm	FWHM /nm	QY
CsPbBr ₃	517	26	46.91%
CsPbBr _{2.7} I _{0.3}	522	25	31.47%
CsPbBr _{2.4} I _{0.6}	531	24	20.50%
CsPbBr _{2.1} I _{0.9}	544	24	24.31%
CsPbBr _{1.8} I _{1.2}	566	26	19.19%
CsPbBr _{1.5} I _{1.5}	566	30	26.73%
CsPbBr _{1.2} I _{1.8}	631	38	30.49%
CsPbBr _{0.9} I _{2.1}	655	40	48.97%
CsPbBr _{0.6} I _{2.4}	675	38	56.42%
CsPbBr _{0.3} I _{2.7}	688	37	62.23%
CsPbI ₃	693	38	69.41%

Table S3: Detailed polarization of different composition samples.

Sample	I _{max}	I _{min}	P
CsPbBr ₃	8.03 e5	6.89 e5	0.08
CsPbBr _{2.7} I _{0.3}	7.94 e5	6.62 e5	0.09
CsPbBr _{2.4} I _{0.6}	5.32 e5	4.16 e5	0.12
CsPbBr _{2.1} I _{0.9}	5.72 e5	5.10 e5	0.06
CsPbBr _{1.8} I _{1.2}	5.15 e5	4.66 e5	0.05
CsPbBr _{1.5} I _{1.5}	4.75 e5	4.15 e5	0.07
CsPbBr _{1.2} I _{1.8}	7.47 e5	4.90 e5	0.21
CsPbBr _{0.9} I _{2.1}	8.17 e5	4.50 e5	0.29
CsPbBr _{0.6} I _{2.4}	5.81 e5	2.99 e5	0.32
CsPbBr _{0.3} I _{2.7}	6.22 e5	2.85 e5	0.37
CsPbI ₃	7.39 e5	3.48 e5	0.36

Table S4: The polarization properties of different volume concentration in the hexane solution for the sample of CsPbBr_{0.3}I_{2.7}.

Sample	ϕ_B (VB/V)	I_{\max}	I_{\min}	P
CsPbBr _{0.3} I _{2.7}	100 μ L/6 mL	6.22 e5	2.85 e5	0.37
CsPbBr _{0.3} I _{2.7}	50 μ L/6 mL	7.67 e5	3.59 e5	0.36
CsPbBr _{0.3} I _{2.7}	25 μ L/6 mL	5.06 e4	2.22 e4	0.39
CsPbBr _{0.3} I _{2.7}	10 μ L/6 mL	8.61 e4	3.06 e4	0.48

Table S5: The polarization properties of the CsPbI₃ film and CsPbBr₃ film.

Sample	I_{\max}	I_{\min}	P
CsPbBr ₃ film	2.43 e6	2.41 e6	0.0041
CsPbI ₃ film	4.63 e6	1.96 e6	0.41

Figure S1: Energy dispersive spectrometer (EDS).

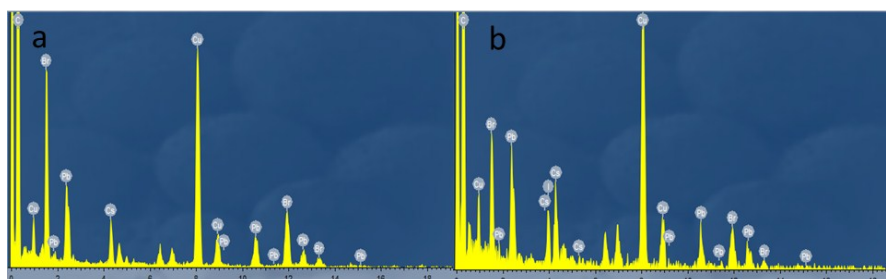


Figure S2: The UV/vis absorption spectra of perovskites samples in hexane solution.

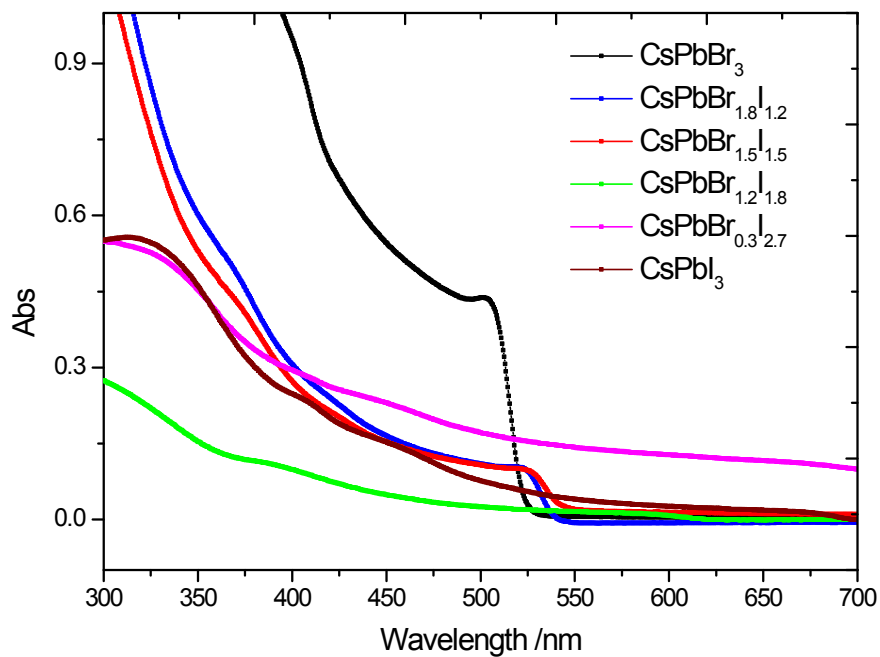
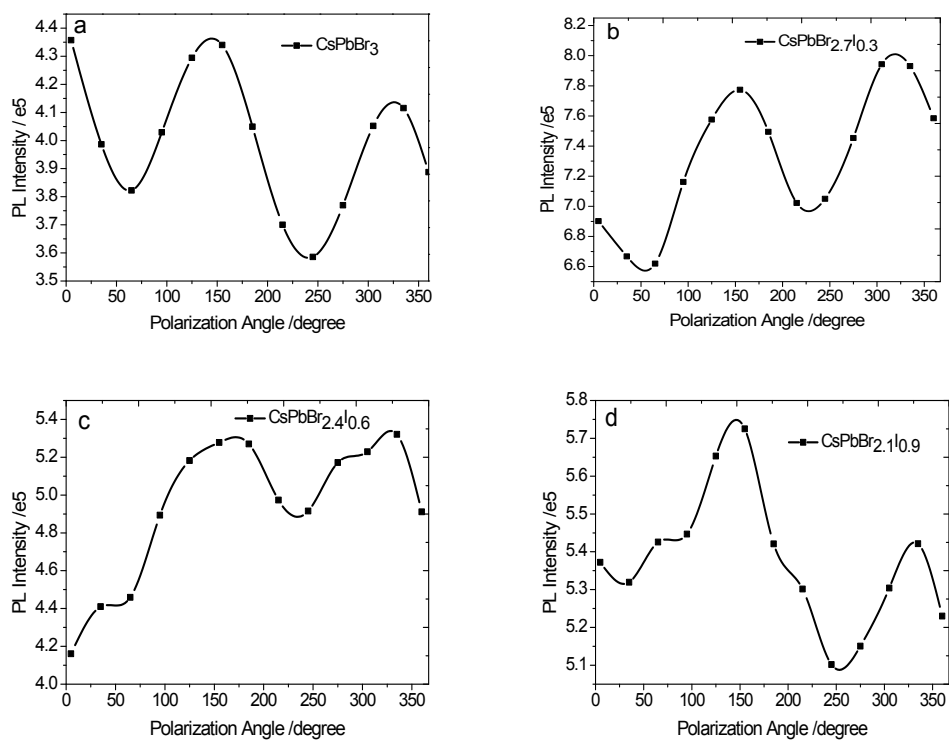


Figure S3: The polarization properties of CsPbX₃ or the Br/I perovskite samples in hexane solution.



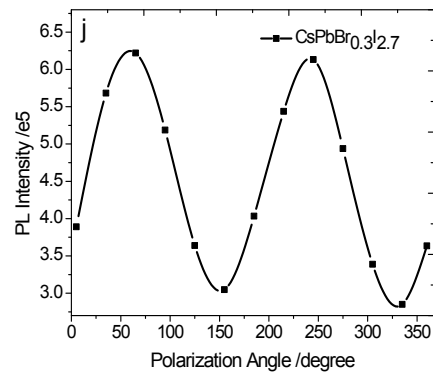
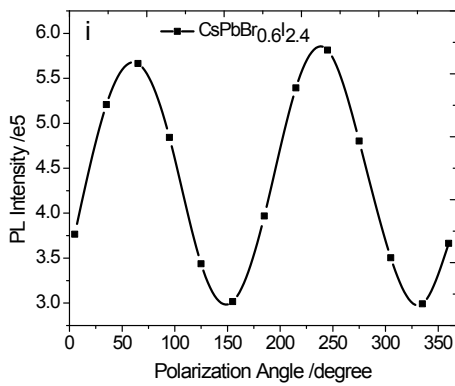
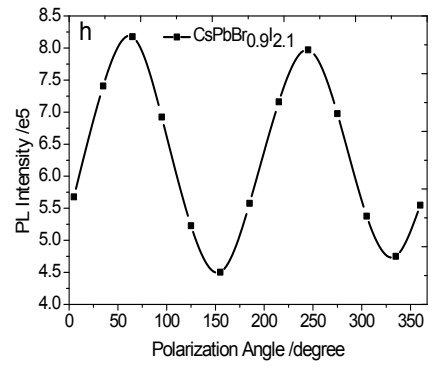
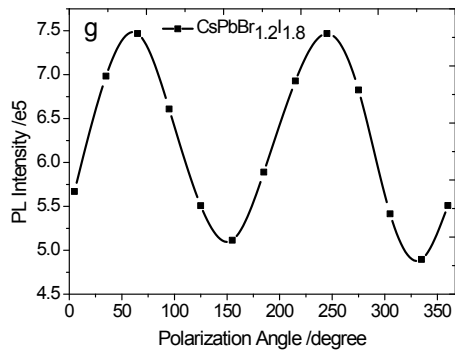
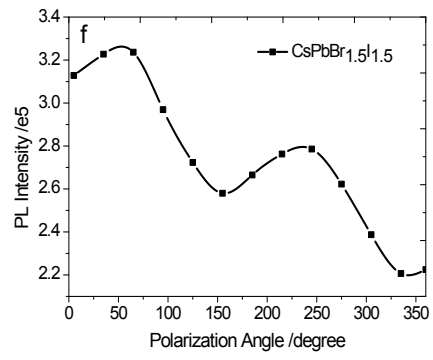
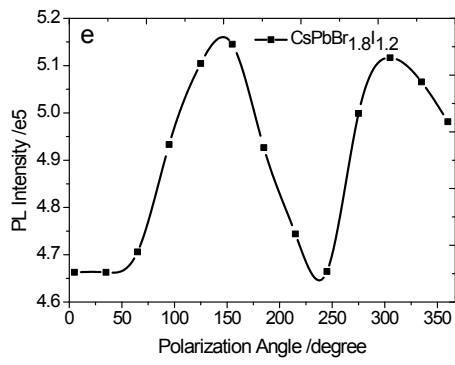
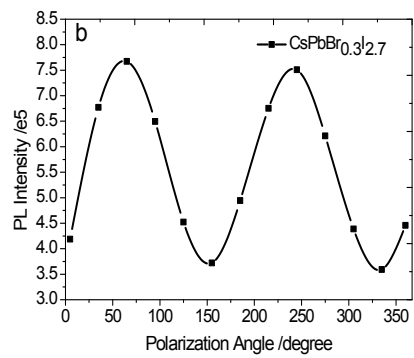
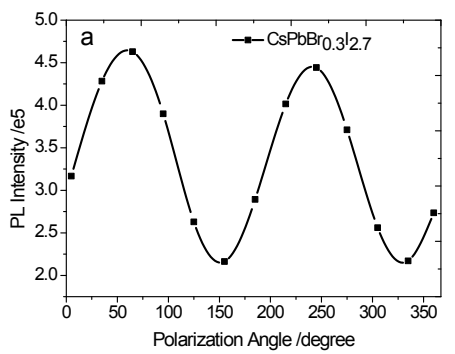


Figure S4: The polarization properties of different volume concentration in the hexane solution for the sample of CsPbBr_{0.3}I_{2.7} (VB/V: a: 100 μ L/6 mL; b: 50 μ L/6 mL; c: 25 μ L/6 mL; d: 10 μ L/6 mL).



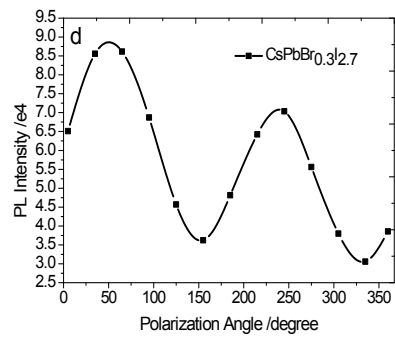
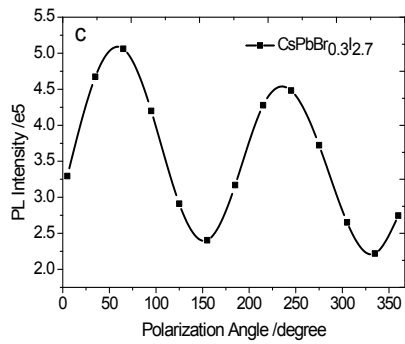


Figure S5: The polarization properties of perovskite films e: a: CsPbBr₃ film; b: CsPbI₃ film.

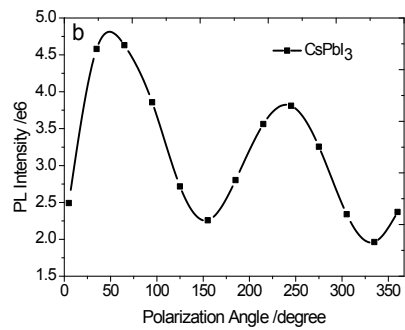
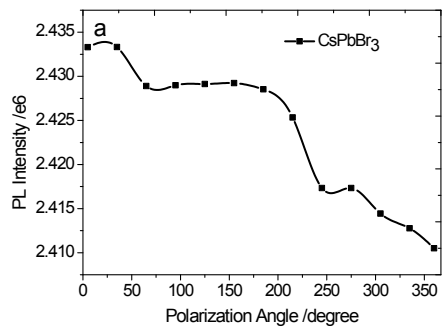


Figure S6: The TEM images of CdSe/ZnS QDs (Left) and CsPbBr₃ (Right).

