

Low-Reflection, (110)-Orientation-Preferred CsPbBr₃ Nanonet Films for Application in High-Performance Perovskite Photodetectors

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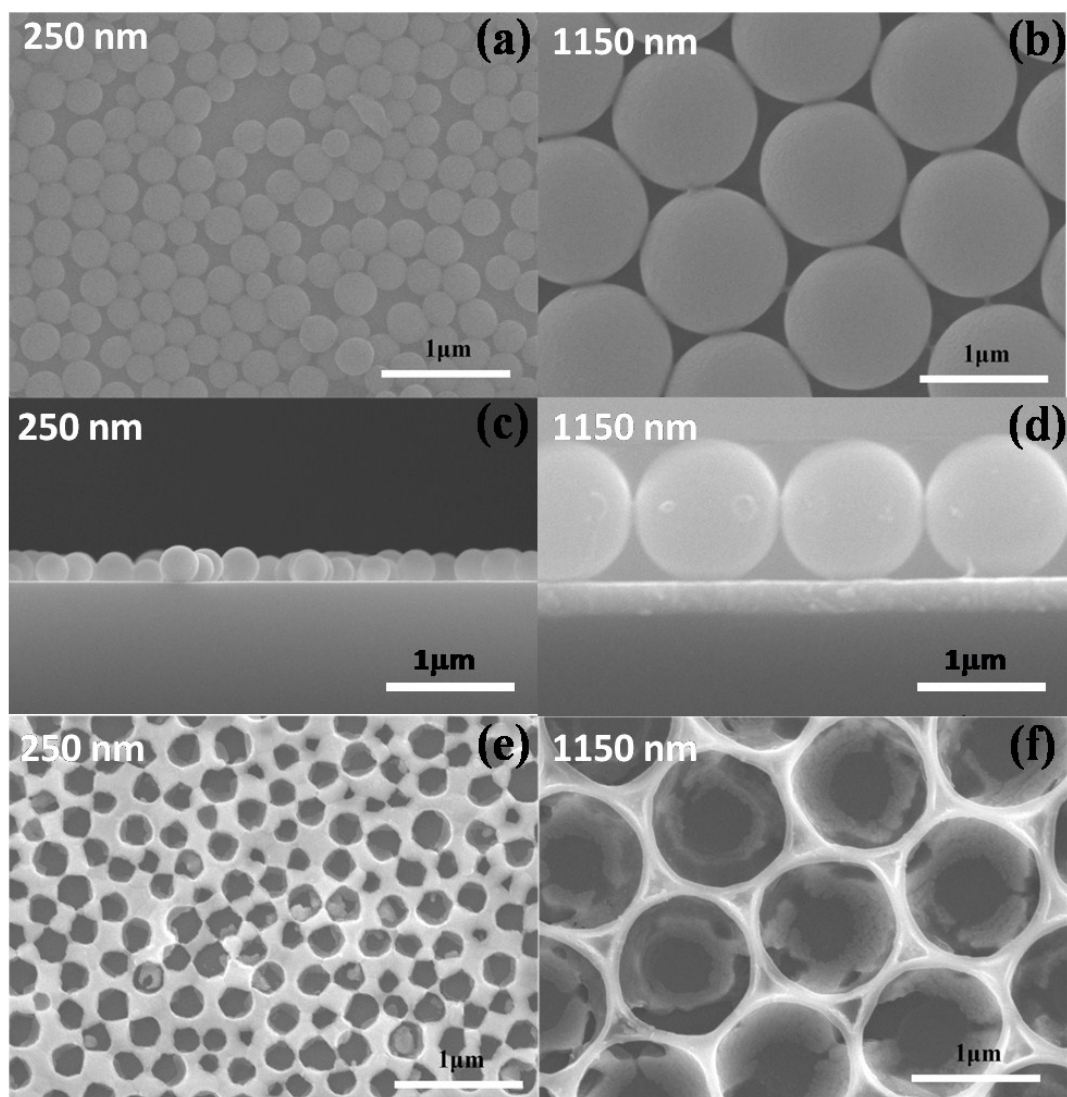


Figure S1 The top SEM images of the PS with the diameter of (a) 250 nm and (b) 1150 nm. The cross sectional SEM images of the PS with the diameter of (c) 250 nm and (d) 1150 nm. The top view of the SEM images of the CsPbBr₃ prepared with the PS diameter of (e) 250 nm and (f) 1150 nm. The scale bars are 1 μm.

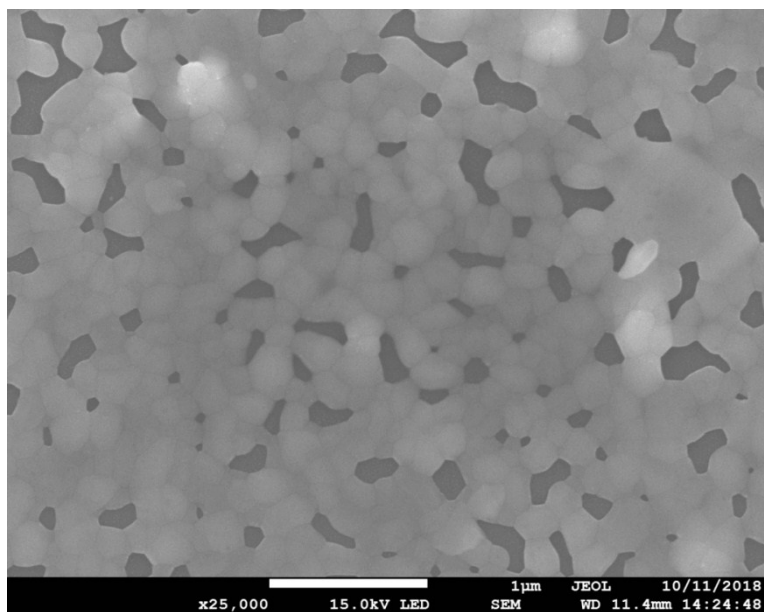


Figure S2 SEM image of CsPbBr₃ film

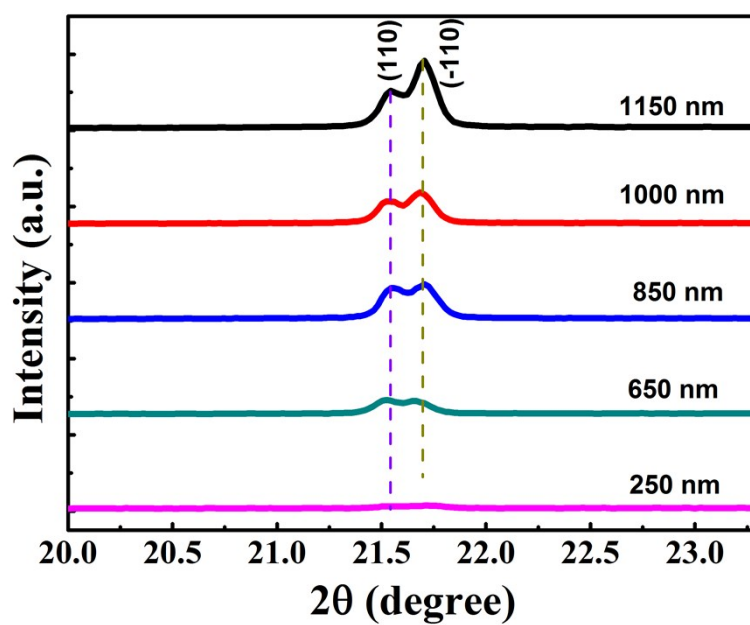


Figure S3 Partially amplified XRD patterns of the CsPbBr₃ NFs.

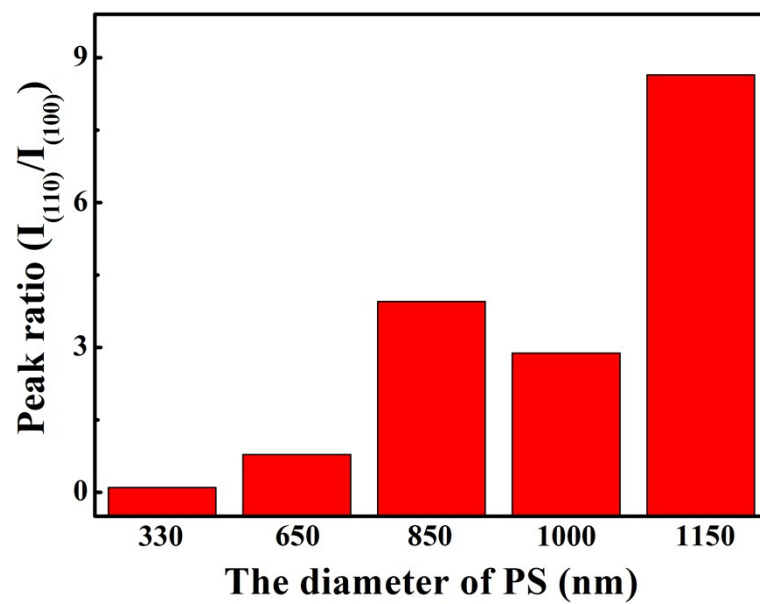


Figure S4 Peak ratios of $I_{(110)}/I_{(100)}$ vs the diameter of the PS sphere.

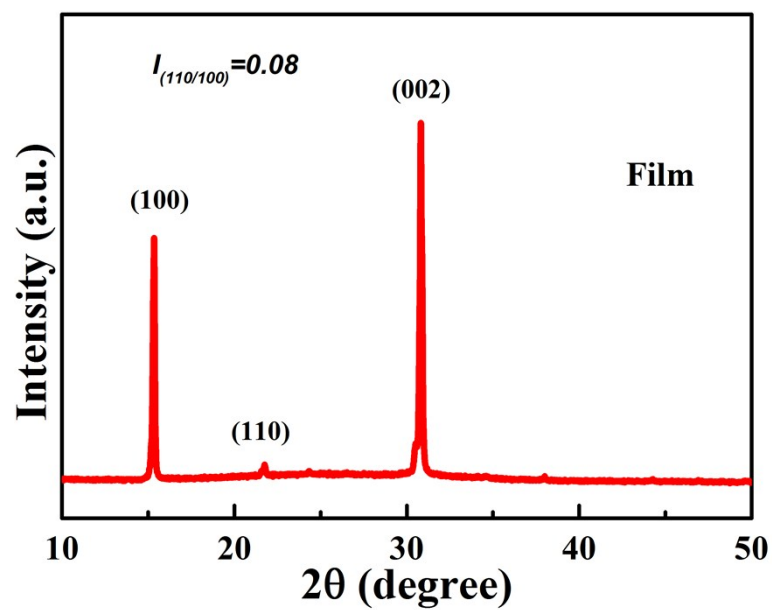


Figure S5 XRD pattern of the CsPbBr₃ films

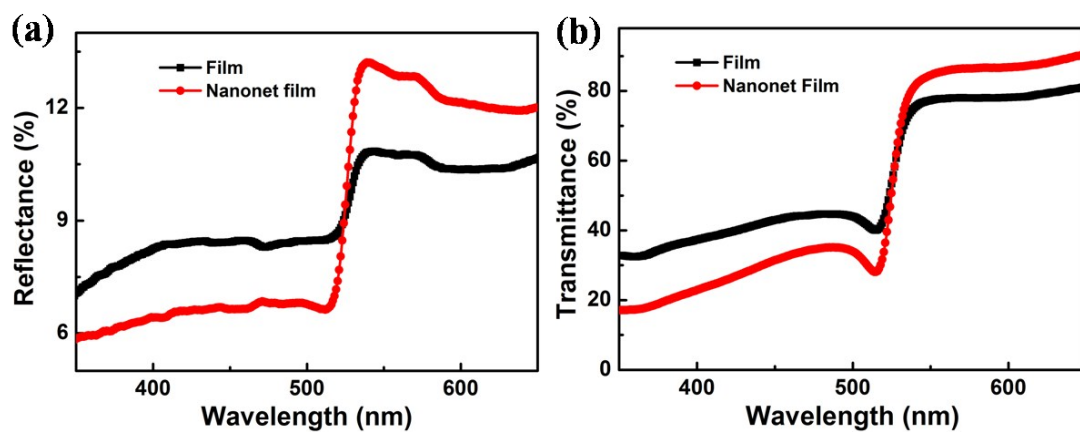


Figure S6 UV-vis spectra of traditionally spin-coated CsPbBr₃ film and CsPbBr₃ nanonet film.

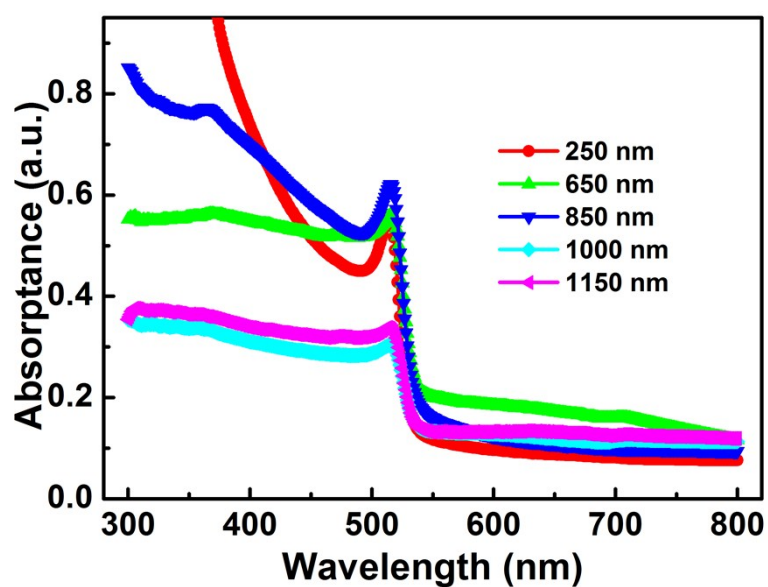


Figure S7 Absorption spectrum of the CsPbBr₃ NF prepared by using various PS spheres.

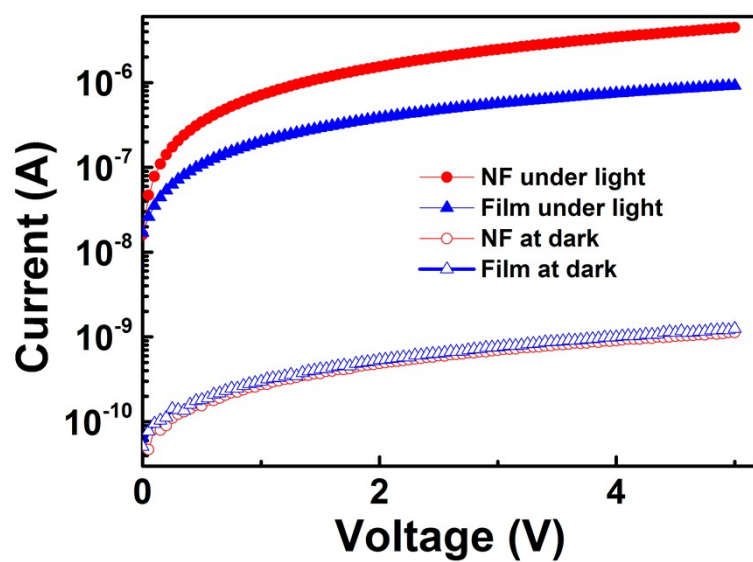


Figure S8 I-V curves of the CsPbBr₃ PDs

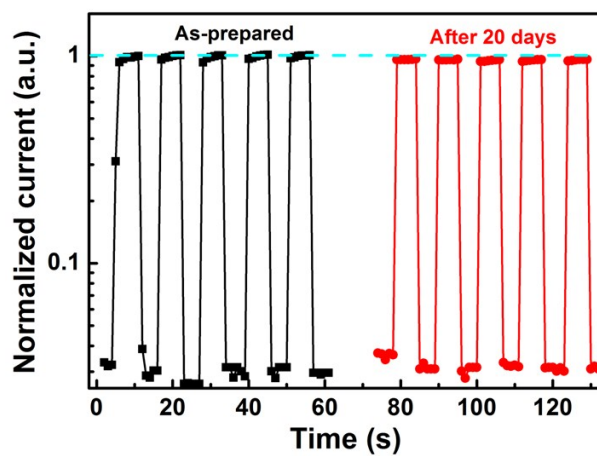


Figure S9 The stability of the device after storage for 20 days in air.

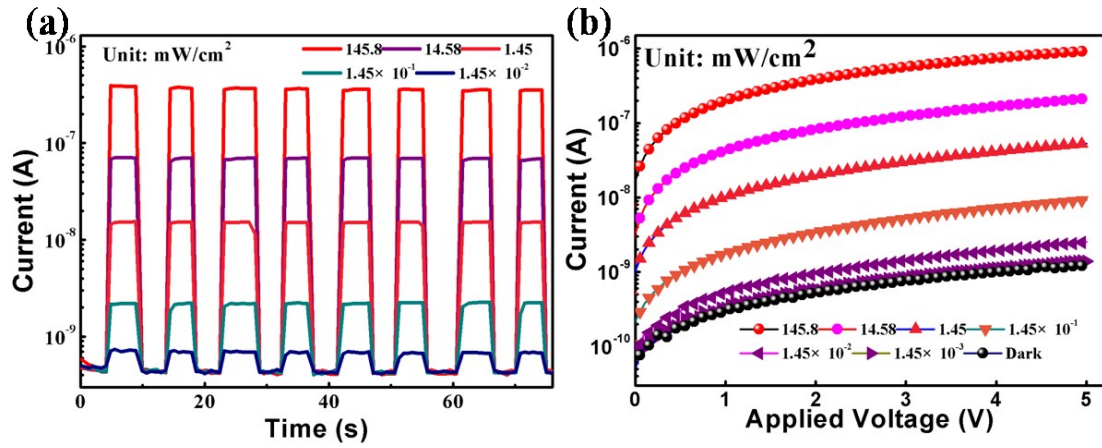


Figure S10 (a) I-t curves of the CsPbBr₃ film PD with various light intensities. (b) I-V curves of the CsPbBr₃ film PD with various light intensities.

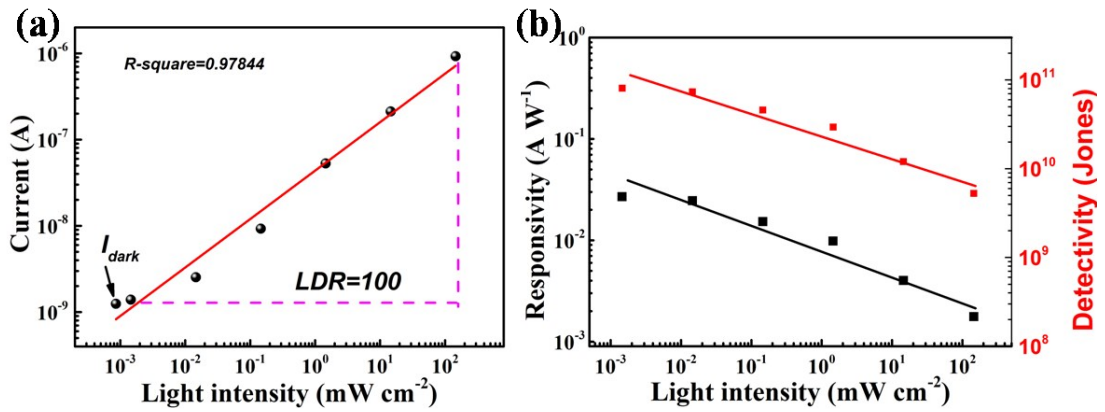


Figure S11 The device performance of the CsPbBr₃ film. (a) Current versus light intensity curve. The LDR of the PD is 100 dB at 5 V bias. (b) Responsivity and detectivity of the PD.

Table S1 The comparison parameters of perovskite PDs

Structure	R (A W ⁻¹)	D (10 ¹² Jones)	On/off ratio	T _{rise} /T _{fall} (ms)	LDR	Reference
CsPbBr ₃ nanonet film	2.84	5.47	4×10 ³	11/16	120	This work
CsPbBr ₃ Single Crystal	0.028		~100	<100	-	1
CsPbBr ₃ microparticles	0.18	6.1×10 ⁻²	>8×10 ³	1.8/1.0	-	2
CsPbBr ₃ Microplatelets	1.33	0.86	4.56×10 ³	20.9/24.6	-	3
CsPbBr ₃ -Cs ₄ PbBr ₆ Films	0.0494	1.2		0.0078/ 0.033	-	4
Two-Dimensional MoS ₂ /CsPbBr ₃	4.4	0.025	1.67×10 ⁴	0.72/1.01	-	5
CsPbBr ₃ -CsPb ₂ Br ₅ Thin Films	0.375	0.296	380	0.28/0.64	-	6

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