Electronic Supplementary Information (ESI)

Low-Temperature Synthesis of All-Inorganic Perovskite Nanocrystals for UV-Photodetectors

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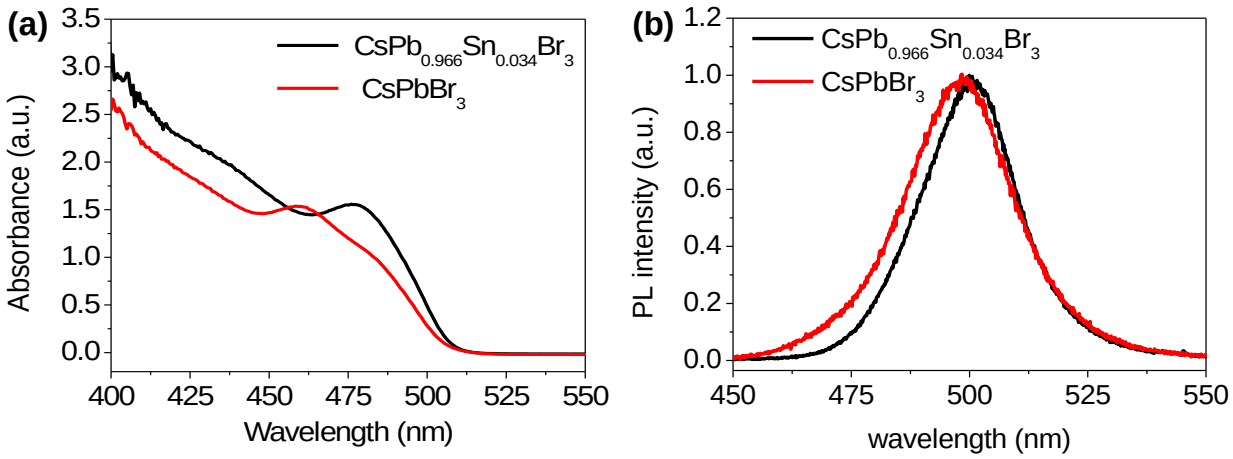
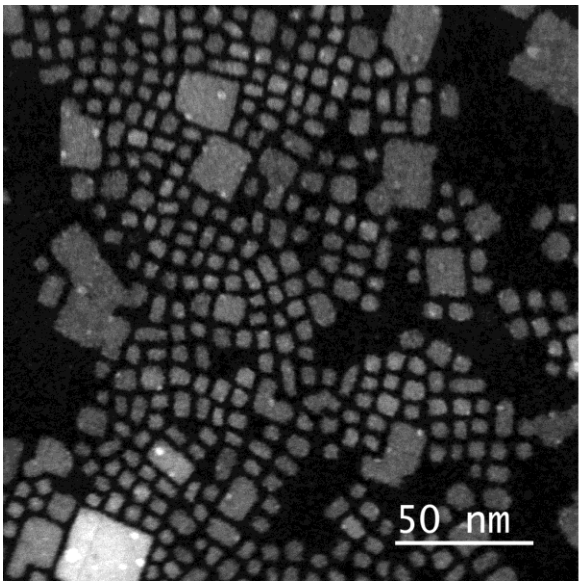


Figure S1. Absorbance (a) and photoluminescence (PL) (b) spectra of solutions of $CsPb_{0.966}Sn_{0.034}Br_3$ (black) and $CsPbBr_3$ (red) nanocrystals obtained under identical conditions at 135 ^{o}C.



Without Sn, 135 ^{o}C

Figure S2. Morphology revealed by HAADF-STEM imageof nanocrystals without Sn synthesized at 135 ^{o}C.

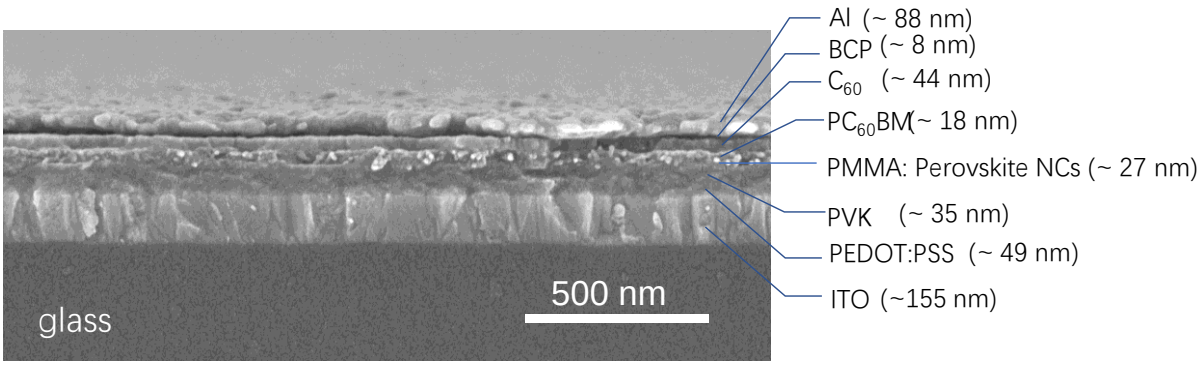


Figure S3. Cross section SEM image to show the thickness of each layer of the device.

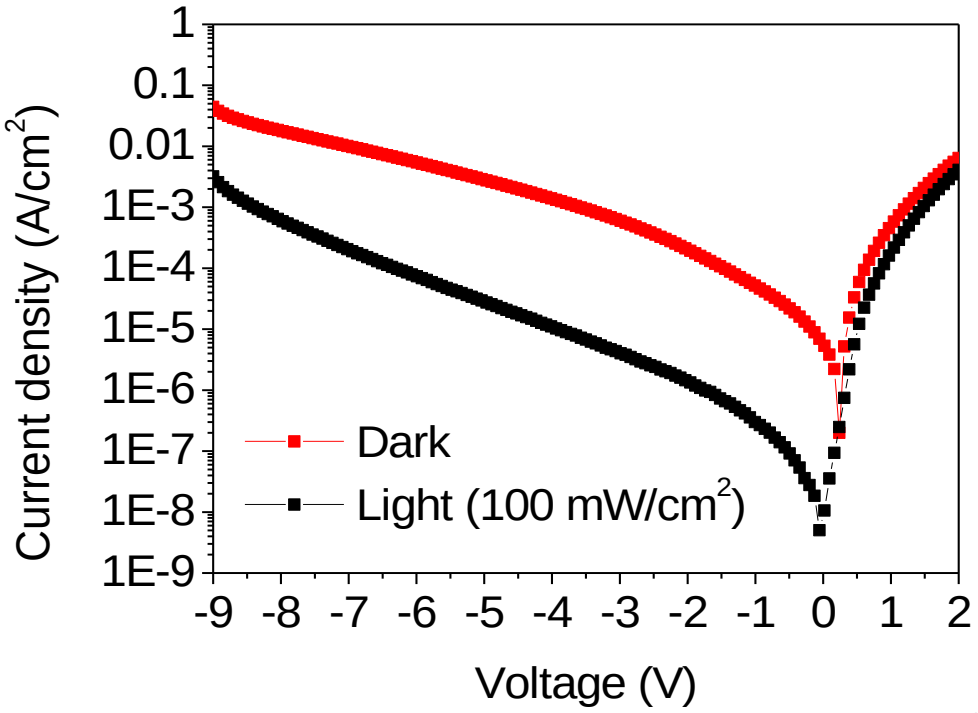


Figure S4. *J-V* curves measured under dark and illumination of 100 mW/cm^2.

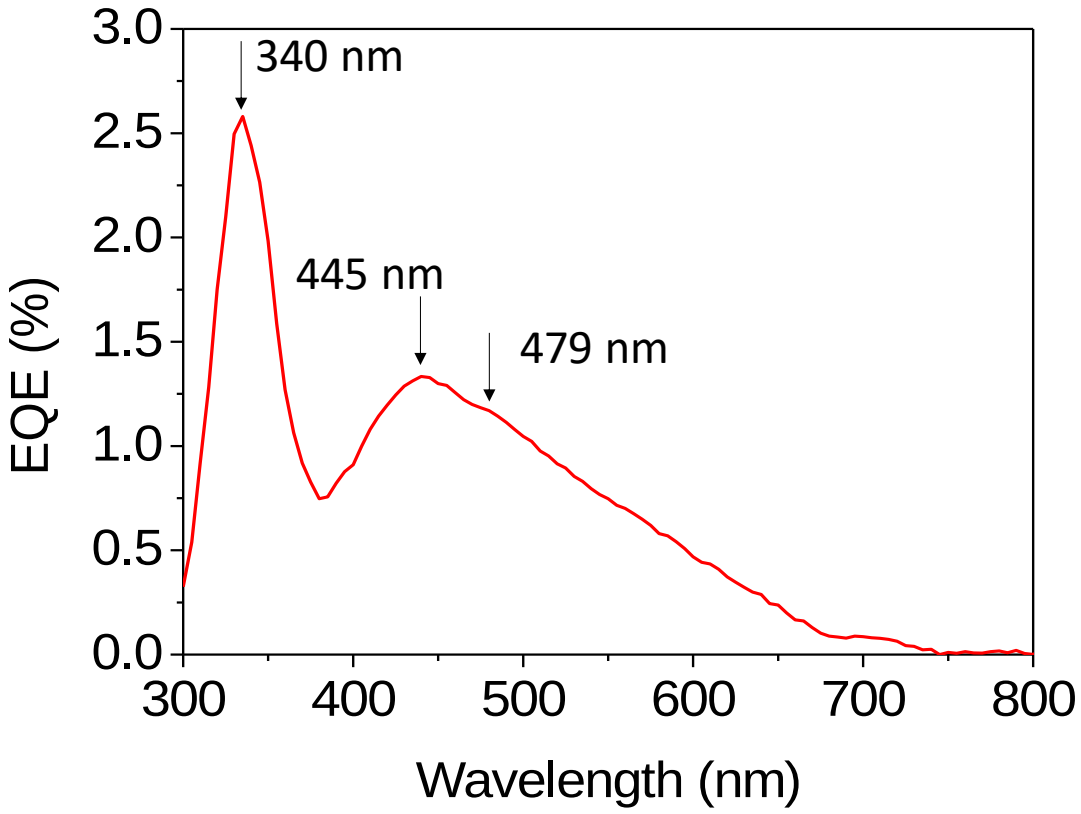


Figure S5. Bias-free EQE as a function of wavelength collected at 0 V.

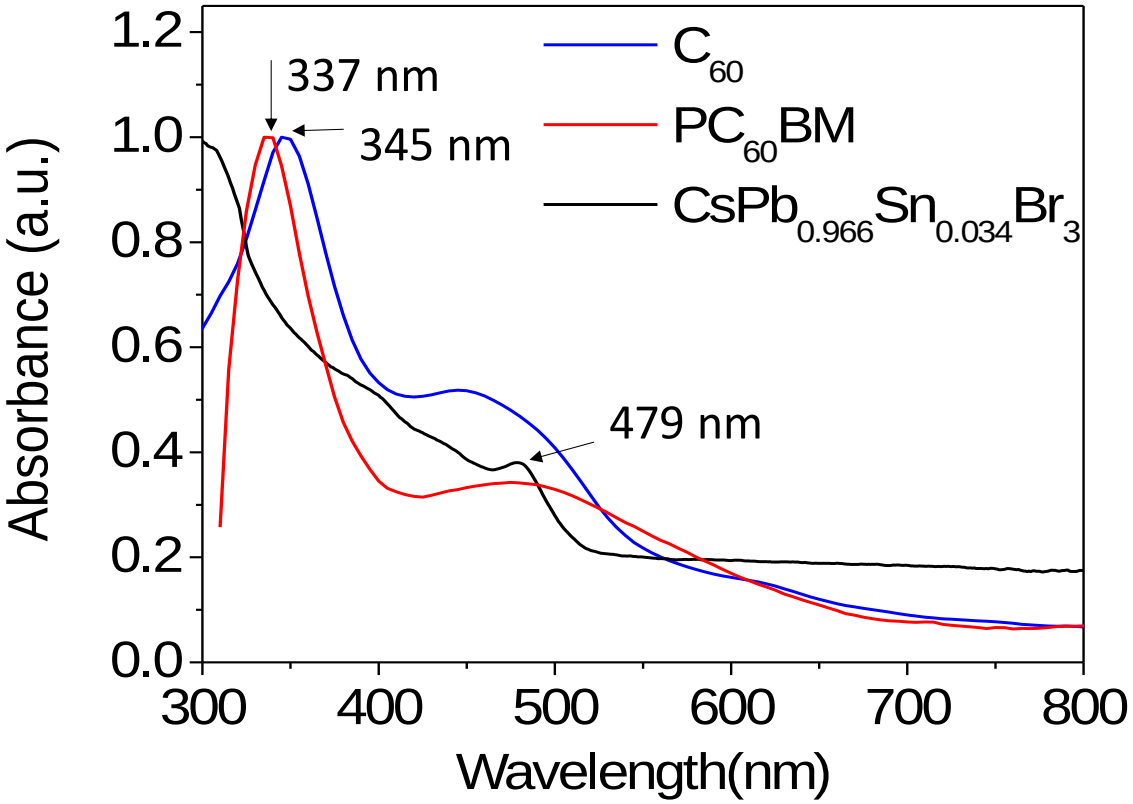


Figure S6. Absorbance of C_{60}, $PC_{60}BM$, and $CsPb_{0.966}Sn_{0.034}Br_3$ nanocrystal films.

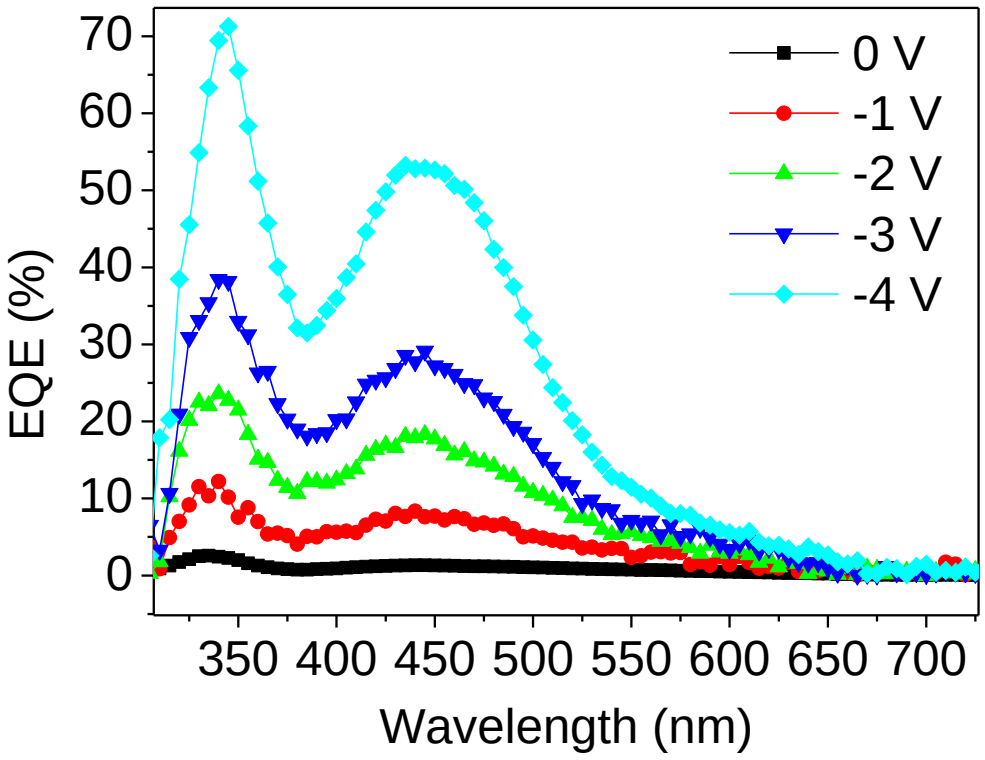


Figure S7. the EQE curves at 0 to -4 V acquired from the device with an architecture of ITO/PEDOT:PSS/PVK/$CsPb_{0.966}Sn_{0.034}Br_3$: PMMA/$PC_{60}BM$/$C_{60}$/BCP/Al.

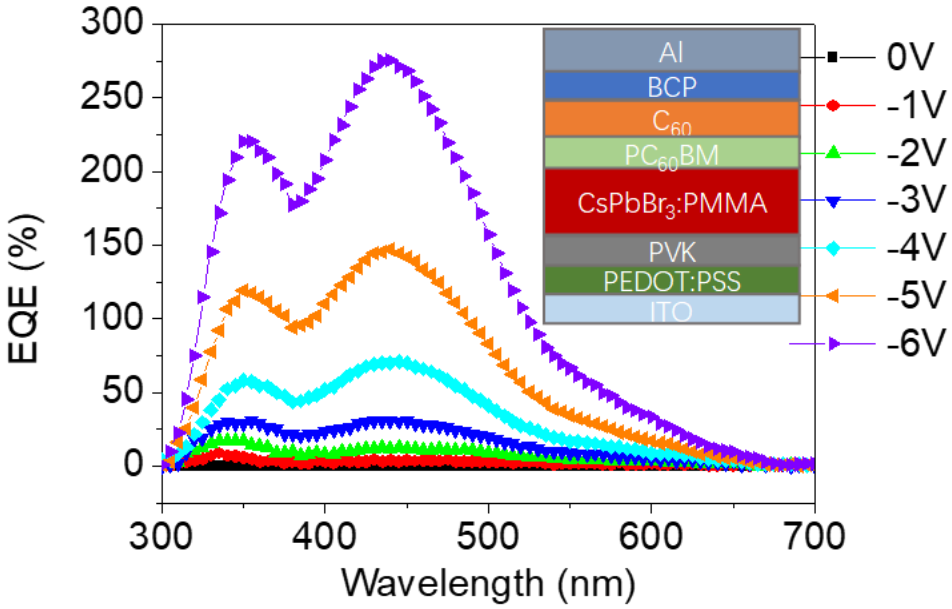


Figure S8. Variation of EQE curves with changing bias from 0 to -6 V acquired from the Sn-free nanocrystal based device.

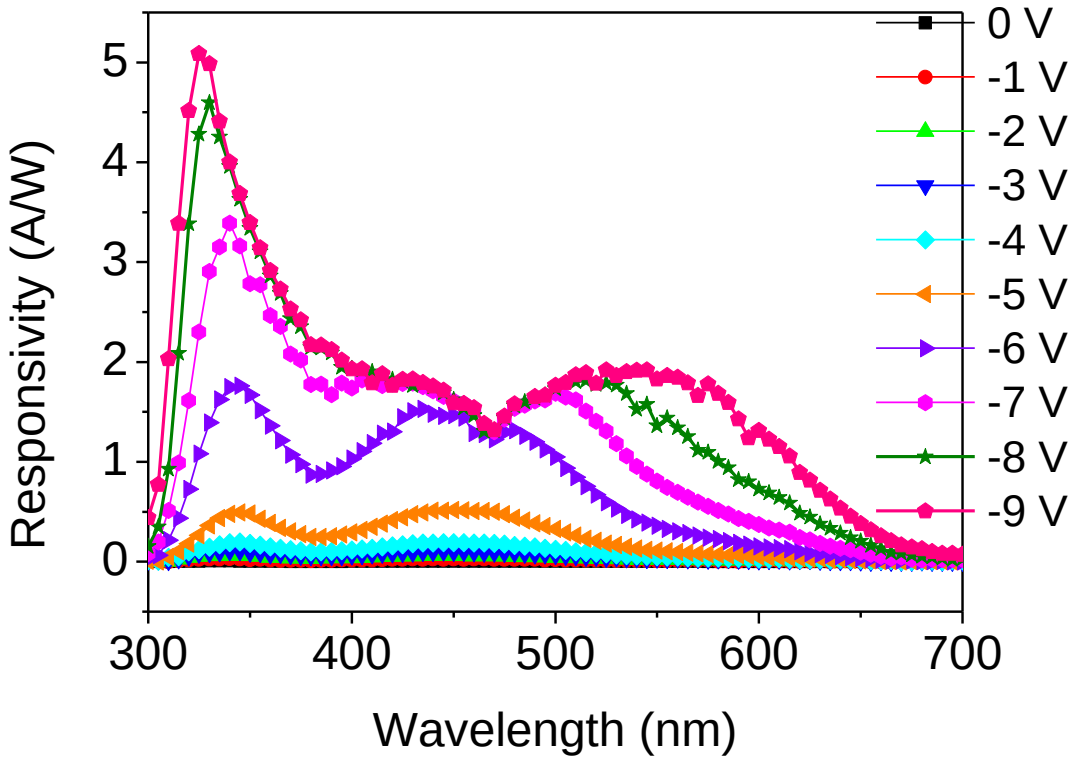


Figure S9. Variation of photoresponsivity curves with changing bias from 0 to -9 V.

Table S1. Summary of growth temperature, doping ratio, nanocrystal size, and standard deviation for each condition

Sample	Temperature (℃)	Doping ratio (x%)	Size±standard deviation (nm)
$CsPb_{1-X}Sn_XBr_3$	105	0	6.2±1.9
	120	2.4	6.8±3.9
	135	3.4	7.4±2.1
	150	0	8.3±4.8
$CsPbBr_3$	135	0	7.6±3.4