Supporting Information

Type-II $CsPbBr_3/SnS_2$ Heterostructure NCs: Toward High-Performance Self-Powered UV Photodetector

Ge Gao[1], Li Chen[1,*], Dingyiran Wu[1], Xingyu Pan[1], Dingkang Xiong[1], Liuting Chen[1], Bingsuo Zou[1,2,*]

1 School of Physical Science and Technology, State Key Laboratory of Featured Metal Materials and Life-cycle Safety for Composite Structures, Guangxi University, Nanning 530004, China.

2 School of Resources, Environments and Materials, Guangxi University, Nanning 530004, China

Corresponding Authors

*Email: chenli@gxu.edu.cn, zoubs@gxu.edu.cn

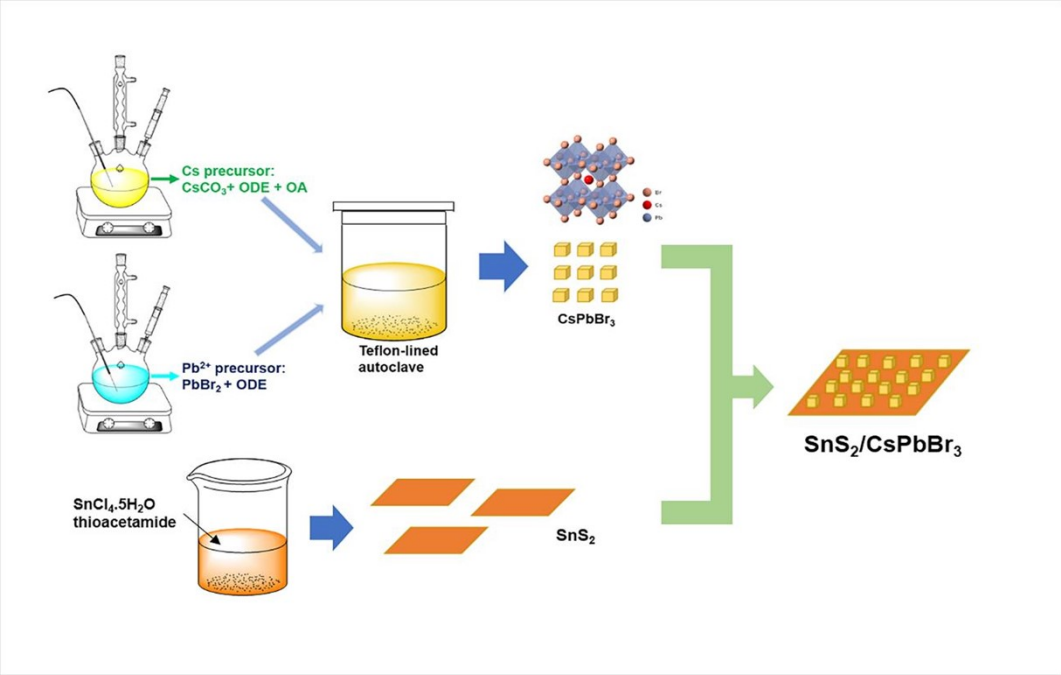

Figure S1. Schematic diagram of the synthesis process for $CsPbBr_3/SnS_2$ composite materials.

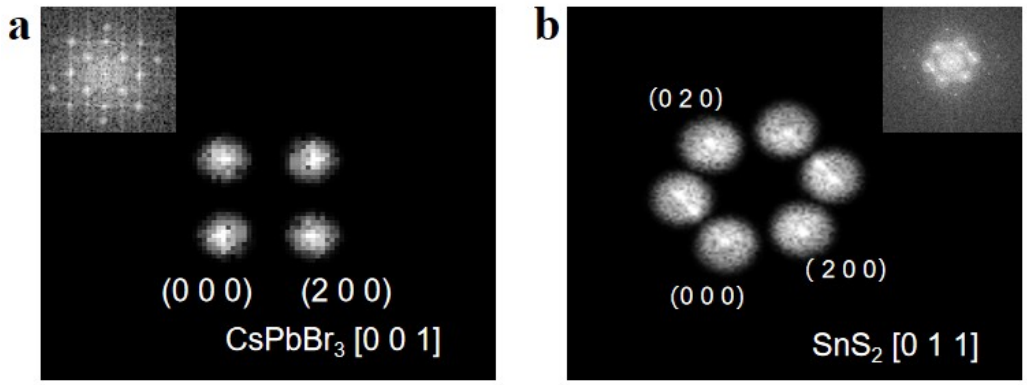

Figure S2. FFT characterization of the $CsPbBr_3$ and SnS_2 heterostructure NC . (a) $CsPbBr_3$ in [001] and (b) SnS_2 in [011] axes.

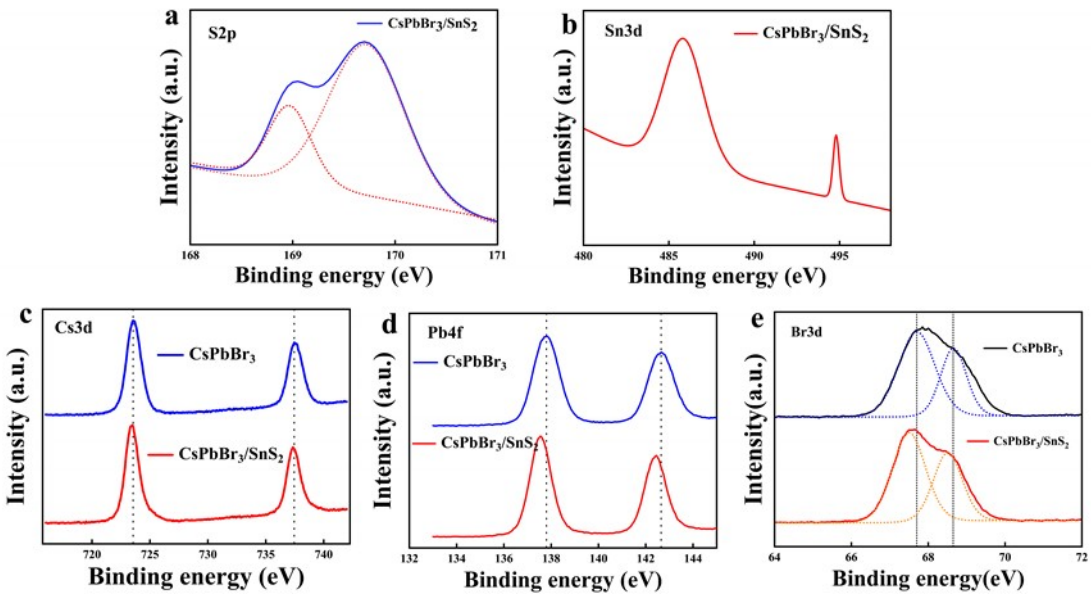

Figure S3. The XPS survey spectra of $CsPbBr_3$ NCs and $CsPbBr_3/SnS_2$ heterostructure NCs.

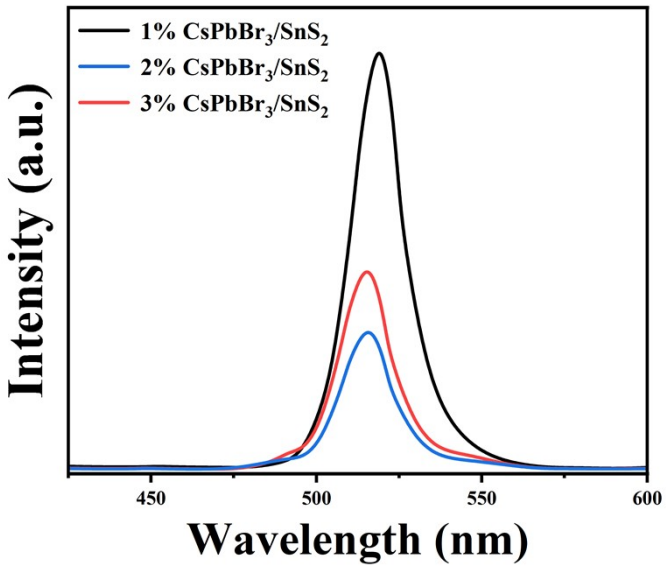

Figure S4. PL spectra of $CsPbBr_3/SnS_2$ with different mass ratios.

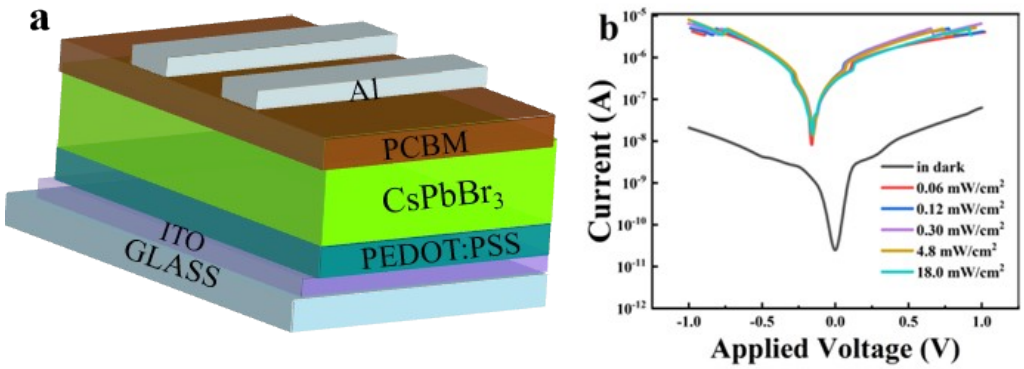

Figure S5. (a) Structure diagram of device A; (b) I-V characteristics of device A.

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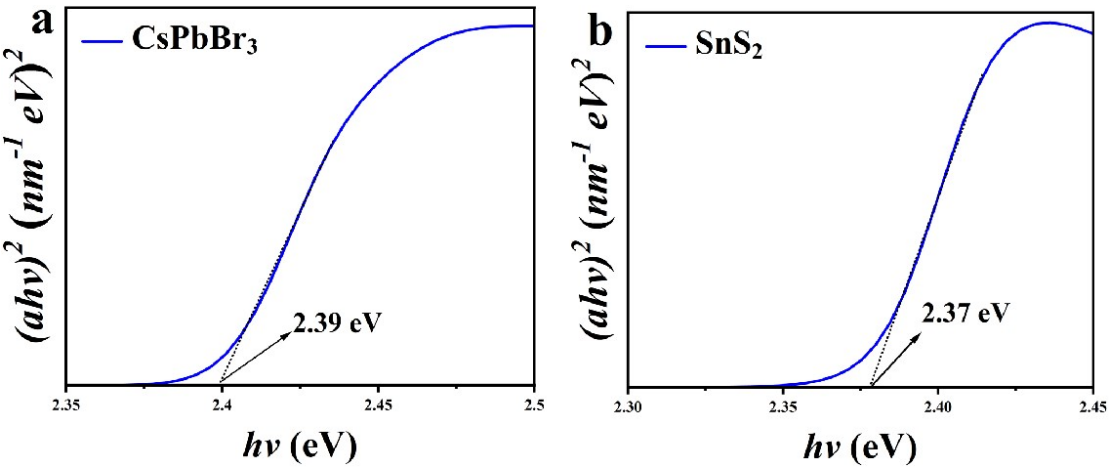

Figure S6. Tauc plots of as-prepared (a) $CsPbBr_3$ NCs and (b) SnS_2 NCs.

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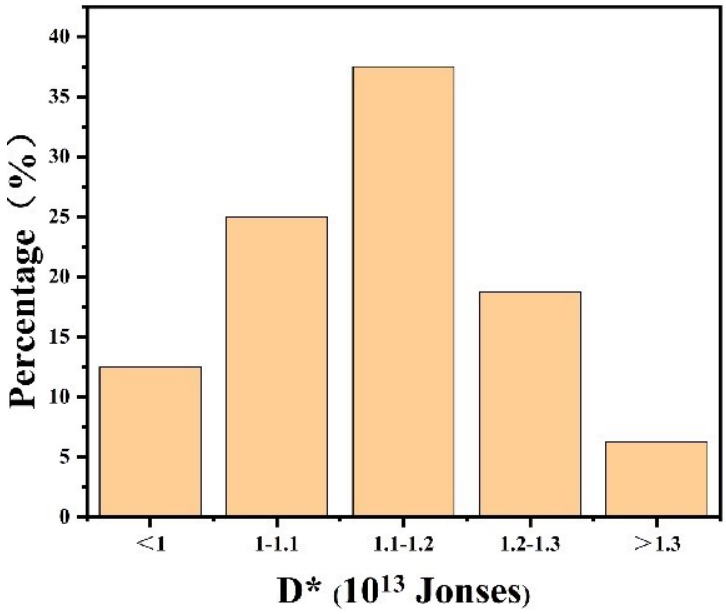

Figure S7. Distribution of D* performance ratios.

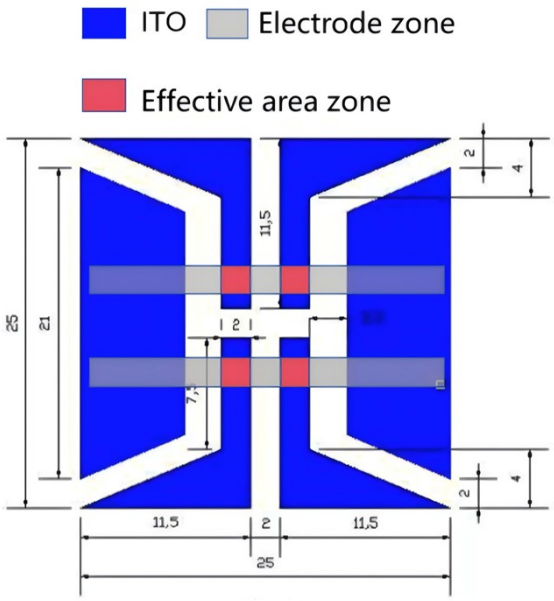

Figure S8. Schematic diagram of effective area of device.

The effective active area of our device is defined by the overlapping region between the patterned ITO electrod and the thermally evaporated metal electrode. Both the metal electrode and the ITO electrode in the overlapping region have a uniform width of 0.2 cm, resulting an effective device area of 0.04 cm^2.

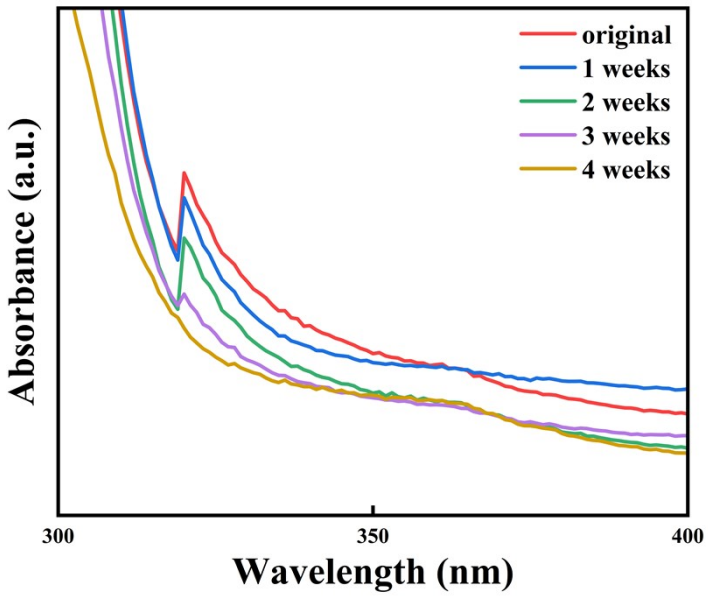

Figure S9. Absorption spectra of $CsPbBr_3/SnS_2$ films in the ultraviolet band after different storage times.