

Supporting Information

Enhanced Self-powered UV Photodetection from X Chromosome-shaped $\text{Cs}_3\text{Cu}_2\text{I}_5$ Microcrystals

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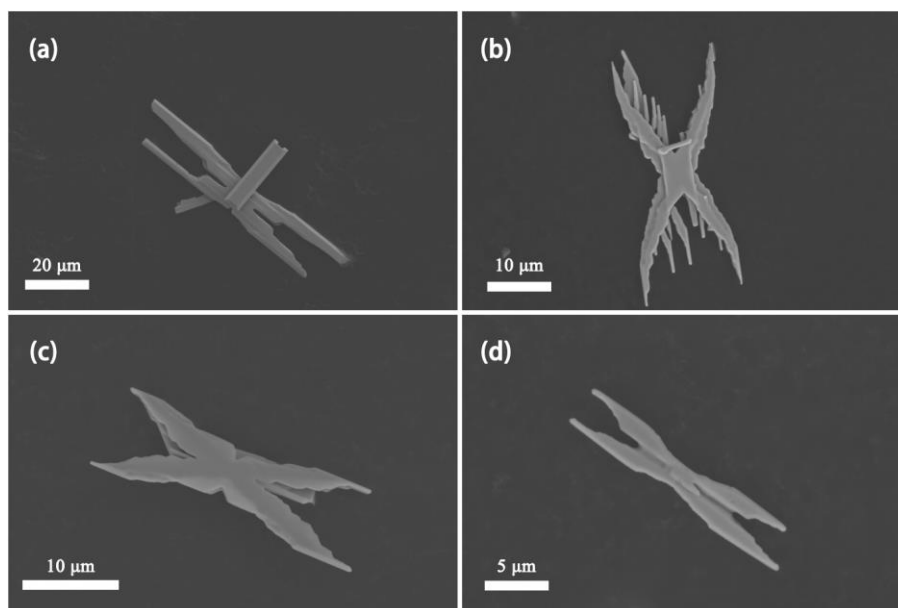


Figure S1. SEM images of different sizes of the X chromosome-like $\text{Cs}_3\text{Cu}_2\text{I}_5$ MCs under different IPA dropping speed: (a) 0.2 mL/s, (b) 1 mL/s, (c) 5 mL/s, (d) 10 mL/s.

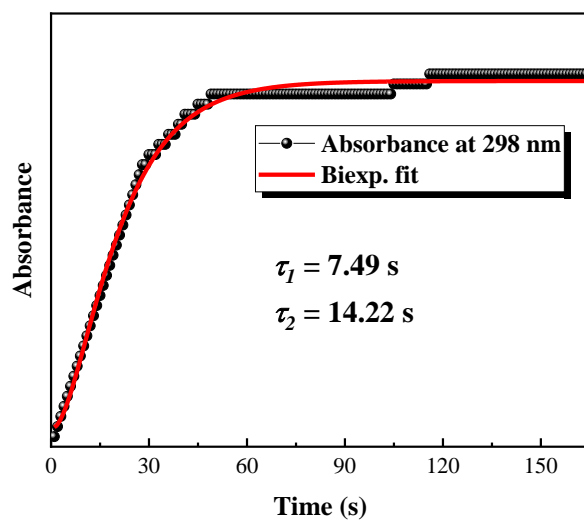


Figure S2. Dynamic trace at 298 nm showing the change in absorbance during the treatment of the anti-solvent IPA and its fitting curve.

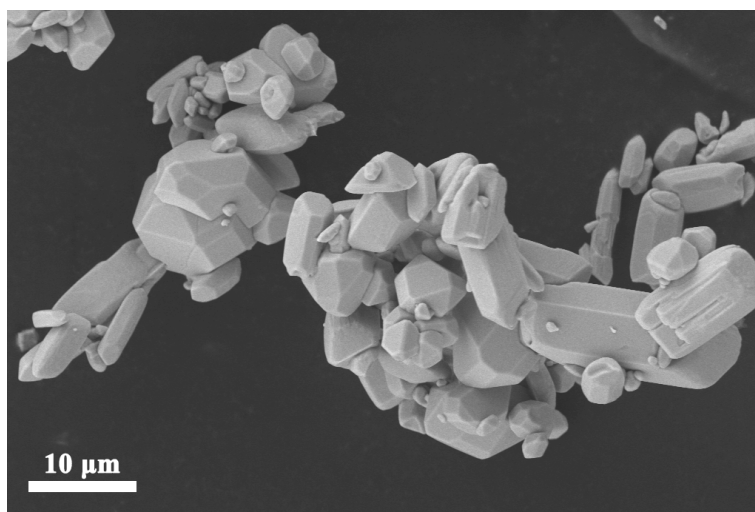


Figure S3. SEM image of $\text{Cs}_3\text{Cu}_2\text{I}_5$ MCs with DMF: DMSO = 1: 0.25.

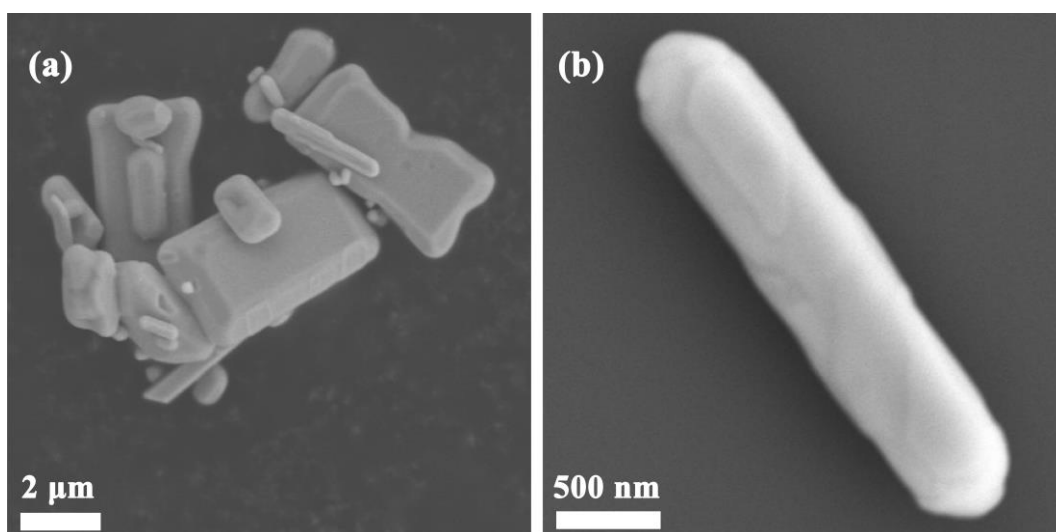


Figure S4. SEM images of $\text{Cs}_3\text{Cu}_2\text{I}_5$ crystals: (a) without surfactant agent. (b) with another surfactant agent OAm.

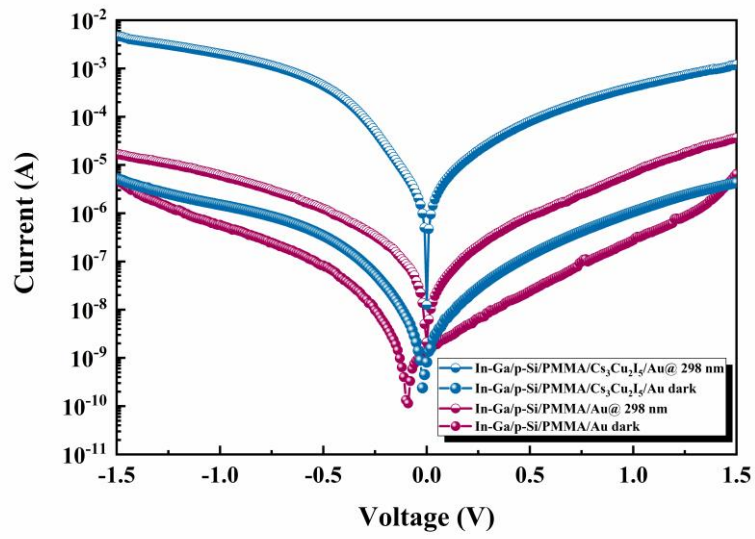


Figure S5. I-V curves in dark and under 298 nm UV light of In-Ga/p-Si/PMMA/Au device and In-Ga/p-Si/PMMA/Cs₃Cu₂I₅ MCs/Au PD.

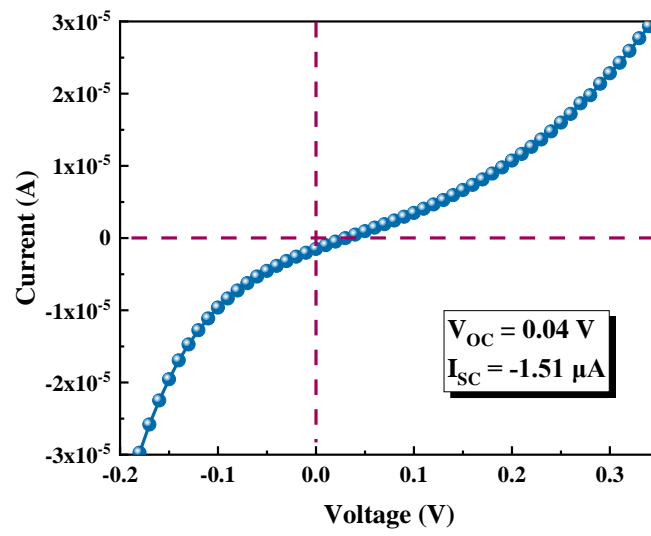


Figure S6. Enlarged I-V curve demonstrating the photovoltaic effect of the device.

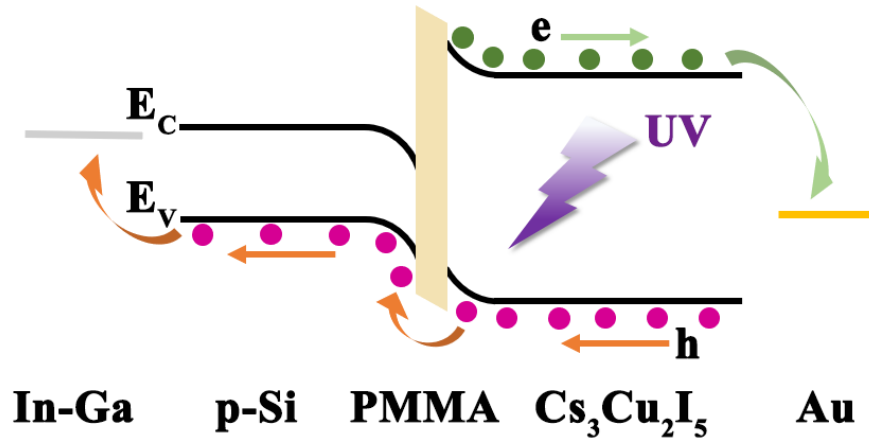


Figure S7. Energy band diagram of the heterostructure.

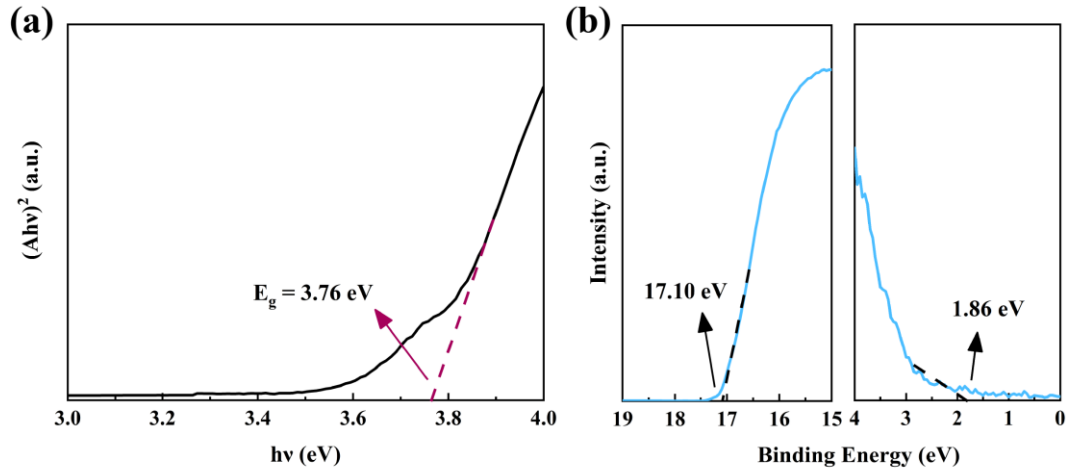


Figure S8. (a) Absorption spectra of the X chromosome-shaped $\text{Cs}_3\text{Cu}_2\text{I}_5$ MCs. (b) UPS spectra measured by He I ($h\nu = 21.22$ eV). $E_F = E_{\text{cutoff1}} - h\nu = 17.10 - 21.22 = -4.12$ eV, $E_V = E_F - E_{\text{cutoff2}} = -4.12 - 1.86 = -5.98$ eV, $E_C = E_V + E_g = -5.98 + 3.76 = -2.22$ eV.