Lead-Free Halide Double Perovskite-Polymer Composites for Flexible X-Ray Imaging

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Table S1. Summary of reported X-ray sensitivities using halide perovskite as photoconductors

Materials	Detection Sensitivity	References
$(CH_3NH_3)PbI_3$ polycrystalline films	2.5×10^4 μC Gy_{air}^{-1} cm^{-2}	Yakunin [16]
$(CH_3NH_3)PbI_3$ polycrystalline films	1.1×10^4 μC Gy_{air}^{-1} cm^{-2}	Kim [17]
$(CH_3NH_3)PbI_3$ polycrystalline wafers	2.5×10^3 μC Gy_{air}^{-1} cm^{-2}	Shrestha [18]
$(CH_3NH_3)PbBr_3$ single crystals	80 μC Gy_{air}^{-1} cm^{-2}	Wei H. [19]
$(CH_3NH_3)PbBr_3$/Silicon integrated single crystals	2.1×10^4 μC Gy_{air}^{-1} cm^{-2}	Wei W. [20]
$Cs_2AgBiBr_6$ single crystals	105 μC Gy_{air}^{-1} cm^{-2}	Pan [21]
$Cs_2AgBiBr_6$/PVA composite thin films	40 μC Gy_{air}^{-1} cm^{-2}	This work

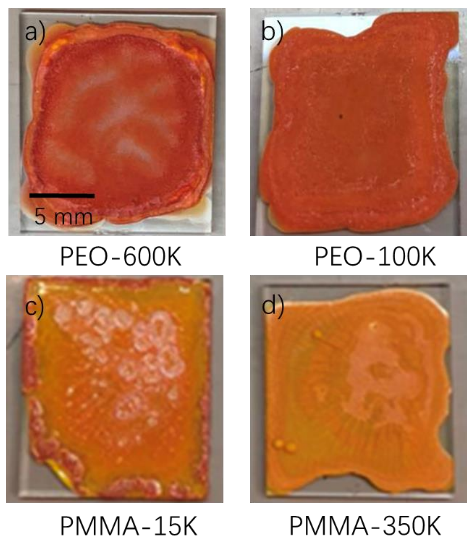

Figure S1. Optical photos of solution-casted $Cs_2AgBiBr_6$-polymer composite films with a) PEO (M_w ~600,000), b) PEO (M_w ~100,000), c) PMMA (M_w ~15,000), and d) PMMA (M_w ~350,000).

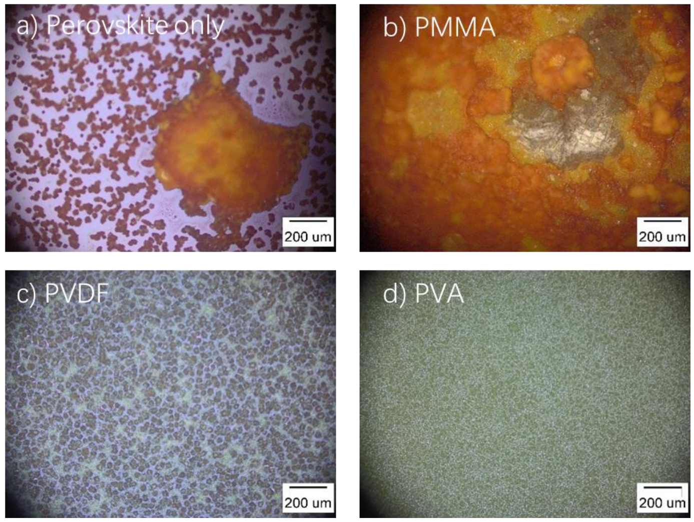

Figure S2. Optical microscopic images of a) a pristine perovskite film, b) perovskite/PMMA, c) perovskite/PVDF, and d) perovskite/PVA composite films with a perovskite:polymer weight ratio of 2:1.

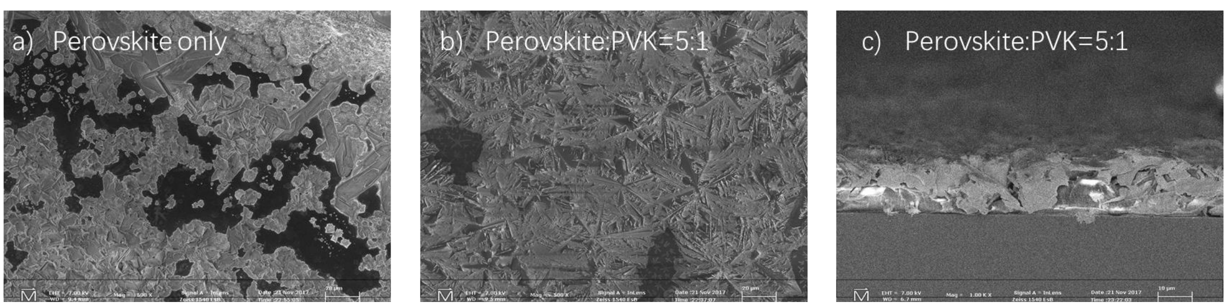

Figure S3. SEM images of a) a pristine perovskite film and a perovskite/PVA composite film with 5:1 weight ratio (perovskite:PVA), b) top view and c) cross-sectional view.

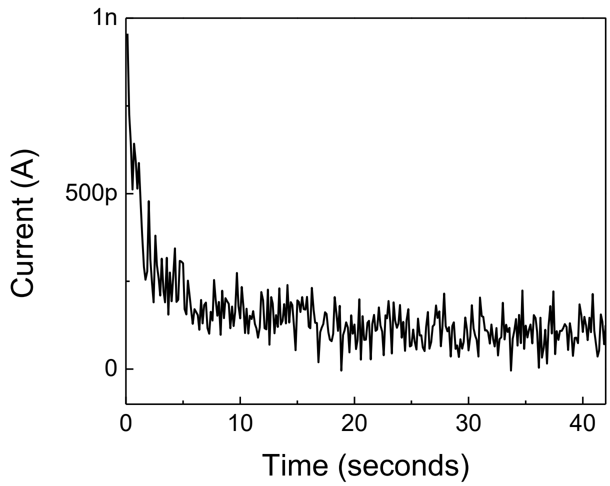

Figure S4. The current-time response of a pure PVA film (100 μm) at 400 V to four X-ray on/off cycles. No obvious current increase/decrease was observed.

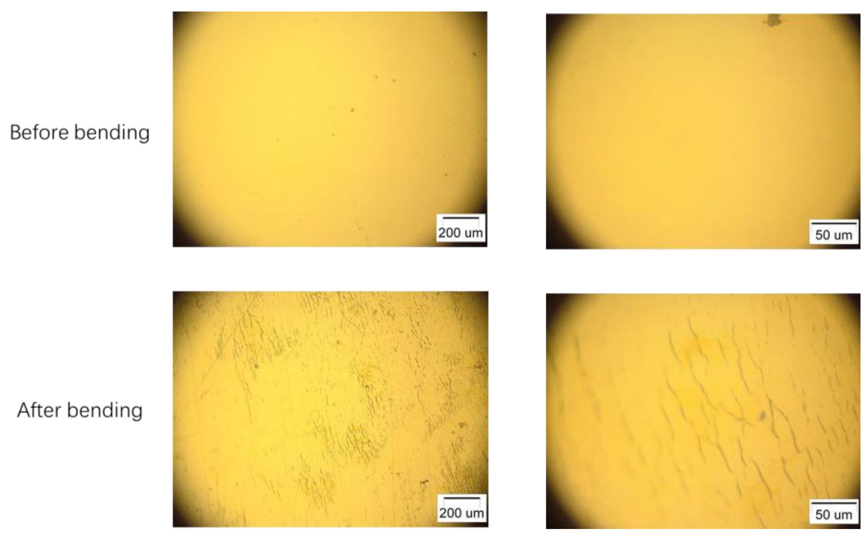

Figure S5. Microscopic optical images of one gold thin film (100nm) on a polyethylene terephthalate (PET) plastic sheet before (top) and after (bottom) one cycle of compressive/tensile bending test with a minimal bending radius of 2mm.

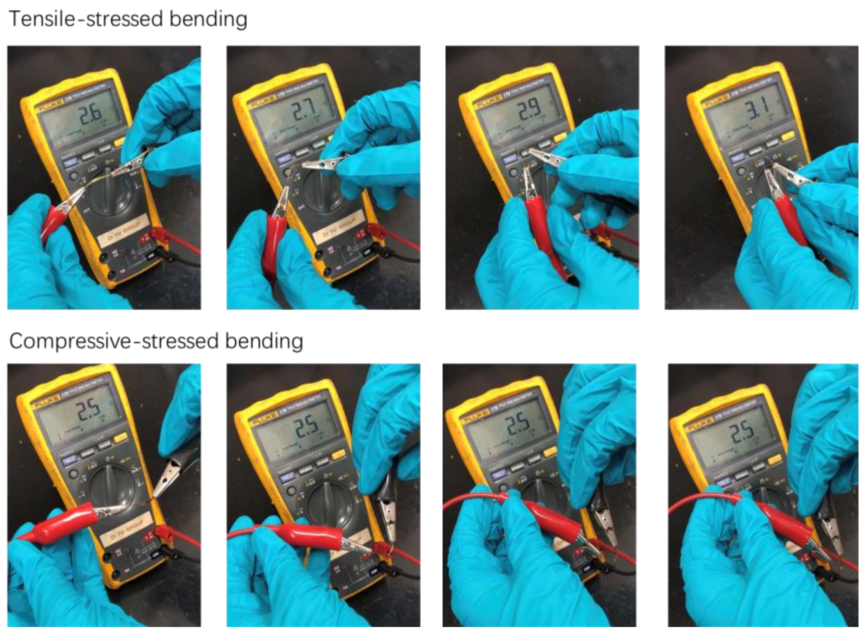

Figure S6. Resistance evolution of the 100nm-gold thin film on PET during (top) tensile-stressed bending and (bottom) compressive-stressed bending with a minimal bending radius of 2mm.

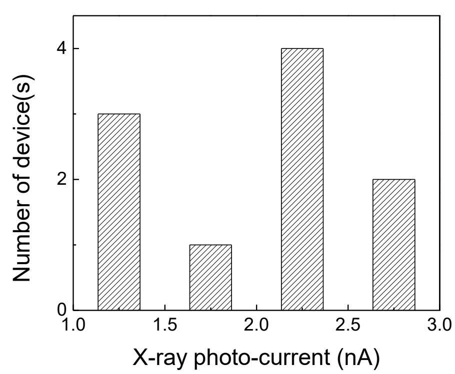

Figure S7. A histogram of X-ray induced photocurrents for total ten devices that were measured in Figure 5c