

Supporting Information

Figures



Figure S1. Optical microscope image of PbBr₂ microwire, with a diameter of 30 μm.

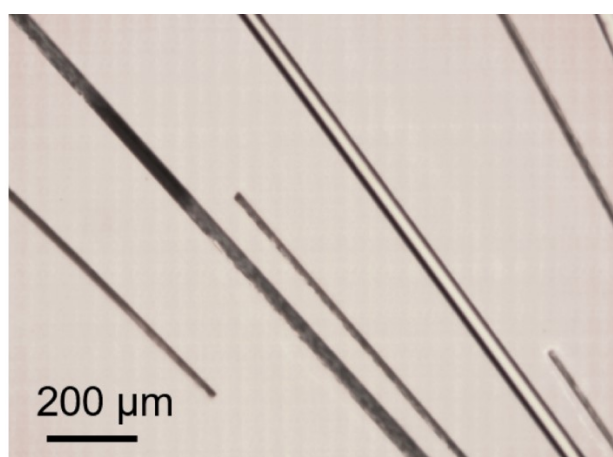


Figure S2. Optical microscope image indicating the homogeneity of PbBr₂ microwires.

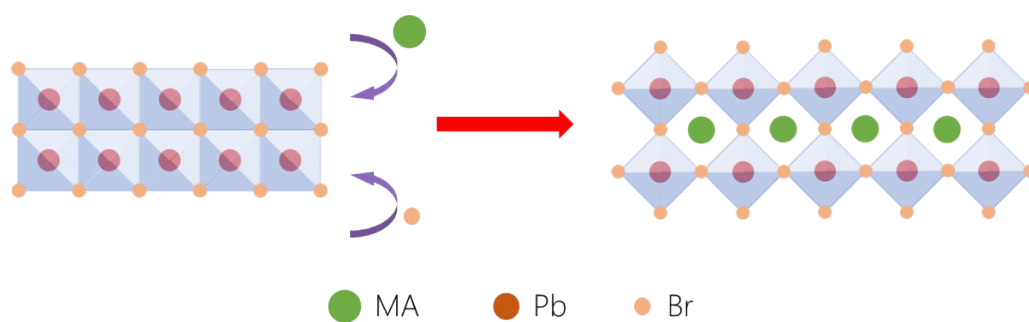


Figure S3. Schematic diagram of the formation process from PbBr₂ to MAPbBr₃.

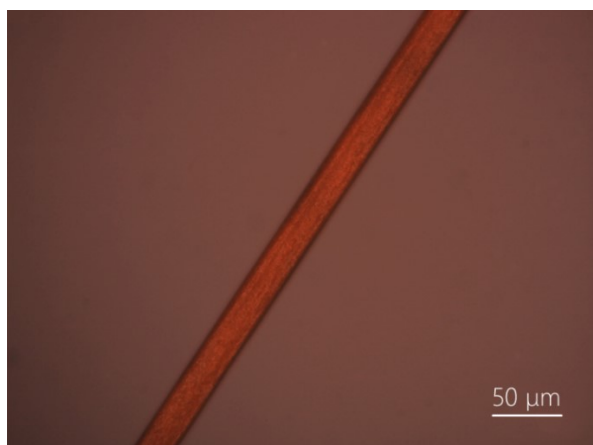


Figure S4. Optical microscope image of the prepared MAPbBr₃ microwire.

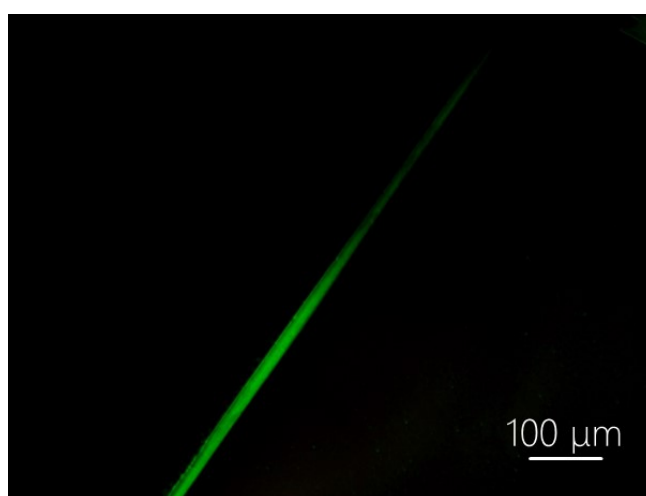


Figure S5. Optical microscope image of the prepared MAPbBr₃ microwire, under excitation of 266 nm, exhibiting an uniform luminescence.

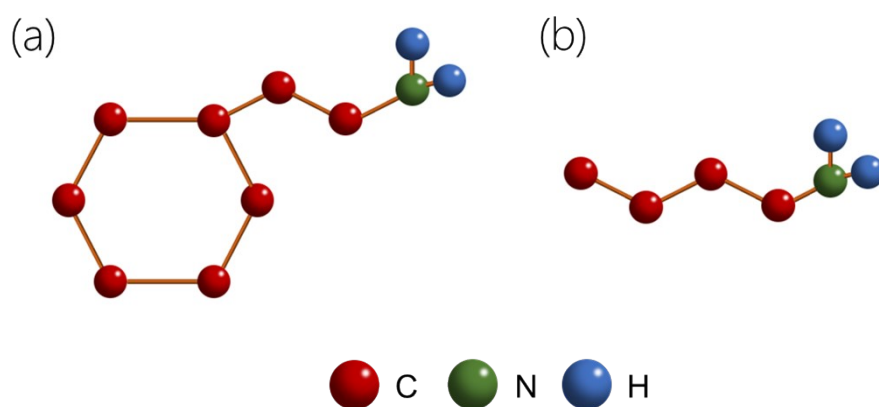


Figure S6. Schematic diagram of the molecular structure of (a) PEABr and (b) BABr.

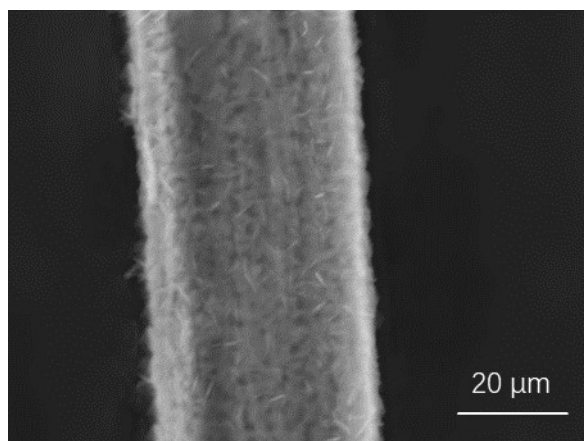


Figure S7. SEM image of the BA passivated microwire, the scale bar is 20 μm .

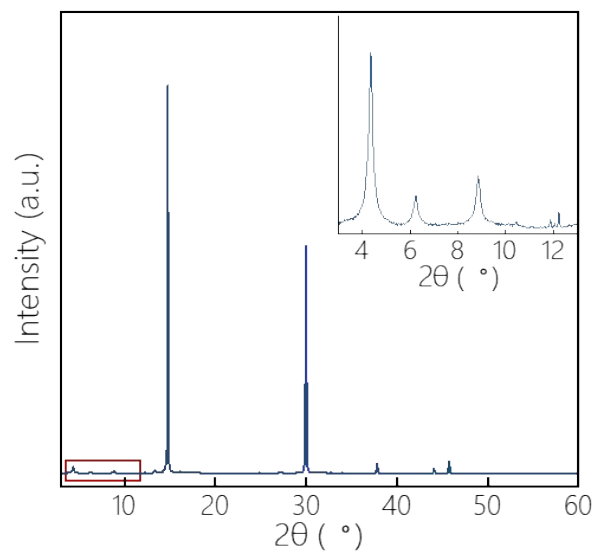


Figure S8. XRD pattern of the BA passivated microwire, the top right pattern is the zoom in of 2θ from 4° to 10°.

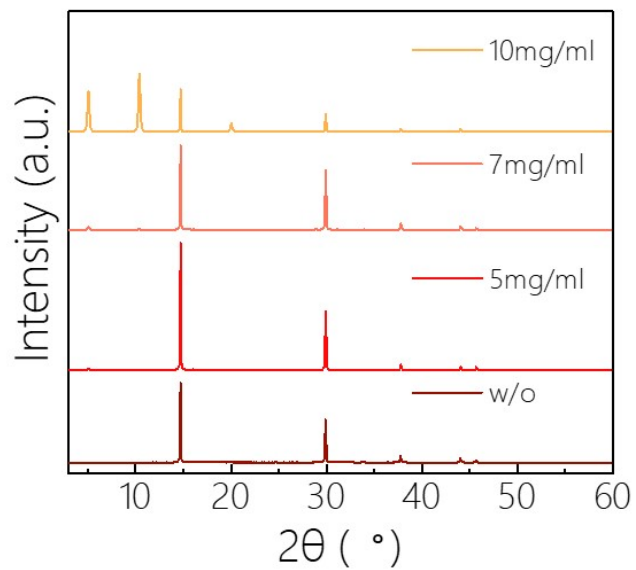


Figure S9. XRD patterns of the PEA passivated microwire with different PEABr concentration.

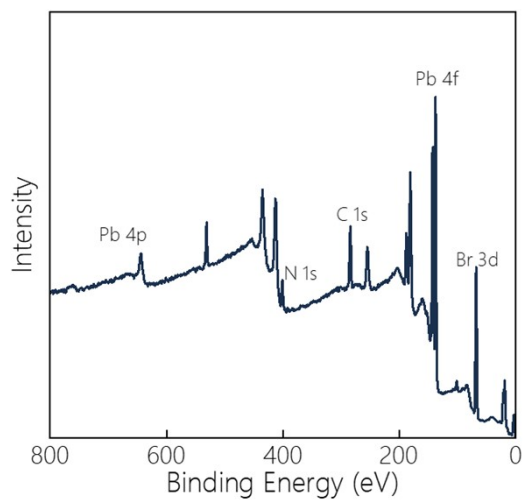


Figure S10. Survey spectra of X-ray photoelectron spectroscopy (XPS) of MAPbBr₃ microwire.

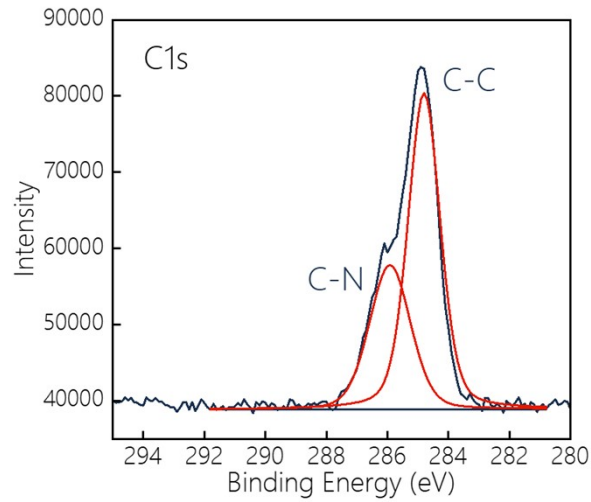


Figure S11. C1s XPS spectra of BA passivated microwire.

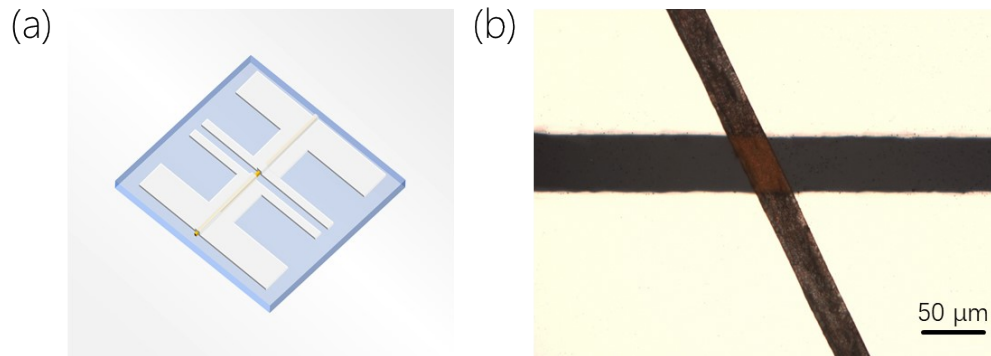


Figure S12. (a) Schematic diagram of the microwire-based device. (b) Optical microscope image of the microwire-based device.

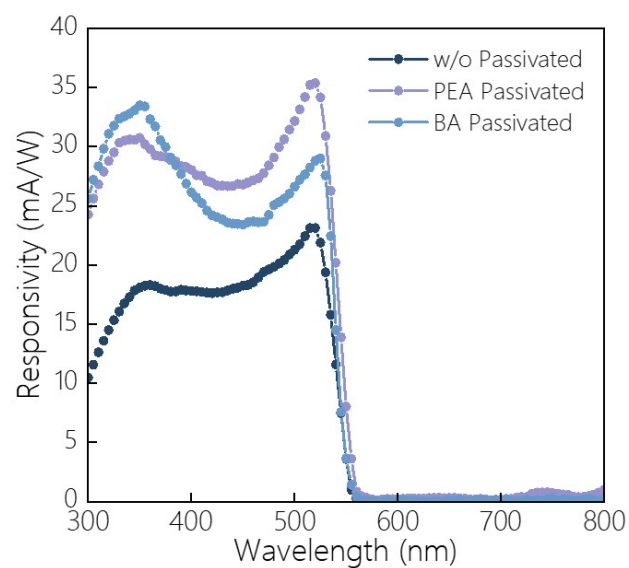


Figure S13. Responsivity curves of the three detectors, an obvious improvement can be observed after the passivation.

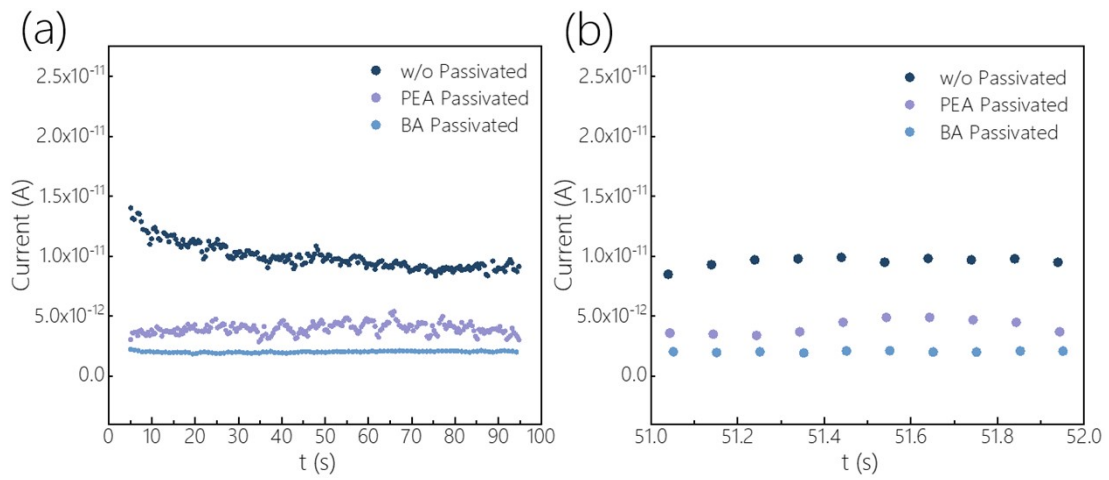


Figure S14. (a) Dark currents of the three devices; (b) Enlarged data of dark currents, indicating a sampling rate of 10 Hz.

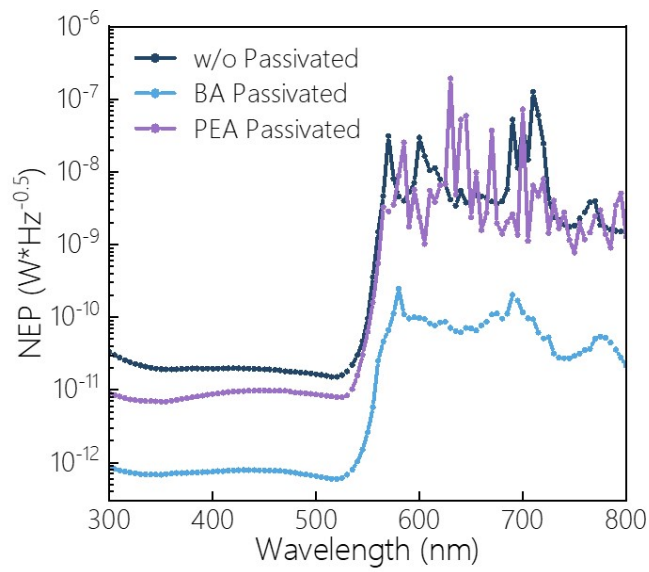


Figure S15. NEP (Noise Equivalent Power) curves of the three devices.

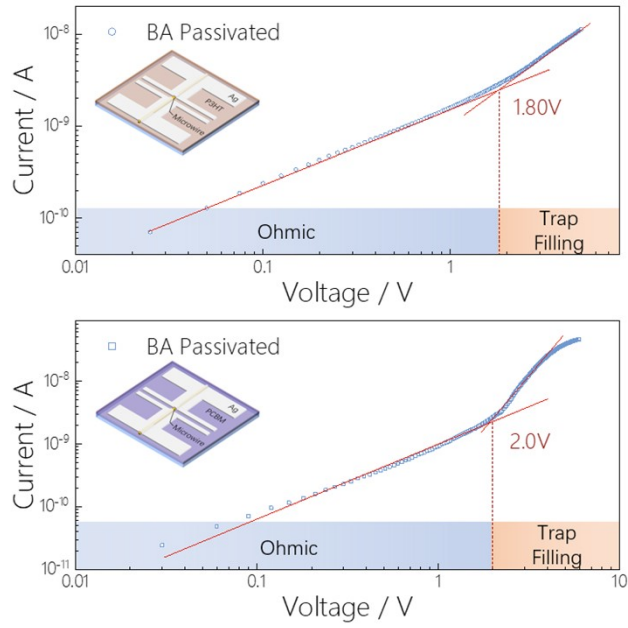


Figure S16. I-V curves of electron-only (above) and hole-only (below) devices based on BA passivated microwire, in logarithmic form. Inserted is the schematic diagram of the corresponding device structure;

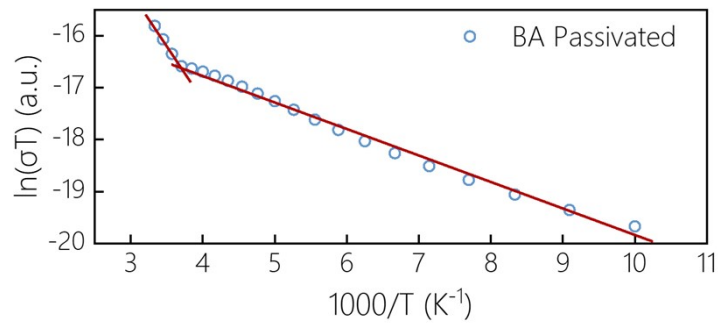


Figure S17. Arrhenius plot of the conductivity of BA passivated microwire devices.

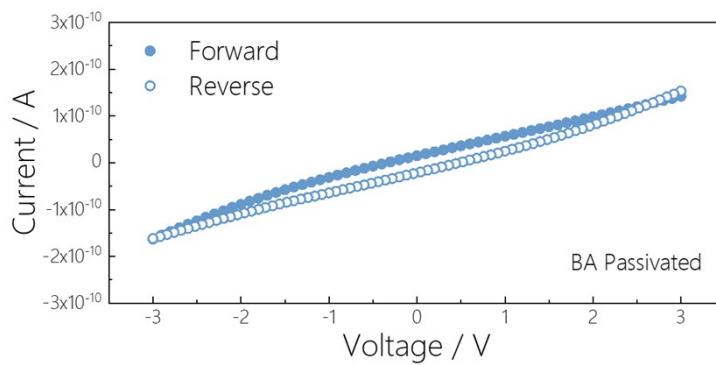


Figure S18. I-V curves of BA passivated microwire devices, the solid balls represent

forward scanning and the hollow balls represent reverse scanning.

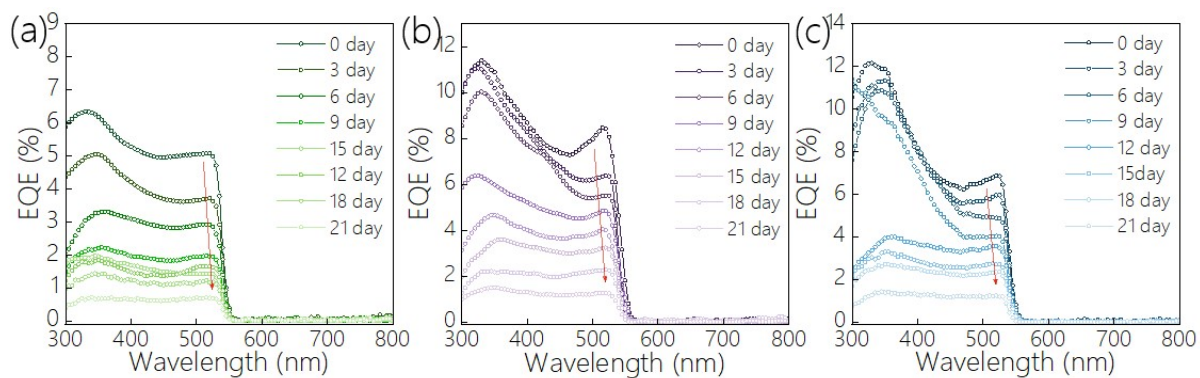


Figure S19. Changes of EQE curves of (a) w/o passivated device, (b) PEA passivated device and (c) BA passivated device within 21 days.