

• Supplementary File •

Multimode-fused reservoir computing based on $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires optoelectronic memristor for spatiotemporal information processing

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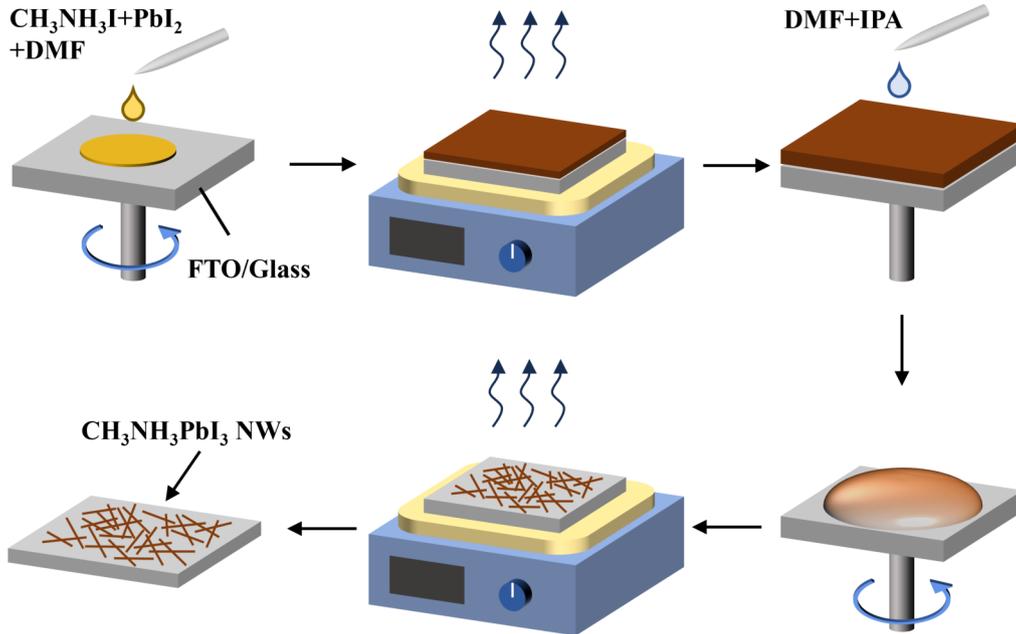


Figure S1 Schematic illustration of the formation of $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires.

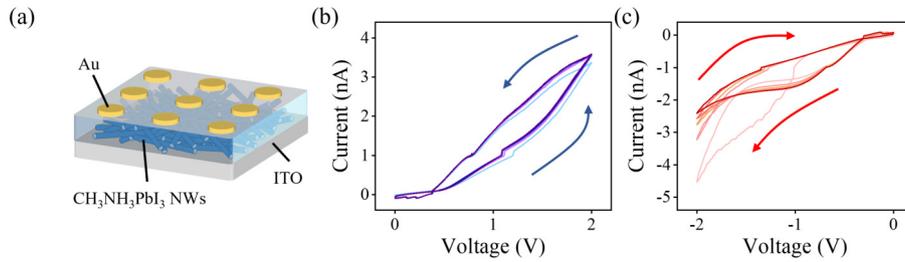


Figure S2 (a) Schematic diagram of the pure $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires based device. The I-V curves of the pure $\text{CH}_3\text{NH}_3\text{PbI}_3$ memristor under (b) the positive sweeping voltage and (c) the negative sweeping voltage.

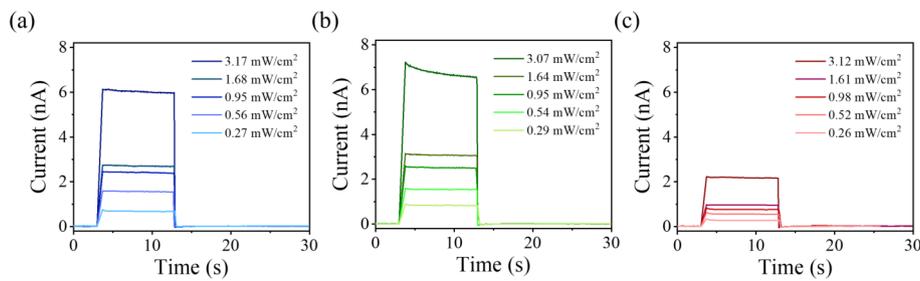


Figure S3 The photocurrent of the pure $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires memristor, activated by red, green and blue optical pulse (5 s, 0.22 mW/cm^2), respectively.

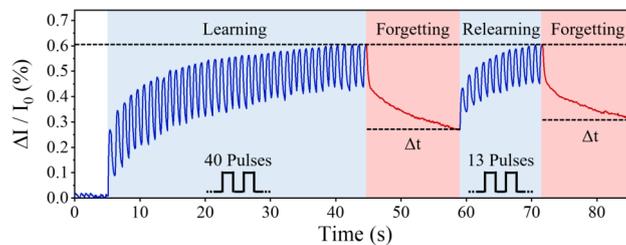


Figure S4 The “learning-experience” behavior of the Au/Pentacene/ $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires/ITO device under pulsed light stimuli.

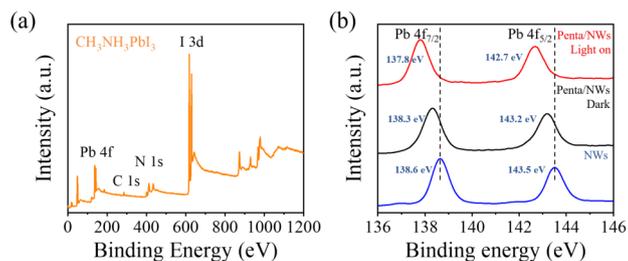


Figure S5 (a) The XPS spectra of the $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires film. (b) High-resolution XPS spectra of Pb 4f of $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires and Pentacene/ $\text{CH}_3\text{NH}_3\text{PbI}_3$ nanowires under dark and light irradiation.

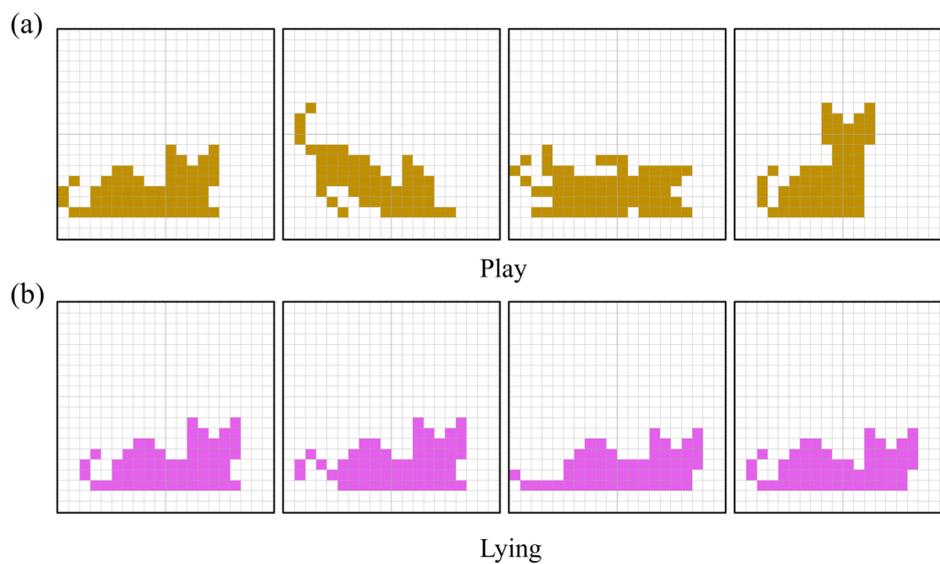


Figure S6 The overlay of pixels in the temporal frames of the cat, (a) in play and (b) lying behaviors.

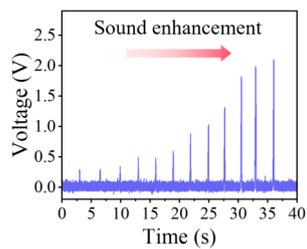


Figure S7 Response curves of auditory sensory systems.