Supporting Information for "2D Metal-Organic Frameworks Based Optoelectronic Neuromorphic Transistors for Human Emotion-Simulation and Neuromorphic Computing"

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Abstract

Abstract content goes here

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Supplementary Materials include:

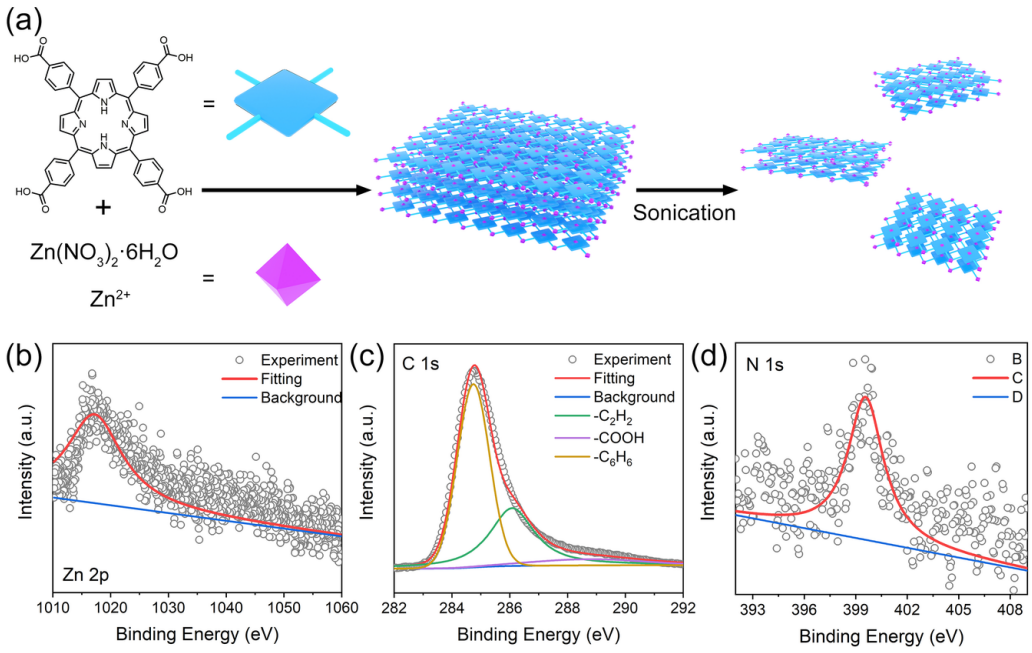

Figure 1: **Figure S1.** (a) The schematic synthesis procedure and (b-d) XPS spectrums of the 2D Zn_2(ZnTCPP) MOFs.

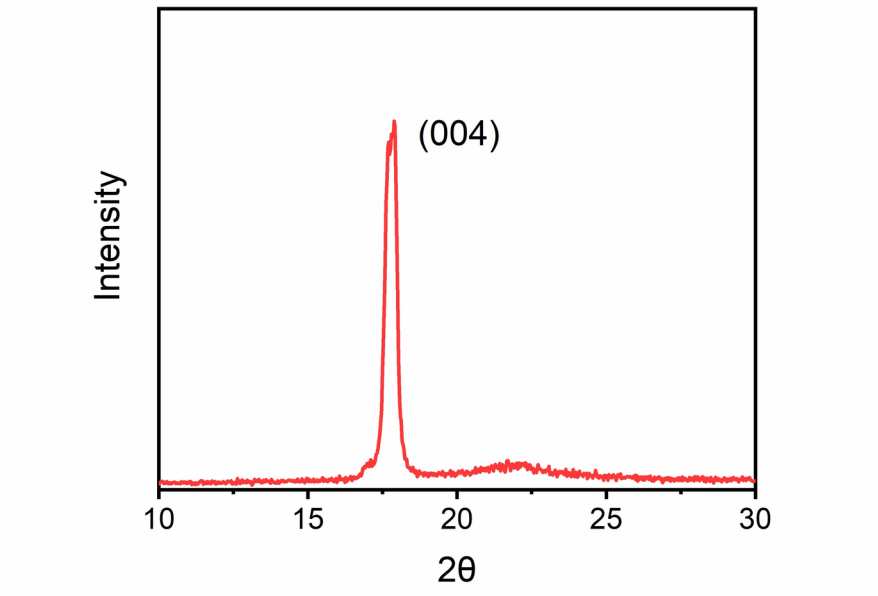

Figure 2: **Figure S2.** The XRD spectrum of Zn_2(ZnTCPP) MOFs.

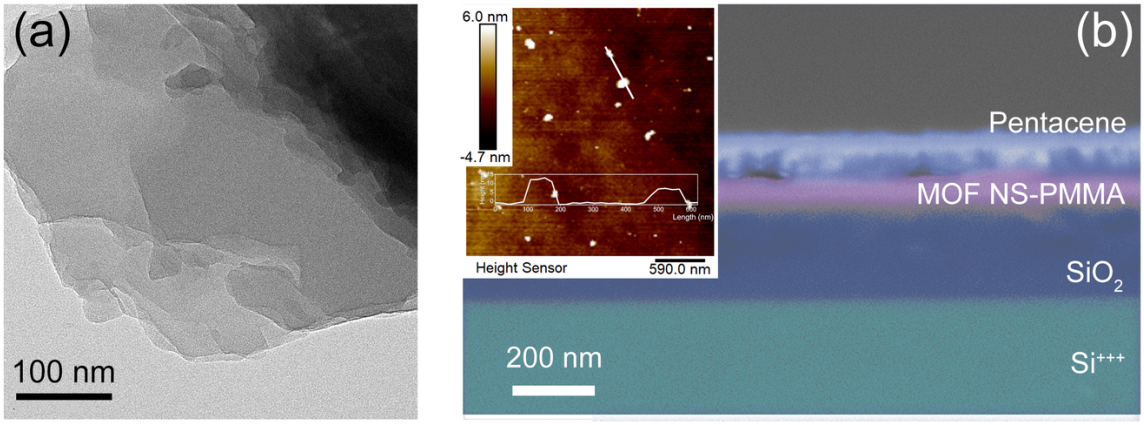

Figure 3: **Figure S3.** The characterizations of the 2D Zn_2(ZnTCPP) MOFs-PMMA/Pentacene structure. (a) The TEM image of the 2D Zn_2(ZnTCPP) MOFs. (b) The cross-section SEM image of the device (inset, the AFM image of the 2D Zn_2(ZnTCPP) MOFs).

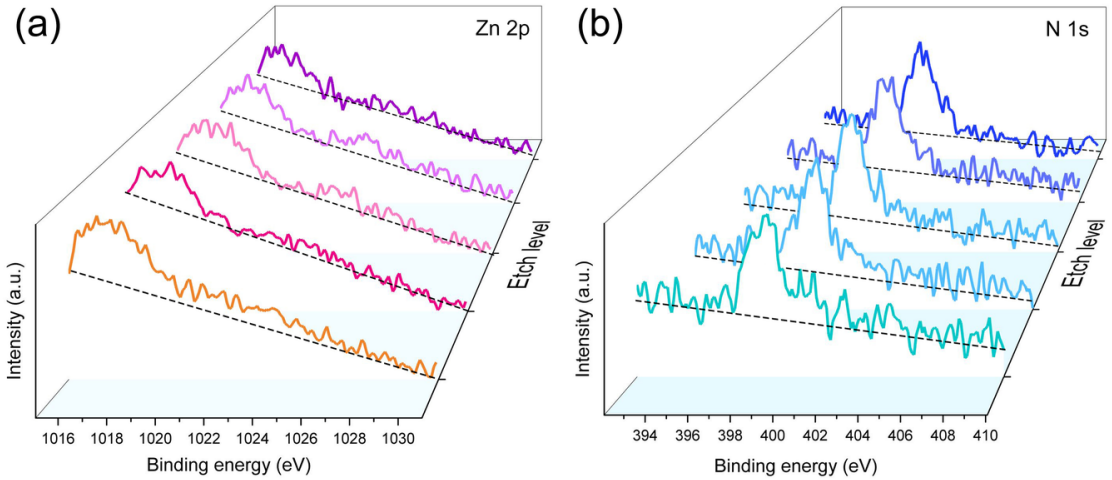

Figure 4: **Figure S4.** The Ar-ion etching XPS characterization of the 2D Zn_2(ZnTCPP) MOFs-PMMA dielectric layer.

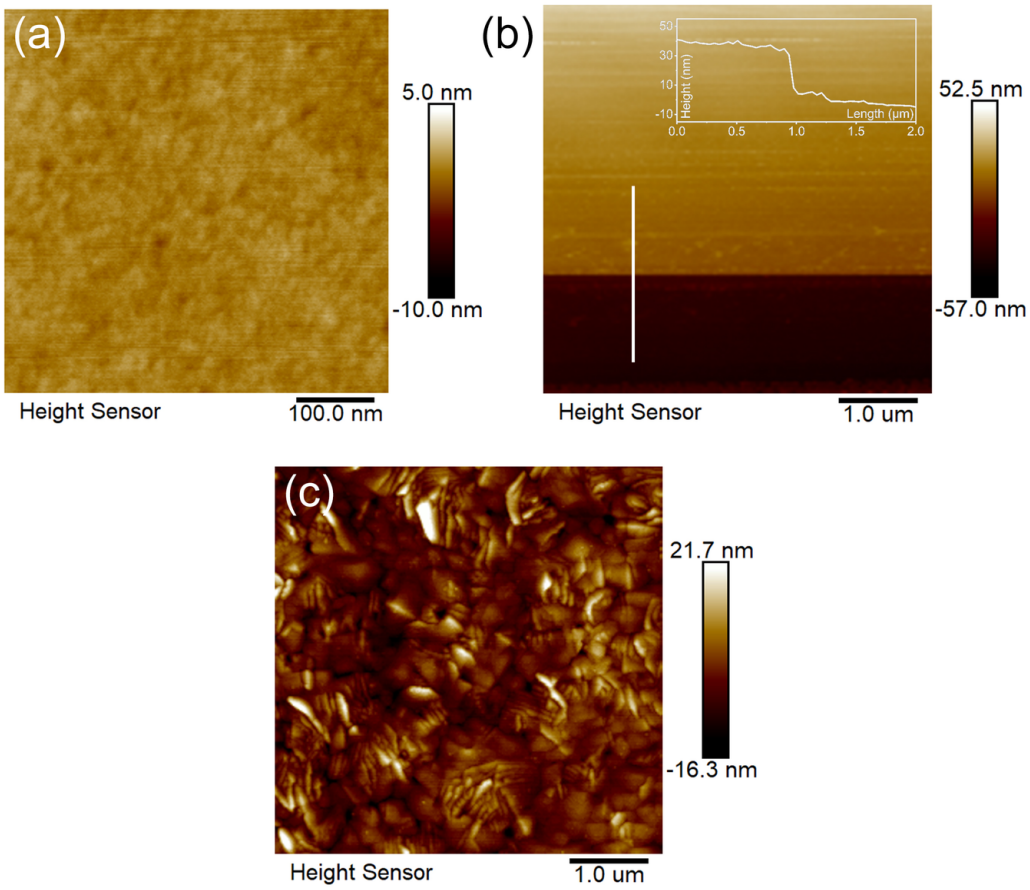

Figure 5: **Figure S5.** (a) The AFM image of the 2D Zn_2(ZnTCPP) MOFs-PMMA dielectric layer. (b) The thickness measurement of 2D Zn_2(ZnTCPP) MOFs-PMMA film using AFM. (c) The AFM image of the pentacene film deposited on the 2D Zn_2(ZnTCPP) MOFs-PMMA dielectric layer.

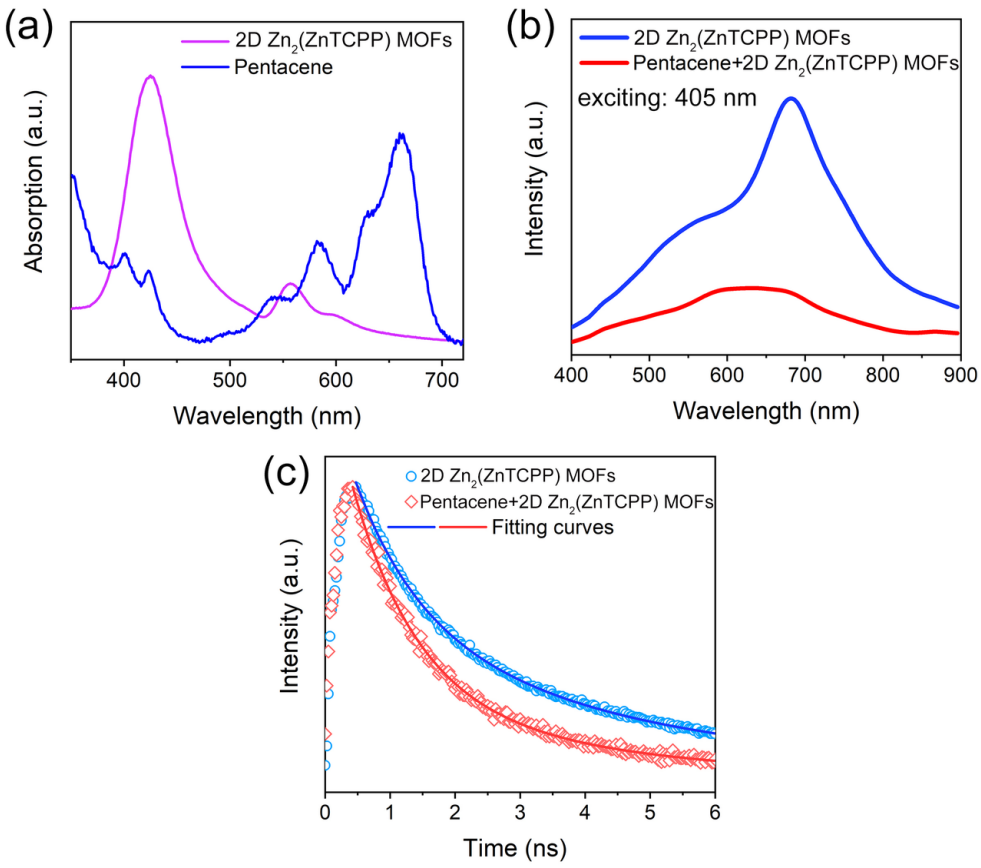

Figure 6: **Figure S6.** (a) The UV-Vis spectrum of the 2D Zn_2(ZnTCPP) MOFs-PMMA and pentacene film. (b) PL spectra of the 2D Zn_2(ZnTCPP) MOFs-PMMA and pentacene/2D Zn_2(ZnTCPP) MOFs-PMMA film (λ_{ex} = 405 nm). (c) The transient PL spectra of the 2D Zn_2(ZnTCPP) MOFs-PMMA and pentacene/2D Zn_2(ZnTCPP) MOFs-PMMA film.

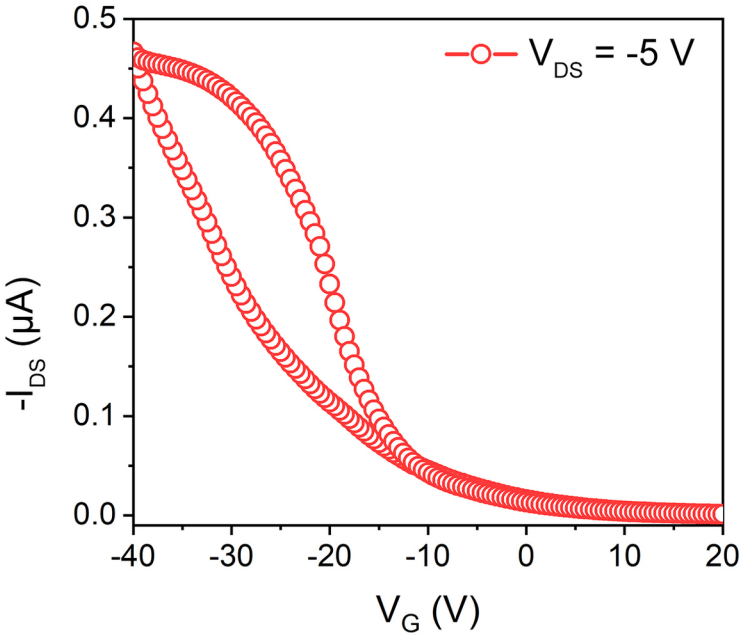

Figure 7: **Figure S7.** The transfer curves of our device.

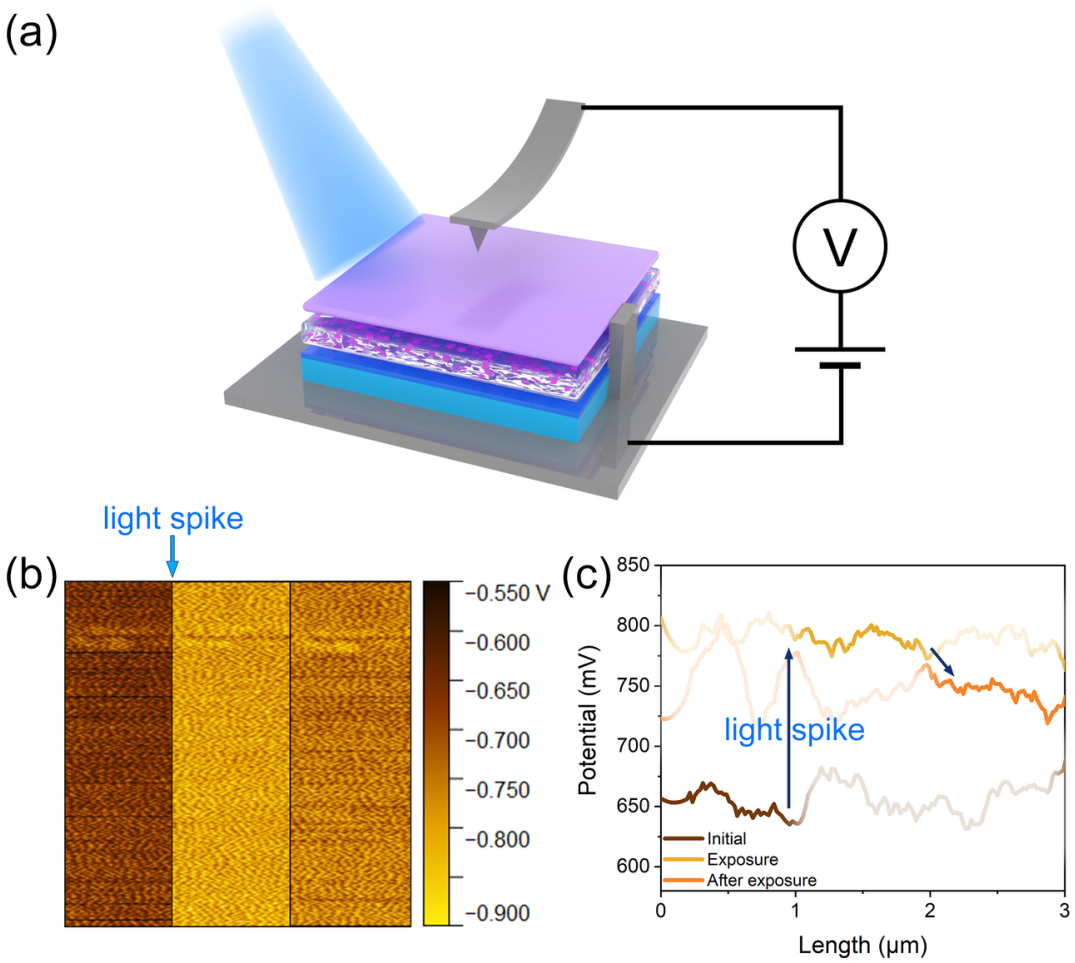

Figure 8: **Figure S8.** (a) The schematic KPFM measurement. (b) The KPFM potential image before and after the light spike. (c) The potential curves before and after the light spike.