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## **Supporting Information**

## Ultrahigh-Performance Self-Powered Photodetector Based on Hexagonal YbMnO<sub>3</sub> Ferroelectric Thin Film by Polarization-Induced Ripple Effect

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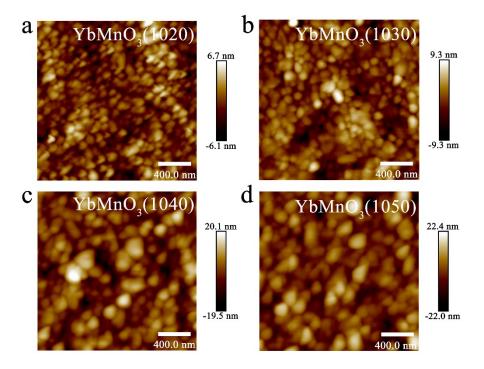


Fig. S1 AFM image of the h-YbMnO<sub>3</sub> thin films.

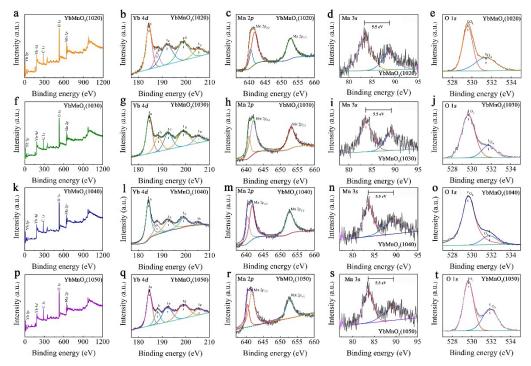


Fig. S2 XPS spectrum of the YbMnO<sub>3</sub> thin film with different sintering temperature.

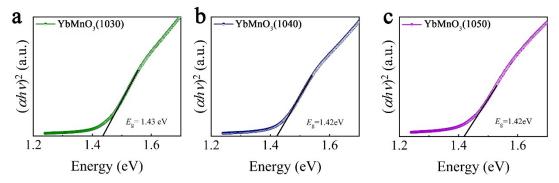


Fig. S3 The  $(\alpha hv)^2$  versus hv curve of the YbMO<sub>3</sub>(1030), YbMO<sub>3</sub>(1040) and YbMO<sub>3</sub>(1050).

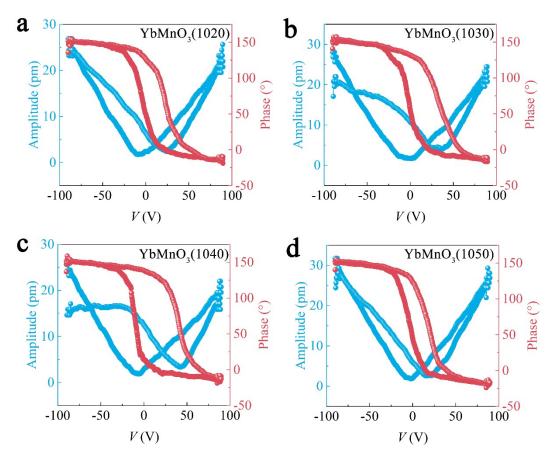


Fig. S4 PFM phase and amplitude loops of the h-YbMnO<sub>3</sub> thin film versus voltages.