Supplement files

Materials and methods

Chemicals and materials

$K_{10}P_2W_{17}O_{61}\cdot nH_2O$ (P_2W_{17}) was prepared according to the literature method and identified by IR spectra (Figure S1), UV-vis absorption spectra (Figure S2) and cyclic voltammetry (Figure S3).

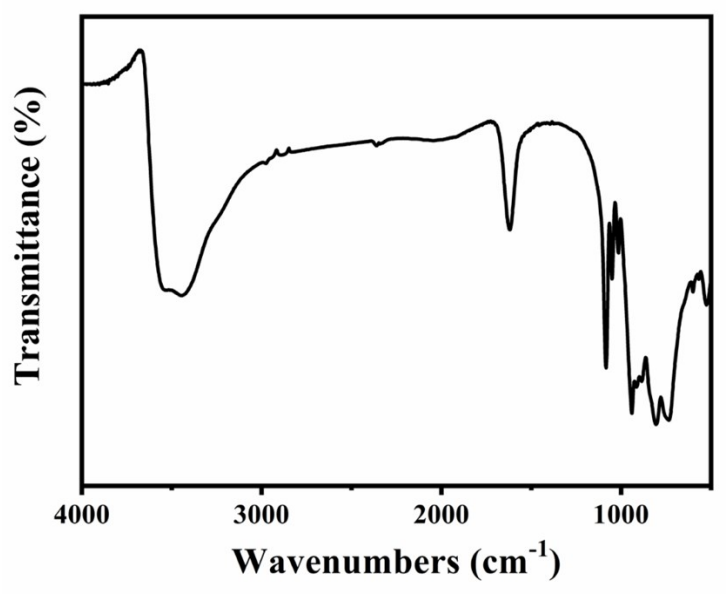

Figure S1. The IR spectra of $K_{10}P_2W_{17}O_{61}\cdot nH_2O$

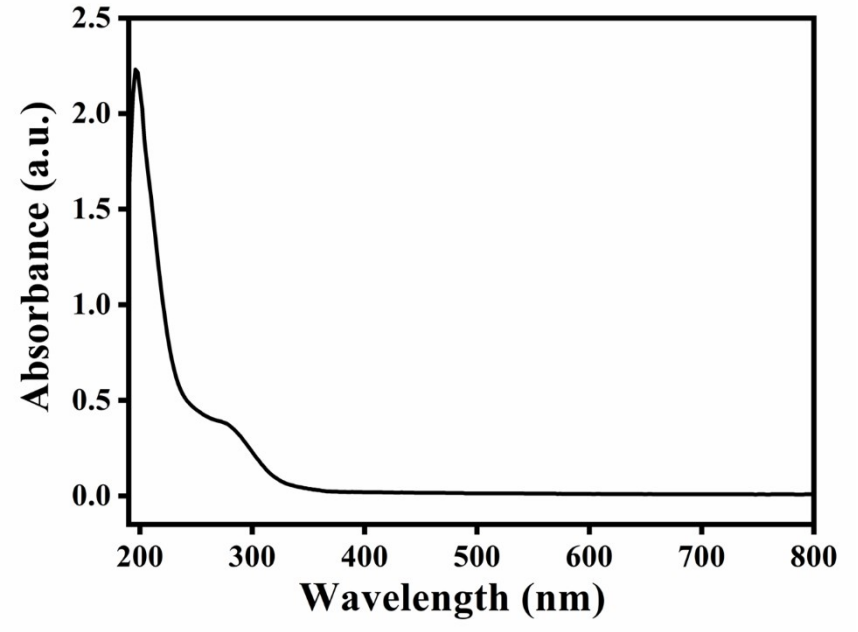

Figure S2. The Uv-vis spectra of $K_{10}P_2W_{17}O_{61}\cdot nH_2O$

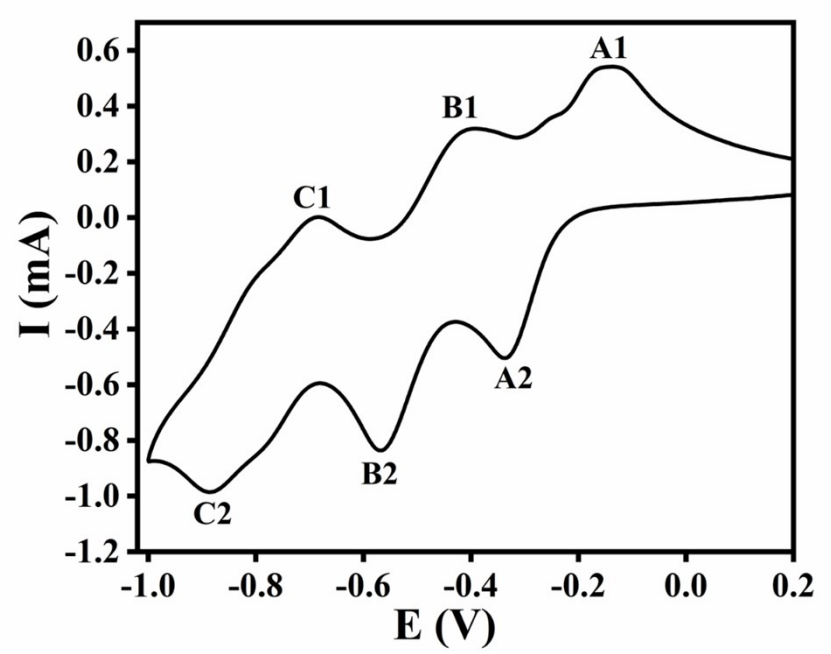

Figure S3. CV curve of $K_{10}P_2W_{17}O_{61}\cdot nH_2O$ in HOAc-NaOAc solution (pH = 3.5).

The mass loading of different samples: NW-P_2W_{17} is 0.0401g, FTO-P_2W_{17} is 0.0144g, FTO-TiO_2 is 0.0257g.

Results and discussion

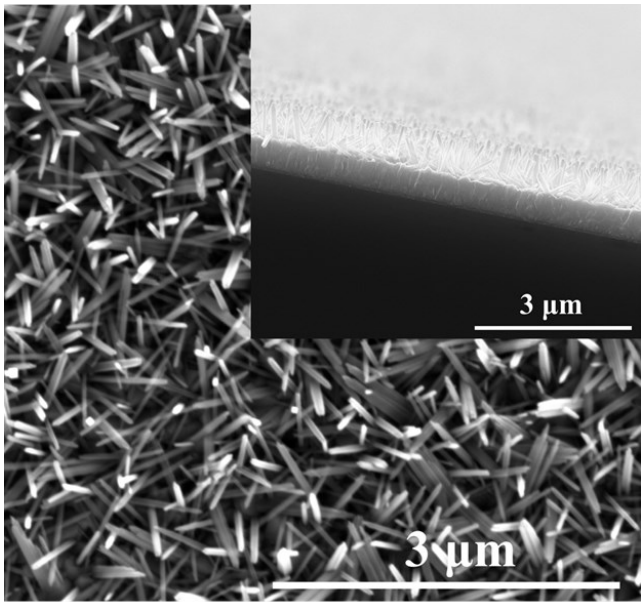

Figure S4. The SEM images of TiO_2 NW (inset: the cross-sectional images of prepared films)

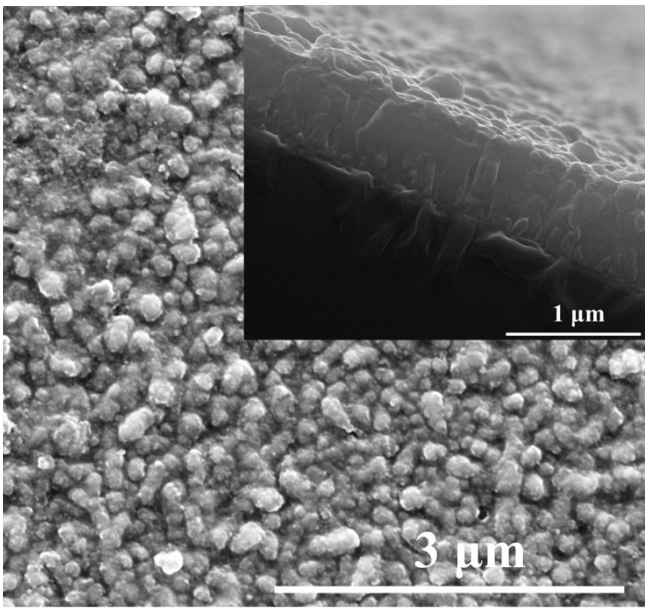

Figure S5. The SEM images of FTO-P_2W_{17} (inset: the cross-sectional images of prepared films)

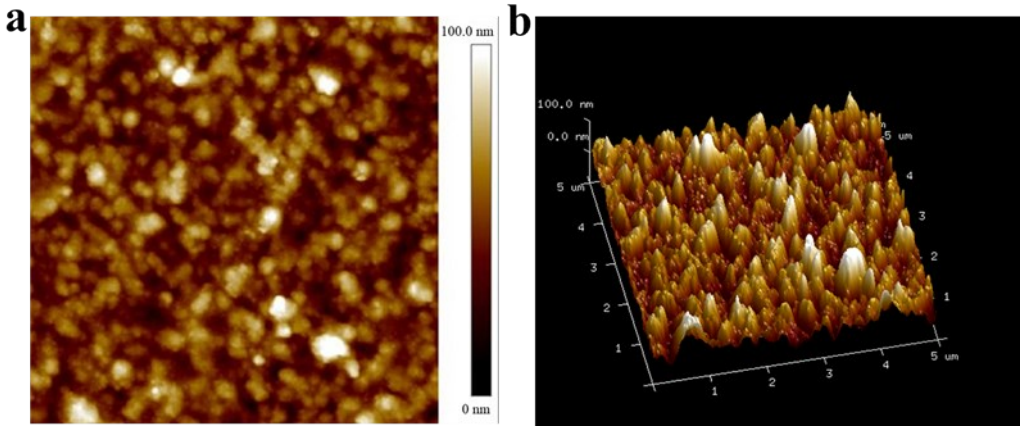

Figure S6. 2D AFM images of (a) FTO-P_2W_{17} and 3D AFM images of (b) FTO-P_2W_{17}

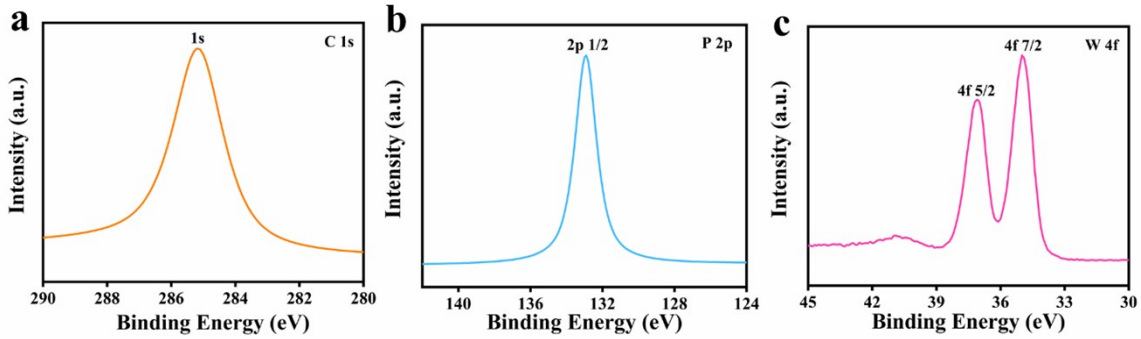

Figure S7. High-resolution XPS spectra for C1s(a), P2p (b) and W 4f (c) of FTO-P_2W_{17} film.

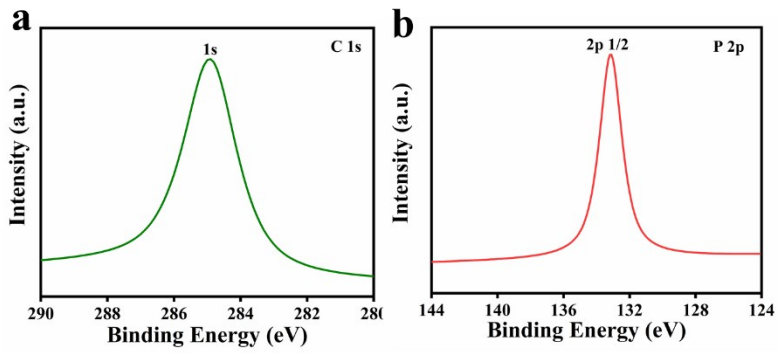

Figure S8. High-resolution XPS spectra for C 1s (a) and P 2p (b) of NW-P_2W_{17} film.

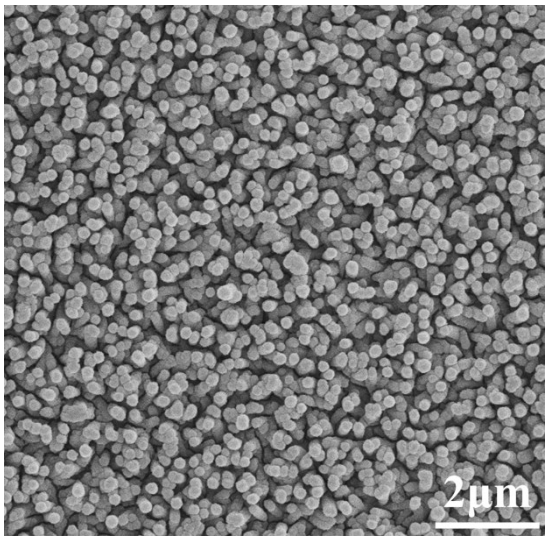

Figure S9. The SEM of NW-P_2W_{17} film after cycle stability test.

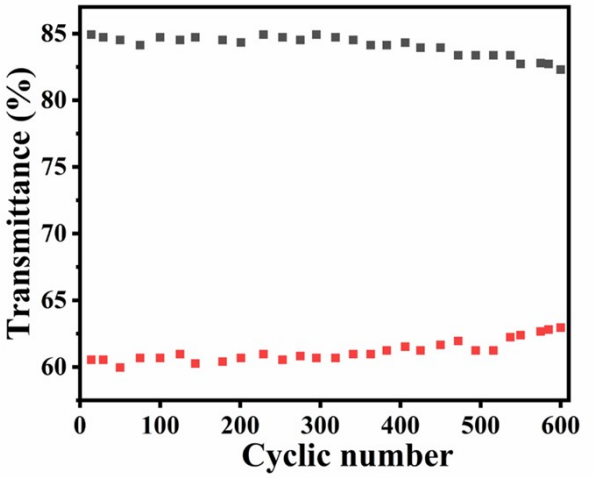

Figure S10. Cycle stability of FTO-P_2W_{17} film at 600 nm under square wave potentials of −1.5 V and +1.5 V.