

### Electronic Supplementary Information

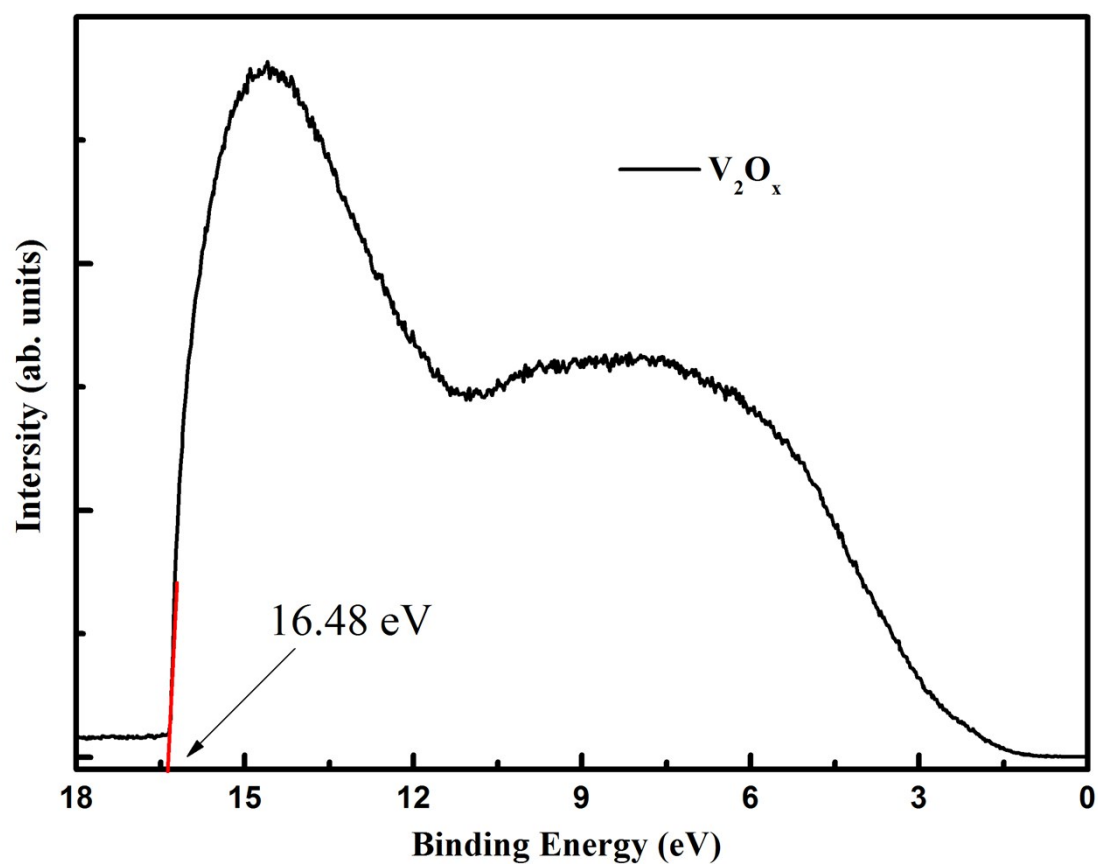
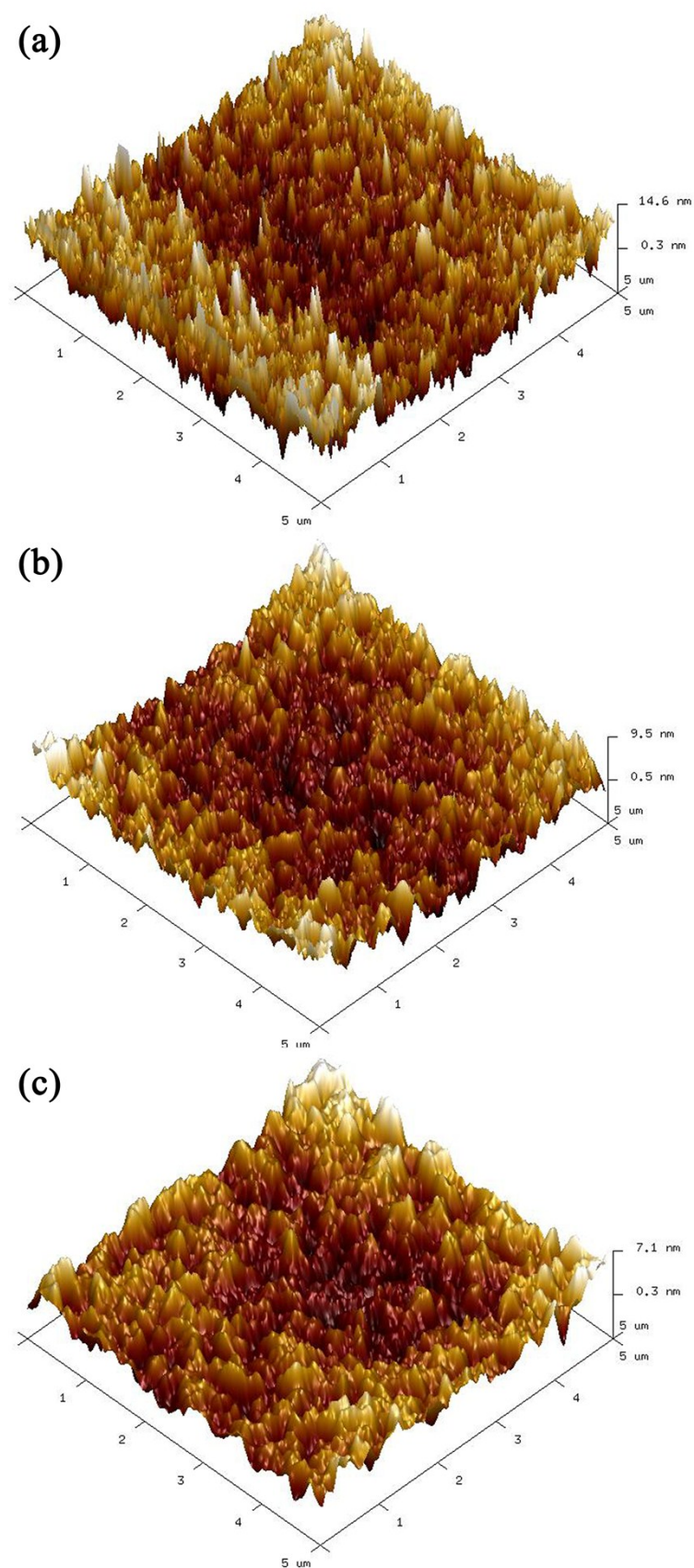


Fig. S1 The UPS spectra of  $V_2O_x$  film.



**Fig. S2** 3D AFM images of  $\text{V}_2\text{O}_x$  film (a), PEDOT:PSS film (b), and  $\text{V}_2\text{O}_x/\text{PEDOT:PSS}$  film (c) based on ITO coated glasses.