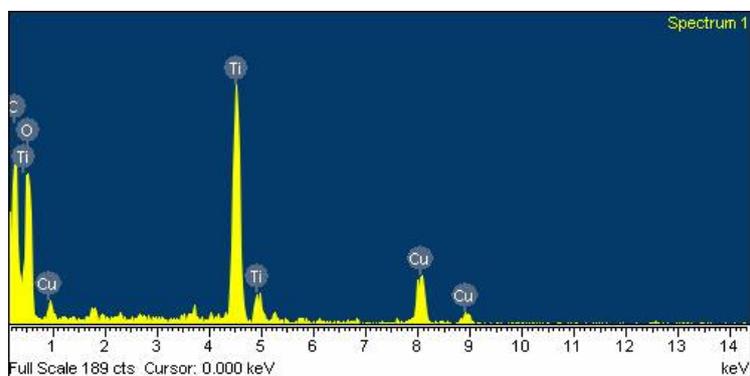
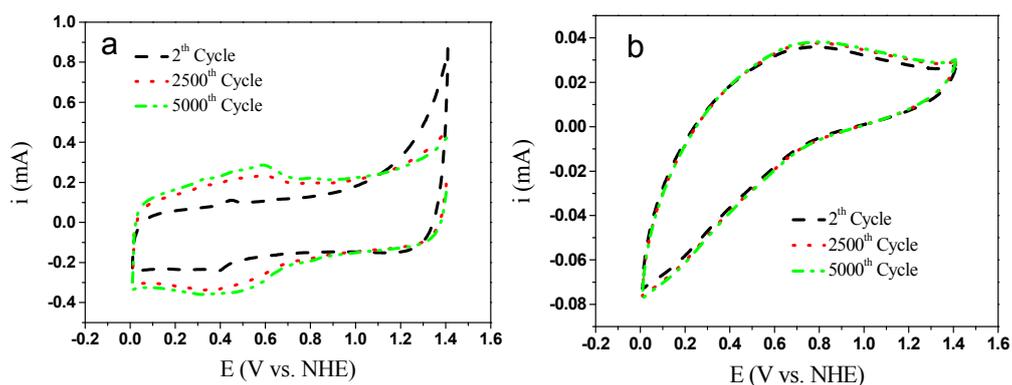


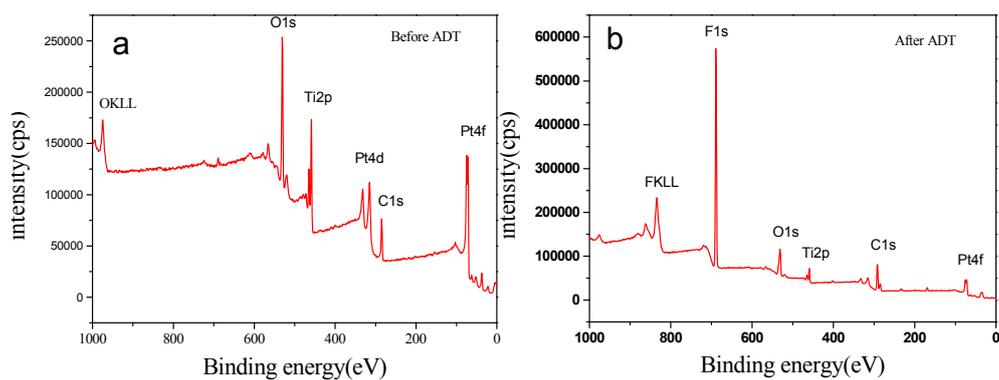
## Supporting Information



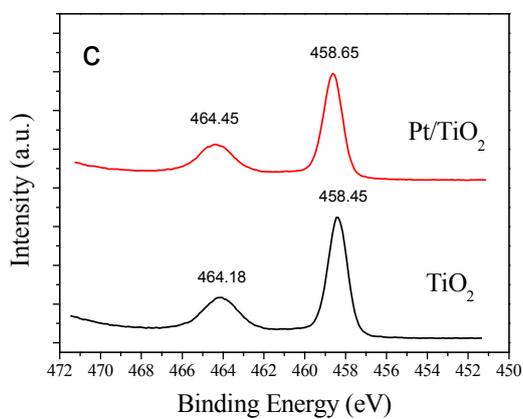
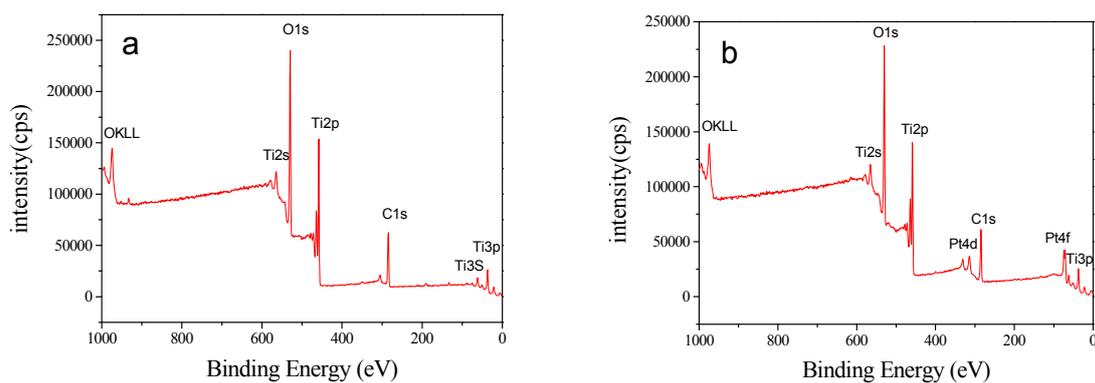
**Fig. S1** Energy dispersive X-ray spectroscopy (EDS) of NS-Ti<sub>4</sub>O<sub>7</sub>



**Fig.S2** CV plots of XC-72 (a) and Ti<sub>4</sub>O<sub>7</sub> (b) during electrochemical ADT tests



**Fig. S3** XPS survey scans of Pt/NS-Ti<sub>4</sub>O<sub>7</sub> before(a) and after(b) ADT



**Fig. S4** XPS survey scans of TiO<sub>2</sub>(a) and Pt/TiO<sub>2</sub>(b) and XPS spectra of Ti 2p for TiO<sub>2</sub> and Pt/TiO<sub>2</sub> (c)