Supplementary Information

Fabrication and characterization of β-PbO_2/α-PbO_2/Sb-SnO_2/TiO_2 nanotube arrays electrode and its application in electrochemical degradation of Acid Red G

Jia Wu [a], †Hao Xu [a*], †Wei Yan [a, b**]

[a]Department of Environmental Science and Engineering, Xi'an Jiaotong University, Xi'an 710049, China

[b]State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an 710049, China

Corresponding authors:

E-mail: xuhao@mail.xjtu.edu.cn; yanwei@mail.xjtu.edu.cn

Tel.: +86-13032912105; fax: +86-29-82664731.

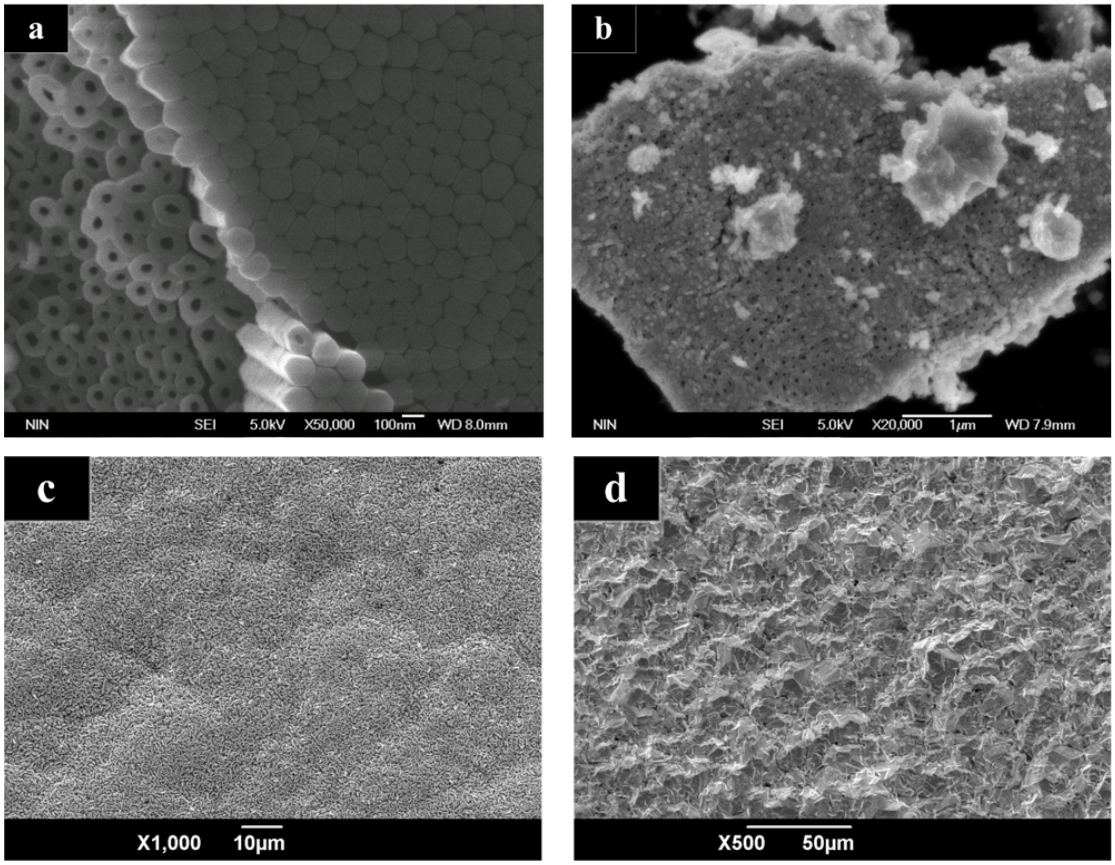

Fig. 1S. FE-SEM (a) the bottom view of plain TiO_2 NTAs; (b) the bottom view of Sb-SnO_2/TiO_2 NTAs; (c) the top

view of α-PbO_2/Sb-SnO_2/TiO_2 NTAs; (d) the top view of β-PbO_2/α-PbO_2/Sb-SnO_2/TiO_2 NTAs.

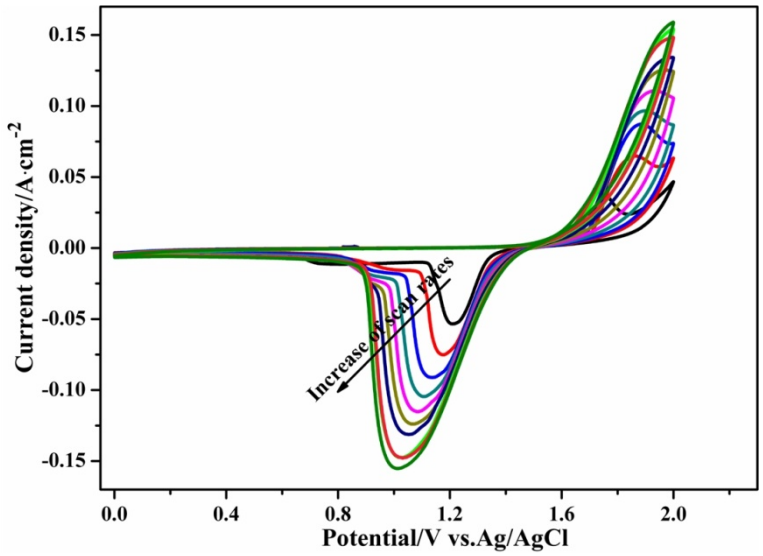

Fig. 2S. Cyclic voltammograms (CV) curve for the β-PbO_2/α-PbO_2/Sb-SnO_2/TiO_2 NTAs electrode with different scan rates in 0.5 M H_2SO_4 solution.

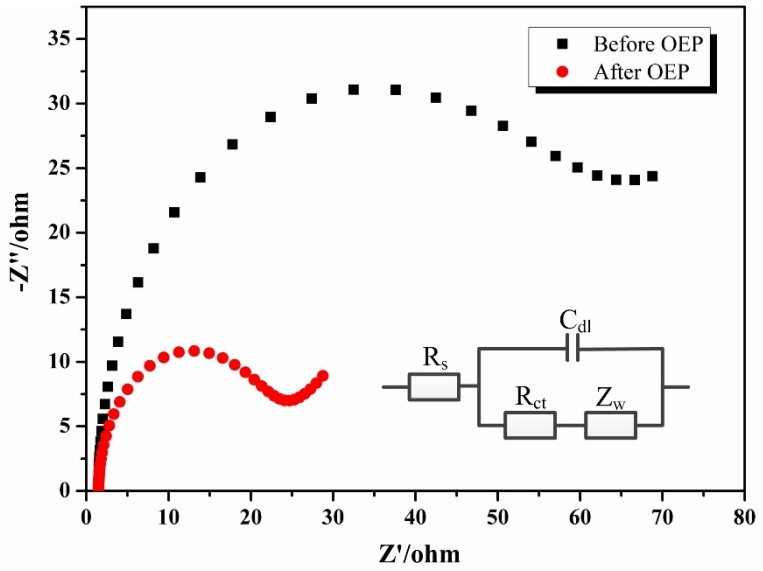

Fig. 3S. EIS measurement results and the simulated circuit.

Table. 1S. Simulated data of each parameter.

	R_s/ohm·cm^{-2}	C_{dl}/F·cm^{-2}	R_{ct}/ohm·cm^{-2}	Z_w/S·sec^.5·cm^{-2}
Before OEP	1.5	0.024	56.0	0.16
After OEP	1.5	0.021	20.1	0.33

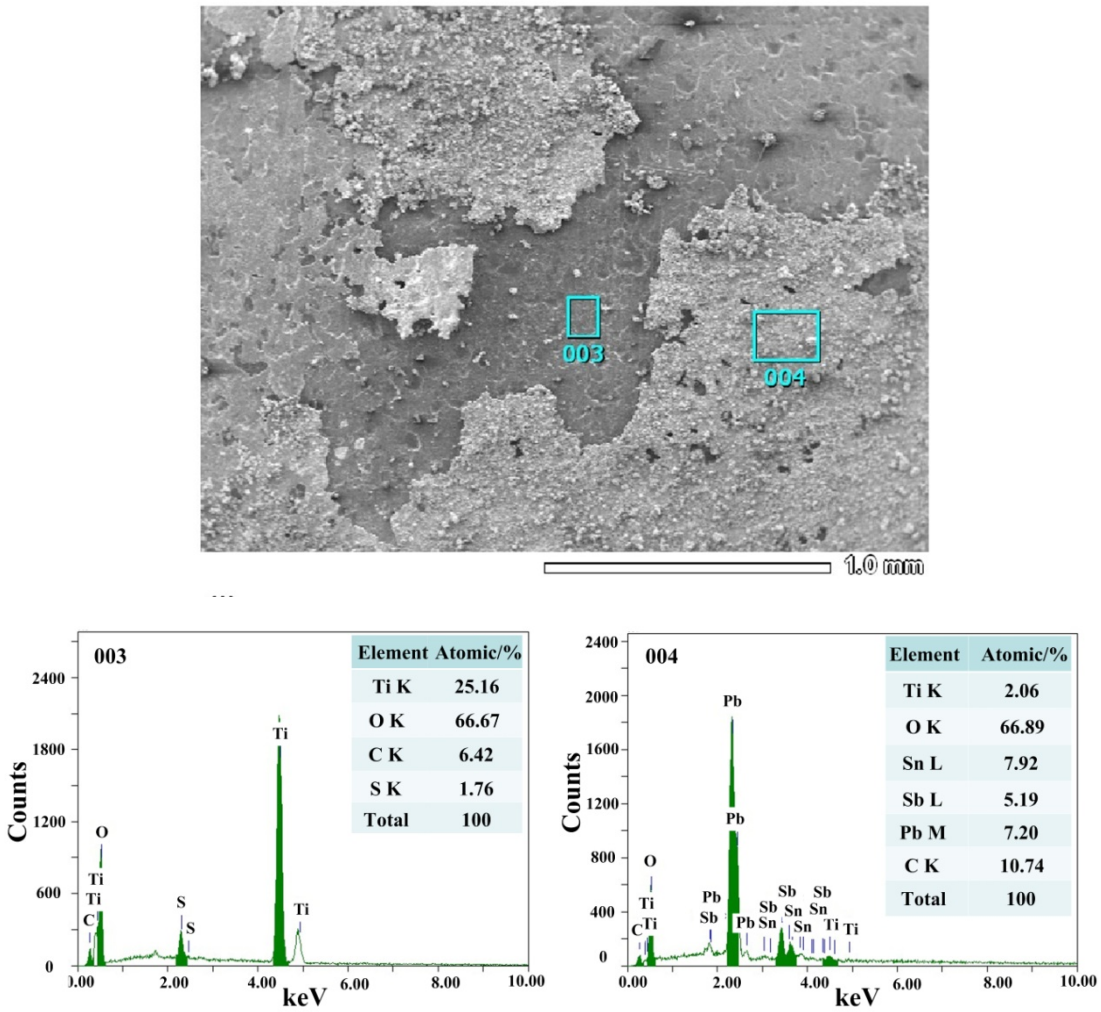

Fig. 4S. EDS measurement results of the deactivated electrode

Table. 2S. Simulated data of the normal electrode and the deactivated electrode

	R_s/ohm·cm^{-2}	C_{dl}/F·cm^{-2}	R_{ct}/ohm·cm^{-2}	Z_w/S·sec^.5·cm^{-2}
Normal electrode	1.5	0.021	20.1	0.33
Deactivated electrode	3.1	4.795E-5	122.5	0.02