Supporting Information

## 3D hollow structured Co $_2$ FeO $_4$ /MWCNT as an efficient non-precious metal electrocatalyst for oxygen reduction reaction

Jie Wang, Huolin L. Xin, Jing Zhu, Sufen Liu, Zexing Wu, and Deli Wang\*



**Figure S1** XRD patterns of solid structure Co/MWCNT, Fe/MWCNT nanoparticles and hollow structured Co<sub>3</sub>O<sub>4</sub>/MWCNT, Fe<sub>2</sub>O<sub>3</sub>/MWCNT nanoparticles.



Figure S2 XRD patterns of hollow structured  $Co_3O_4/MWCNT$  and  $Co_2FeO_4/MWCNT$  nanoparticles, and the inset of Figure S2 the enlarged region of (511) diffraction peaks.



Figure S3 XRF spectrum of hollow structured Co<sub>2</sub>FeO<sub>4</sub>/MWCNT nanoparticles.



**Figure S4** Nitrogen sorption isotherms at 77.3 K of hollow structured Co<sub>2</sub>FeO<sub>4</sub>/MWCNT nanoparticles and solid structured Co<sub>2</sub>Fe/MWCNT nanoparticles.



Figure S5 CV voltammograms of hollow structured  $Co_2FeO_4/MWCNT$  nanoparticles and solid structured  $Co_2Fe/MWCNT$  nanoparticles.



Figure S6 RRDE voltammograms of hollow structured Co<sub>2</sub>FeO<sub>4</sub>/MWCNT at a rotating speed of 2000 rpm.



Figure S7 (a) RRDE voltammograms of commercial Pt/C at a rotating speed of 2000 rpm; (b) The electron-transfer number n and  $H_2O_2$  yield for commercial Pt/C.