

**One-step conversion of tannic acid-modified ZIF-67 into oxygen defects hollow  
Co<sub>3</sub>O<sub>4</sub>/nitrogen-doped carbon for efficient electrocatalytic oxygen evolution**

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C. Wang and J. Zhang contributed equally to this work.

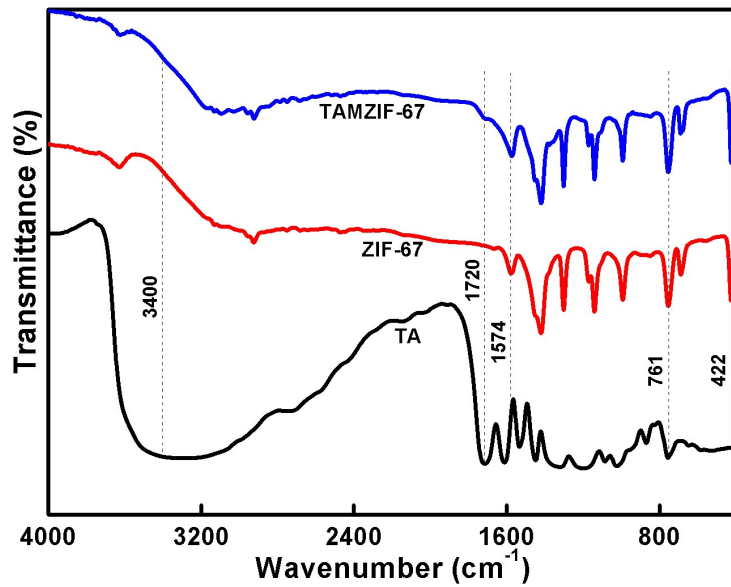


Figure S1 FTIR spectra of TAMZIF-67, ZIF-67, and TA.

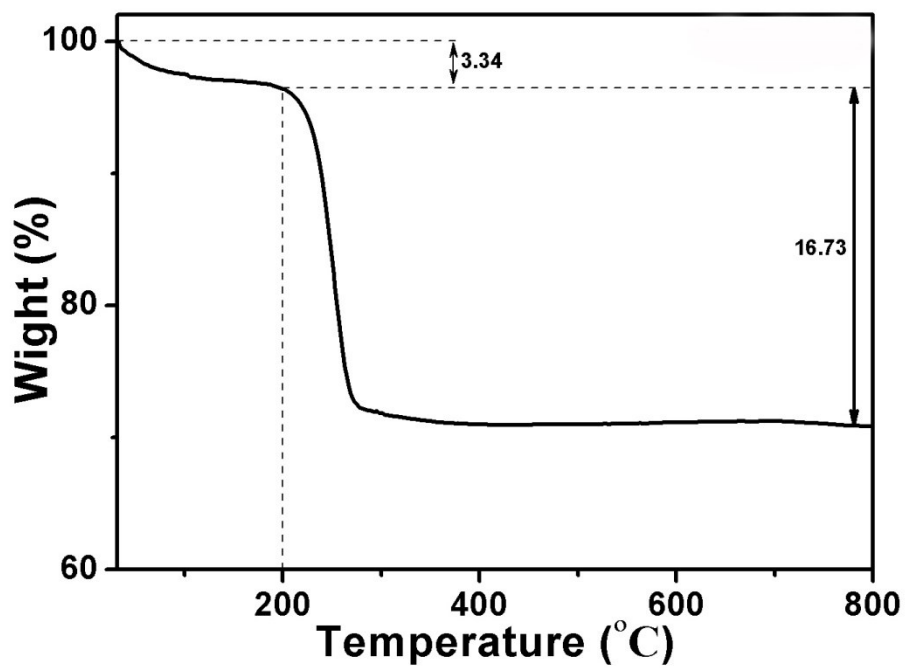


Figure S2 TG analysis of  $O_v\text{-HCO}_3O_4@NC$  under air.

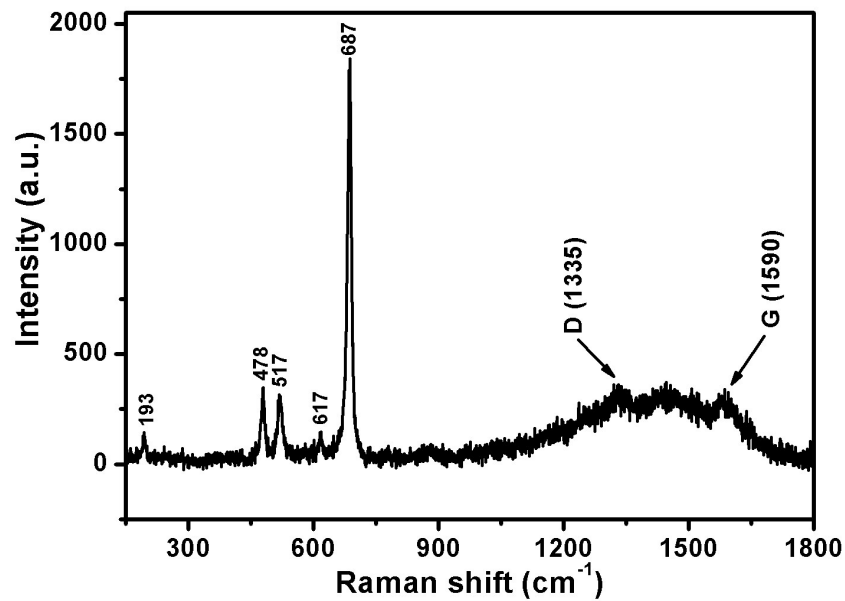


Figure S3 Raman spectrum of  $O_V\text{-HCO}_3\text{O}_4\text{@NC}$ .

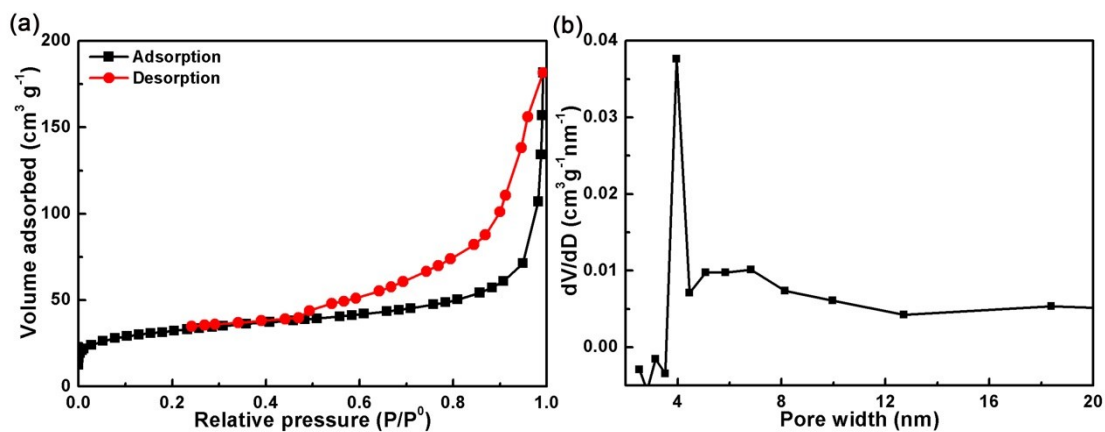
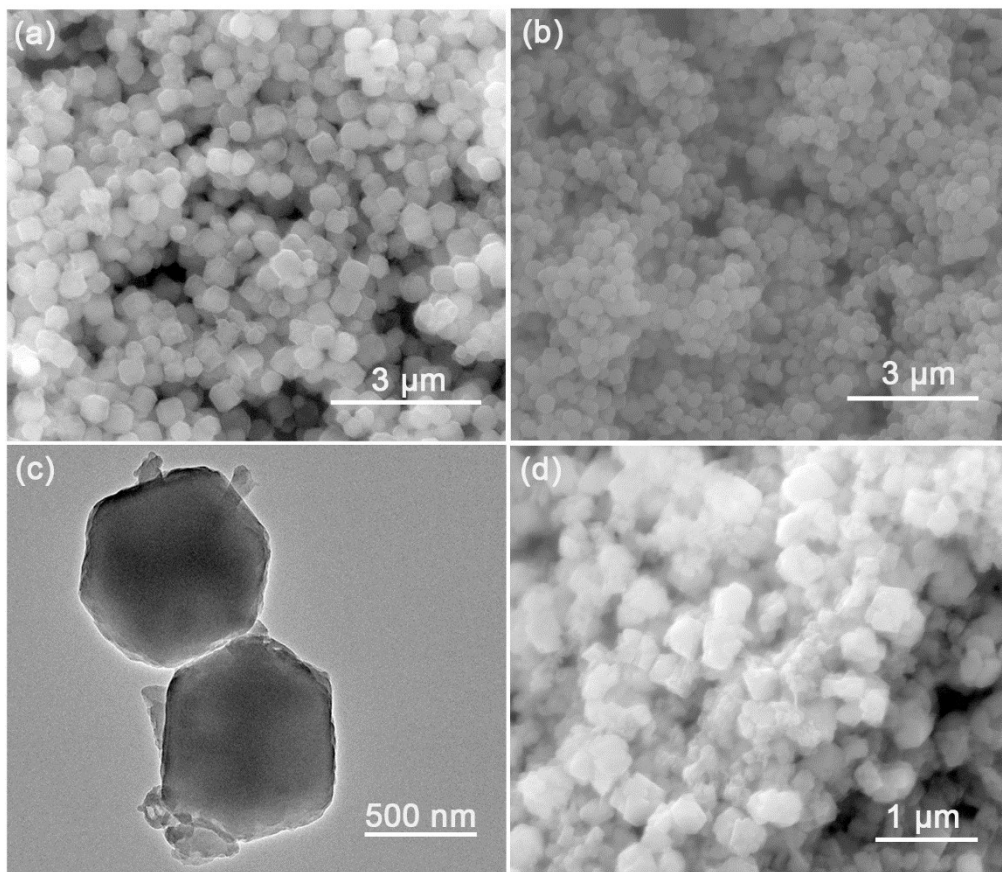
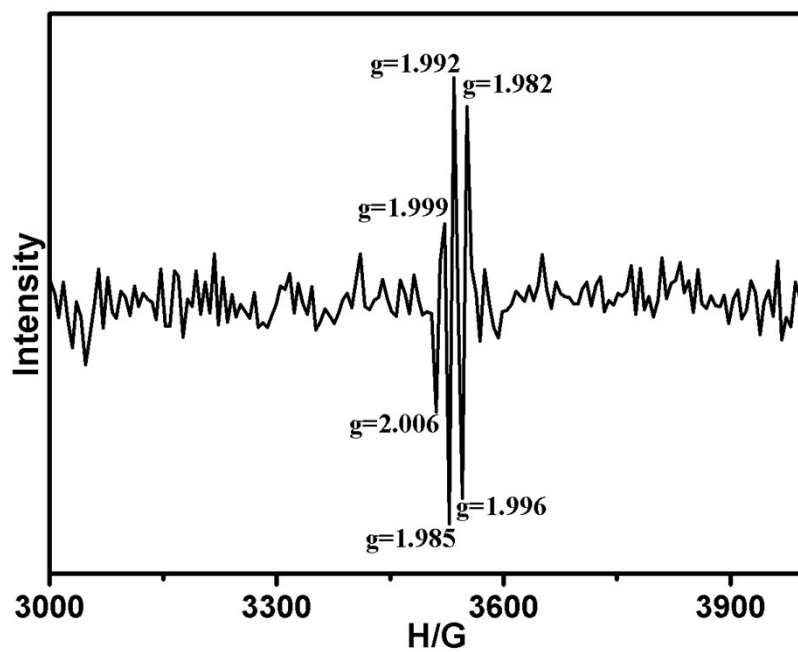


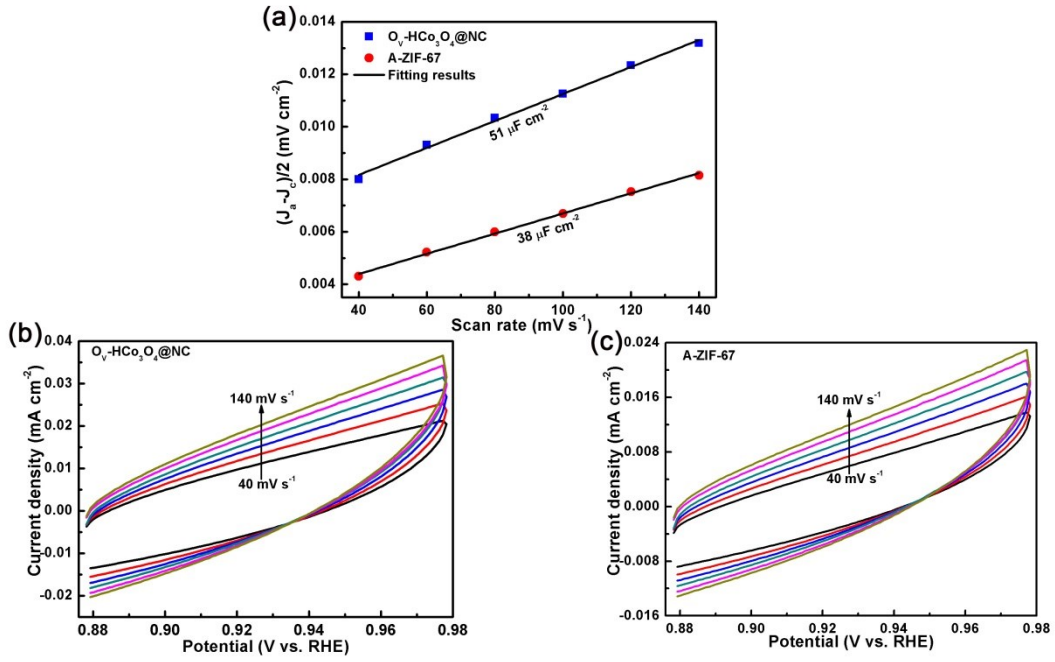
Figure S4 (a)  $N_2$  adsorption-desorption isotherms and (b) the pore size distribution of  $O_V\text{-HCO}_3\text{O}_4\text{@NC}$ .



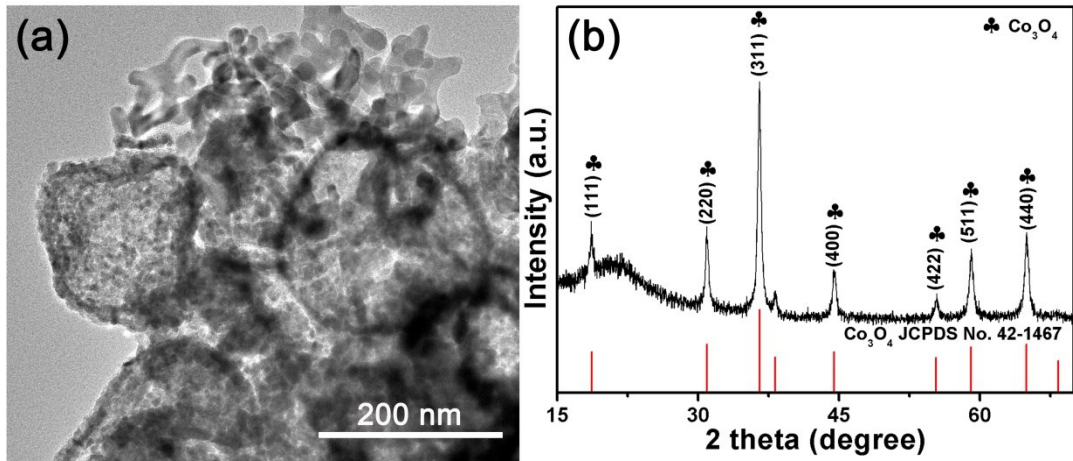
**Figure S5** (a) FESEM image of ZIF-67, (b) FESEM image of TAMZIF-67, (c) TEM image of TAMZIF-67, and (d) FESEM of A-ZIF-67.



**Figure S6** EPR spectrum of  $O_v\text{-HCo}_3\text{O}_4@\text{NC}$ .



**Figure S7** (a) The double-layer capacitance ( $C_{dl}$ ) is equivalent to half the slope. Cyclic voltammograms of (b) O<sub>V</sub>-HCo<sub>3</sub>O<sub>4</sub>@NC and (c) A-ZIF-67 in the double layer region at various scan rates.



**Figure S8** (a) TEM image and (b) XRD pattern of O<sub>V</sub>-HCo<sub>3</sub>O<sub>4</sub>@NC after OER stability test.