## **Supporting Information**

## Mesoporous NiCo<sub>2</sub>Se<sub>4</sub> Tube as an Efficient Electrode Material with Enhanced Performance for Asymmetric Supercapacitors Applications

## Zhixiang Guo,<sup>a</sup> Yuting Diao,<sup>a</sup> Xinru Han,<sup>a</sup> Zihao Liu,<sup>a</sup> Yonghong Ni\*,<sup>a</sup>

Li Zhang\*ab

<sup>a</sup>The Key Laboratory of Functional Molecular Solids, Ministry of Education, Anhui Laboratory of Molecule-Based Materials, Key Laboratory of Electrochemical Clean Energy of Anhui Higher Education Institutes, College of Chemistry and Materials Science, Anhui Normal University, Wuhu 241000, P. R. China
<sup>b</sup>School of Pharmacy, Shanghai University of Medicine and Health Sciences, Shanghai 201318, P. R. China



Figure S1. SEM images of  $NiCo_2(OH)_6$  (a, b) and  $NiCo_2O_4$  (c, d).



**Figure S2.** XRD patterns of NiCo<sub>2</sub>O<sub>4</sub> tube.



Figure S3. SEM images of NiO (a),  $Co_3O_4$  (b),  $Ni_{0.85}Se$  (c) and  $Co_3Se_4$  (d).



Figure S4. The XRD patterns of NiO (a),  $Co_3O_4$  (b),  $Ni_{0.85}Se$  (c) and







Figure S6. (a), (c) the CV curves at different scan rats and (b), (d) the GCD curves at various current density of the  $NiCo_2(OH)_6$  and  $NiCo_2O_4$  electrodes.



**Figure S7.** (a), (c) the CV curves of the NiO and  $Co_3O_4$  electrodes at the different scan rates and (b), (d) the GCD curves of the NiO and  $Co_3O_4$ 

electrodes at the various current density.



Figure S8. (a) The specific capacity as a function of current density for the NiCo<sub>2</sub>Se<sub>4</sub>, NiCo<sub>2</sub>O<sub>4</sub>, NiCo<sub>2</sub>(OH)<sub>6</sub>, NiO and Co<sub>3</sub>O<sub>4</sub>. (b) The Nyquist plots of the NiCo<sub>2</sub>(OH)<sub>6</sub>, NiCo<sub>2</sub>O<sub>4</sub> and NiCo<sub>2</sub>Se<sub>4</sub> electrodes.



**Figure S9.** SEM image (a), XRD pattern (b) of the NiCo<sub>2</sub>Se<sub>4</sub> synthesized

without template.



**Figure S10.** (a) CV curves at the different scan rates and (b) GCD curves at various current density of the NiCo<sub>2</sub>Se<sub>4</sub> synthesized without template

electrode.



**Figure S11.** Nitrogen gas adsorption/desorption isotherm and pore size distribution curve (inset) of tubular NiCo<sub>2</sub>Se<sub>4</sub> (a), NiCo<sub>2</sub>Se<sub>4</sub> synthesized without template (b), Ni<sub>0.85</sub>Se (c) and Co<sub>3</sub>Se<sub>4</sub> (d).



Figure S12. a) CV curves at the different scan rates and (b) GCD curves

at various current density of the activated carbon.