## **Supporting Information**

## Well-defined hollow tube@sheets NiCo<sub>2</sub>S<sub>4</sub> core-shell nanoarrays for ultrahigh capacitance supercapacitor

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Fig. S1. Photography of CoCH, CoCH@ZIF-67, Co<sub>9</sub>S<sub>8</sub>, NiCo<sub>2</sub>S<sub>4</sub> on the Ni Foam.



Fig. S2. XRD pattern of CoCH@ZIF-67.



Fig. S3. EDS of NiCo<sub>2</sub>S<sub>4</sub>/NF.



**Fig. S4.** Survey spectra of  $NiCo_2S_4/NF$ .



Fig. S5. The overall distribution of elements of  $NiCo_2S_4/NF$ 



Fig. S6. (a)  $N_2$  adsorption-desorption isotherm curve and pore size distribution curve of  $NiCo_2S_4/NF$ . (b)  $N_2$  adsorption-desorption isotherm curve and pore size distribution curve of  $Co_9S_8/NF$ .



Fig. S7. (a) CV curves of  $Co_9S_8/NF$  at different scan rates; (b) GCD curve of  $Co_9S_8/NF$  at

different current densities.



Fig. S8. SEM image of  $NiCo_2S_4/NF$  after cycling test.



Fig. S9. (a) CV curves of  $NiCo_2S_4/NF$  and AC at a scan rate of 5 mV s<sup>-1</sup>; (b) CV curves of AC at different scan rates; (c) GCD curves of AC at different current densities; (d) Specific capacitances of AC.



Fig. S10. Cycling performance of ACS device.