

## Supporting Information

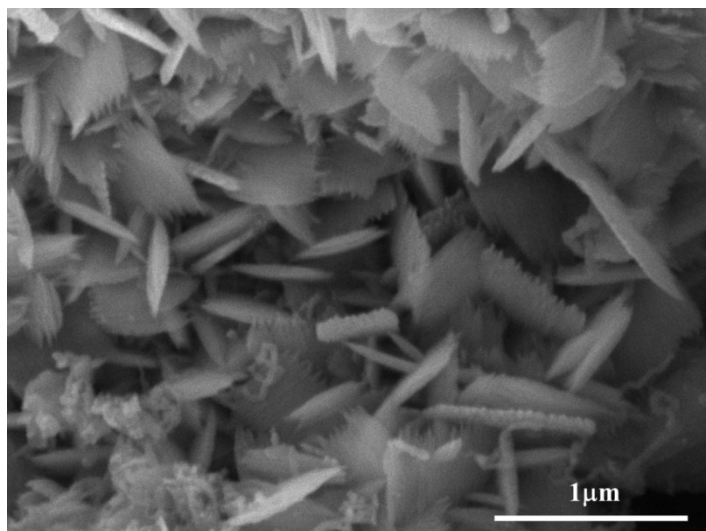
### **Metal-organic framework templated fabrication of $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2$ core-shell nanoarrays for high-performance supercapacitors**

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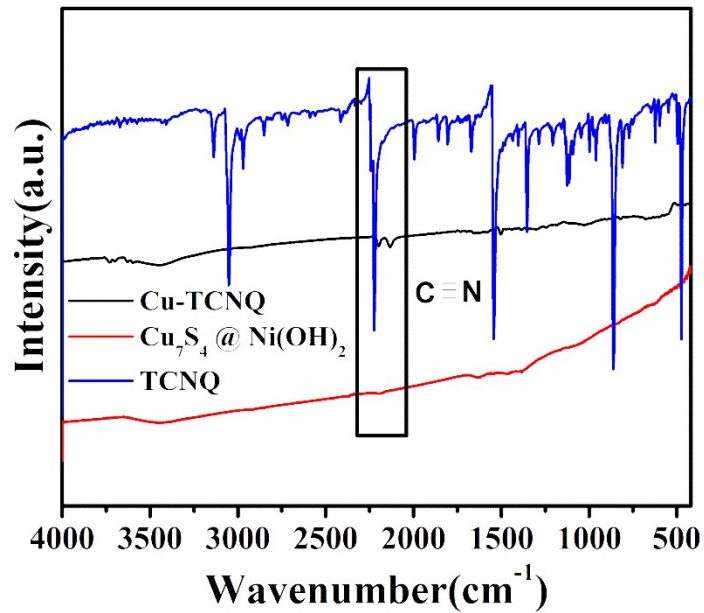
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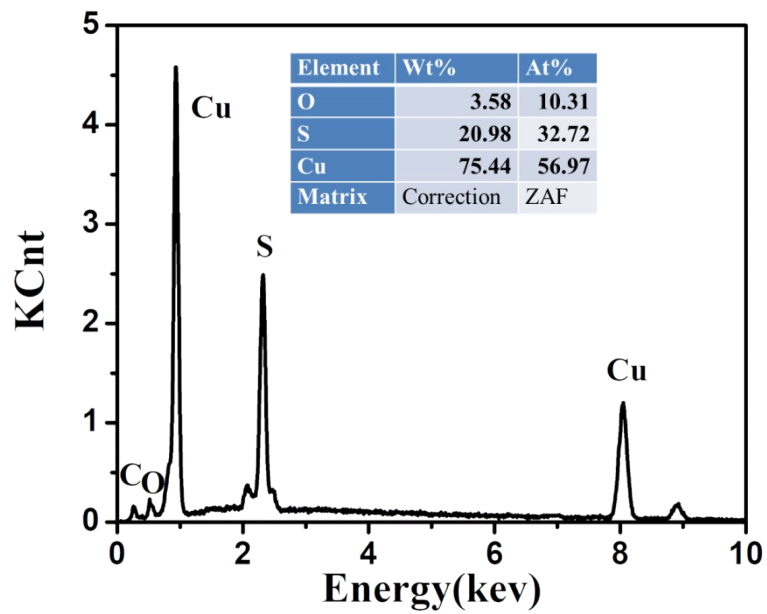
<sup>c</sup> Key Laboratory of Photoelectric Materials and Devices of Zhejiang Province, Ningbo University, Ningbo, Zhejiang 315211, China



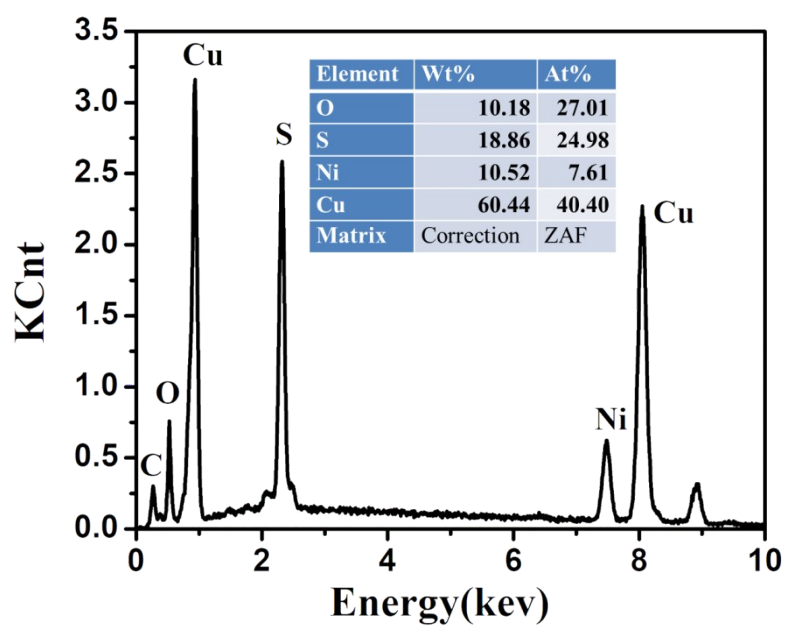
**Fig. S1.** SEM image of  $\text{Ni}(\text{OH})_2$ .



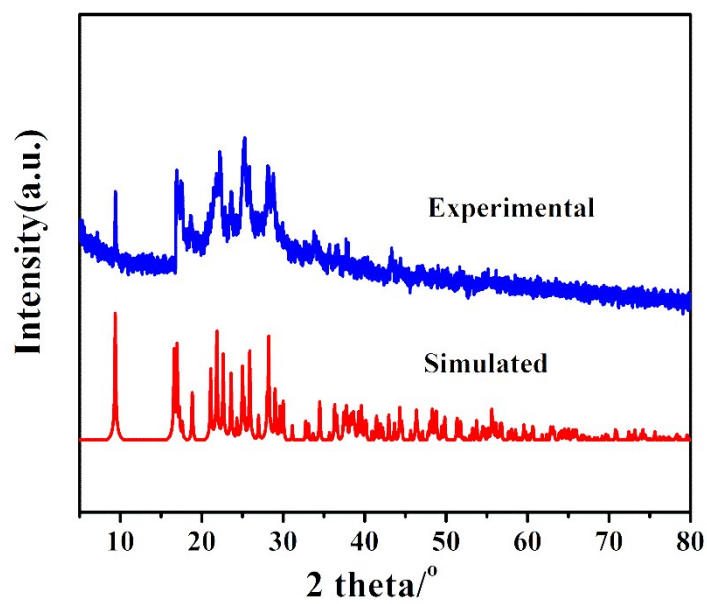
**Fig. S2.** FT-IR spectra of TCNQ, Cu-TCNQ and  $\text{Cu}_7\text{S}_4$ .



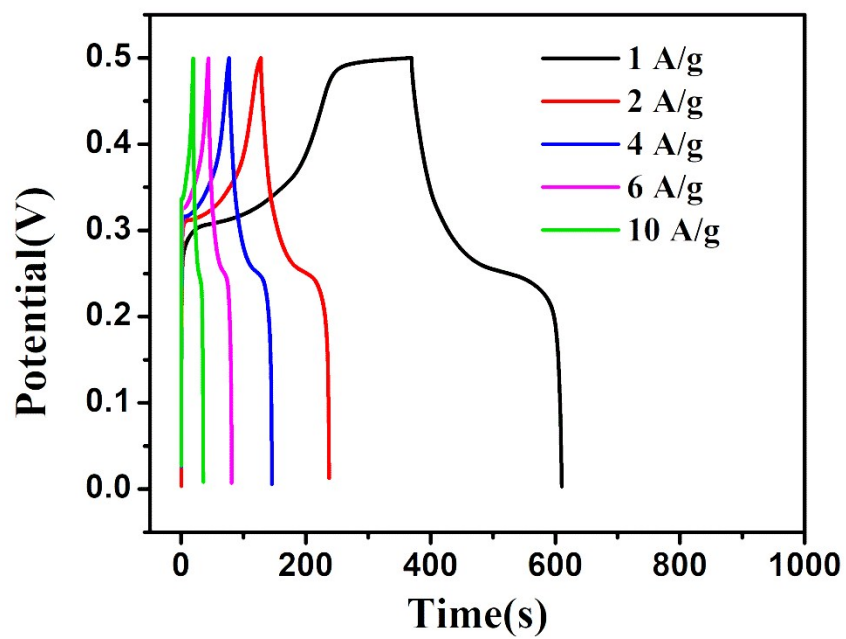
**Fig. S3.** EDS pattern of  $\text{Cu}_7\text{S}_4/\text{CF}$ .



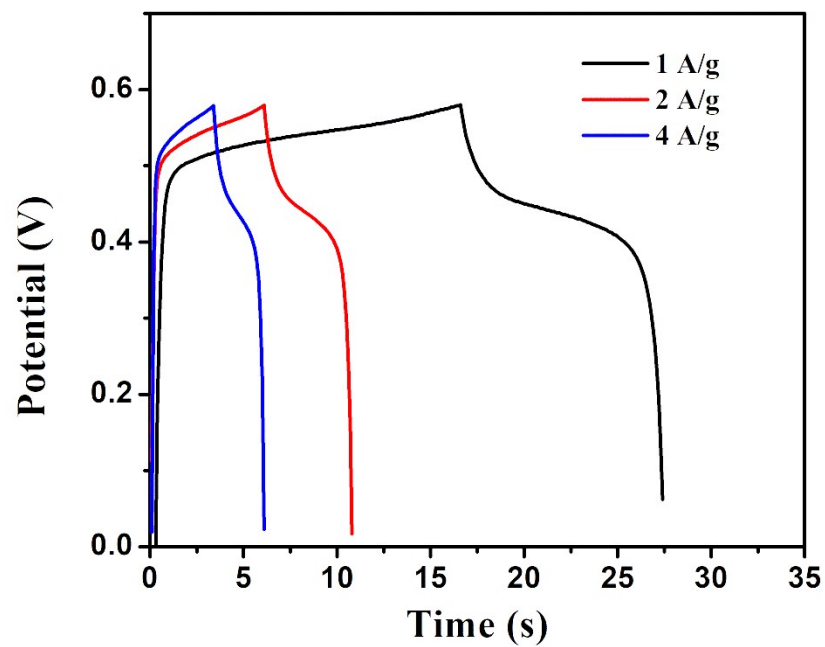
**Fig. S4.** EDS pattern of  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2/\text{CF}$ .



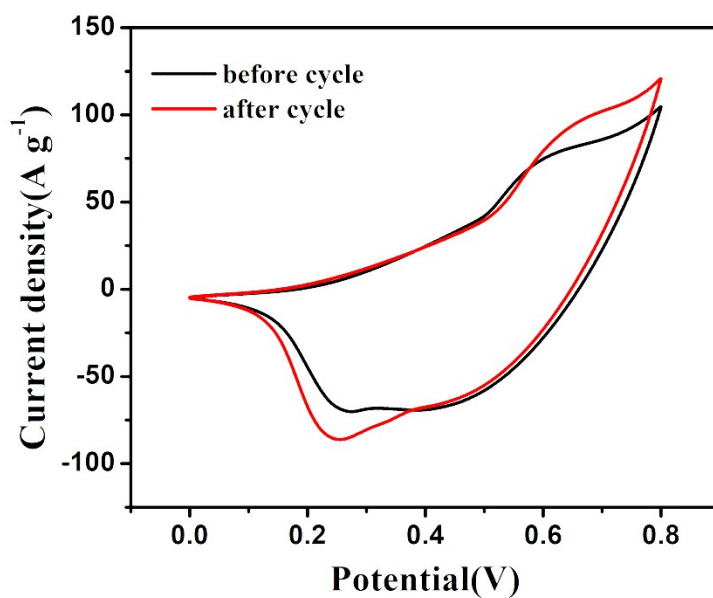
**Fig. S5.** PXRD pattern of Cu-TCNQ scratched from CF.



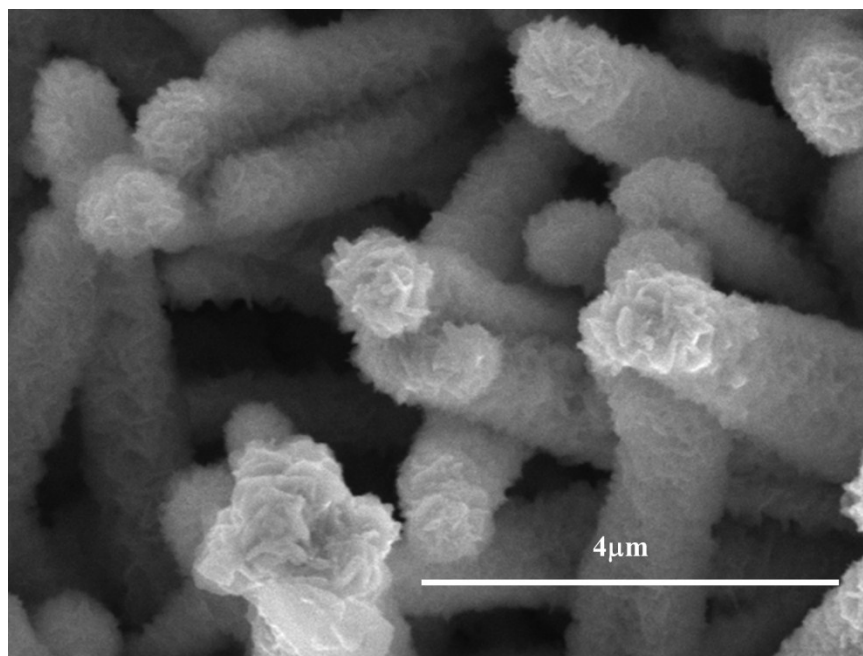
**Fig. S6.** GCD curves of Ni(OH)<sub>2</sub>/CF at different current densities.



**Fig. S7.** GCD curves of Cu<sub>7</sub>S<sub>4</sub>/CF at different current densities.



**Fig. S8.** Comparison of CV curves of  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2/\text{CF}$  electrode before and after 10000 cycles at scan rate of  $30 \text{ mV s}^{-1}$ .



**Fig. S9.** SEM image of the  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2/\text{CF}$  electrode after 10000 cycles.

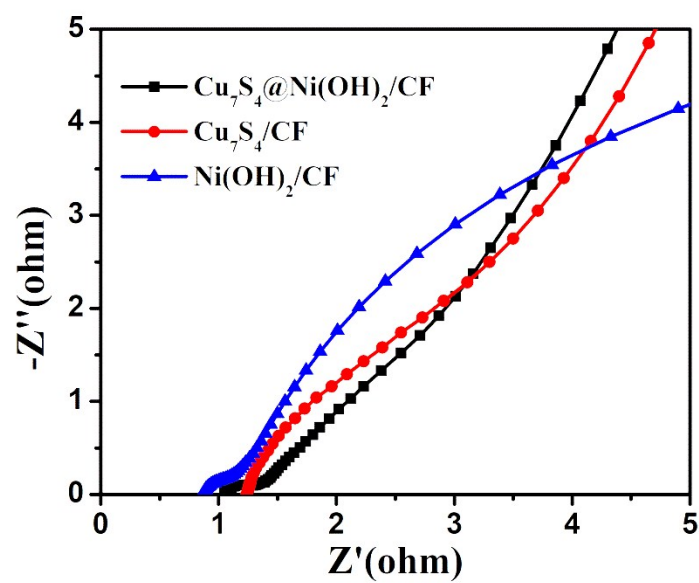


Fig. S10. Magnified Nyquist plot.

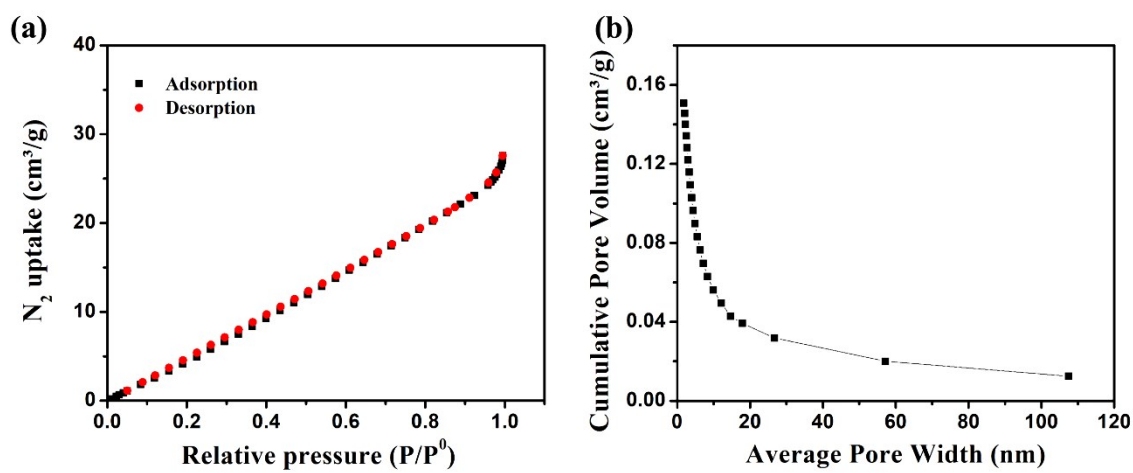
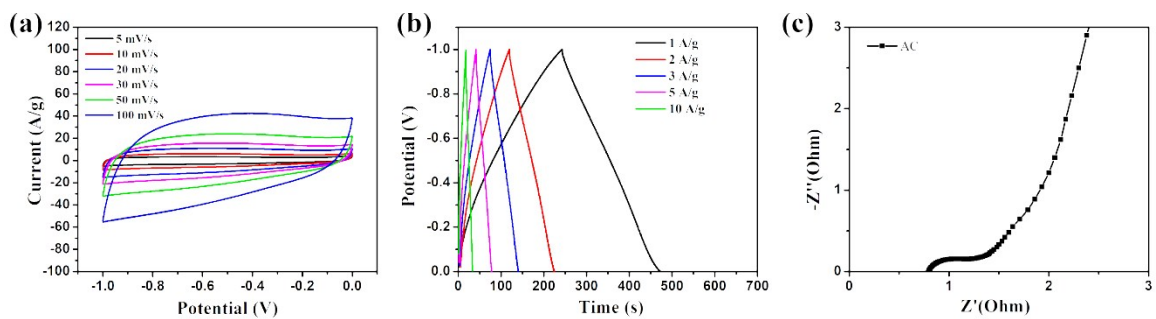
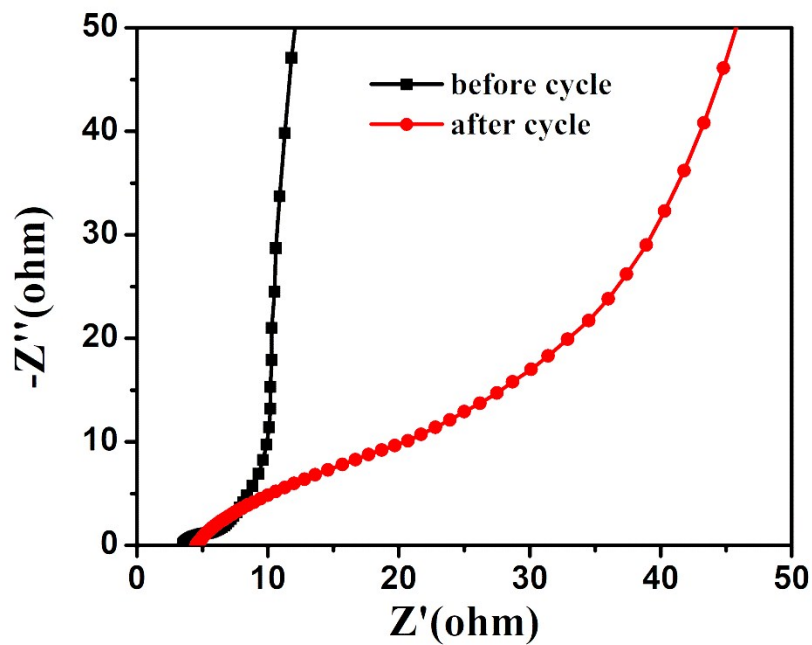


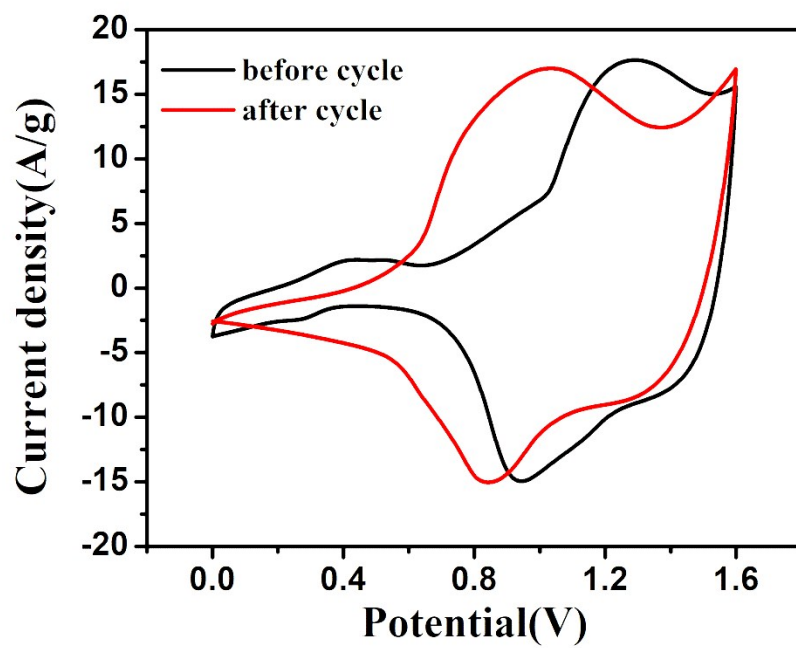
Fig. S11. (a)  $\text{N}_2$  adsorption-desorption isotherms; (b) Pore size distribution of  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2$ .



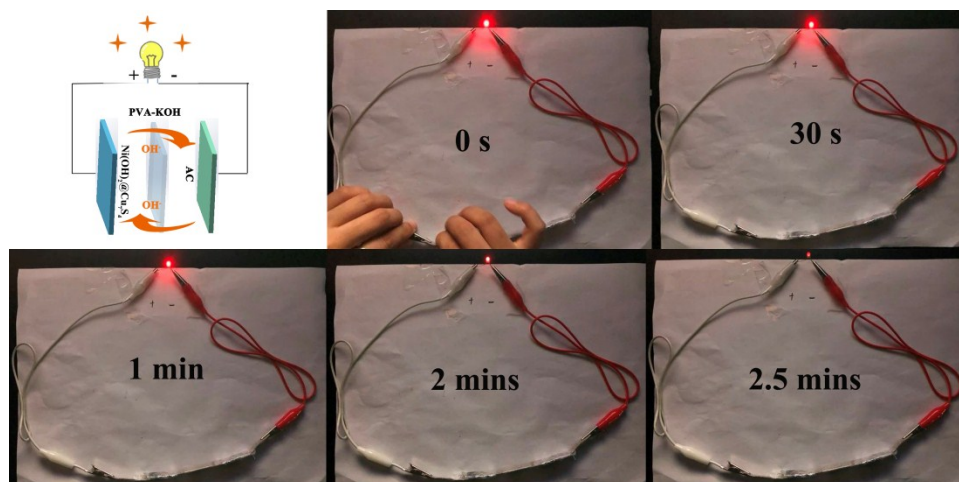
**Fig. S12.** (a) CV curves of AC at different scan rates; (b) GCD curves of AC at different current densities; (c) the magnified EIS plot of AC



**Fig. S13.** Comparison EIS plots of the  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2//\text{AC}$  ASC before and after 10000 cycles.



**Fig. S14.** Comparison CV curves of the  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2/\text{AC}$  ASC before and after 10000 cycles.



**Fig. S15.** Schematic image of assembly of the  $\text{Cu}_7\text{S}_4@\text{Ni}(\text{OH})_2/\text{AC}$  ASC device and its LED illuminated time.



**Table S1** Content of Cu and Ni obtained from ICP-AES

|                                                     | Cu     | Ni     |
|-----------------------------------------------------|--------|--------|
| Cu <sub>7</sub> S <sub>4</sub>                      | 74.23% | /      |
| Ni(OH) <sub>2</sub>                                 | /      | 61.14% |
| Cu <sub>7</sub> S <sub>4</sub> @Ni(OH) <sub>2</sub> | 54.28% | 15.62% |