Supporting Information

Metal-organic framework templated fabrication of Cu₇S₄@Ni(OH)₂ core-shell nanoarrays for high-performance supercapacitors

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Fig. S1. SEM image of Ni(OH)₂.
Fig. S2. FT-IR spectra of TCNQ, Cu-TCNQ and Cu$_7$S$_4$.

Fig. S3. EDS pattern of Cu$_7$S$_4$/CF.
Fig. S4. EDS pattern of Cu$_7$S$_4$@Ni(OH)$_2$/CF.

Fig. S5. PXRD pattern of Cu-TCNQ scratched from CF.
Fig. S6. GCD curves of Ni(OH)$_2$/CF at different current densities.

Fig. S7. GCD curves of Cu$_7$S$_4$/CF at different current densities.
Fig. S8. Comparison of CV curves of Cu$_7$S$_4$@Ni(OH)$_2$/CF electrode before and after 10000 cycles at scan rate of 30 mV s$^{-1}$.

Fig. S9. SEM image of the Cu$_7$S$_4$@Ni(OH)$_2$/CF electrode after 10000 cycles.
Fig. S10. Magnified Nyquist plot.

Fig. S11. (a) N\textsubscript{2} adsorption-desorption isotherms; (b) Pore size distribution of Cu\textsubscript{7}S\textsubscript{4}@Ni(OH)\textsubscript{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 Cu$_7$S$_4$@Ni(OH)$_2$//AC ASC before and after 10000 cycles.
Fig. S14. Comparison CV curves of the Cu$_7$S$_4$@Ni(OH)$_2$/AC ASC before and after 10000 cycles.

Fig. S15. Schematic image of assembly of the Cu$_7$S$_4$@Ni(OH)$_2$/AC ASC device and its LED illuminated time.
Table S1 Content of Cu and Ni obtained from ICP-AES

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<tr>
<th></th>
<th>Cu</th>
<th>Ni</th>
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<tbody>
<tr>
<td>Cu$_7$S$_4$</td>
<td>74.23%</td>
<td>/</td>
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<tr>
<td>Ni(OH)$_2$</td>
<td>/</td>
<td>61.14%</td>
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<tr>
<td>Cu$_7$S$_4$@Ni(OH)$_2$</td>
<td>54.28%</td>
<td>15.62%</td>
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