Supporting Information

Nitrogen/Oxygen Co-doped Carbon Monolithic Electrode Derived from Melamine Foam for High-Performance Supercapacitors

Rui Zhang,\textsuperscript{a} Xiangxia Jing,\textsuperscript{a} Yanting Chu,\textsuperscript{b} Lei Wang,\textsuperscript{a} Wenjun Kang,\textsuperscript{a} Denghu Wei,\textsuperscript{c} Haibo Li,*\textsuperscript{a,d} and Shenglin Xiong*\textsuperscript{b}

\textsuperscript{a}School of Chemistry and Chemical Engineering, Liaocheng University, Liaocheng 252059, PR China

\textsuperscript{b}Key Laboratory of the Colloid and Interface Chemistry Ministry of Education and School of Chemistry and Chemical Engineering, Shandong University, Jinan 250100, PR China

\textsuperscript{c}School of Materials Science and Engineering, Liaocheng University, Liaocheng 252059, PR China

\textsuperscript{d}Department of Chemical and Biomolecular Engineering, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260, Singapore

*Correspondence and requests for materials should be addressed to H.B.L. (email: haiboli@mail.ustc.edu.cn) or to S.L.X. (email: chexsl@sdu.edu.cn).
Fig. S1 (a, b, c) SEM images, (d) TEM image, and (e) element mapping of NOCS-0.
Fig. S2 SEM and TEM images for (a, b, c) NOCS-1/20 and (d, e, f) NOCS-1/5.
Fig. S3 Peak-fitting XPS spectra of (a, d, g) C1s, (b, e, h) N1s, and (c, f, i) O1s for (a, b, c) NOCS-0, (d, e, f) NOCS-1/20, and (g, h, i) NOCS-1/5.
Fig. S4 CV curves for (a) NOCS-0, (b) NOCS-1/20, and NOCS-1/5 at different scan rates in 6.0 M KOH.
Fig. S5 CV curves for (a) NOCS-0, (c) NOCS-1/20, and (e) NOCS-1/5 at different scan rates in 0.5 M Na$_2$SO$_4$. Comparison of specific capacitances for (b) NOCS-0, (d) NOCS-1/20, and (f) NOCS-1/5 in 6.0 M KOH and 0.5 M Na$_2$SO$_4$. 
Fig. S6 GCD curves for (a) NOCS-0, (b) NOCS-1/20, and NOCS-1/5 at different current densities (0.5, 1.0, 2.0, 4.0, 6.0, 8.0, 10, 15, and 20 A g$^{-1}$) in 6.0 M KOH solution.
Fig. S7 (a) N$_2$ adsorption/desorption isotherms and (b) BJH pore size distributions for NOCS-0, NOCS-1/20, NOCS-1/10, and NOCS-1/5.

Table S1. Pore structure parameters from N$_2$ adsorption/desorption isotherms.

<table>
<thead>
<tr>
<th>Samples</th>
<th>$^a$S$_{\text{total}}$ m$^2$ g$^{-1}$</th>
<th>$^b$S$_{\text{meso+macro}}$ m$^2$ g$^{-1}$</th>
<th>S$_{\text{micro}}$ m$^2$ g$^{-1}$</th>
<th>$^c$V$_{\text{total}}$ cm$^3$ g$^{-1}$</th>
<th>$^d$V$_{\text{micro}}$ cm$^3$ g$^{-1}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOCS-0</td>
<td>28.6</td>
<td>28.6</td>
<td>0</td>
<td>0.054</td>
<td>0</td>
</tr>
<tr>
<td>NOCS-1/20</td>
<td>126.5</td>
<td>54.6</td>
<td>71.9</td>
<td>0.105</td>
<td>0.036</td>
</tr>
<tr>
<td>NOCS-1/10</td>
<td>164.4</td>
<td>50.7</td>
<td>113.7</td>
<td>0.113</td>
<td>0.057</td>
</tr>
<tr>
<td>NOCS-1/5</td>
<td>129.0</td>
<td>39.8</td>
<td>89.2</td>
<td>0.090</td>
<td>0.044</td>
</tr>
</tbody>
</table>

$^a$The total surface area ($S_{\text{total}}$) and the surface area of micro-pores ($S_{\text{micro}}$) were obtained from multipoint Brunauer–Emmett–Teller (BET) plots and V–t plots, respectively. $^b$The surface area of the meso-/macro-pores ($S_{\text{meso+macro}}$) was acquired by subtracting $S_{\text{micro}}$ from $S_{\text{total}}$. $^c$The total pore volume ($V_{\text{total}}$) was determined at $P/P_0 = 0.98$, and $^d$the micro-pore volume ($V_{\text{micro}}$) was calculated from the V–t plot.
Fig. S8 Galvanostatic charge-discharge curves of an all-solid-state supercapacitor assembled by NOCS-0 monolithic electrodes (current densities: 0.5, 1.0, 2.0, 4.0, and 6.0 A g$^{-1}$).
Fig. S9 The photograph of a red LED light illuminated by three NOCS-1/10 supercapacitors in series.