Supporting Information

New Amphiphilic Block Copolymer-Modified Electrode for Supercapacitors

Zhen Wang\textsuperscript{b}, Yongtao Tan\textsuperscript{a,b}, Ying Liu\textsuperscript{a,b}, Lengyuan Niu\textsuperscript{c}, Lingbin Kong\textsuperscript{a,b}, Long Kang\textsuperscript{a,b}, Fen Ran\textsuperscript{a,b,*}

\textsuperscript{a} State Key Laboratory of Advanced Processing and Recycling of Non-ferrous Metals, Lanzhou University of Technology, Lanzhou 730050, P. R. China
\textsuperscript{b} School of Material Science and Engineering, Lanzhou University of Technology, Lanzhou, 730050, Gansu, PR China
\textsuperscript{c} Institute of Coordination Bond Metrology and Engineering, College of Materials Science and Engineering, China Jiliang University, Hangzhou 310018, PR China
**Figure S1.** FTIR spectra for PAA macro-RAFT agent, and amphiphilic block copolymer PAA-\(b\)-PAN-\(b\)-PAA
Figure S2. $^1$H-NMR spectrum of amphiphilic block copolymer PAA-$b$-PAN-$b$-PAA (DMSO-$d$ was used as solvent in the $^1$H-NMR measurement)
Figure S3. The stability of the ABC in the electrolyte
Figure S4. Photos of (a) F-ABC-0.0, (b) F-ABC-0.2, (c) F-ABC-0.5 and (d) F-ABC-0.7
Figure S5. SEM images of activated carbon (AC)
Figure S6. Water contact angle of F-ABC-0.0, F-ABC-0.2, F-ABC-0.3, F-ABC-0.5 and F-ABC-0.7
Figure S7. Cyclic voltammogram curves of F-ABCs: a) 0.00 g, c) 0.20 g, e) 0.50 g and g) 0.70 g; and galvanostatic charging-discharging curves of F-ABCs: b) 0.00 g, d) 0.20 g, f) 0.50 g and h) 0.70 g.
Figure S8. Electrochemical performance of symmetric supercapacitor assembled with F-ABC-0.0 in a two-electrode system: (a) cyclic voltammogram curves at different scan rates, (b) galvanostatic charging/discharging curves at different current densities, (c) cycling stability at 2 A/g. Insets are the CV curves before and after 5000 cycles at 30 mV/s (left) and 100 mV/s (right). (d) Electrochemical impedance spectroscopy before cycling and after 5000 cycles.
Figure S9. Equivalent circuit of all impedance spectra for different samples
Figure S10. Volumetric energy/power density of SCs based on the overall device in this work.
Table S1. Fitted parameters for EIS obtained by Zswinwin software of different samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>$R_s$ (Ω)</th>
<th>$R_{CT}$ (Ω)</th>
<th>$R_w$ (Ω)</th>
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<tr>
<td>F-ABC-0.0//F-ABC-0.0</td>
<td>7.1</td>
<td>0.01</td>
<td>0.0218</td>
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<tr>
<td>SC</td>
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<tr>
<td>F-ABC-0.3//F-ABC-0.3</td>
<td>6.912</td>
<td>0.03</td>
<td>0.0183</td>
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<tr>
<td>SC</td>
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