Supporting Information

All-Solid-State Supercapacitors Using A Highly-Conductive Neutral Gum Electrolyte

Nengsheng Yu,a,b,c Xiaona Wanga, Silan Zhanga, Sha Zenga, Yongyi Zhang,a,c Jiangtao Di,a,c* Qingwen Lia,c

a Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou 215123, People’s Republic of China. E-mail: jtdi2009@sinano.ac.cn;
b Nano Science and Technology Institute University of Science and Technology of China, Suzhou 215123, China.
c Division of Nanomaterials, Suzhou Institute of Nano-Tech and Nano-Bionics, Nanchang, Chinese Academy of Sciences, Nanchang 330200, China

<table>
<thead>
<tr>
<th>Deposition potential</th>
<th>0-0.6V</th>
<th>0-0.8V</th>
<th>0.3-0.6V</th>
<th>0.3-0.8V</th>
<th>0.3-1V</th>
</tr>
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<tbody>
<tr>
<td>Mass density (mg/cm²)</td>
<td>0.53</td>
<td>0.51</td>
<td>0.52</td>
<td>0.75</td>
<td>0.71</td>
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Tab. S1 Mass density of MnO₂/CNT films at different deposition potential.

Fig. S1 Optical images of 20 wt% of PVA with (a) 0.1 M, (b) 0.5 M, (c) 3 M of Na₂SO₄; (d) Optical image of 20 wt% xanthan gum with 3 M of Na₂SO₄.
Fig. S2 AC impedance spectra of the xanthan gum electrolytes containing 20 wt% xanthan gum with different concentrations of sodium sulfate.

Fig. S3 IR spectra of xanthan gum and the Na₂SO₄/xanthan gum electrolyte.
Fig. S4 SEM image of MnO$_2$ at different deposition potential. a) MnO$_2$-1; b) MnO$_2$-2; c) MnO$_2$-4; d) MnO$_2$-5.

Fig. S5 Electrochemical measurement of MnO$_2$/CNT films with 1 M Na$_2$SO$_4$ aqueous solution as the electrolyte. a) CV curves of obtained at 5mV/s at different deposition scan...
rates (MnO$_2$-1: +0.3 V and +0.6 V; MnO$_2$-2: +0.3 V and +0.8 V; MnO$_2$-3: +0.3 V and +1.0 V; MnO$_2$-4: 0 V and +0.8 V; MnO$_2$-5: 0 V and +0.6 V); b) CV curves obtained at 5 mV/s at different deposition potential (MnO$_2$-3a: 250 mV/s, MnO$_2$-3b: 50 mV/s, MnO$_2$-3c: 100 mV/s); c) GCD curves of MnO$_2$-3a/CNT films at different current density; d) Rate performance of MnO$_2$-3a/CNT.

Fig. S6 TGA of MnO$_2$/CNT films

Fig. S7 Raman spectra of MnO$_2$/CNT films at different deposition potential.
Fig. S8 CV curves (scan rate: 2 mV/s) of the flexible supercapacitors based on pristine CNT and MnO$_2$/CNT electrodes.

Fig. S9 Ragone plots of all-solid-state supercapacitor based on MnO$_2$/CNT electrodes.
Fig. S10 Nyquist plot of all-solid-state supercapacitors at different cycle number.