Supporting Information

High Accessible Hierarchical Porous Carbon from Bifunctional Ionic Liquid Bulky Gel: High-Performance Electrochemical Double Layer Capacitors

Yang Yan*a**, Xiao-Feng Haoa†, Li-guo Gaoa, Si-si Lin*a, Nan Cua, Yue-hui Lia, Ce Haoa, Ting-li Ma *a,b and Hong-xia Wangc*

*a State Key Laboratory of Fine Chemicals, School of Chemical Engineering, Dalian University of Technology, Panjin, 124221, P. R. China. Email: yanyang@dlut.edu.cn

b Graduate school of Life Science and Systems Engineering, Kyushu Institute of Technology, 2-4Hibikino, Wakamatsu, Kitakyushu, Fukuoka 808-0196, Japan Email: Email: tinglima6@gmail.com

c School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology, Brisbane, Qld 4001, Australia Email: hx.wang@qut.edu.au
Figure S1. Low magnification SEM images of GGI

Figure S2. (a), (b) and (c) SEM images of IG
Figure S3 (a) and (b) SEM images of GG; (c) and (d) SEM images of GI

Figure S4. Cumulative surface area of (a) GGI; (b) GI and (c) GG
Table 1. Summary of various surface areas of porous carbon

<table>
<thead>
<tr>
<th>Sample</th>
<th>$S_{BET}$ (m² g⁻¹)</th>
<th>$S_{micro}$ (m² g⁻¹)</th>
<th>$S_{meso}$ (m² g⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG</td>
<td>391.6</td>
<td>184.1</td>
<td>207.5</td>
</tr>
<tr>
<td>GI</td>
<td>414.4</td>
<td>88.3</td>
<td>326.1</td>
</tr>
<tr>
<td>GGI</td>
<td>1581.2</td>
<td>715.2</td>
<td>866</td>
</tr>
</tbody>
</table>

Figure S5. Pore size distribution of GGI, GI and GG

Figure S6. XPS survey spectra of (a) GG and (b) GI
Figure S7. Dynamic contact angle of EmimTFSI on GG and GI

Figure S8. (a) XRD curves and (b) Raman spectra of GGI, GI and GG.
Figure S9. CV curves of GGI, GI and GG at 10 mV s⁻¹.

Figure S10. Galvanostatic charge/discharge curves at different current densities for (a) GI and (b) GG.
Figure S11. Nyquist plot of GGI, GI and GG in aqueous electrolyte

Figure S12. CV curves of GI and GG at 10 mV s\(^{-1}\)
Figure S13. Specific capacitances of GGI at different current densities with EmimTFSI as electrolyte

![Graph showing specific capacitances of GGI at different current densities.](image)

Figure S14. Photograph of lighting LED bulbs. (a) and (b) one symmetric EDLC device lighting up a white LED bulb; (c) and (d) one symmetrical cell lighting up 21 LED bubbles assembled as DUT symbols

![Photographs of LED bulbs lighting up at different times.](image)
Figure S15. Nyquist plot of GGI, GI and GG in IL electrolyte