Supplementary Information

A novel sulfur-impregnated porous carbon matrix as a cathode material for a lithium sulfur battery

Yanhui Cui,1 Xiao Liang,1 Jue Ouyang,1 Jiayi Huang,1 Jiong Zeng,1 Junwei Wu,1* Zuohua Li,2* Chenqiang Du,3 Zhoufu Li,3 Andrew P. Baker,1 Kevin Huang,4 Xinhe Zhang5

1 Shenzhen Key Laboratory of Advanced Materials, Department of Materials Science and Engineering, Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, 518055, China
2 School of Civil and Environmental Engineering, Harbin Institute of Technology Shenzhen Graduate School, Shenzhen 518055, China
3 Department of Applied Chemistry, School of Chemical and Engineering, Tianjin University, Tianjin, 300072, China
4 Department of Mechanical Engineering, University of South Carolina, Columbia, SC 29201, USA
5 Dongguan Mcnair Technology Co., LTD, Dongguan, 523800, China

Fig. S1 The pre-carbonized process of PCM-Z: (a) After being stewed at 70℃ for 24 h; (b) after heating at 65℃ for 2 days; (c) after heating at 65℃ for 4 days; (d) after heating at 65℃ for 14 days

1*Corresponding author 1
Junwei Wu, Ph.D, Associate professor, E-mail address: junwei.wu@hitsz.edu.cn
Phone: 86-755-2603 3290, Fax: 86-755-2603 3504
2*Corresponding author 2
Zuohua Li, Ph.D, Associate professor, E-mail address: lizuohua@hitsz.edu.cn
Phone: 86-755-2603 4949, Fax: 86-755-2603 3509
Fig. S2 (a) The SEM image of PCM-Z-S 58 wt% and EDX element mapping of (b) S (Green color dots)
Fig. S3 The discharge-charge curves of PCM-Z-S 58 wt% composite with different deposited time at 1C: (a) 1 day and (b) 8 days
Fig. S4 The Tg analysis of PCM-0-S 54 wt% and PCM-Z-S 58 wt% composite
Fig. S5 The first discharge and charge curves of PCM-Z-S 58 wt% at 0.2C and 0.5C.
Fig. S6 High resolution images of (a) PCM-Z and (b) PCM-Z-S 58 wt% composite
<table>
<thead>
<tr>
<th>Materials</th>
<th>Surface area</th>
<th>Pore volume</th>
<th>Average pore radius</th>
</tr>
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<tbody>
<tr>
<td>PCM-0</td>
<td>448</td>
<td>0.026</td>
<td>1.8</td>
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<tr>
<td>PCM-0-S 54 wt%</td>
<td>35</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>PCM-Z</td>
<td>1056</td>
<td>1.75</td>
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<tr>
<td>PCM-Z-S 58 wt%</td>
<td>153</td>
<td>0.50</td>
<td>4.75</td>
</tr>
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