Shape and Size Controlled Synthesis and Properties of Colloidal IV-VI SnSe Nanocrystals

Jiajia Ning, †‡ Guanjun Xiao, † Tao Jiang, † Li Wang, ‡ Quanqin Dai, † Bo Zou, †,*

Bingbing Liu, † Yingjin Wei, †§ Gang Chen, †§ and Guangtian Zou †

State Key Laboratory of Superhard Materials and College of Materials Science & Engineering, Jilin University, Changchun 130012, P. R. China

* Corresponding authors. E-mails: zoubo@jlu.edu.cn

† State Key Laboratory of Superhard Materials, Jilin University.

‡ College of Materials Science & Engineering, Jilin University.

§ College of Physics, Jilin University.
**Figure S1.** XRD patterns of SnSe nanocrystals with different size. The diffraction peaks become more wide and weak with decreasing the size of SnSe nanocrystals.

**Figure S2.** Selected area electron diffraction (SAED) of as-prepared SnSe nanocrystals.
Table 1. Size of SnSe nanocrystals synthesized with different experimental parameter.

<table>
<thead>
<tr>
<th></th>
<th>110 度</th>
<th>140 度</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:2</td>
<td>19.5 nm</td>
<td>16.6 nm</td>
</tr>
<tr>
<td>1:1</td>
<td>7.2 nm</td>
<td>8.4 nm</td>
</tr>
<tr>
<td>2:1</td>
<td>24 nm</td>
<td>18 nm</td>
</tr>
</tbody>
</table>

**Figure S3.** Cycle behavior of SnSe nanocrystals with different size as anode material for lithium ion batteries.