Supporting Information for

Self-supported Composites of Thin Pt-Sn Crosslinked Nanowires for Highly Chemoselective Hydrogenation of Cinnamaldehyde under Ambient Conditions

Lin-Xiu Dai, Wei Zhu, Mu Lin, Zhi-Ping Zhang, Jun Gu, Yu-Hao Wang, Ya-Wen Zhang*

Beijing National Laboratory for Molecular Sciences, State Key Laboratory of Rare Earth Materials Chemistry and Applications, PKU-HKU Joint Laboratory in Rare Earth Materials and Bioinorganic Chemistry, College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China. Fax: +86-10-62756787; Tel: +86-10-6275678; Email: ywzhang@pku.edu.cn

Table S1. Rietveld refinement of PXRD for the obtained products

<table>
<thead>
<tr>
<th>Phase</th>
<th>Space Group</th>
<th>Cell Parameters</th>
<th>$R_p$</th>
<th>$R_{wp}$</th>
<th>$R_{exp}$</th>
<th>GOF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt&lt;sub&gt;9&lt;/sub&gt;Sn</td>
<td>Fm-3m</td>
<td>a (Å) b (Å) c (Å)</td>
<td>3.950(1) 3.950(1) 3.950(1)</td>
<td>0.124</td>
<td>0.167</td>
<td>0.152</td>
</tr>
<tr>
<td>SnO&lt;sub&gt;2&lt;/sub&gt;</td>
<td>P42/mnm</td>
<td>4.745(3) 4.745(3) 3.184(2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ratio (wt%)</td>
<td></td>
<td></td>
<td></td>
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Pt<sub>9</sub>Sn : SnO<sub>2</sub> = 57.9 : 42.1

Figure S1. Rietveld refinement of PXRD for the obtained product.
Figure S2. TEM images of segregation structure of PtSn/SnO₂ NPs in the synthetic process of PtSn/SnO₂ CNs.

Figure S3. TEM images of the products with using H₂PtCl₆ and SnCl₄ (a), K₂PtCl₄ and SnCl₄ (b), K₂PtCl₄ and SnCl₂ (c), and H₂PtCl₆ and SnCl₂ (d) as precursors, respectively, after the hydrothermal reaction for 24 hours at 180 °C.
**Figure S4.** FTIR spectra (obtained on Bruker Tensor27 FTIR spectrometer) of pure PVP ($M_w = 55000$) (a) and the as-obtained products (b).

**Figure S5.** TEM image (a) and size distribution histogram (b) of Pt NPs, TEM image (c) and size distribution histogram (d) of SnO$_2$ NPs.
Figure S6. TEM images of PtSn/SnO$_2$ CNs after 1 cycle (a) and 3 cycles (b) for CAL hydrogenation.

Figure S7. TEM images of Pt NPs (a) and Pt+SnO$_2$ NPs (b) after 1 cycle for CAL hydrogenation.