Supporting Information

One-step solvothermal fabrication of Cu@PANI core-shell nanospheres for hydrogen evolution

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Fig. S1. FTIR spectra of the samples prepared under different temperature
Fig. S2. TEM images for: (a) Cu/PANI-90; (b) Cu/PANI-120; (C) Cu/PANI-160; (d) Cu/PANI-180

Table S1. Elemental analysis of Cu/PANI composites

<table>
<thead>
<tr>
<th>Sample</th>
<th>Element Content (wt%)</th>
<th>N</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu/PANI-180</td>
<td></td>
<td>0.19</td>
<td>1.62</td>
</tr>
<tr>
<td>Cu/PANI-160</td>
<td></td>
<td>0.23</td>
<td>1.66</td>
</tr>
<tr>
<td>Cu/PANI-120</td>
<td></td>
<td>0.28</td>
<td>1.82</td>
</tr>
<tr>
<td>Cu/PANI-90</td>
<td></td>
<td>0.44</td>
<td>1.92</td>
</tr>
</tbody>
</table>
Fig. S3. Photocatalytic H\(_2\) evolution of Cu/PANI composites prepared at different temperature under solar light irradiation

Fig. S4. XRD spectra of Cu NPs and Cu@PANI2.5%
**Fig. S5.** HAADF-STEM and STEM-EDS elemental mapping images of Cu@PANI2.5% core-shell nanospheres

**Fig. S6.** Relationship of $(ahv)^2$ vs. $E$ (eV) of PANI and Cu@PANI core-shell nanospheres.
Fig. S7. XRD spectra of Cu@PANI2.5%

Fig. S8. Time-resolved PL decay profiles for Cu NPs and Cu@PANI2.5% core-shell nanospheres
Fig. S9. XPS valence band spectra of Cu@PANI2.5%