Electronic Supplementary Information for

Photocatalysis of C, N-doped ZnO derived from ZIF-8 for dye degradation and water oxidation

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\begin{center}
\begin{tikzpicture}
\node at (0,0) {ZIF-8};
\node at (2,0) {N\textsubscript{2}};
\node at (2.5,0) {600-800 °C};
\node at (4,0) {Carbon and Zinc Hybrid};
\node at (5.5,0) {air};
\node at (6,0) {450 °C};
\node at (7.5,0) {Carbon and Zinc Oxide Hybrid};
\end{tikzpicture}
\end{center}

\textbf{Scheme S1.} The synthesis route of the samples
Table S1. Carbon and nitrogen contents of the samples obtained from EDX analysis.

<table>
<thead>
<tr>
<th>samples</th>
<th>6C25</th>
<th>7C25</th>
<th>8C25</th>
<th>6C20</th>
<th>6C30</th>
<th>6C40</th>
</tr>
</thead>
<tbody>
<tr>
<td>C (wt.%)</td>
<td>2.71</td>
<td>4.48</td>
<td>12.66</td>
<td>4.01</td>
<td>0.93</td>
<td>0.66</td>
</tr>
<tr>
<td>N (wt.%)</td>
<td>0.57</td>
<td>1.47</td>
<td>4.02</td>
<td>1.16</td>
<td>0.35</td>
<td>0.14</td>
</tr>
</tbody>
</table>
Figure S1. TGA of 6C25, 7C25 and 8C25 in air (a) and TGA/DTG of C600, C700 and C800 in air (b).
**Figure S2.** The high-resolution Zn 2p spectra of 6C25.

**Figure S3.** First-order kinetic rates of 6C20, 6C25, 6C30 and 6C40.
Figure S4. Stability of 6C25.