Electronic Supplementary Information

Zn-doped TiO₂ Electrodes in Dye-Sensitized Solar Cells for Enhanced Photocurrent

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![Figure SI1.](image)

**Figure SI1.** (a) UV-vis diffuse reflectance spectra of the prepared samples (offset by 5), from bottom to top: Z0.0, Z0.5, Z1.0, Z2.0, Z4.0, Z6.0, Z8.0), and (b) the band-gap calculated from (a).

![Figure SI2](image)

**Fig. SI2** Mott-Schottky plots of the Z0, Z0.5, Z1, Z2 and Z4 samples.
Table S1 The calculated $E_{fb}$ and charge carrier (donor) density from Mott-Schottky plots (Figure S12).

<table>
<thead>
<tr>
<th>Sample Name</th>
<th>Zn/(Zn+Ti) at %</th>
<th>$E_{fb}$ (eV vs Vacuum)</th>
<th>Charge Carrier Density (cm$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z0</td>
<td>0</td>
<td>-4.16</td>
<td>2.36 x 10$^{19}$</td>
</tr>
<tr>
<td>Z0.5</td>
<td>0.5</td>
<td>-4.14</td>
<td>2.52 x 10$^{19}$</td>
</tr>
<tr>
<td>Z1</td>
<td>1</td>
<td>-4.10</td>
<td>3.20 x 10$^{19}$</td>
</tr>
<tr>
<td>Z2</td>
<td>2</td>
<td>-4.05</td>
<td>3.50 x 10$^{19}$</td>
</tr>
<tr>
<td>Z4</td>
<td>4</td>
<td>-4.04</td>
<td>3.57 x 10$^{19}$</td>
</tr>
</tbody>
</table>

Fig. S13 The photoluminescence spectra of Z0, Z0.5, Z1, Z2 and Z4 samples (Excited at 300nm).
Figure SI4. UV-vis spectra of desorbed dye from the Z0.0 and Z0.5 samples.