

## Supporting information

### Visible-light-driven photocatalytic activity of SnO<sub>2</sub>-ZnO quantum dots anchored on g-C<sub>3</sub>N<sub>4</sub> nanosheets for photocatalytic pollutant degradation and H<sub>2</sub> production

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## 1.1 Figures

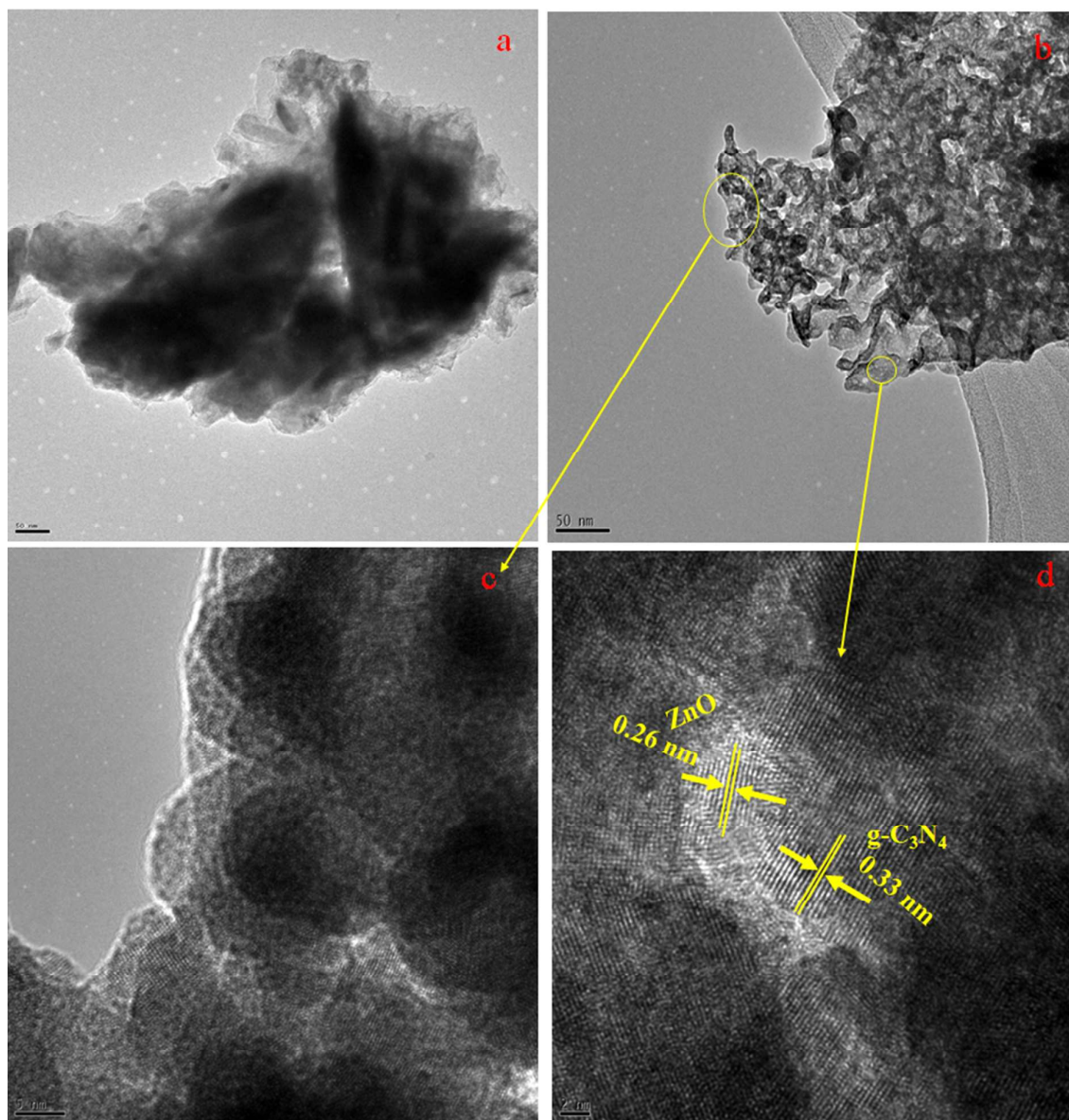


Figure S1. HRTEM images of (a) pristine g-C<sub>3</sub>N<sub>4</sub> and (b–d) the Zn/g-C<sub>3</sub>N<sub>4</sub> catalyst.

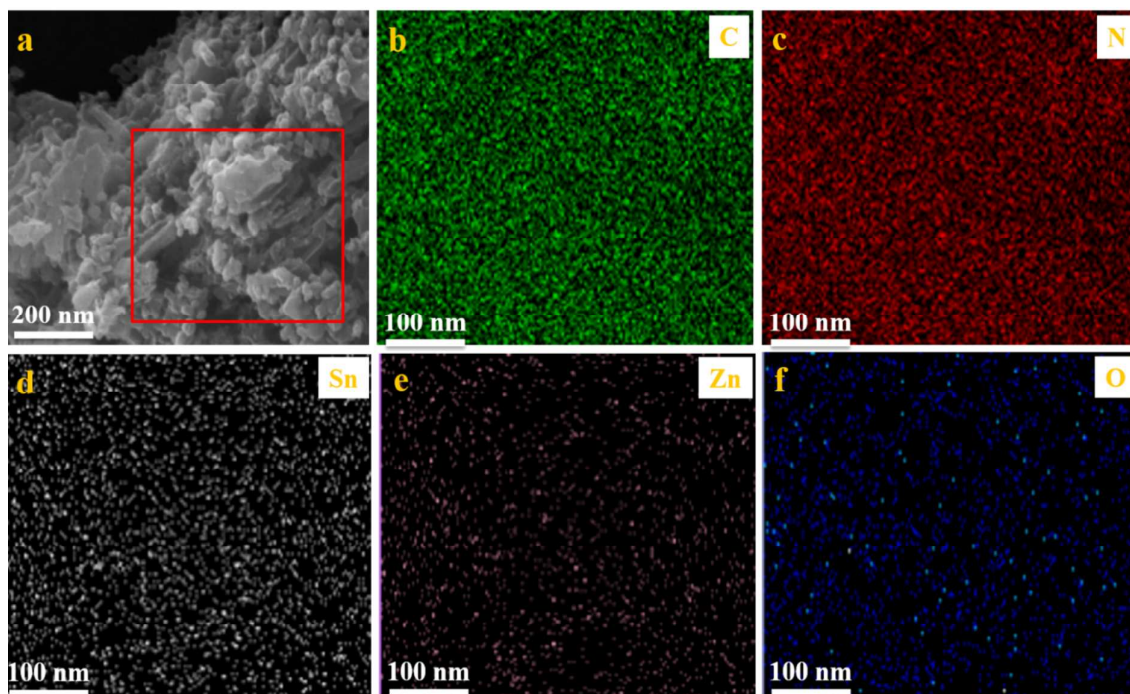


Figure S2. (a) SEM image, elemental mapping of (b) C, (c) N, (d) Sn, (e) Zn, and (f) O elements of the SZ/g-C<sub>3</sub>N<sub>4</sub> catalyst.

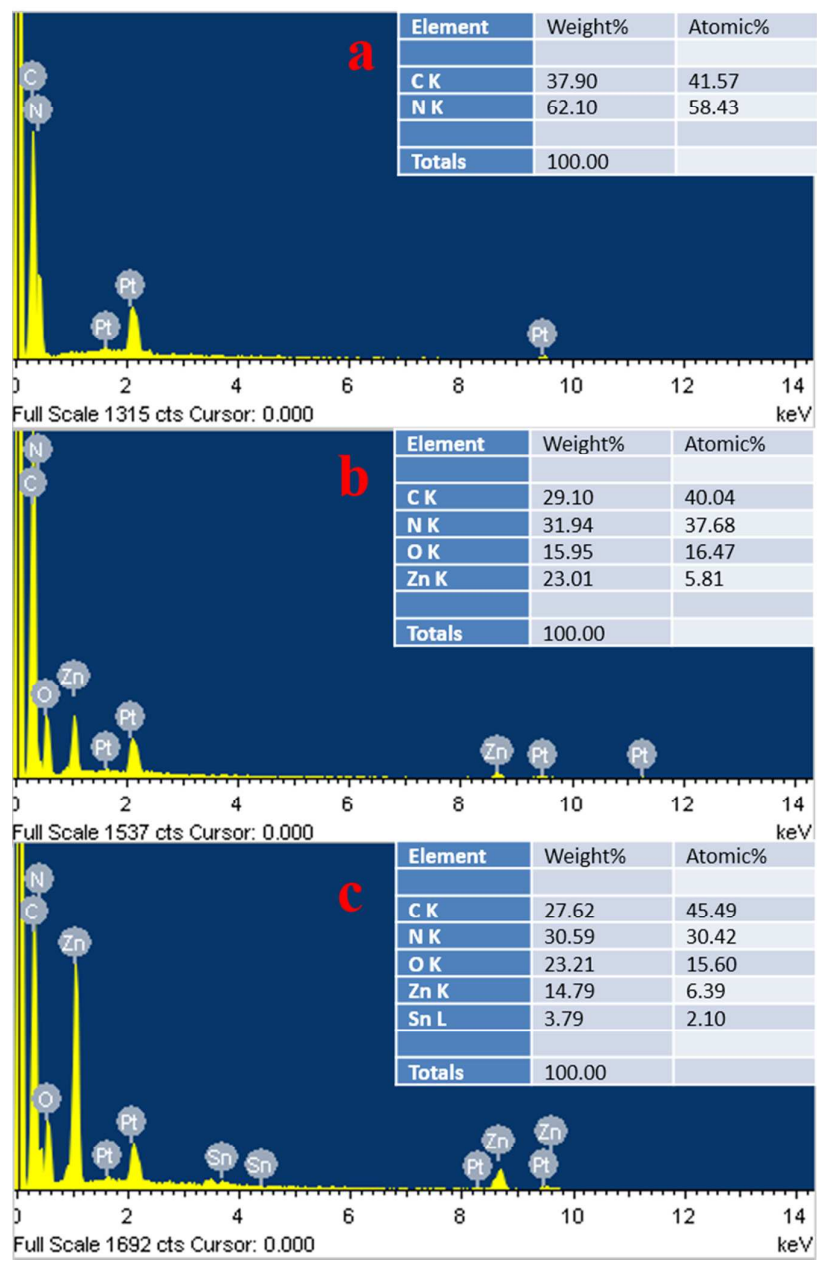


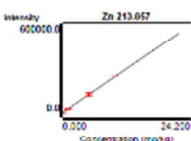
Figure S3. SEM-EDX spectra of (a) pristine  $g\text{-C}_3\text{N}_4$ , (b)  $Z/g\text{-C}_3\text{N}_4$ , and (c)  $SZ/g\text{-C}_3\text{N}_4$  catalysts.

20180420-2@720/725/730/735-ES@Quant@. All Data Report 4/20/2018, 3:31:21 PM

| Zn 213.857 Calibration (mg/kg) |       |            | 4/20/2018, 2:21:43 PM |            | Correlation Coefficient: 0.999993 |        |
|--------------------------------|-------|------------|-----------------------|------------|-----------------------------------|--------|
| Label                          | Flags | Int. (c/s) | Std Conc.             | Calc Conc. | Error                             | %Error |
| Blank                          |       | -1.37      | 0.000                 | 0.000      | -                                 | -      |
| Standard 1                     |       | 23491      | 1.00                  | 0.973      | -0.027                            | -2.7   |
| Standard 2                     |       | 120124     | 5.00                  | 4.98       | -0.025                            | -0.5   |
| Standard 3                     |       | 241810     | 10.0                  | 10.0       | 0.015                             | 0.2    |

Curve Type: Linear

Equation:  $y = 24144.7x + -1.4$

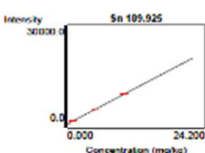


| 4/20/2018, 2:34:51 PM |             |              | Tube 17 |      |            |              |      |
|-----------------------|-------------|--------------|---------|------|------------|--------------|------|
| Weight: 0.0414        | Volume: 50  | Dilution: 50 |         |      |            |              |      |
| Label                 | Sol'n Conc. | Units        | SD      | %RSD | Int. (c/s) | Calc Conc.   | DF   |
| Zn 213.857            | 4.40        | mg/kg        | 0.037   | 0.8  | 106202     | 265618 mg/kg | 1.00 |

| Sn 189.925 Calibration (mg/kg) |       |            | 4/20/2018, 2:43:16 PM |            | Correlation Coefficient: 0.999999 |        |
|--------------------------------|-------|------------|-----------------------|------------|-----------------------------------|--------|
| Label                          | Flags | Int. (c/s) | Std Conc.             | Calc Conc. | Error                             | %Error |
| Blank                          |       | 1.98       | 0.000                 | 0.000      | -                                 | -      |
| Standard 1                     |       | 898        | 1.00                  | 0.992      | -0.008                            | -0.8   |
| Standard 2                     |       | 4510       | 5.00                  | 4.99       | -0.007                            | -0.1   |
| Standard 3                     |       | 9034       | 10.0                  | 10.0       | 0.004                             | 0.0    |

Curve Type: Linear

Equation:  $y = 902.8x + 2.0$



| 4/20/2018, 2:52:28 PM |             |             | Tube 11 |      |            |             |      |
|-----------------------|-------------|-------------|---------|------|------------|-------------|------|
| Weight: 0.0414        | Volume: 50  | Dilution: 1 |         |      |            |             |      |
| Label                 | Sol'n Conc. | Units       | SD      | %RSD | Int. (c/s) | Calc Conc.  | DF   |
| Sn 189.925            | 16.5        | mg/kg       | 1.13    | 6.9  | 14864      | 19881 mg/kg | 1.00 |

Figure S4. ICP-OES analysis of the SZ/g-C<sub>3</sub>N<sub>4</sub> sample.

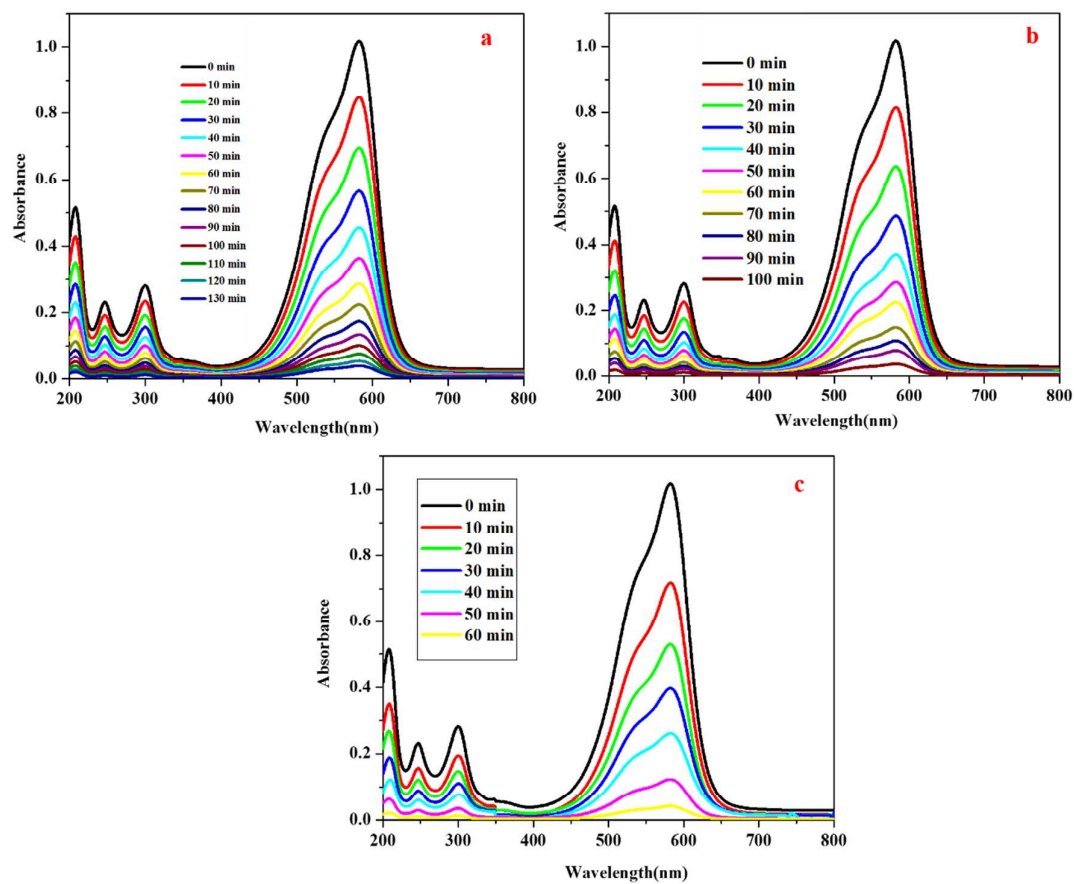


Figure S5. (a–c) UV-Vis absorption spectral changes of RhB aqueous solutions in the presence of pristine  $g\text{-C}_3\text{N}_4$ ,  $Z/g\text{-C}_3\text{N}_4$ , and  $SZ/g\text{-C}_3\text{N}_4$  catalysts.

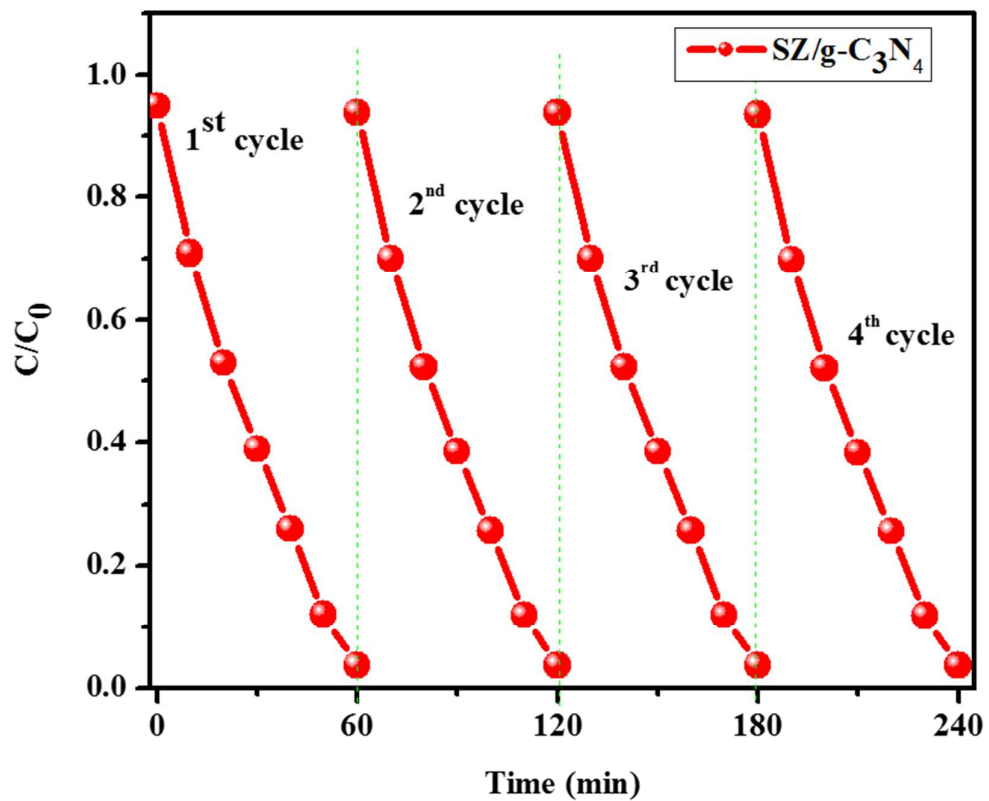


Figure S6. Recycling test results of the SZ/g-C<sub>3</sub>N<sub>4</sub> photocatalyst for the degradation of RhB under visible light irradiation.



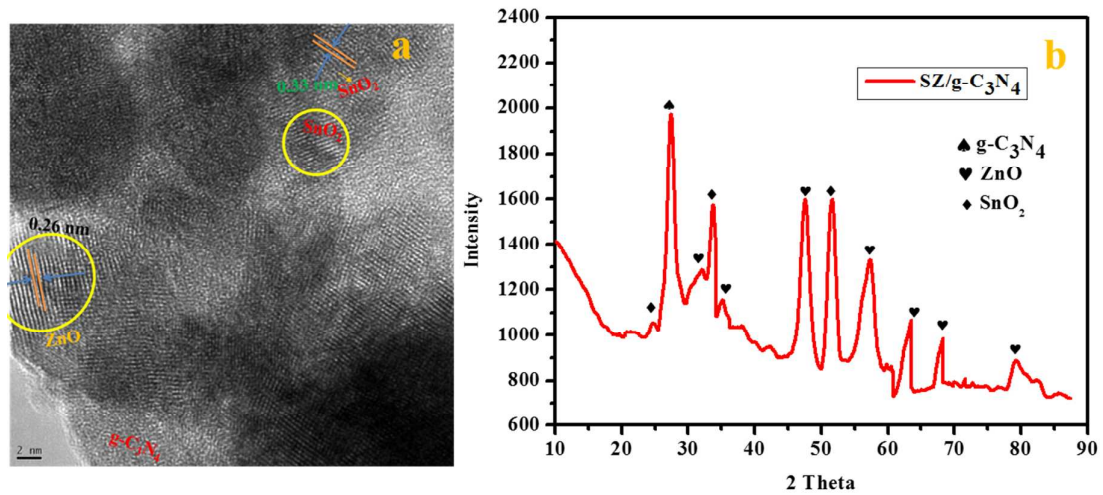


Figure S7. (a) HRTEM image and (b) XRD pattern of the SZ/g-C<sub>3</sub>N<sub>4</sub> catalyst after recycling tests.