

## Supporting Information

# Ag-Bridged Z-Scheme 2D/2D Bi<sub>5</sub>FeTi<sub>3</sub>O<sub>15</sub>/g-C<sub>3</sub>N<sub>4</sub> Heterojunction for Enhanced Photocatalysis: Mediator-Induced Interfacial Charge Transfer and Mechanism Insight

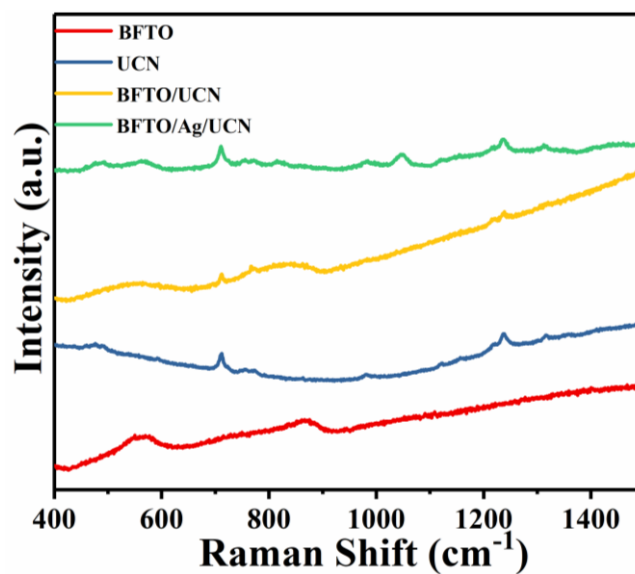
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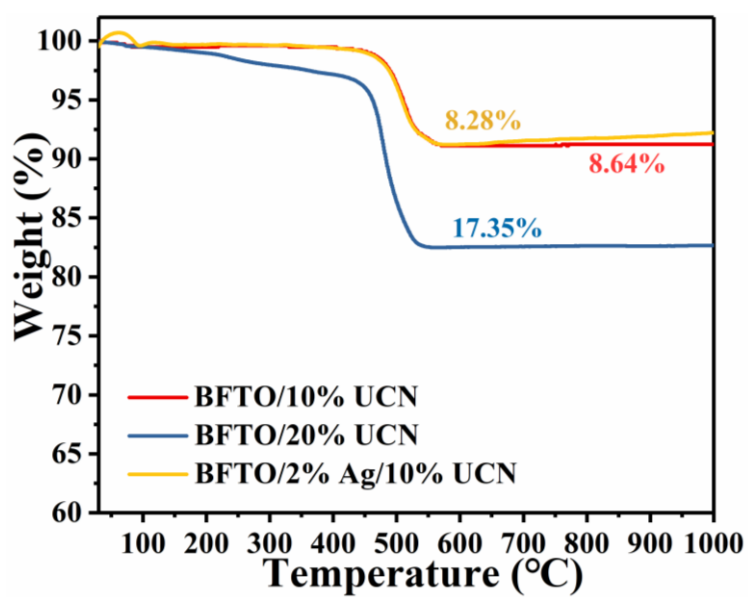
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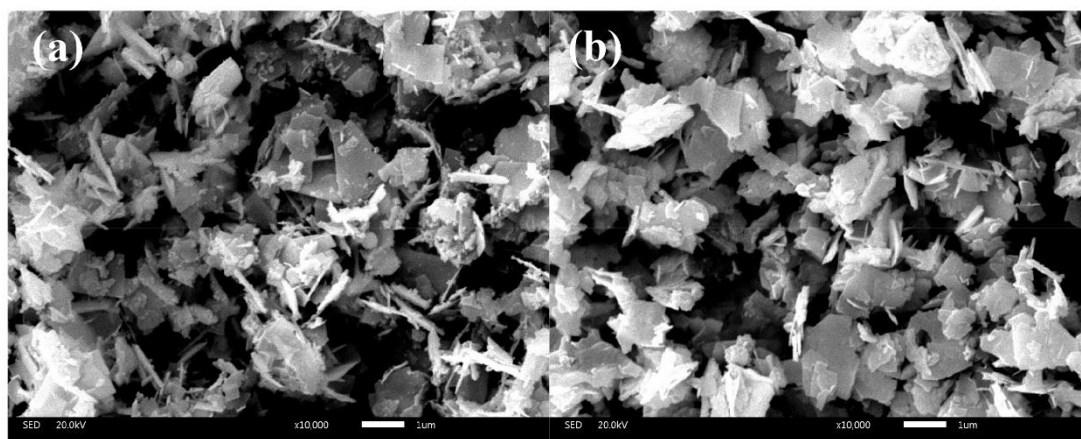
E-mail address: gkzhang@whut.edu.cn



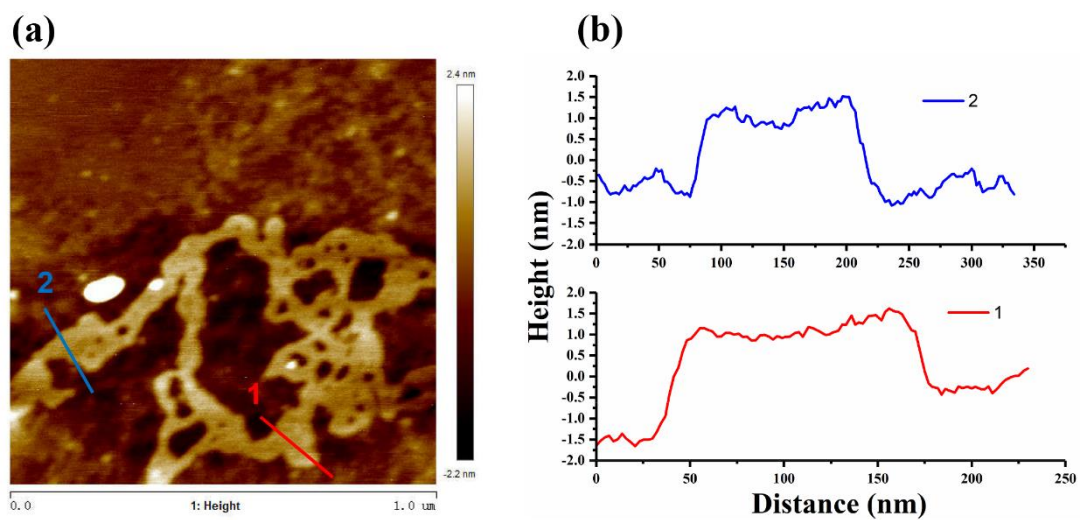
**Figure S1.** Raman spectra of BFTO, UCN, BFTO/UCN and BFTO/Ag/UCN.



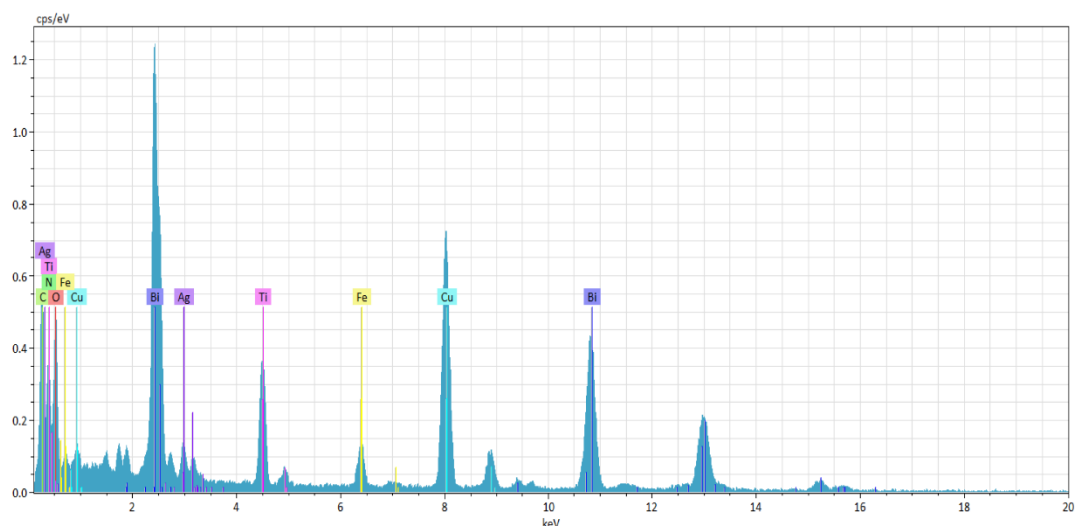
**Figure S2.** TG curves of BFTO/10% UCN, BFTO/10% UCN and BFTO/2% Ag/10% UCN.



**Figure S3.** SEM images of (a) BFTO, and (b) BFTO/Ag/UCN composites.

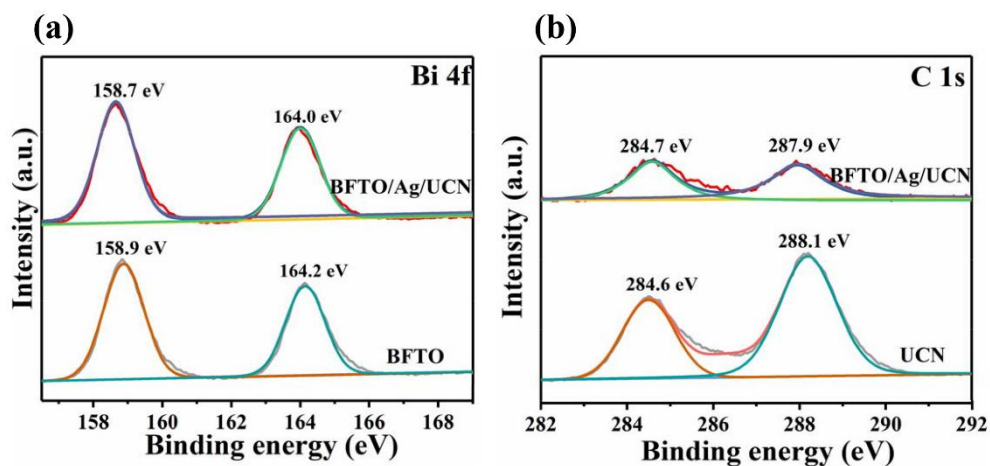


**Figure S4.** (a) AFM image and (b) cross-sectional profiles of ultrathin g-C<sub>3</sub>N<sub>4</sub>.

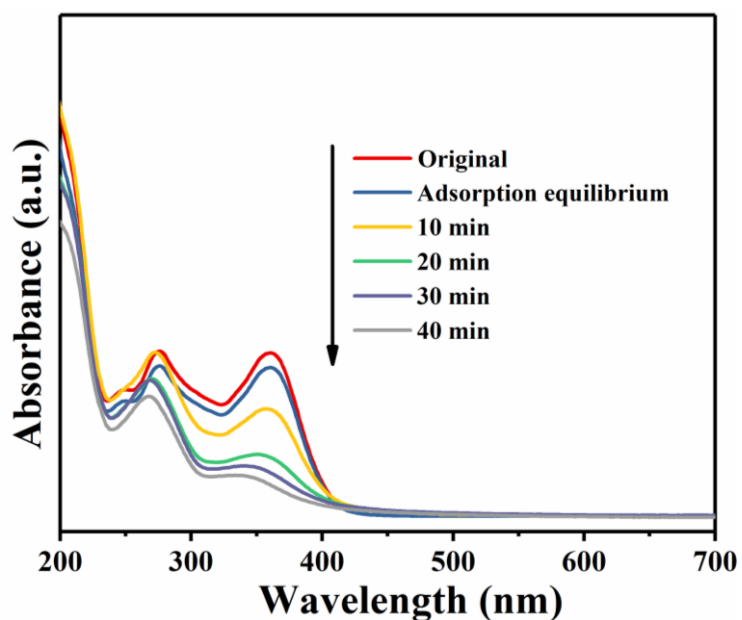


| Elements | Series   | Norm. wt. % |
|----------|----------|-------------|
| Bi       | L-series | 20.63       |
| Fe       | K-series | 1.57        |
| Ti       | K-series | 3.88        |
| O        | K-series | 25.35       |
| C        | K-series | 31.95       |
| N        | K-series | 16.13       |
| Ag       | L-series | 0.49        |

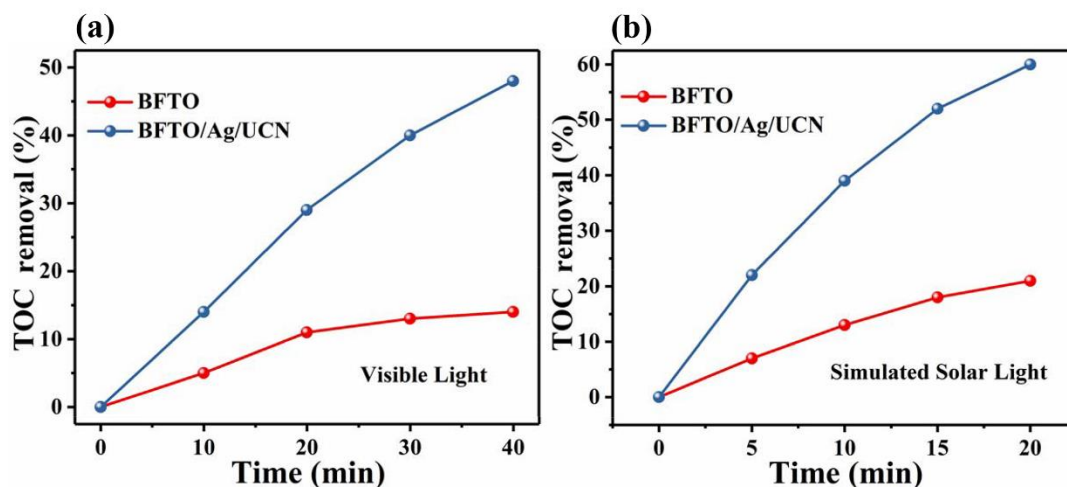
**Figure S5.** EDS analysis of BFTO/Ag/UCN sample.



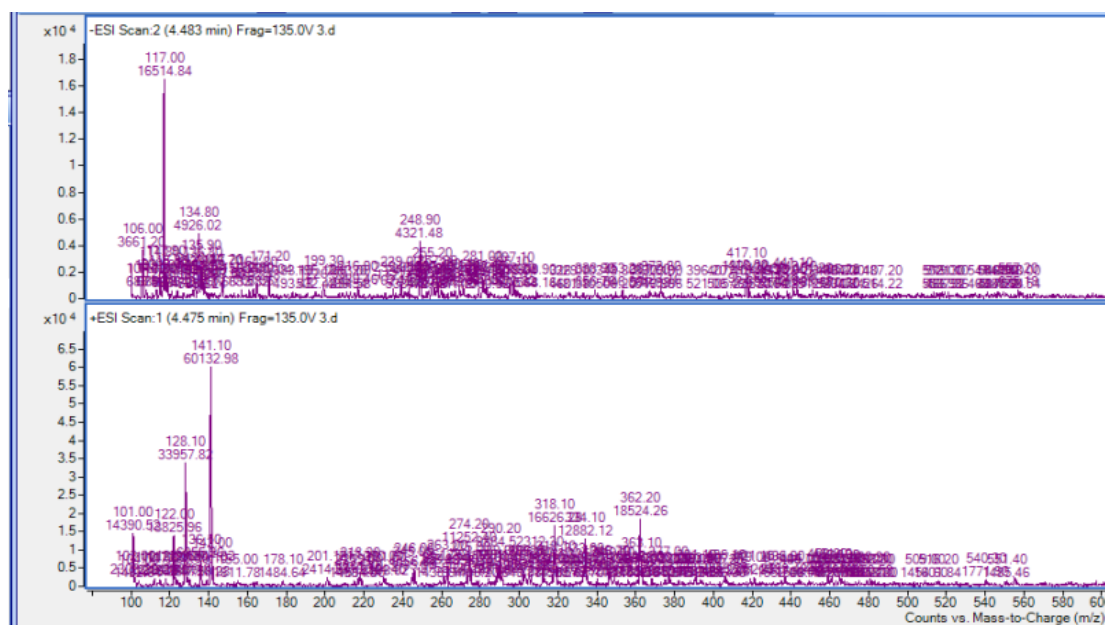
**Figure S6.** (a) Bi 4f spectra of the BFTO and BFTO/Ag/UCN; (b) C 1s spectra of the UCN and BFTO/Ag/UCN.



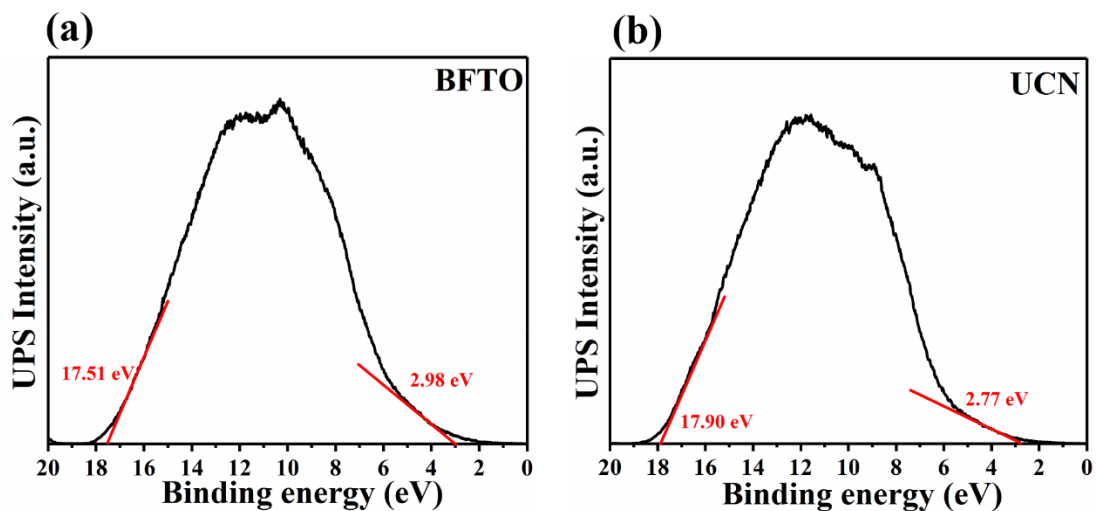
**Figure S7.** UV-vis absorption spectra of TC solution over the BFTO/Ag/UCN composites under visible light irradiation.



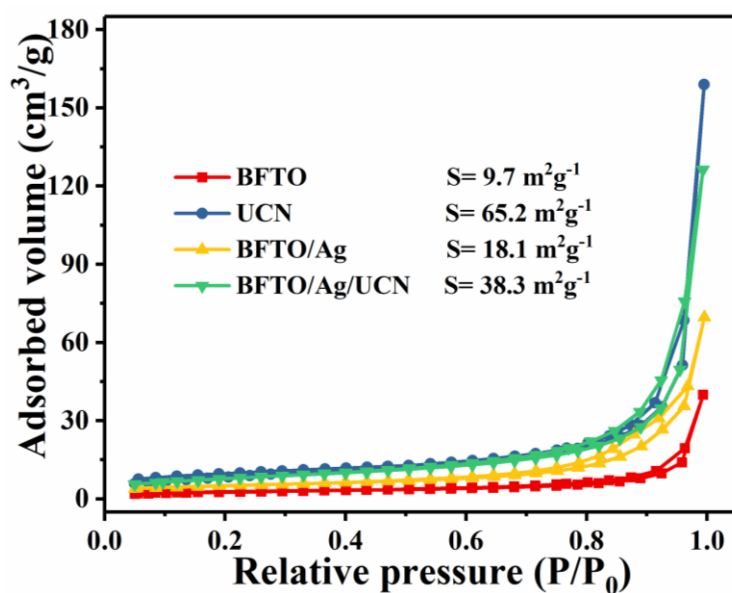
**Figure S8.** TOC removal curves of BFTO and BFTO/Ag/UCN photocatalysts under (a) visible light and (b) simulated solar light irradiation.



**Figure S9.** LC-MS chromatogram and  $m/z$  of degraded tetracycline (TC) in 60 min.



**Figure S10.** UPS spectrum of (a)  $\text{Bi}_5\text{FeTi}_3\text{O}_{15}$  and (b)  $\text{g-C}_3\text{N}_4$ .



**Figure S11.** Nitrogen adsorption-desorption isotherms of BFTO, UCN, BFTO/Ag and BFTO/Ag/UCN.