# Electronic Supplementary Information

## A Self-assembled Urchin-like $TiO_2$@Ag-CuO with Enhanced Photocatalytic Activity toward Tetracycline Hydrochloride Degradation

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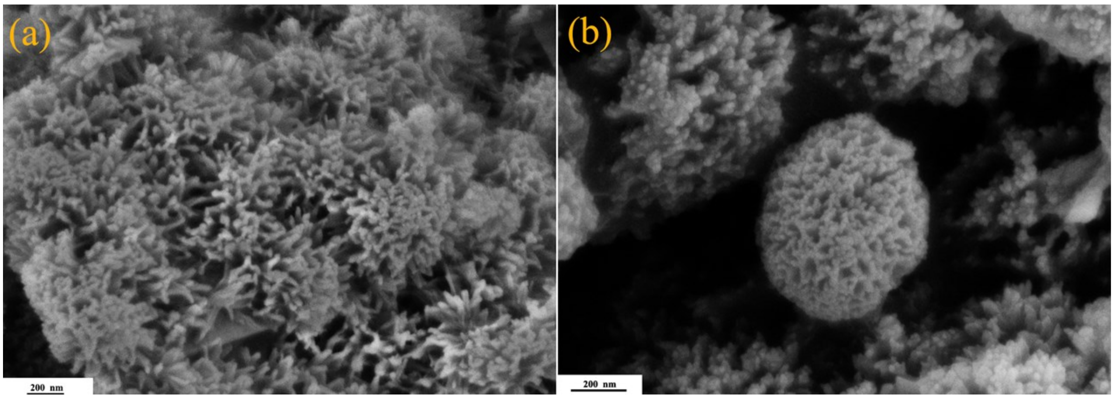


**Fig.S1** SEM images of the corrosion product (a) $Cu_{60}Ti_{40}$ ribbons and (b) $Cu_{60}Ti_{30}M_{10}$ ribbons

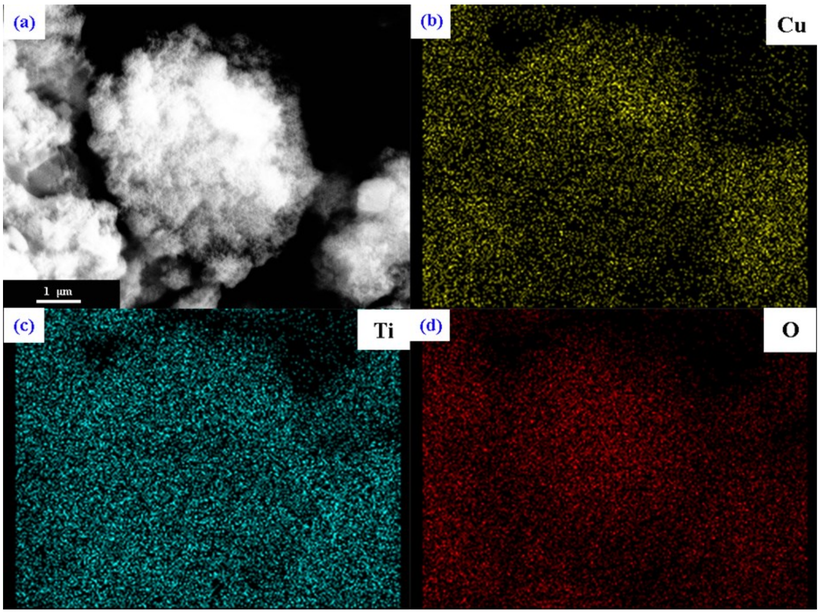


**Fig.S2** EDS mapping of $TiO_2$@CuO, (a) SEM images, (b) Cu, (c) Ti, (d) O

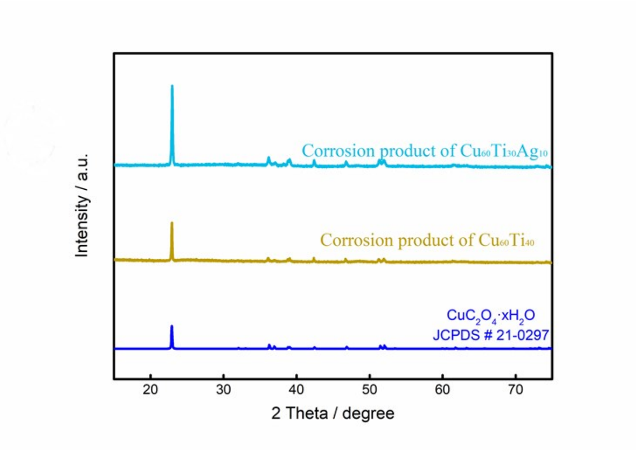


**Fig. S3** XRD patterns of the corrosion products of $Cu_{60}Ti_{30}M_{10}$ (M=Ti, Ag) ribbons

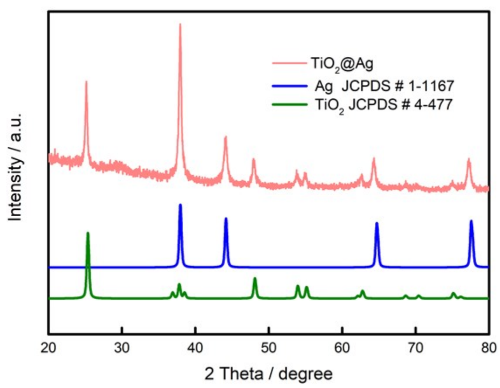


Fig.S4 XRD patterns of $TiO_2$@Ag heterojunction

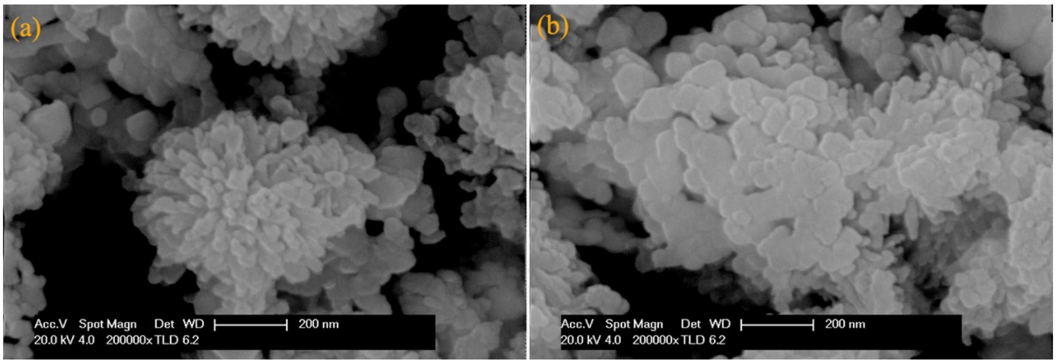


Fig. S5 SEM images of the $TiO_2$@Ag-CuO after four cycles

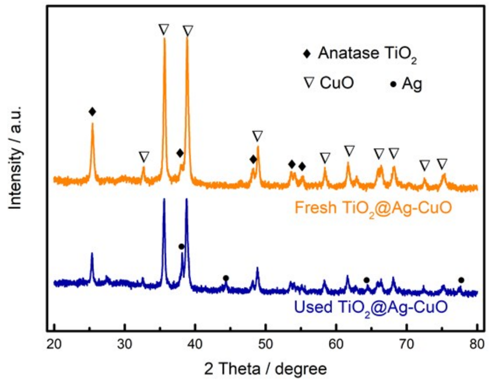


Fig.S6 XRD patterns of fresh and used $TiO_2$@Ag heterojunction

Table S1. The collected data for different photocatalysts toward Tetracycline Hydrochloride degradation

| **Photocatalyst** | **Dosage (g/L)** | **TC concentration (mg/L)** | **Light Source** | **Degradation time(min)** | **Degradation rate** | **Ref.** |
|---|---|---|---|---|---|---|
| $WO_3/BiVO_4$/W-Pt | - | 20 | 350W, Xe lamp | 240 | 78% | **1** |
| 2D/3D g-$C_3N_4$ | 0.5 | 10 | 250W, Xe lamp, λ>400 nm | 120 | 69.6% | **2** |
| CQDs/$Bi_5O_7I$ | 0.5 | 20 | 300W, Xe lamp, λ>400 nm | 120 | 53% | **3** |
| Pt/rutile-amorphous $TiO_2$ | 0.5 | 50 | 500W, Xe lamp | 300 | ~100% | **4** |
| ZnO@NH2-UiO-66 | 0.25 | 20 | Xe lamp | 120 | ~65% | **5** |
| C/BiOCl | 0.5 | 10 | 300W Xe lamp, full spectrum | 90 | 71.8% | **6** |
| γ-$Fe_2O_3$/g-$C_3N_4$ | 0.5 | 10 | 500W, Xe lamp, λ>420 nm | 120 | 73.8% | **7** |
| $In_2S_3/NaTaO_3$ | 0.5 | 10 | 300W, Xe lamp | 180 | ~75% | **8** |
| Ag QDs/BiOBr | 0.5 | 20 | Xenon lamp | 120 | 77.2% | **9** |
| **$TiO_2$@Ag-CuO** | **1** | **30** | 500W, Xe lamp, λ>420 nm | **180** | **82.86%** | **This work** |

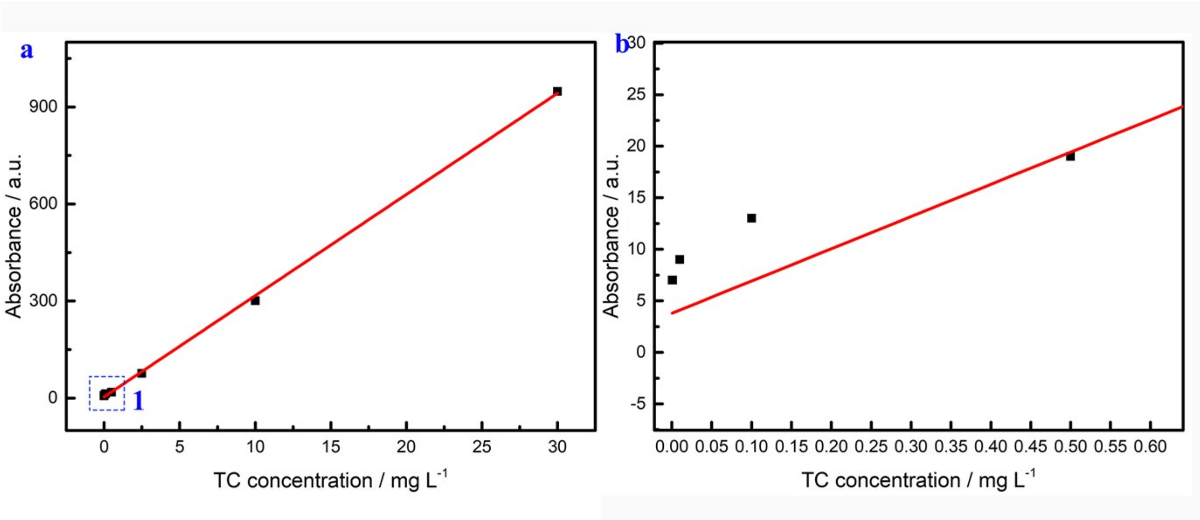


Fig.S7 (a) The absorbance intensity at a series of tetracycline hydrochloride concentration; (b) enlarged section of 1

# References


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