

## Supporting Information

### Solid-waste-recycled CuO/C3N4 S-scheme heterojunction for efficient photocatalytic antibiotic degradation

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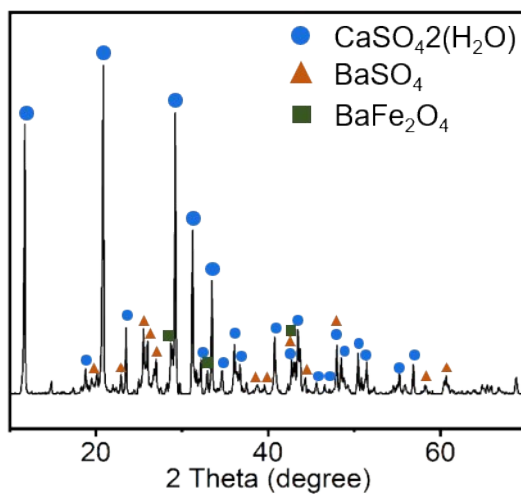


Figure S1. XRD pattern of sludge after acid leaching.

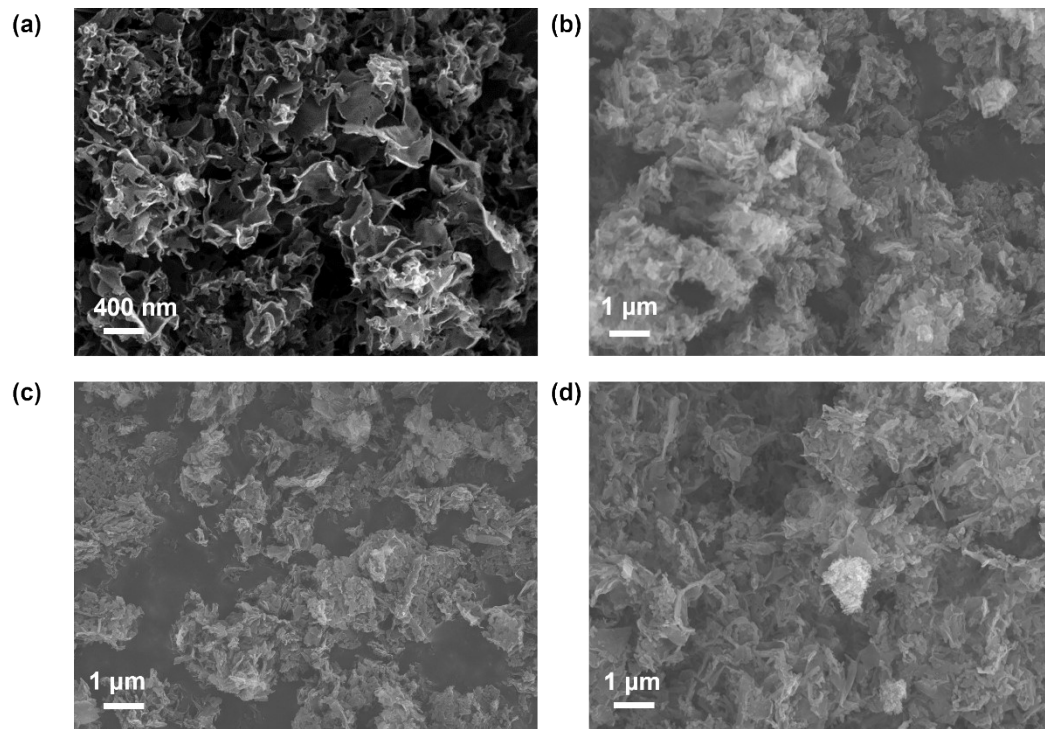


Figure S2. SEM images of (b) pure-C<sub>3</sub>N<sub>4</sub>, (c) CuO/C<sub>3</sub>N<sub>4</sub>-1, (d) CuO/C<sub>3</sub>N<sub>4</sub>-2 and (e) CuO/C<sub>3</sub>N<sub>4</sub>-3.

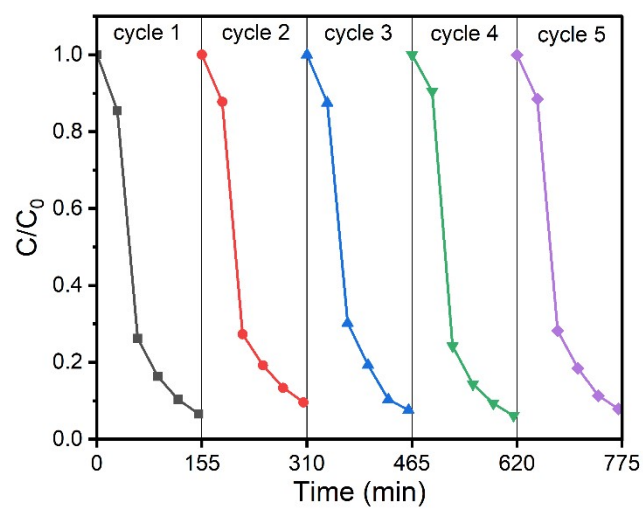


Figure S3. The performance of the recycled sample CuO/C3N4-2 in the degradation of TC.

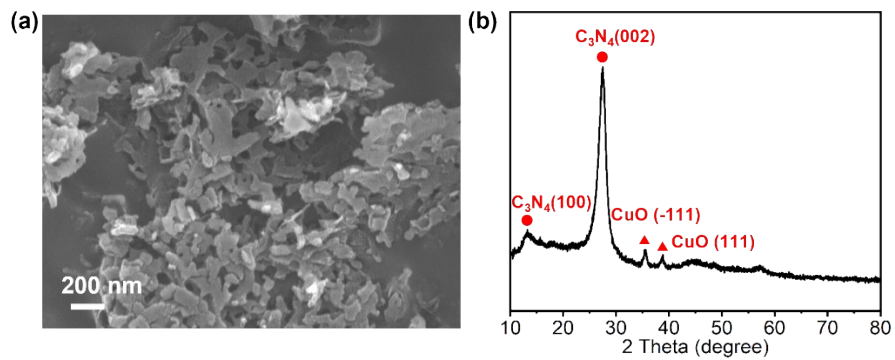


Figure S4. (a) SEM image and (b) XRD pattern of CuO/C<sub>3</sub>N<sub>4</sub>-2 after five catalytic cycles.

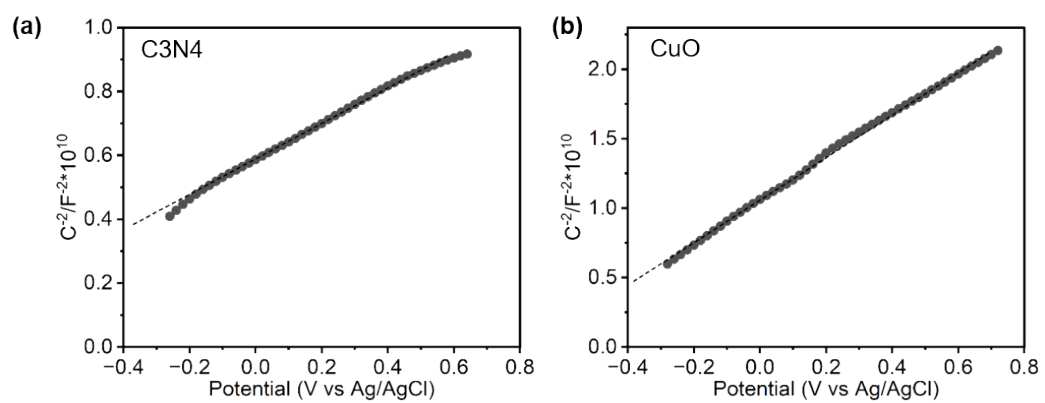


Figure S5. Mott-Schottky plots of (a) pure- $C_3N_4$  and (b) CuO.

Table S1. Summary of the mineralization rate per hour of photocatalytic degradation of tetracycline (TC) using different catalysts.

Catalysts	Concentration of catalysts (mg/L)	Concentration of TC (mg/L)	Mineralization (h <sup>-1</sup> )	References
CuO/C <sub>3</sub> N <sub>4</sub> -2	200	30	24.0	this work
Meso-TiO <sub>2</sub>	500	50	8.95	1
Meso-Gra/TiO <sub>2</sub>	10	20	13.64	2
Ag <sub>2</sub> O/Ta <sub>3</sub> N <sub>5</sub>	2500	10	18.8	3
Ag/Ag <sub>6</sub> Si <sub>2</sub> O <sub>7</sub> /Bi <sub>2</sub> MoO <sub>6</sub>	120	50	21.85	4
Ag <sub>6</sub> Si <sub>2</sub> O <sub>7</sub> /Bi <sub>2</sub> WO <sub>6</sub>	625	20	25.6	5

**Reference:**

1. LYU J Z, SHAO J W, WANG Y H, et al. Construction of a porous core-shell homojunction for the photocatalytic degradation of antibiotics [J]. *Chemical Engineering Journal*, 2019, 358: 614-620.
2. LI C X, HU R B, LU X F, et al. Efficiency enhancement of photocatalytic degradation of tetracycline using reduced graphene oxide coordinated titania nanoplatelet [J]. *Catalysis Today*, 2020, 350: 171-183.
3. LI S J, HU S W, XU K B, et al. Construction of fiber-shaped silver oxide/tantalum nitride p-n heterojunctions as highly efficient visible-light-driven photocatalysts [J]. *Journal of Colloid and Interface Science*, 2017, 504: 561-569.
4. ZHAO Q, WANG J L, LI Z P, et al. Heterostructured graphitic-carbon-nitride-nanosheets/copper(I) oxide composite as an enhanced visible light photocatalyst for decomposition of tetracycline antibiotics [J]. *Separation and Purification Technology*, 2020, 250: 117238.
5. HUANG L Y, YANG L, LI Y P, et al. P-n BiOI/Bi<sub>3</sub>O<sub>4</sub>Cl hybrid junction with enhanced photocatalytic performance in removing methyl orange, bisphenol A, tetracycline and Escherichia coli [J]. *Applied Surface Science*, 2020, 527: 146748.