

Supporting Information

Direct Z-scheme copper cobaltite/covalent triazine-based framework heterojunction for efficient photocatalytic CO₂ reduction under visible light

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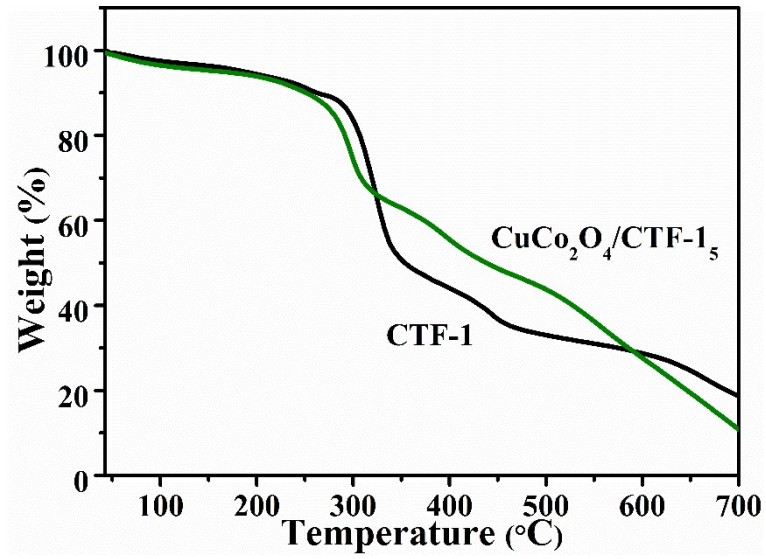


Fig. S1. TGA analysis of CTF-1 and CuCo₂O₄/CTF-1₅.

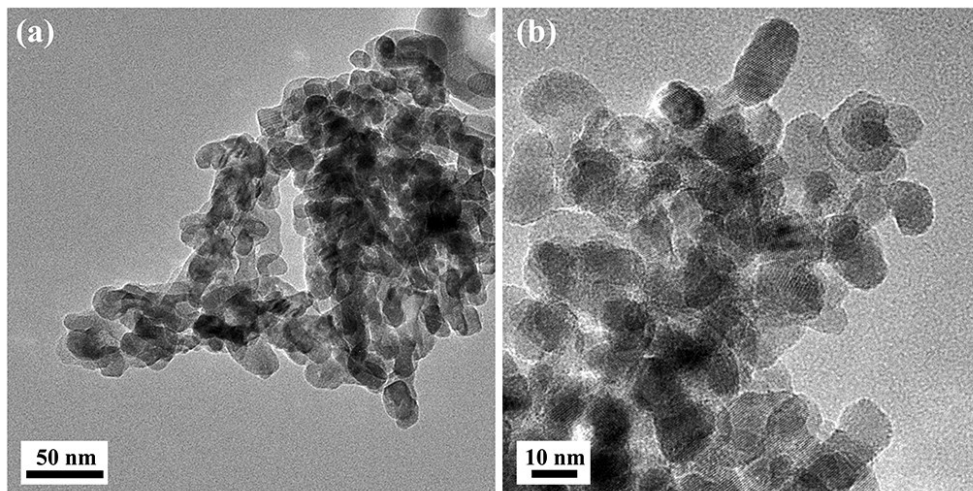


Fig. S2. TEM images of CuCo₂O₄.

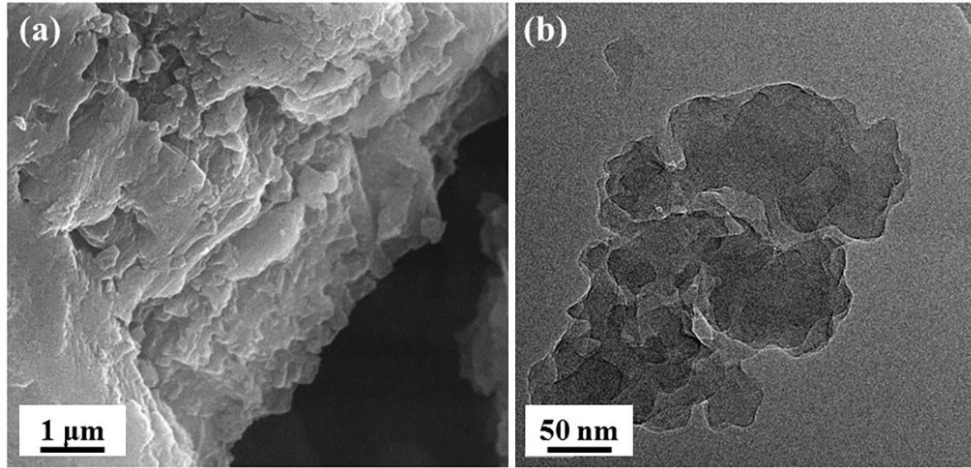


Fig. S3. (a) FESEM and (b) TEM images of CTF-1.

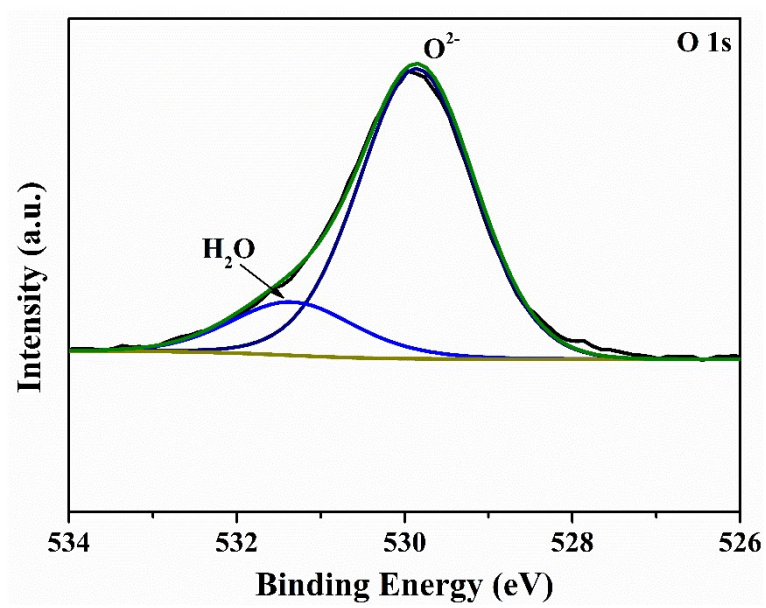


Fig. S4. High-resolution XPS spectra of O 1s for CuCo₂O₄/CTF-1₅.

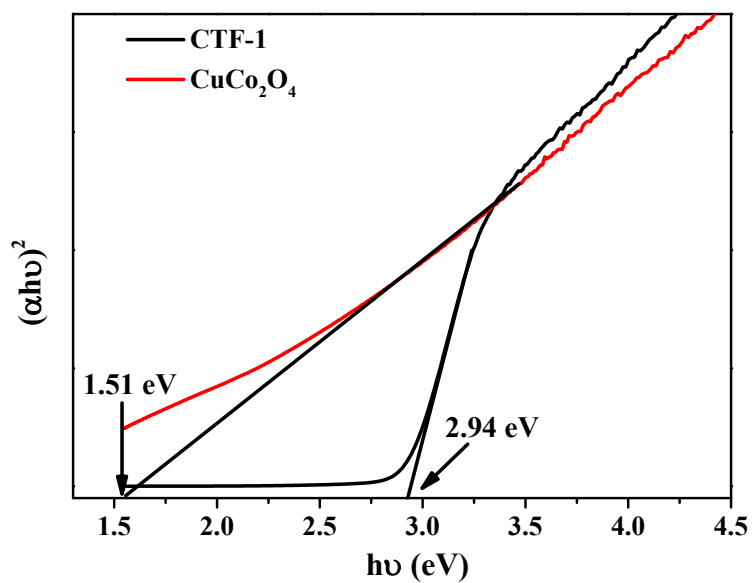


Fig. S5. Band gap determination of CTF-1 and CuCo_2O_4 .

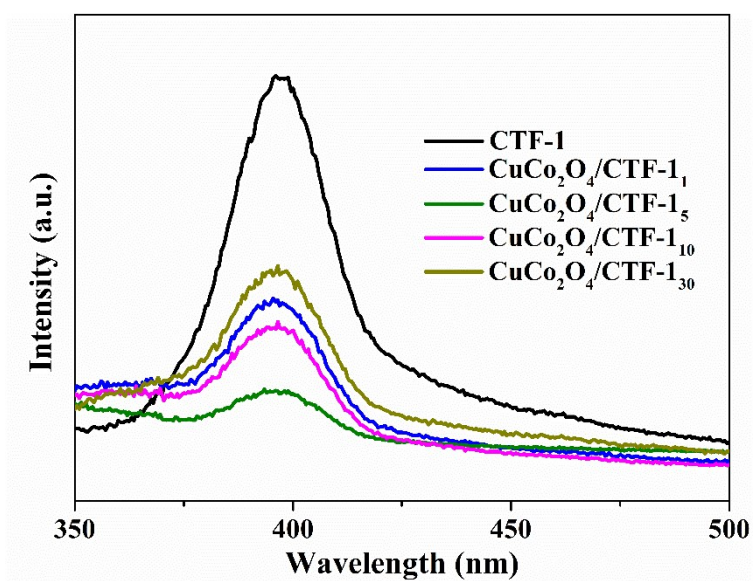


Fig. S6. Photoluminescence spectra of CTF-1 and $\text{CuCo}_2\text{O}_4/\text{CTF-1}$ composites.

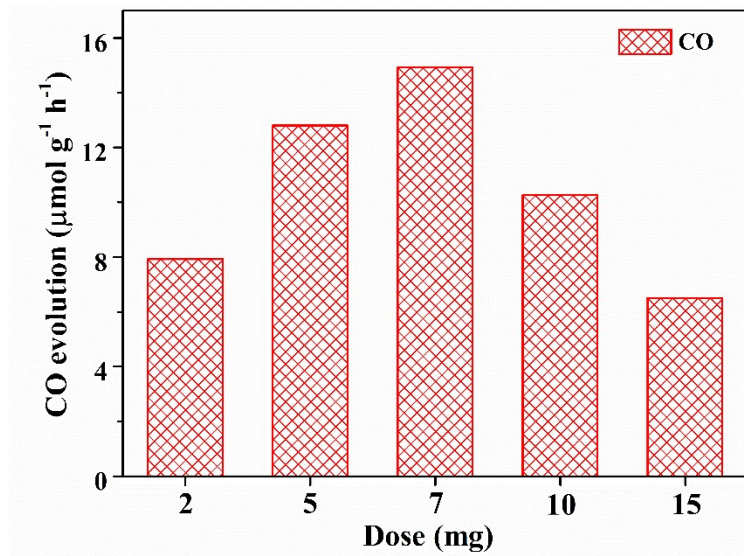


Fig. S7. The effect of amounts of the sensitizer ($\text{Ru}(\text{bpy})_3^{2+}$) on the photocatalytic CO_2 reduction for $\text{CuCo}_2\text{O}_4/\text{CTF-1}_5$ in 4 h photocatalytic reaction.

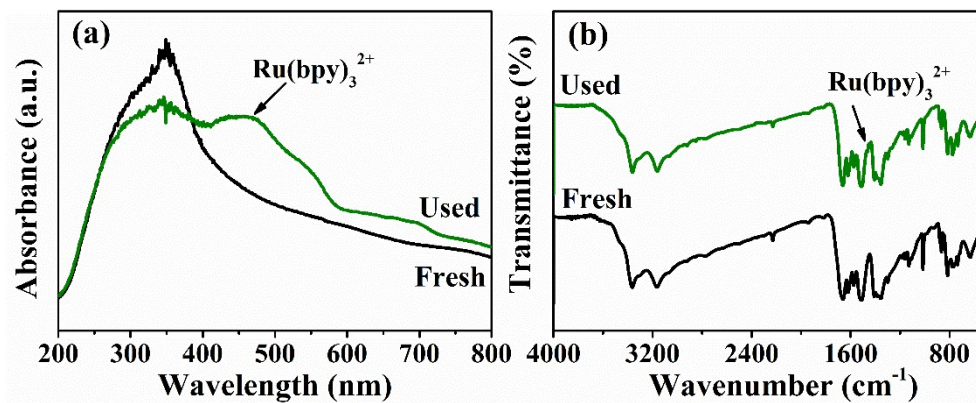


Fig. S8. (a) UV-vis diffuse reflectance spectra and (b) FTIR spectra of fresh and used $\text{CuCo}_2\text{O}_4/\text{CTF-1}_5$.

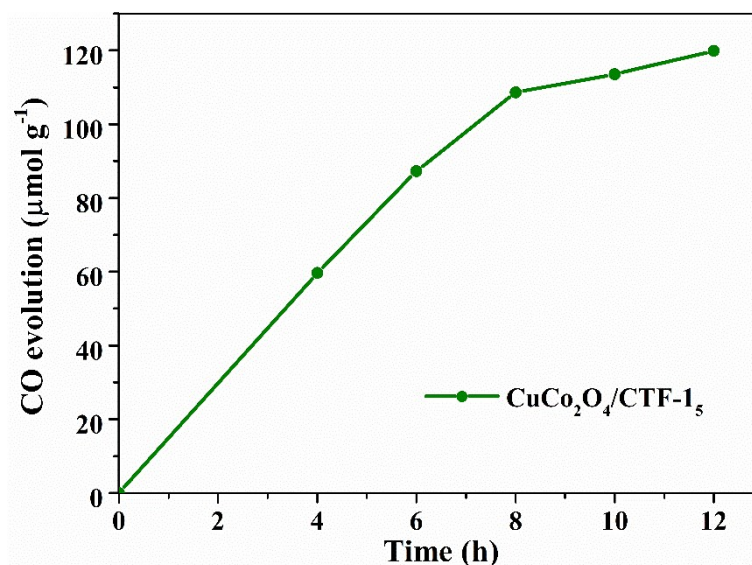


Fig. S9. The photocatalytic CO evolution of CuCo₂O₄/CTF-1₅ with increasing time.

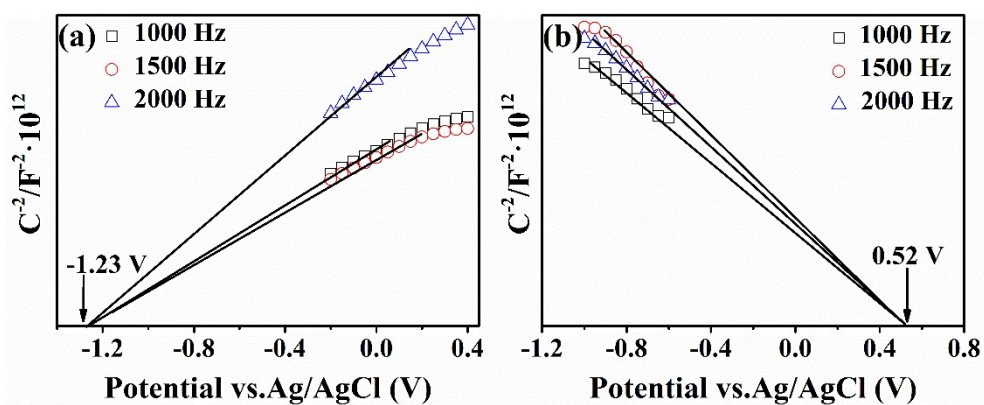


Fig. S10. Mott-Schottky plots of (a) CTF-1 and (b) CuCo₂O₄ obtained at different frequency in an aqueous solution of Na₂SO₄ (0.20 M).

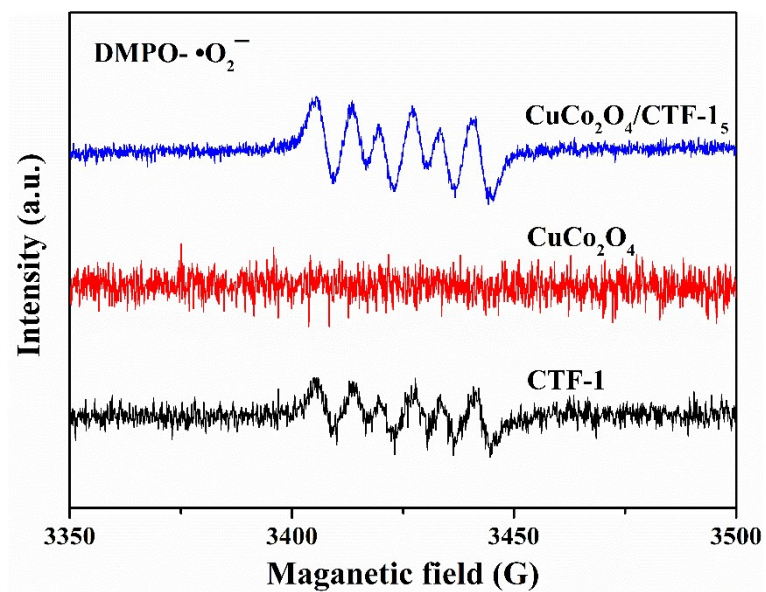


Fig. S11. ESR signals of DMPO/•O₂⁻ after 10 min of visible light irradiation in methanol dispersion of CTF-1, CuCo₂O₄ and CuCo₂O₄/CTF-1₅.