

Supporting Information

Preparation and enhanced visible light photocatalytic activity of novel g-C₃N₄ nanosheets loaded with Ag₂CO₃ nanoparticles

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Electronegativity calculation for the electronic band structures of as-prepared Ag₂CO₃ sample.

The VB and CB position of the Ag₂CO₃ can be calculated according to the following equation: $E_{VB}=X-E_e+0.5E_g$ (1) and $E_{CB}=E_{VB}-E_g$ (2). Where X is the absolute electronegativity, which is defined as the geometric mean of the absolute electronegativity of the constituent atoms; E_e is the energy of free electrons on the hydrogen scale (4.5 eV); E_{VB} and E_{CB} are the VB edge potential and CB edge potential, respectively; E_g is the bandgap energy of the semiconductor. Considering the X value and E_g of 6.023 and 2.37 eV for Ag₂CO₃, the top of the VB is estimated to be 2.7 eV. Thus, the bottom of the CB of Ag₂CO₃ is estimated to be 0.3 eV according to the equation (2).

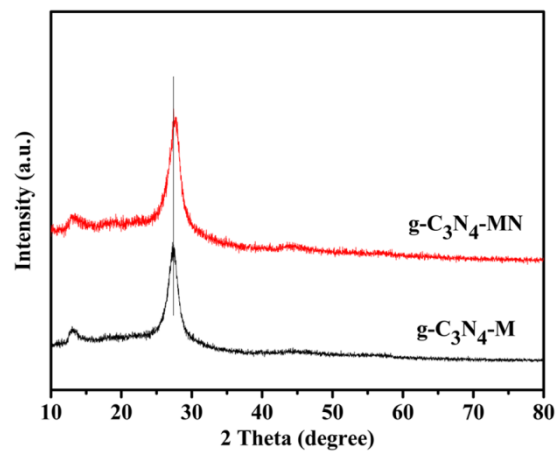


Fig. S1 XRD patterns of g-C₃N₄-M and g-C₃N₄-MN samples.

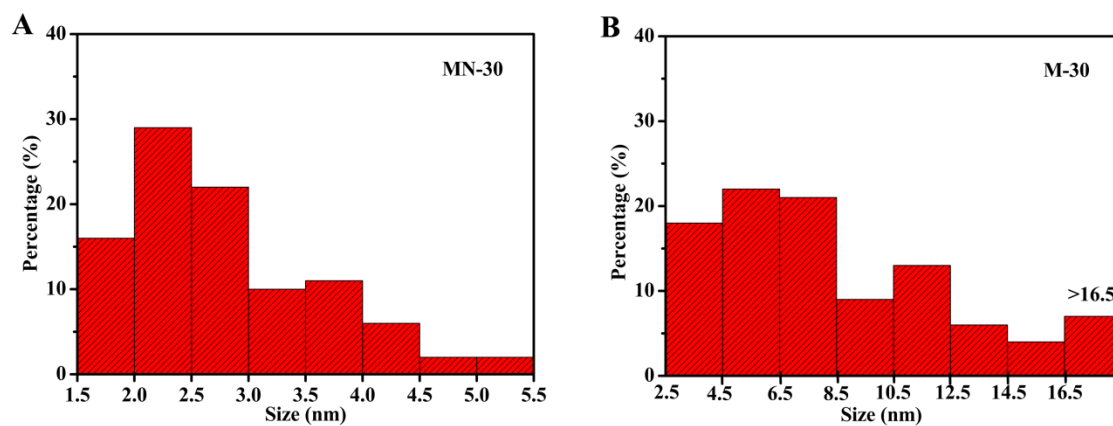


Fig. S2 Size distribution histogram of Ag₂CO₃ nanoparticles over MN-30 (A) and M-30 (B) calculated from the corresponding TEM image.

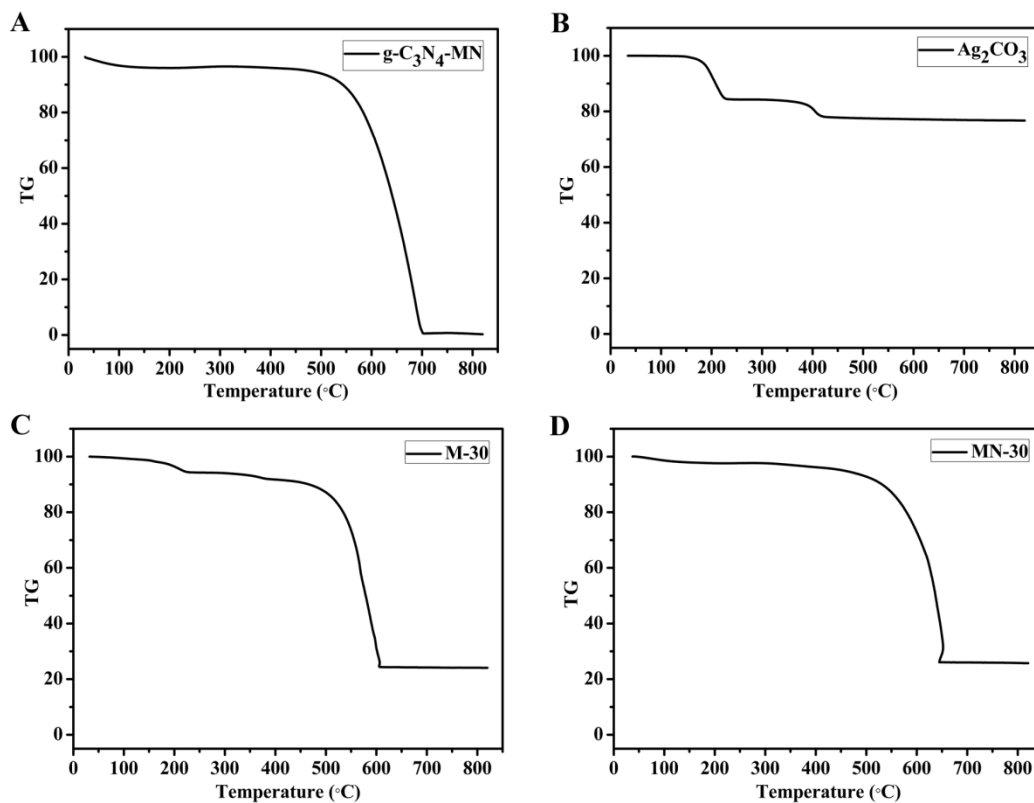


Fig. S3 TGA curves of (A) g-C₃N₄-MN, (B) Ag₂CO₃, (C) M-30 and (D) MN-30 composites.

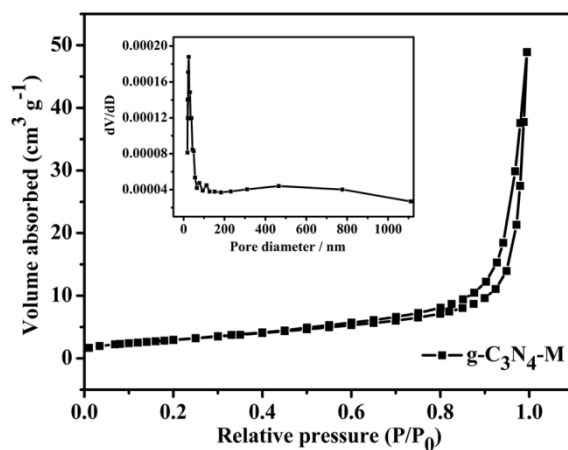


Fig. S4 Nitrogen adsorption-desorption isotherm and the corresponding pore size distribution curve (inset) of the bare g-C₃N₄-M.

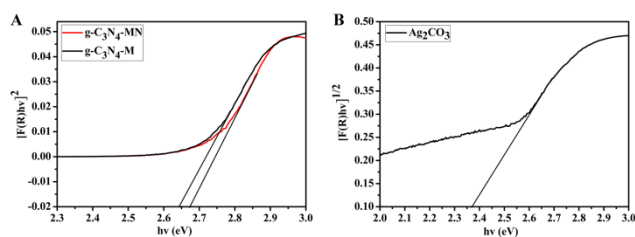


Fig. S5 Plots of $(F(R)hv)^n$ versus the energy of exciting light ($h\nu$) of (A) $g-C_3N_4-M$ and $g-C_3N_4-MN$ and (B) Ag_2CO_3 .

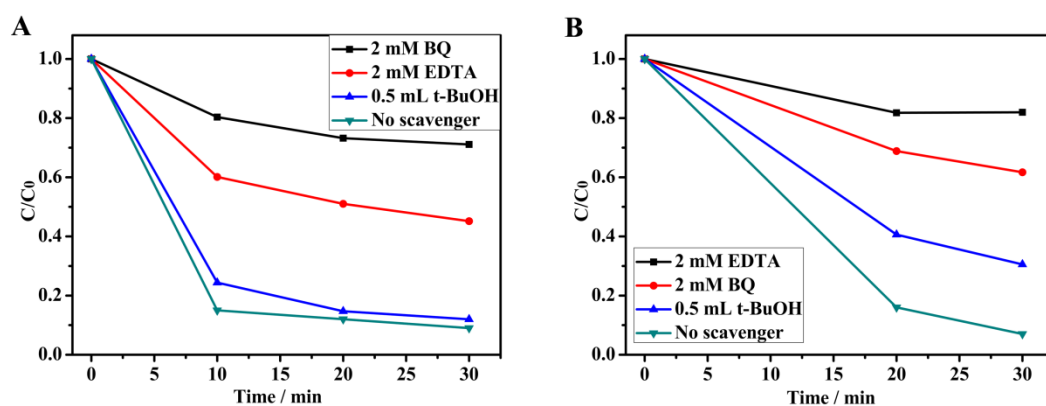


Fig. S6 Plots of photogenerated active species trapped in the system of photodegradation of MO (A) and RhB (B)

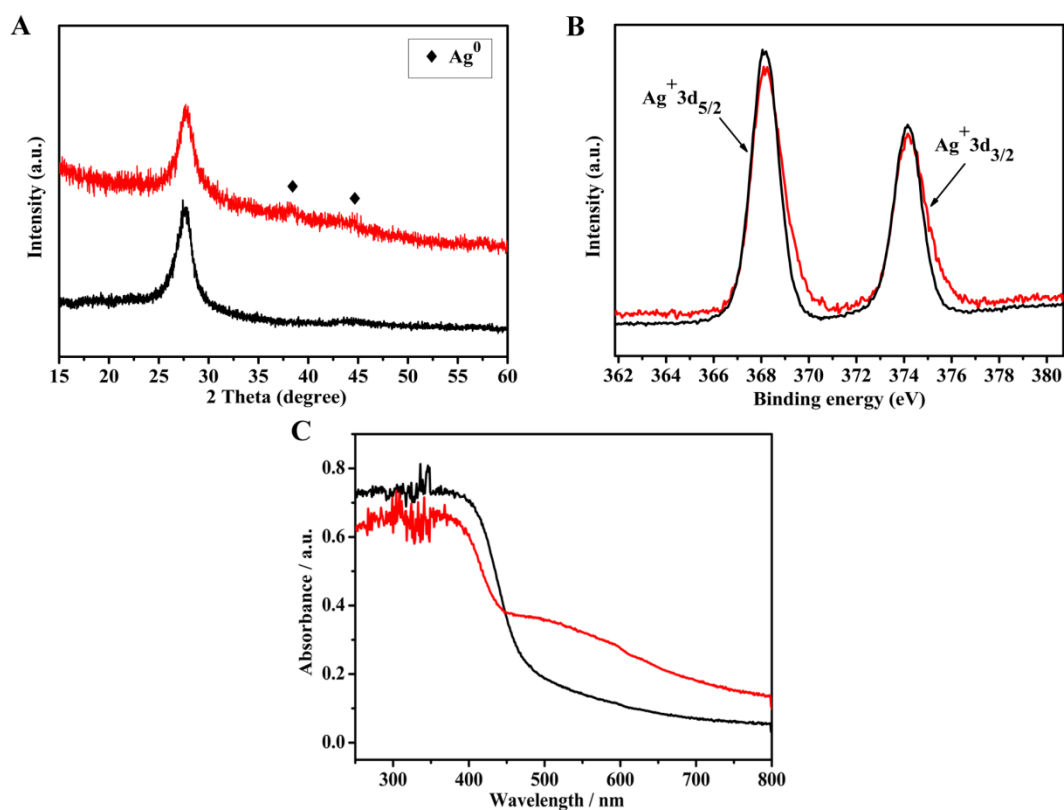


Fig. S7 XRD pattern (A), XPS spectra (B) and UV-vis DRS (C) of MN-30 before (black line) and after (red line) the photocatalytic reactions.