Electronic Supplementary Material (ESI) for RSC Advances.

Preparation of an ultrathin 2D/2D rGO/g-C_3N_4 nanocomposite with enhanced visible-light-driven photocatalytic performance

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Fig. S1 shows the schematic diagram of the photoreactor for CO_2 photoreduction. The pressure of the photoreactor can be well controlled by the intake-pipe, exhaust-pipe and pressure gage.

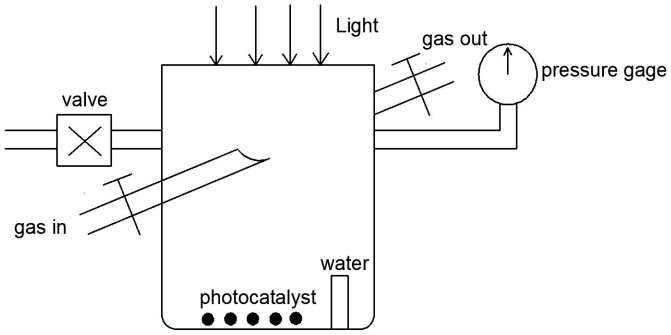

Fig. S1 Schematic diagram of the photoreactor.

Fig. S2 displays the UV-Vis spectrum of the 400 nm cutoff filter. It can be observed that there is no UV light in the spectrum.

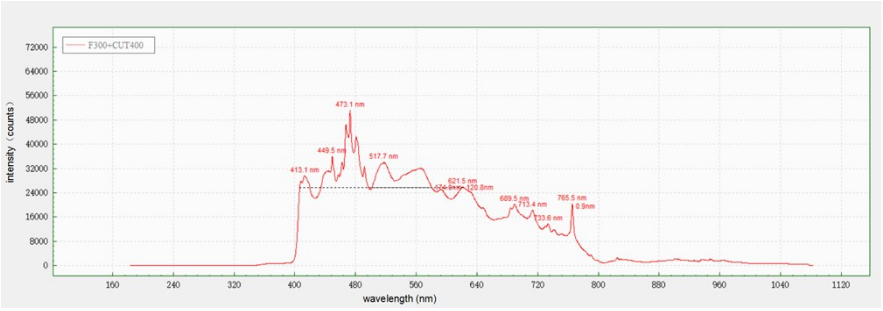

Fig. S2 UV-Vis spectrum of the 400 nm cutoff filter.

Fig. S3 shows the N_2 adsorption-desorption isotherms of the g-C_3N_4 bulks, ultrathin g-C_3N_4 nanosheets, and 3rGO/g-C_3N_4 nanocomposite. It is obvious that the adsorption-desorption isotherms of different samples follows the sequence: ultrathin g-C_3N_4 nanosheets＞ 3rGO/g-C_3N_4＞ g-C_3N_4 bulks, which is consistent with the surface area data.

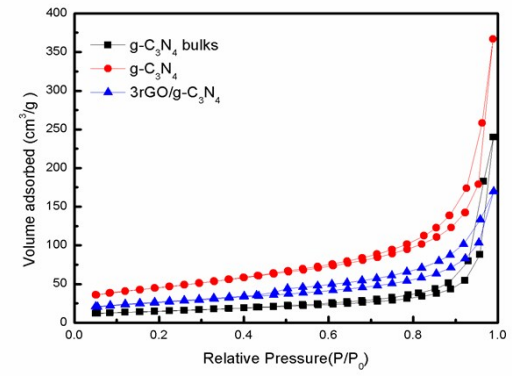

Fig. S3 Nitrogen adsorption-desorption isotherms of g-C_3N_4 bulks, ultrathin g-C_3N_4 nanosheets, and 3rGO/g-C_3N_4.

Fig. S4 displays the absorbance spectra of MO solution during photocatalytic reaction using pure g-C_3N_4 nanosheets and 3rGO/g-C_3N_4 nanocomposite as photocatalysts. The arrows demonstrate the decline of MO absorbance peak intensity

over time. It is obvious that the absorbance peak intensity of MO solution at 464nm over 3rGO/g-C_3N_4 nanocomposite decreases more quickly than that of pure g-C_3N_4, indicating the higher photocatalytic activity of 3rGO/g-C_3N_4.

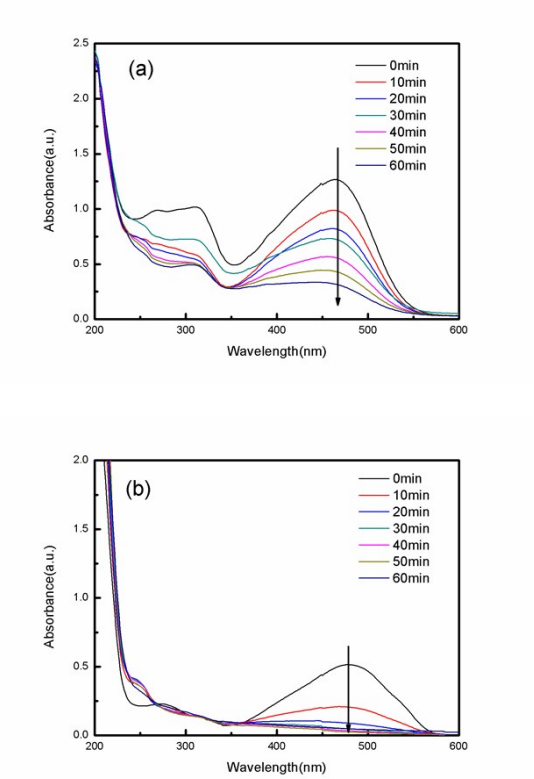

Fig. S4 The absorbance spectra of MO solution during photocatalytic reaction using ultrathin g-C_3N_4 (a) and 3rGO/g-C_3N_4 (b) as photocatalysts.