Electronic Supplementary Information for

Preparation of Bi_2S_3/carbon quantum dots hybrid materials for enhanced photocatalytic properties under ultraviolet–, visible– and near infrared–irradiations

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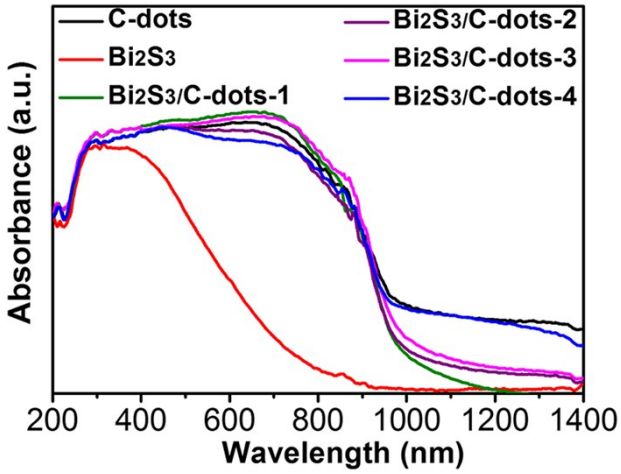

Fig. S1 (a) UV–vis–NIR absorption spectra of C–dots, Bi_2S_3 and Bi_2S_3/C–dots hybrid samples.

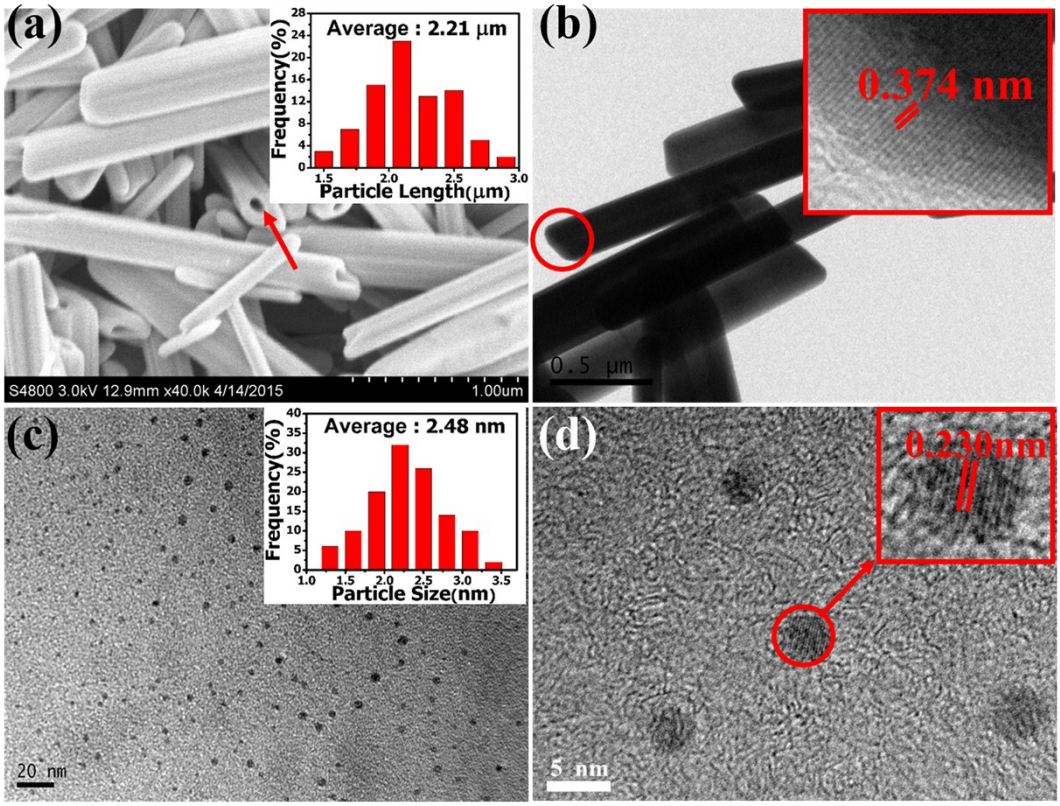

Fig. S2 (a) SEM and (b) TEM images of the Bi_2S_3 nanotubes; (c) TEM and (d) HRTEM images of C-dots.

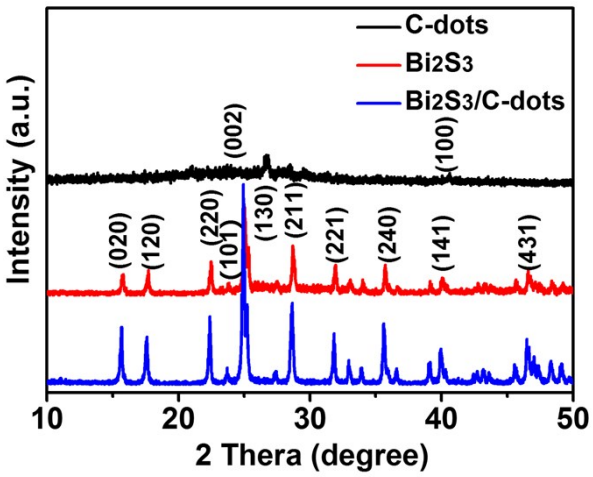

Fig. S3 XRD patterns of C–dots, Bi_2S_3 nanotubes and Bi_2S_3/C–dots nanohybrids.

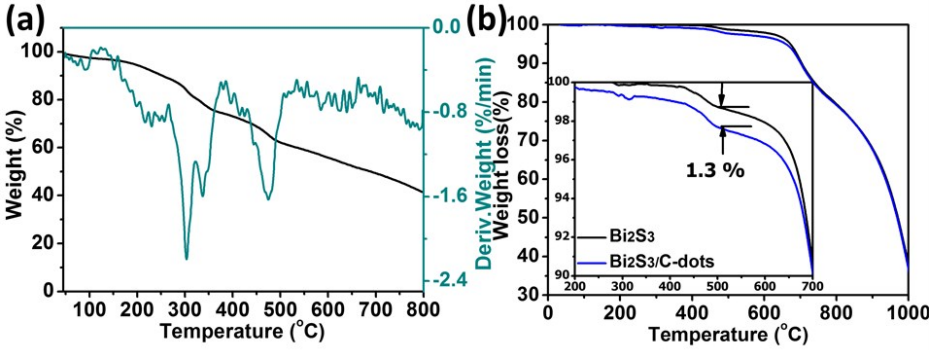

Fig. S4 Thermogravimetric analysis curve of (a) C-dots; (b) Bi_2S_3 nanotubes and Bi_2S_3/C-dots nanohybrids.

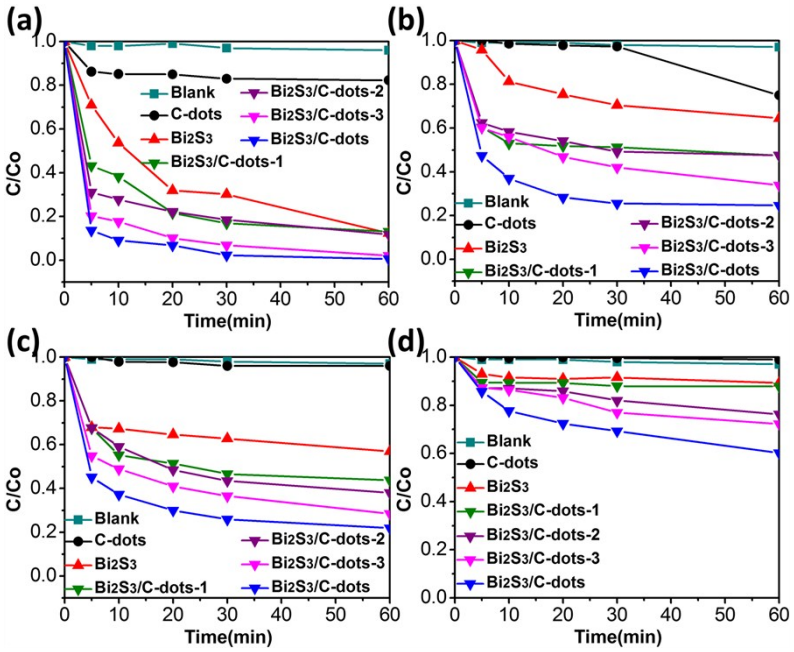

Fig. S5 UV-vis absorption spectra of MB degradation photocatalyzed by different samples under

(a) visible light (420 nm < λ < 780 nm) irradiation and (b) the daylight for 60 minutes; UV-vis absorption spectra of TC degradation photocatalyzed by different samples under (c) visible light (420 nm < λ < 780 nm) irradiation and (d) the daylight for 60 minutes.

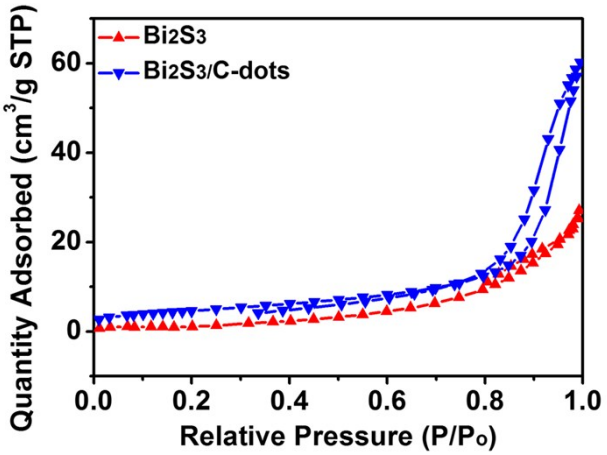

Fig. S6 Nitrogen absorption–desorption isotherms of Bi_2S_3 nanotubes and Bi_2S_3/C-dots nanohybrids.

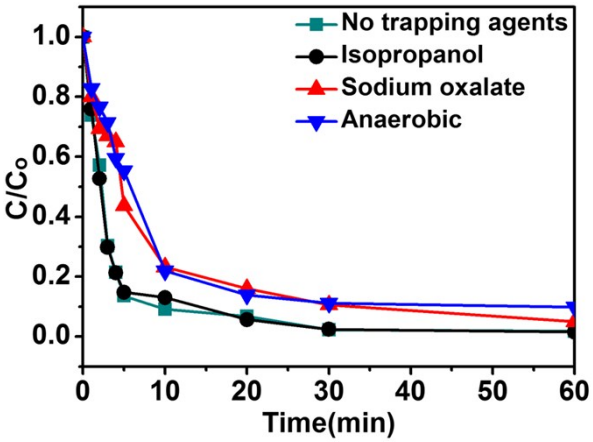

Fig. S7 Photocatalytic activities of Bi_2S_3/C–dots nanohybrids for the degradation of MB with or without adding reactive species trapping agents under 60 minutes visible light (λ > 420 nm) irradiation.

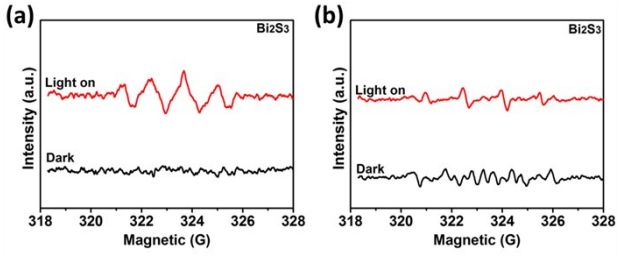

Fig. S8 DMPO spin-trapping ESR spectra of Bi_2S_3 nanotubes in (a) methanol and (b) water under visible light irradiation.

Table S1 Atomic percentages of C–dots.

Samples	C	O	K	Si	N	Cl	Na
C–dots	58.21	22.48	4.38	7.64	4.54	1.68	1.07