

Electronic Supplementary Information

The synthesis of elegant hierarchical CdS via a facile hydrothermal method assisted by inorganic salt, with photocorrosion inhibition

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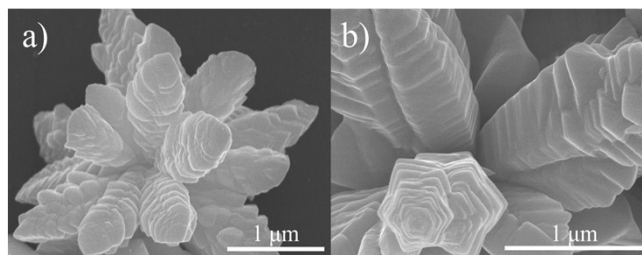


Fig. S1 Higher-magnification SEM images of CdS-60%

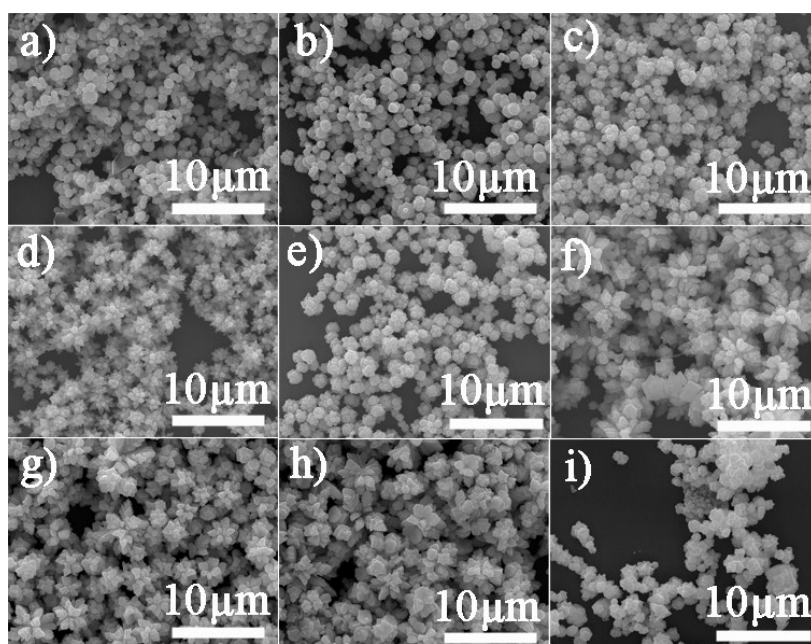


Fig. S2 Low-magnification SEM images of a) CdS-0% b) CdS-10% c) CdS-20% d) CdS-30% e) CdS-40% f) CdS- 50% g) CdS-60% h) CdS-80% i) CdS-100%.

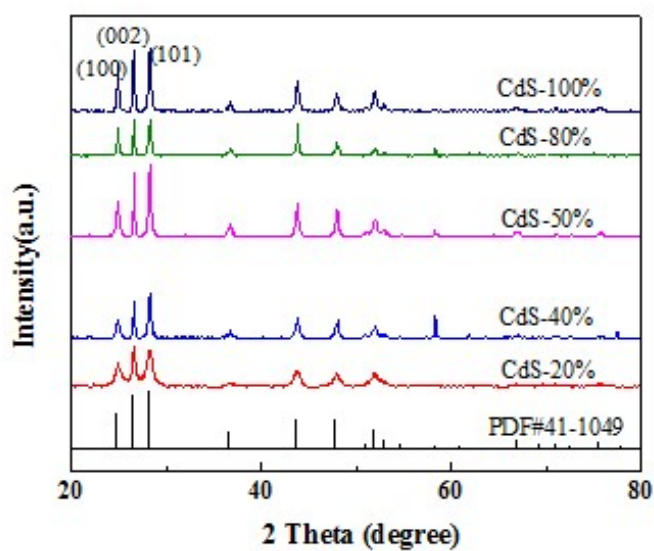


Fig. S3 XRD patterns of the CdS synthesized with different concentration of NaCl solution.

Table. S1 ICP analysis result of CdS-60%.

C_{Cd}	C_{Mo}	$N_{Cd} : N_{Mo}$
36.572mg/L	0.014mg/L	2168:1

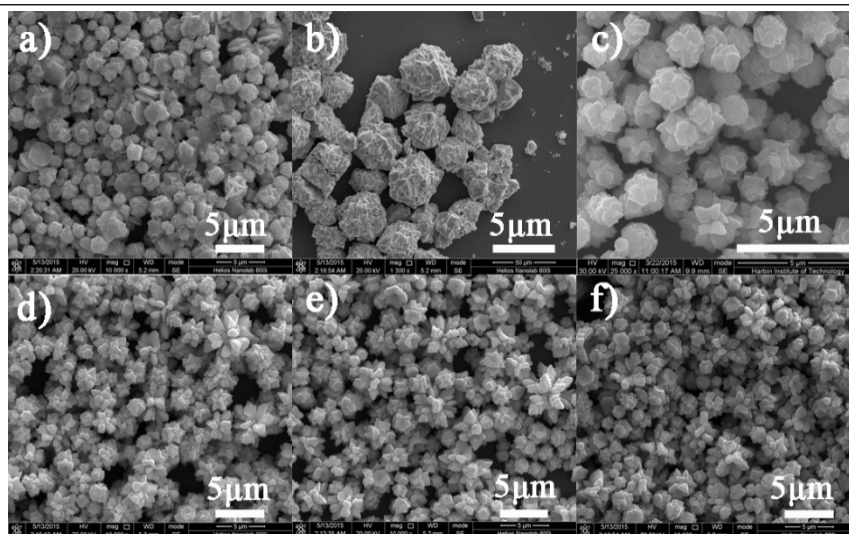


Fig. S4 The SEM images of CdS samples synthesized with different amounts of citric acid and sodium citrate, a) 0 mmol : 0 mmol, b) 1.6610 mmol : 0 mmol, c) 0 mmol : 1.6610 mmol, d) 0.0055 mmol : 0.825 mmol, e) 0.0110 mmol : 1.6500 mmol, f) 0.0220 mmol : 3.3000 mmol.

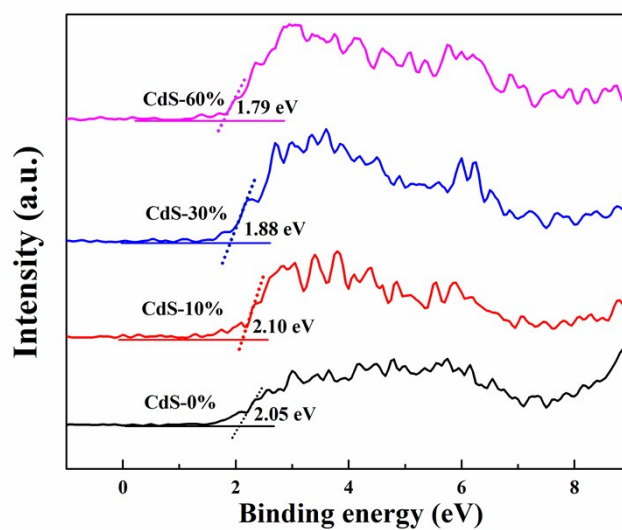


Fig. S5 XPS valence band spectra of CdS synthesized with different concentration of NaCl solution.

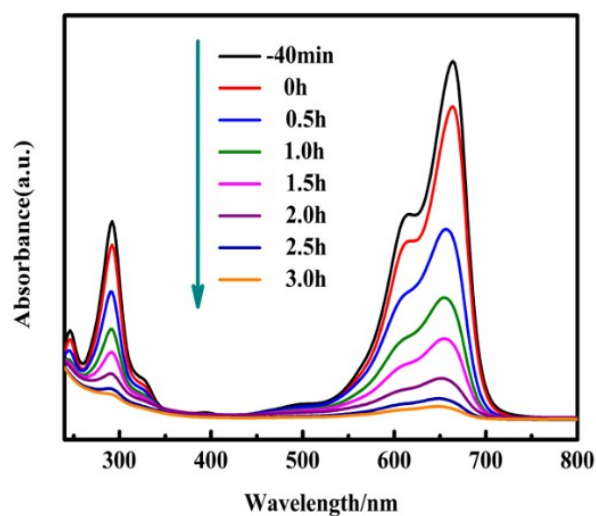


Fig. S6 Time-dependent UV-vis absorption spectra for degradation of MB using CdS-60% under visible light.

UV-vis absorption spectra of MB solution disintegrated by CdS-60% shows that the main characteristic absorptions of MB are decreasing regularly and are almost disappeared after visible light irradiation for 3 h.

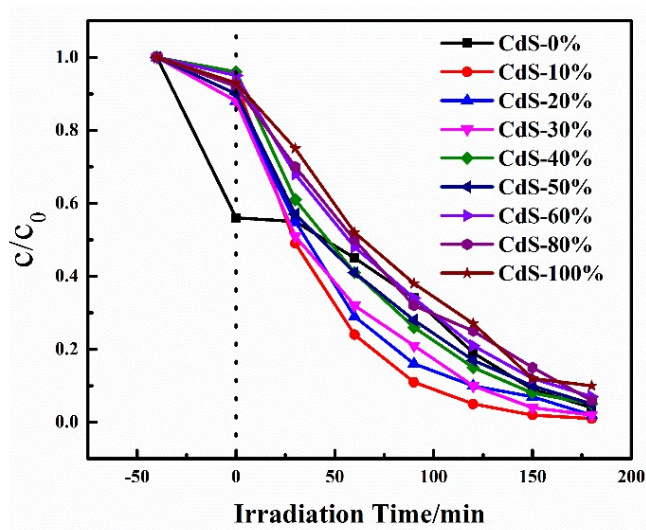


Fig. S7 Photocatalytic degradation curves of MB on CdS products synthesized with different saturation concentration of NaCl solution.

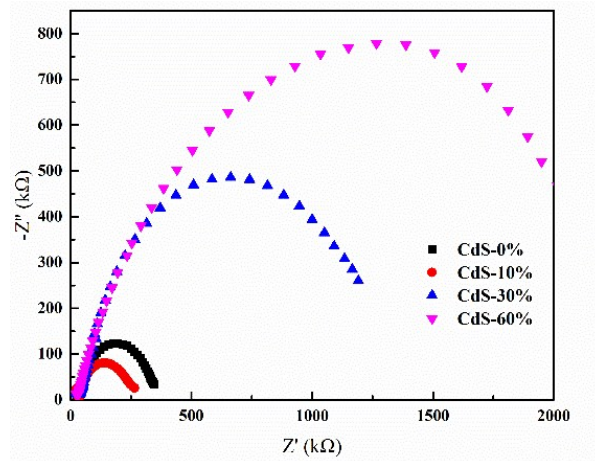


Fig. S8 EIS of CdS synthesized with different concentration of NaCl solution.

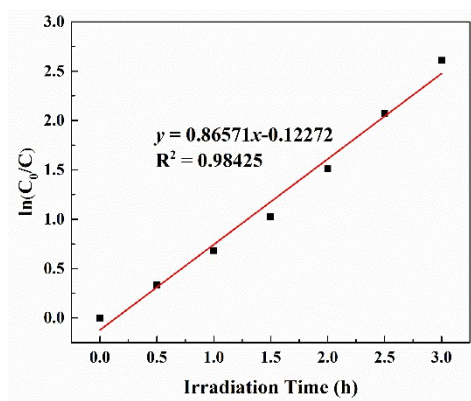


Fig. S9 relative curve of $\ln(C_0/C)$ -t over CdS-60% on the degradation of MB.

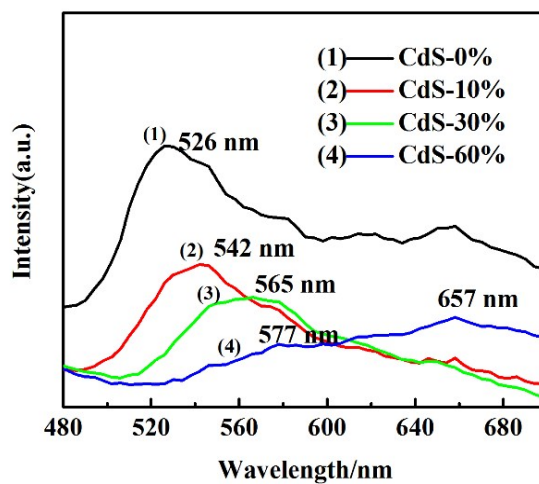


Fig. S10 PL spectra of the CdS synthesized with different concentration of NaCl solution.

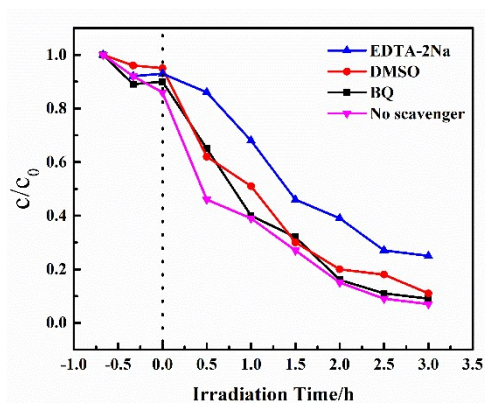


Fig. S11 Effects of different scavengers on the degradation of MB in the presence of CdS-60%

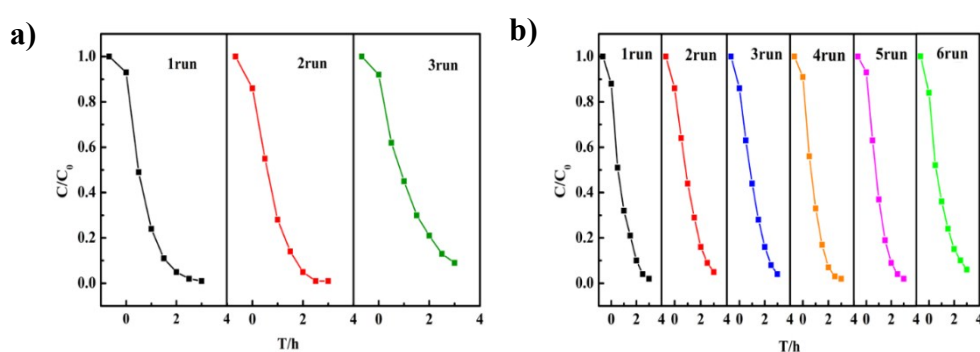


Fig. S12 Cycling runs for the photocatalytic degradation of MB under visible light irradiation over a) CdS-10%, b) CdS-30%.

Cycling runs for the photocatalytic degradation of MB over CdS-10% and CdS-30% exhibit that CdS-10% and CdS-30% have been rotted away completely in 3rd run and 6th run respectively without solids left.

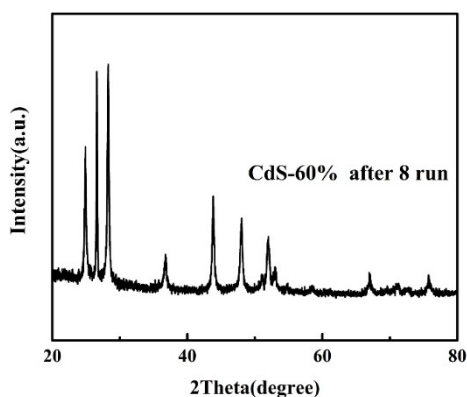


Fig. S13 XRD patterns of the CdS-60% after 8 runs.

The XRD patterns shows that CdS-60% still keeps good crystallinity as hexagonal wurtzite after 8 runs.