Electronic Supplementary Material (ESI) for RSC Advances.

Structure-controlled CdS(0D,1D,2D) embedded onto 2D ZnS porous nanosheet for highly efficient photocatalytic hydrogen generation.

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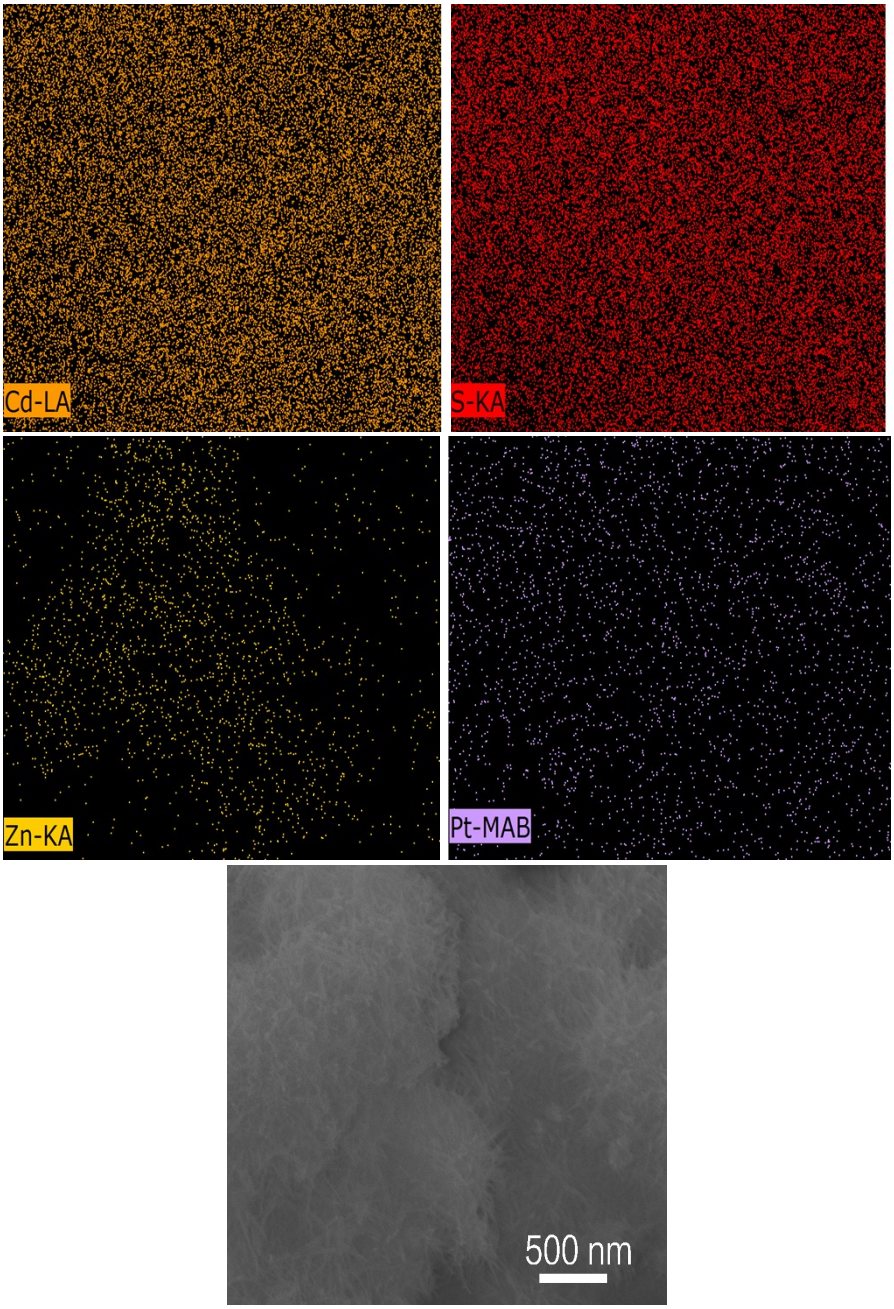

Fig. S1 SEM image and corresponding EDX mapping of Pt-ZnS/CdS1D

Table S1 Comparison of analytical structure and hydrogen gereration rate of the Pt-ZnS/CdS composites

Samples	Surface area ($m^2 \cdot g^{-1}$)	Band energy gap (ev)	Configuation	H_2 generation rate ($mmol \cdot g^{-1} \cdot h^{-1}$)
Pt-ZnS/CdSQDs	48	2.45	2D/0D	7.7
Pt-ZnS/CdS1D	65	2.65	2D/1D	26
Pt-ZnS/CdS2D	77	2.69	2D/2D	21

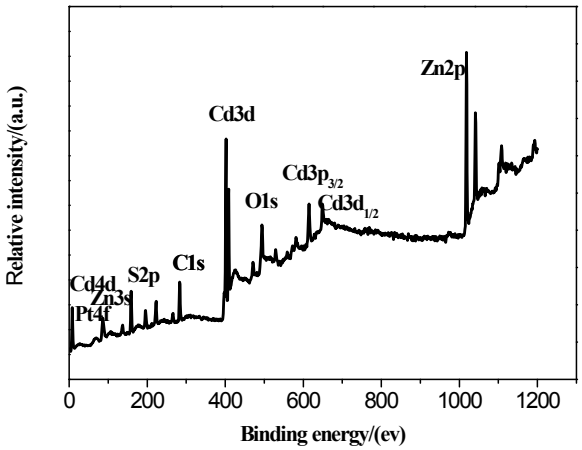

Fig. S2 XPS survey spectra of Pt-ZnS/CdS 1D.

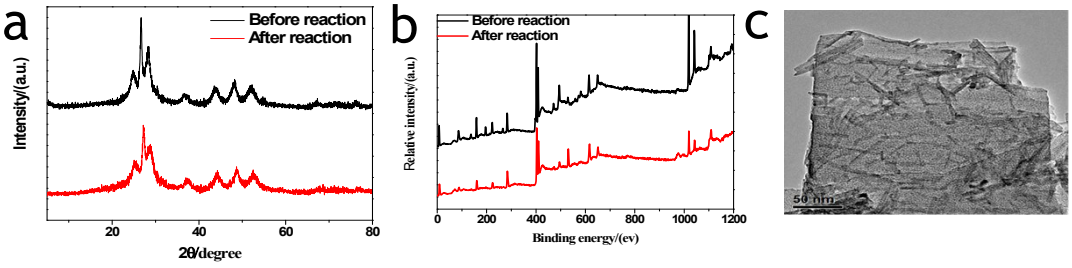

Fig. S3 Comparing XRD (a), XPS (b) survey spectra and TEM image (c) of the Pt-ZnS/CdS1D before and after photocatalytic reaction

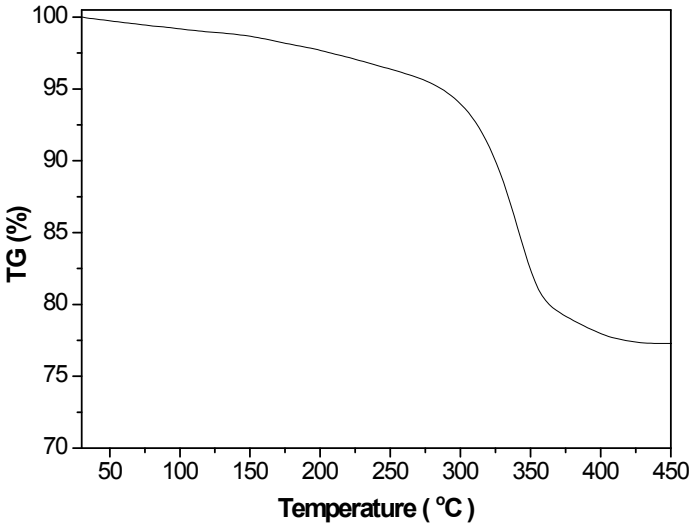

Fig. S4 TG curves of Pt-ZnS/CdS1D

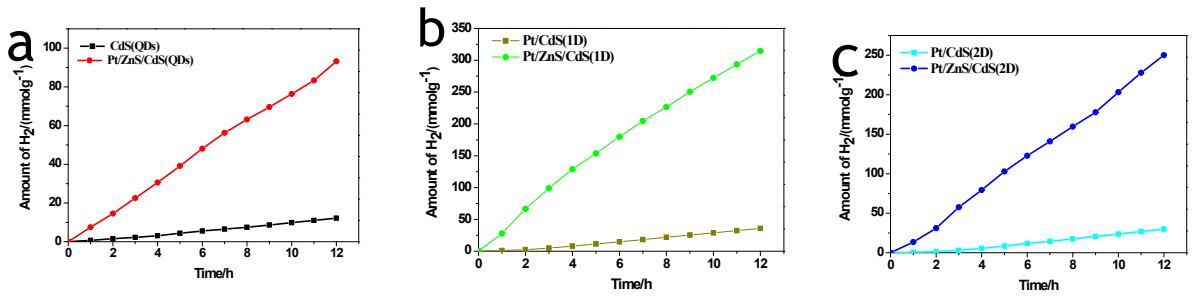

Fig. S5 Comparison of the H_2 evolution activity of the Pt/CdS QDs and Pt-ZnS/CdS QDs; Pt/CdS 1D and Pt-ZnS/CdS 1D; Pt/CdS 2D and Pt-ZnS/CdS 2D respectively.