Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Wide Spectrum Responsive CdS/$NiTiO_3$/CoS with Superior Photocatalytic Performance for Hydrogen Evolution

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Fig. S1 TEM image of $NiTiO_3$ nanorods.

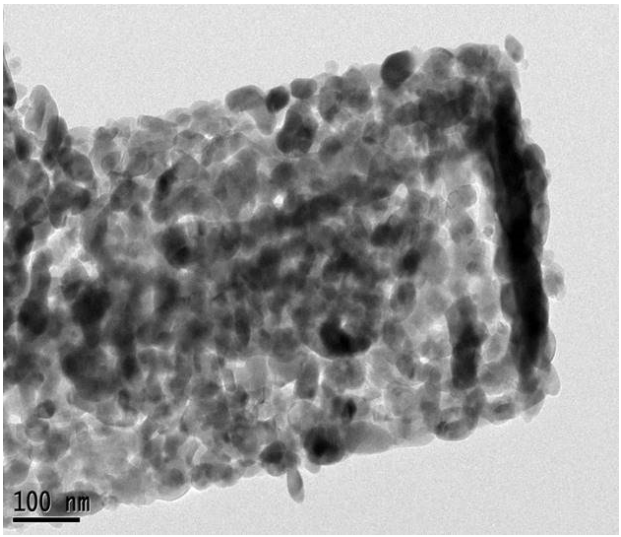

Fig. S2 TEM image of CdS nanoparticle

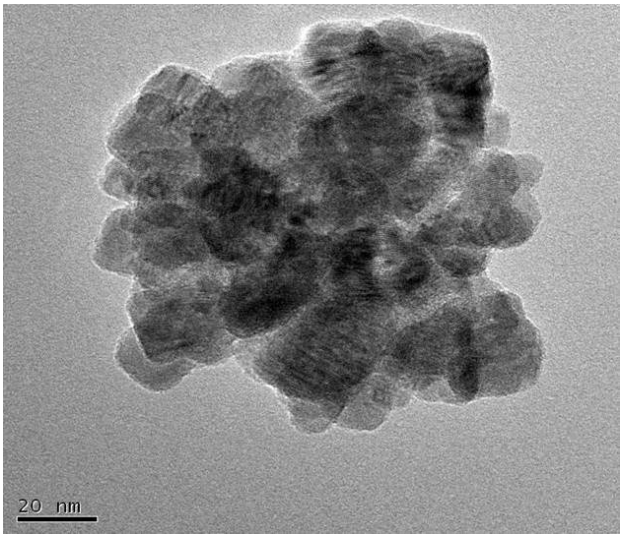

Fig. S3 EDX spectrum of $CdS/NiTiO_3/CoS$.

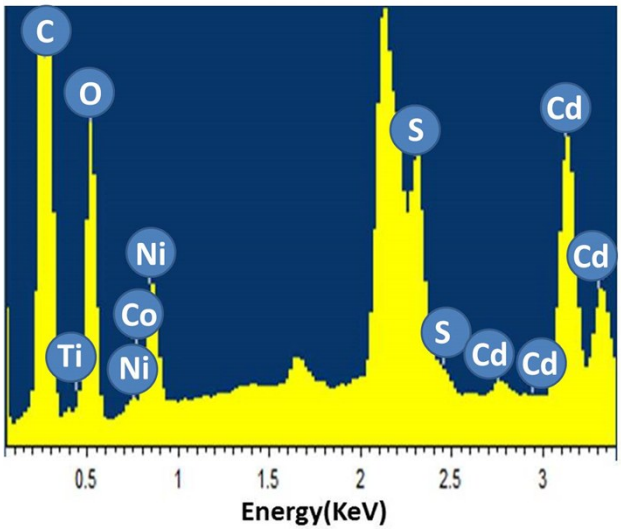

Fig. S4 XPS spectra of CdS (a) S 2p, (b) Cd 3d; $NiTiO_3$ (c) Ni 2p, (d) Ti 2p, (e) O 1s; CdS/$NiTiO_3$/CoS nanocomposite (f) Cd 3d, (g) Ti 2p, (h) O 1s.

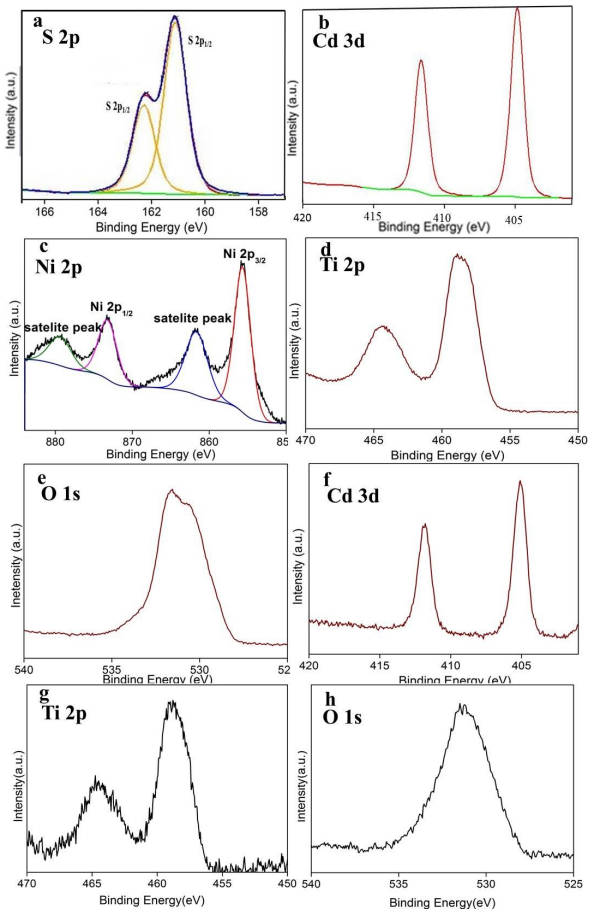

Fig. S5 Nitrogen adsorption-desorption isotherm of the $CdS/NiTiO_3/CoS$ nanocomposite. The inset shows the corresponding pore size distribution plot.

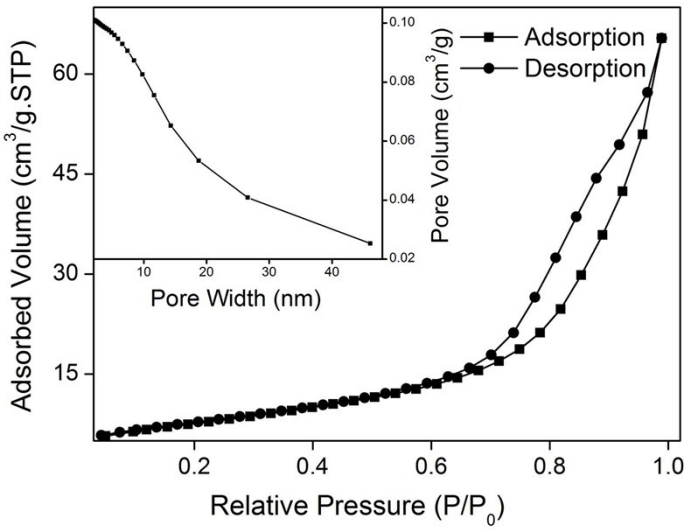

Fig. S6 (a) The amount of H_2 evolved over the $CdS/NiTiO_3/CoS$ nanocomposite under irradiation of the Xe lamp equipped with band pass of 435, 520, 650 and 760nm; (b) The UV-vis absorption of $CdS/NiTiO_3/CoS$ nanocomposite.

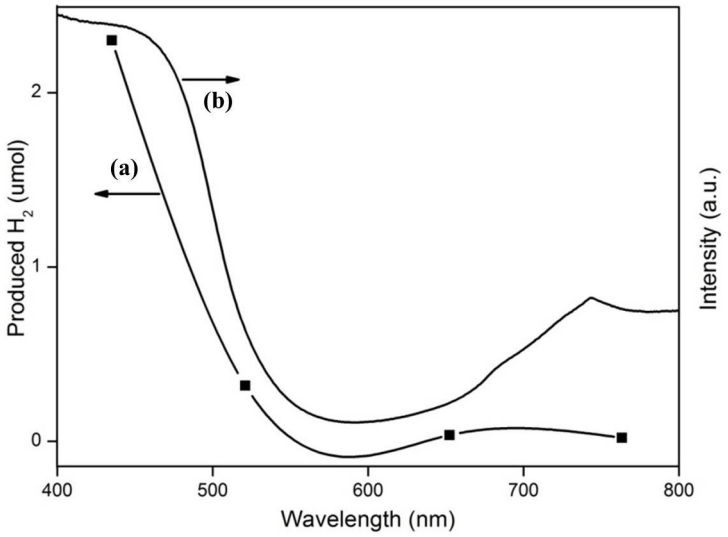

Fig. S7 XRD patterns of CdS sample before (a) and after (b) the photocatalysis, respectively.

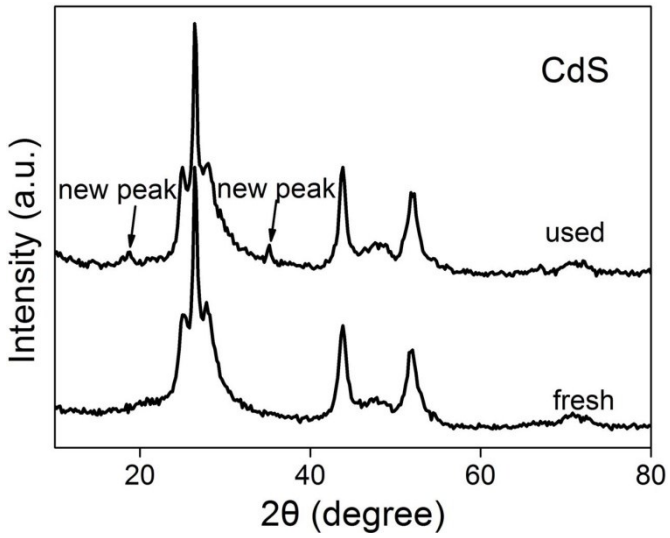

Fig. S8 XRD patterns of $CdS/NiTiO_3/CoS$ sample before (a) and after (b) the photocatalysis, respectively.