

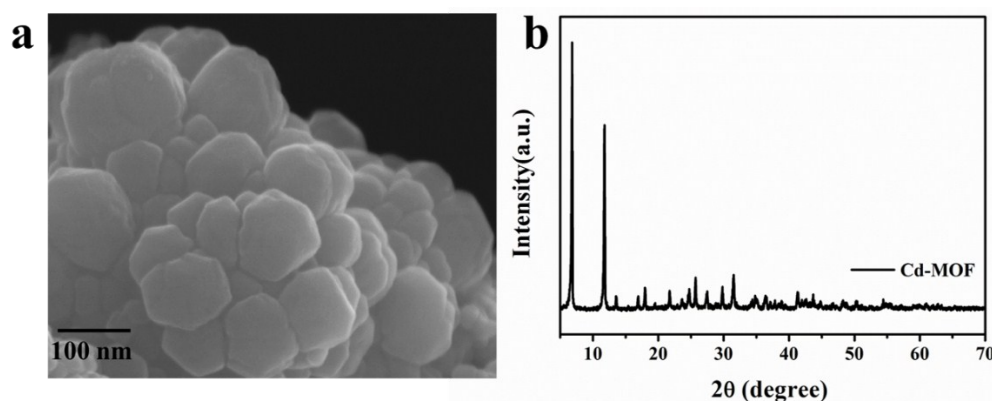
## Supporting Information

### Metal-Organic Framework Assisted and in-situ Synthesis of Hollow CdS Nanostructures with High-Efficient Photocatalytic Hydrogen Evolution

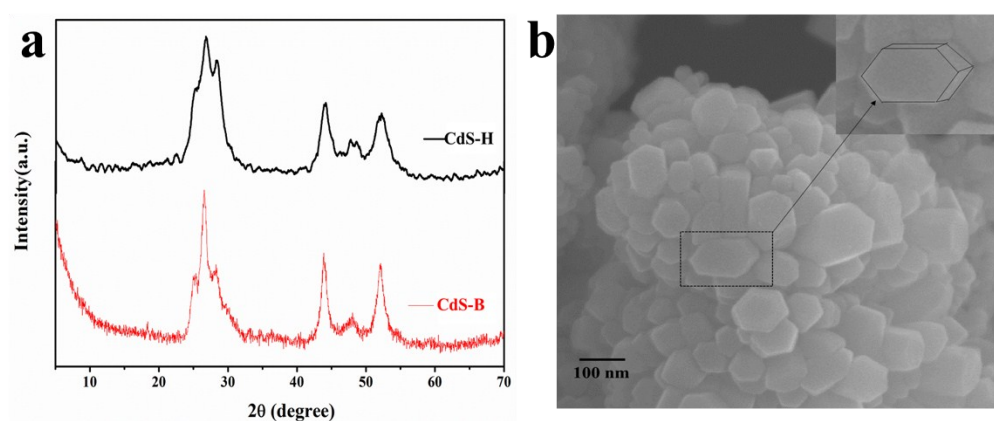
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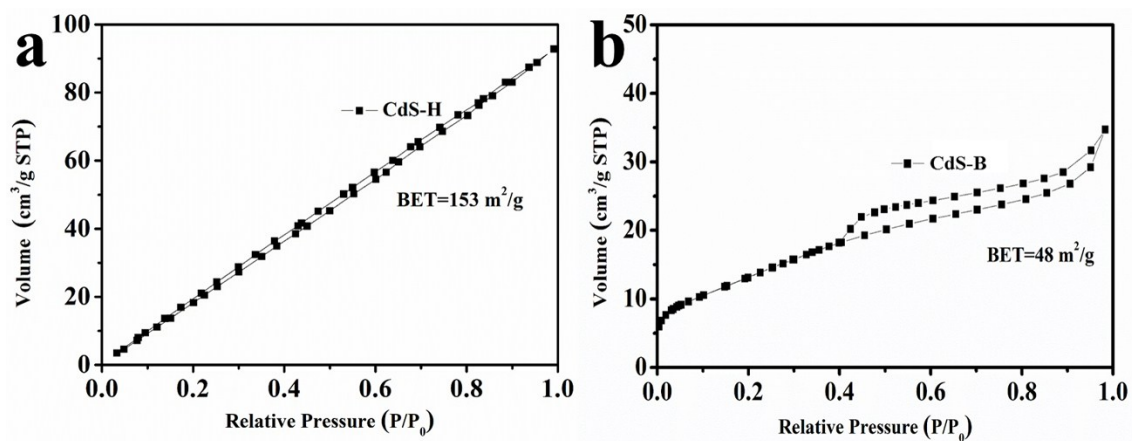
Email: lxhxiao@bnu.edu.cn



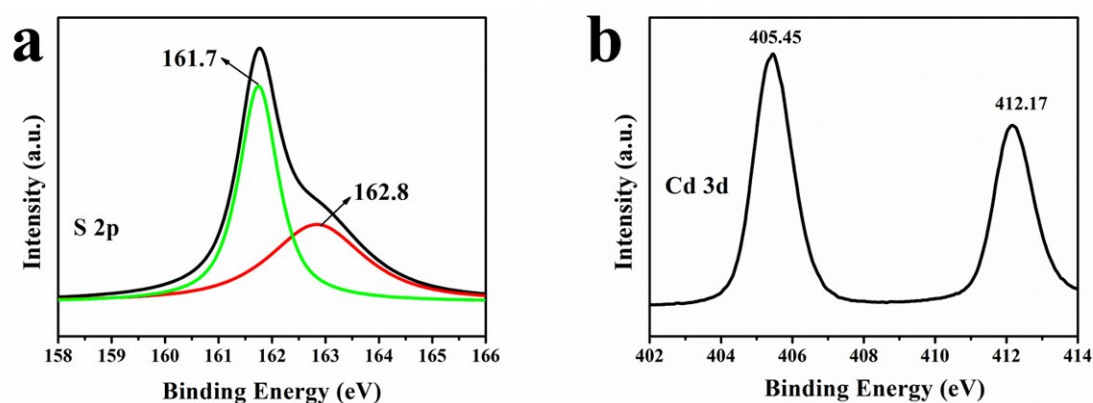
**Fig. S1** Characterization of Cd-MOF-74: (a) SEM image, (b) XRD pattern.



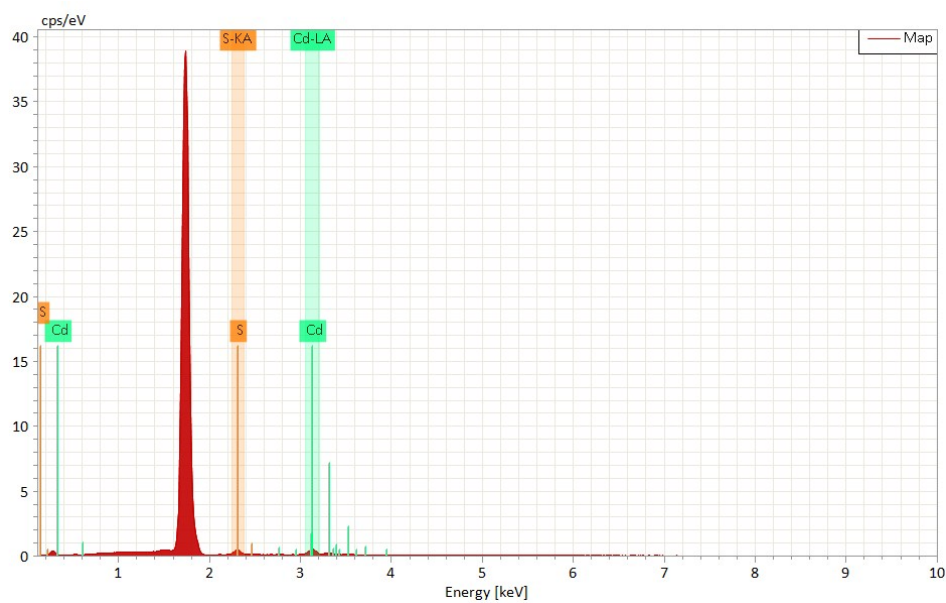
**Fig. S2** (a) XRD pattern of the samples, (b) SEM image of CdS-H.



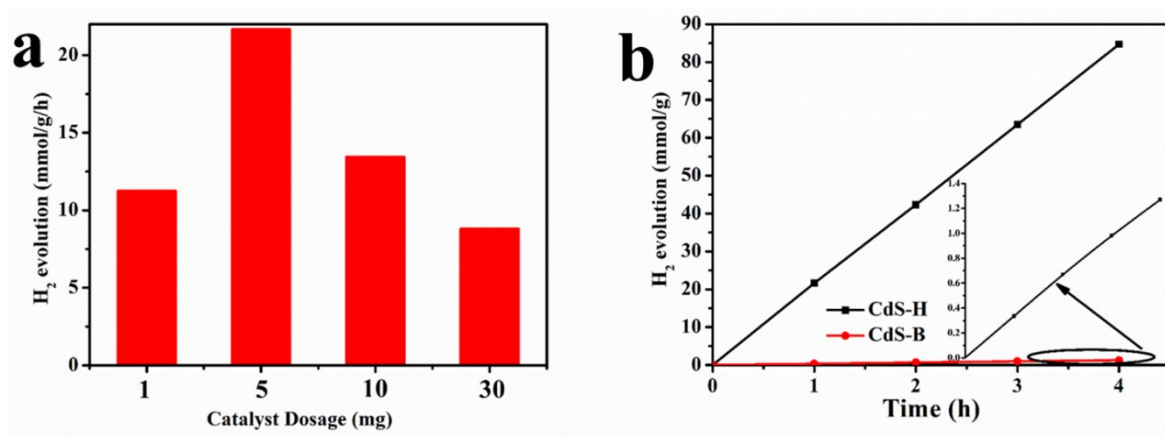
**Fig. S3** N<sub>2</sub> adsorption–desorption isotherm: (a) CdS-H and (b) CdS-B.



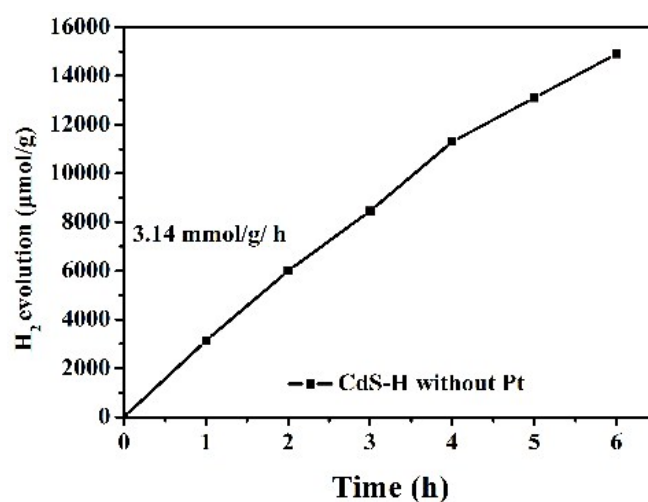
**Fig. S4** XPS spectra of CdS-H: (a) S 2p and (b) Cd 3d



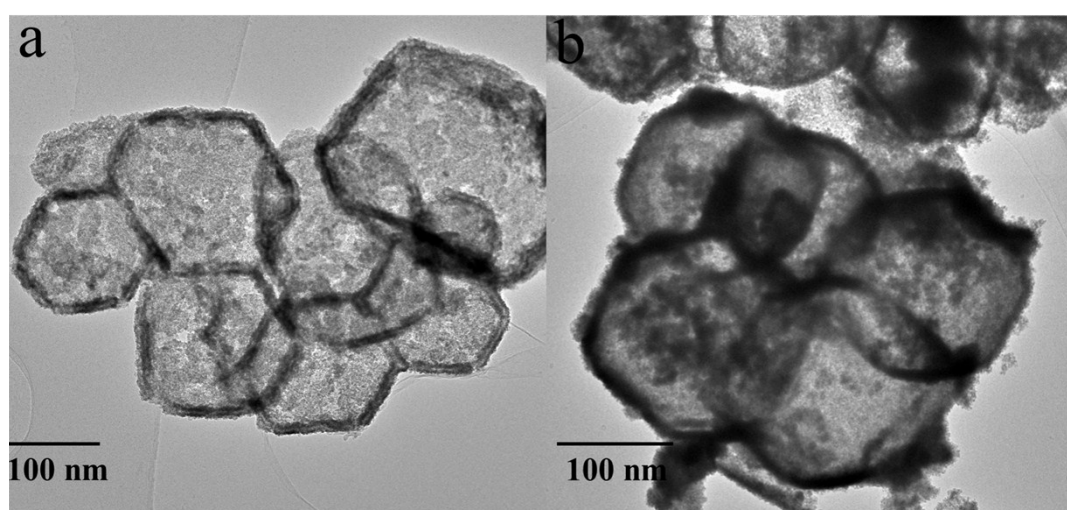
**Fig. S5** Energy-dispersive X-ray (EDX) spectroscopy of CdS-H.



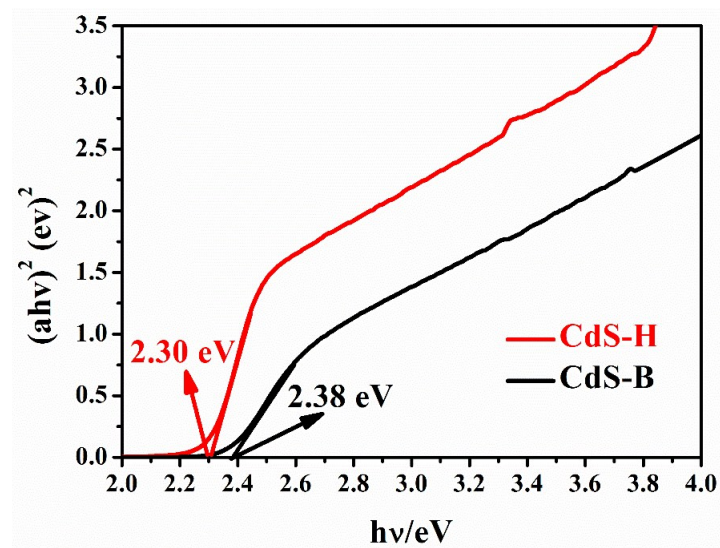
**Fig. S6** (a)  $H_2$  evolution of CdS-H and CdS-B, (b)  $H_2$  evolution of different weights samples of CdS-H with Pt as a co-catalyst and electron promoter.



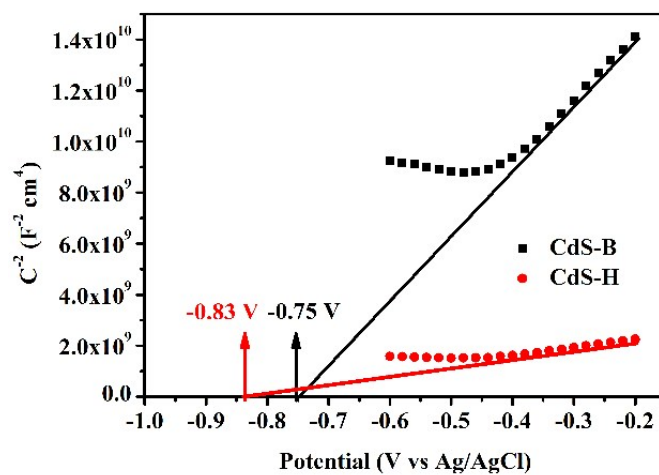
**Fig. S7**  $H_2$  evolution of CdS-H without Pt as a co-catalyst and electron promoter.



**Fig. S8** TEM images of CdS-H: a) before and b) after 4 cycles.



**Fig. S9** The corresponding plots of  $(\alpha h\nu)^2$  versus photon energy ( $h\nu$ ) of CdS-H and CdS-B



**Fig. S10** Mott-Schottky plots of CdS-H and CdS-B.