Supporting Information


Yilei Li, Tian Jin, Ge Ma, Yunchao Li, Louzhen Fan, Xiaohong Li
Key Laboratory of Theoretical and Computational Photochemistry, Ministry of Education, College of Chemistry, Beijing Normal University, Beijing, 100875, China.
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** \( \text{N}_2 \) 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) $\text{H}_2$ evolution of CdS-H and CdS-B, (b) $\text{H}_2$ evolution of different weights samples of CdS-H with Pt as a co-catalyst and electron promoter.

Fig. S7 $\text{H}_2$ 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.