

Supporting Information

CoP QDs with carbon skeleton as co-catalysts modified CdS nanorods for photocatalytic hydrogen production

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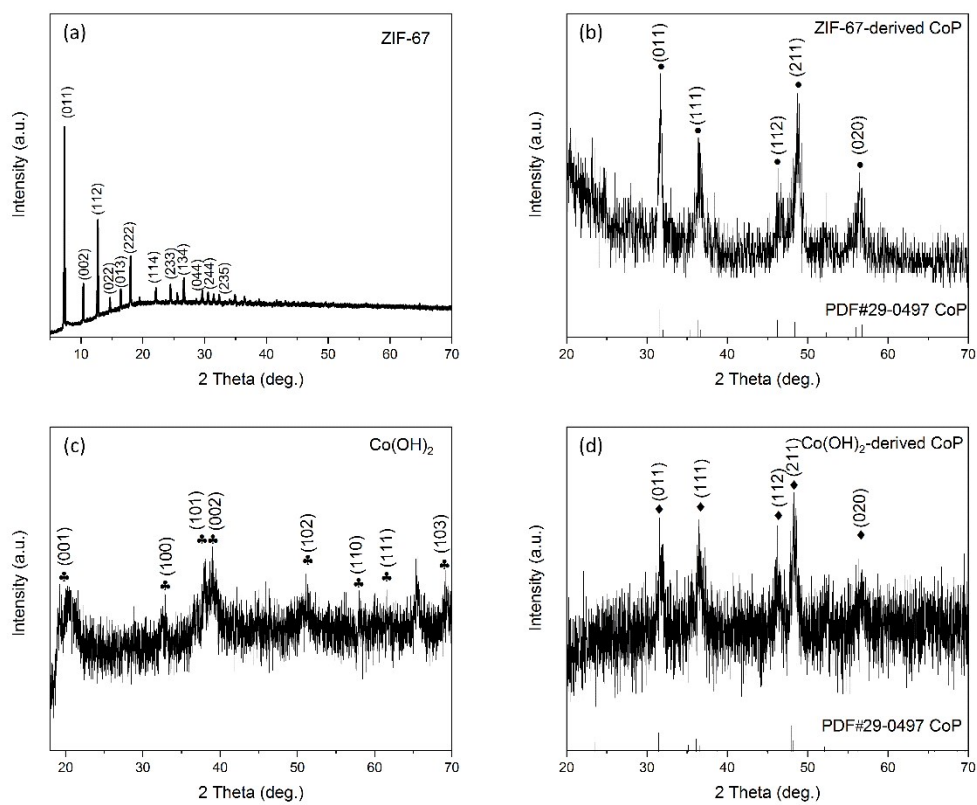


Fig. S1 XRD patterns of the ZIF-67 (a), ZIF-67-derived CoP (b), Co(OH)₂ (c) and Co(OH)₂-derived CoP (d).

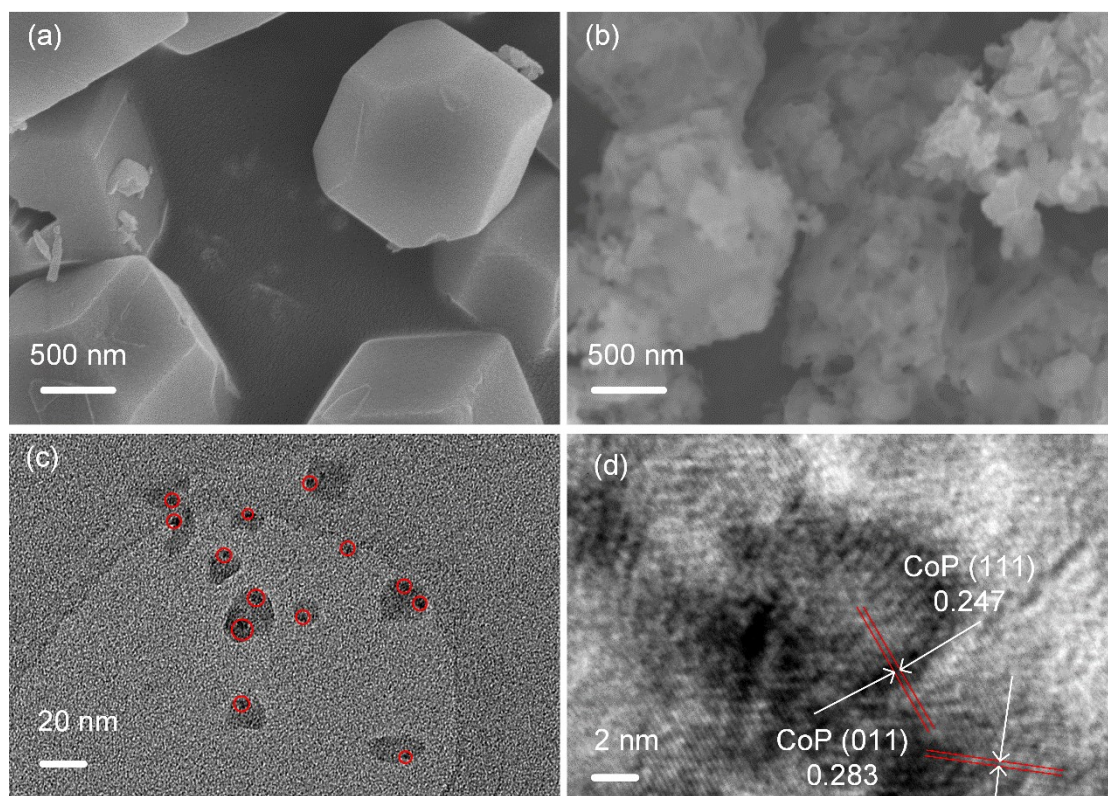


Fig. S2 FESEM images of the ZIF-67 (a) and ZIF-67-derived CoP (b). TEM and HRTEM images of the ZIF-67-derived CoP (c, d).

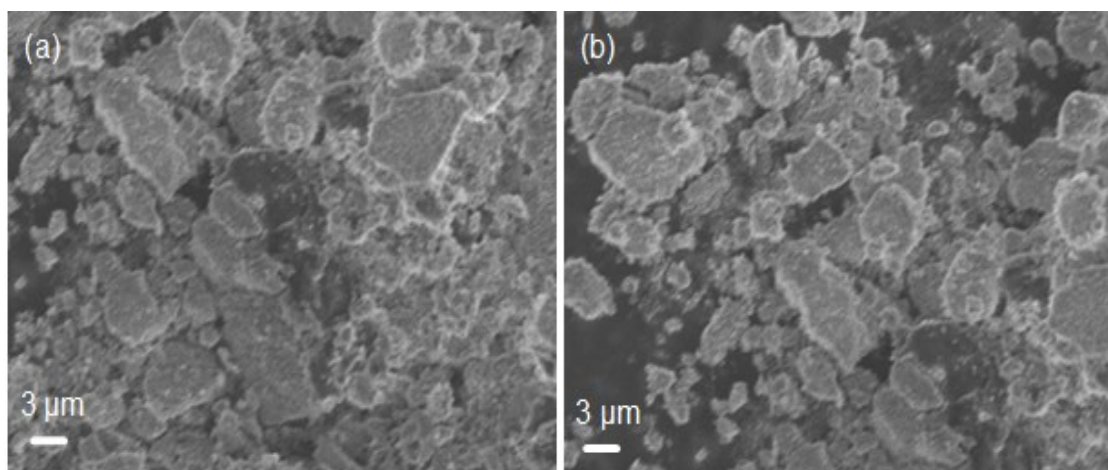


Fig. S3 FESEM images of the Co(OH)₂ (a) and Co(OH)₂-derived CoP (b).

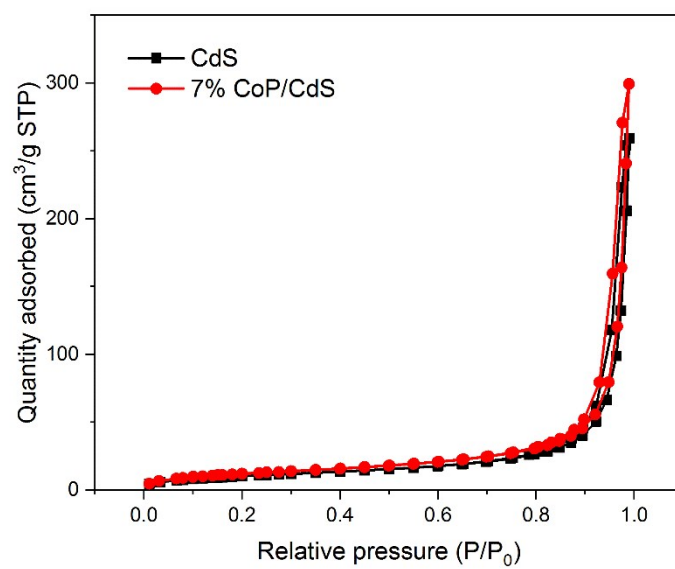


Fig. S4 N₂ adsorption/desorption isotherms of CdS and 7% CoP/CdS.

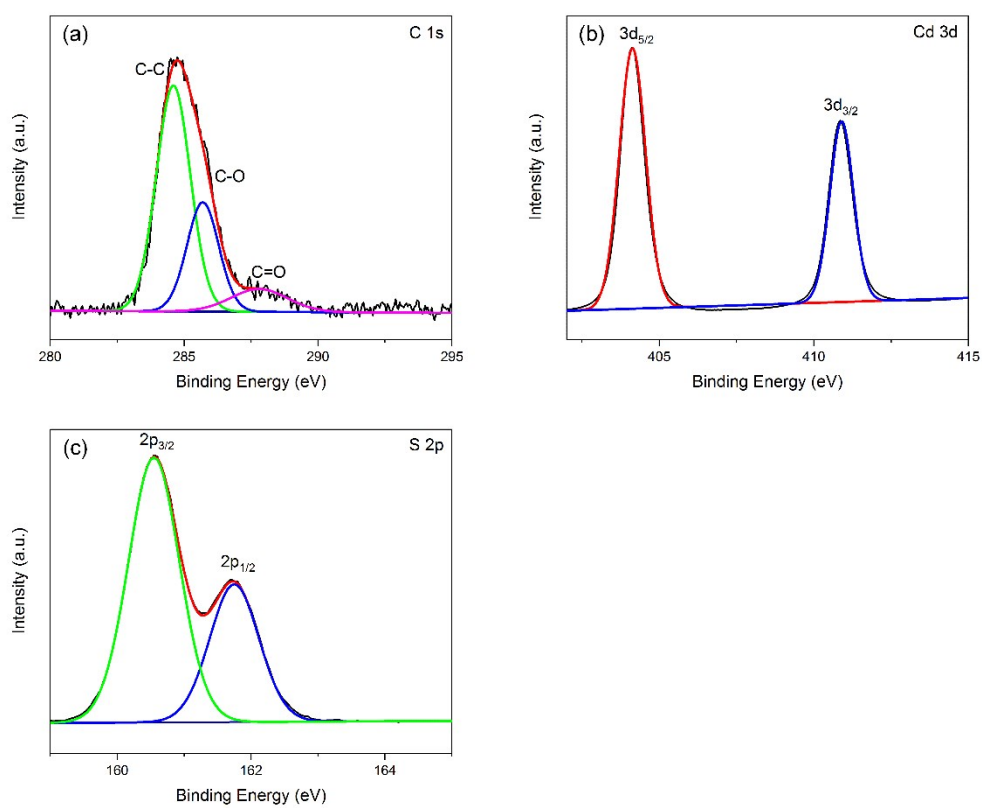


Fig. S5 High-resolution XPS of spectra of C 1s (a), Cd 3d (b) and S 2p (c) of the bare CdS.

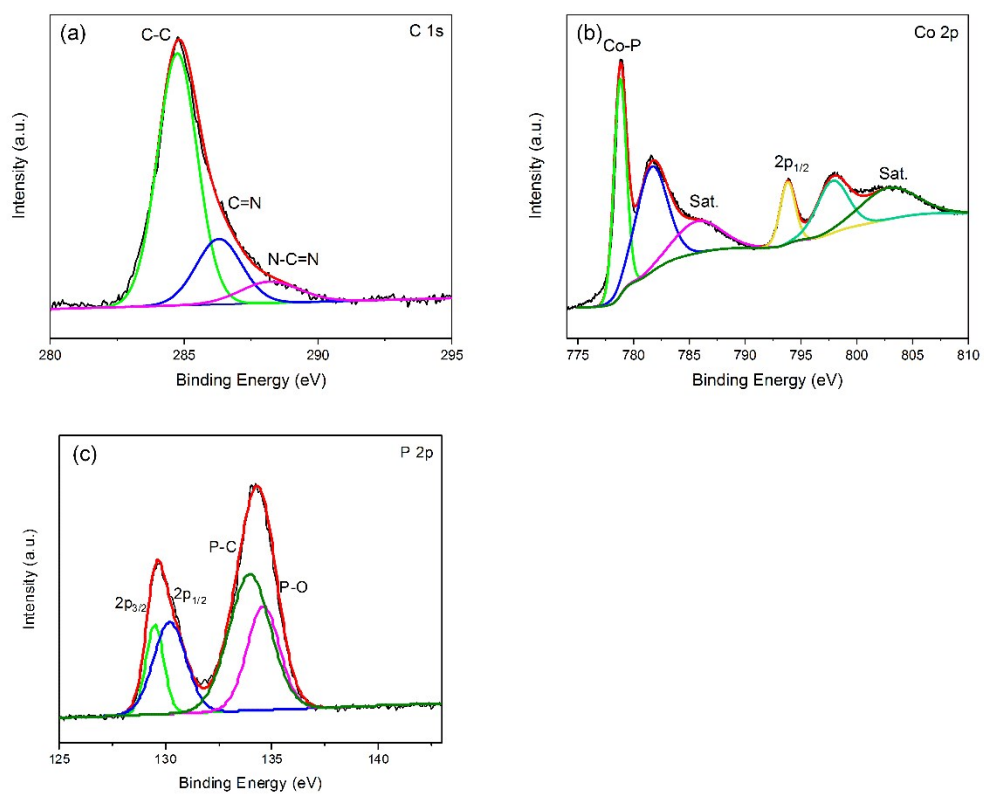


Fig. S6 High-resolution XPS of spectra of C 1s (a), Co 2p (b) and P 2p (c) of the ZIF-67-derived CoP.

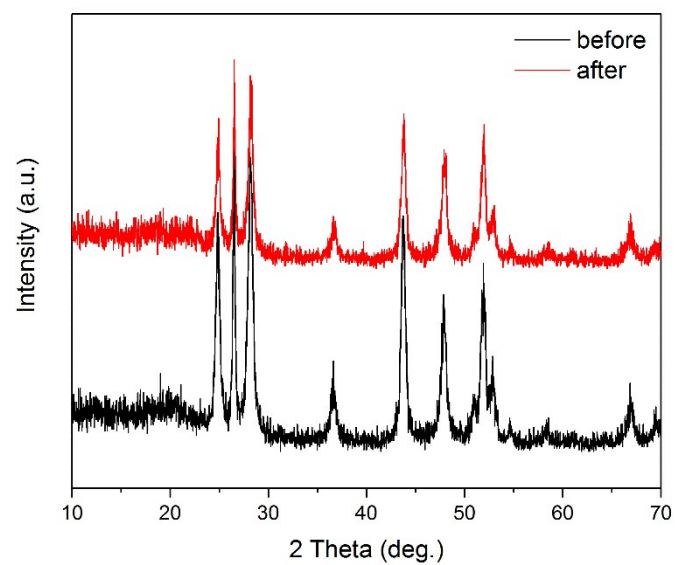


Fig. S7 XRD patterns of the 7% CoP/CdS photocatalyst before and after stability test of photocatalytic H_2 production under visible light irradiation.

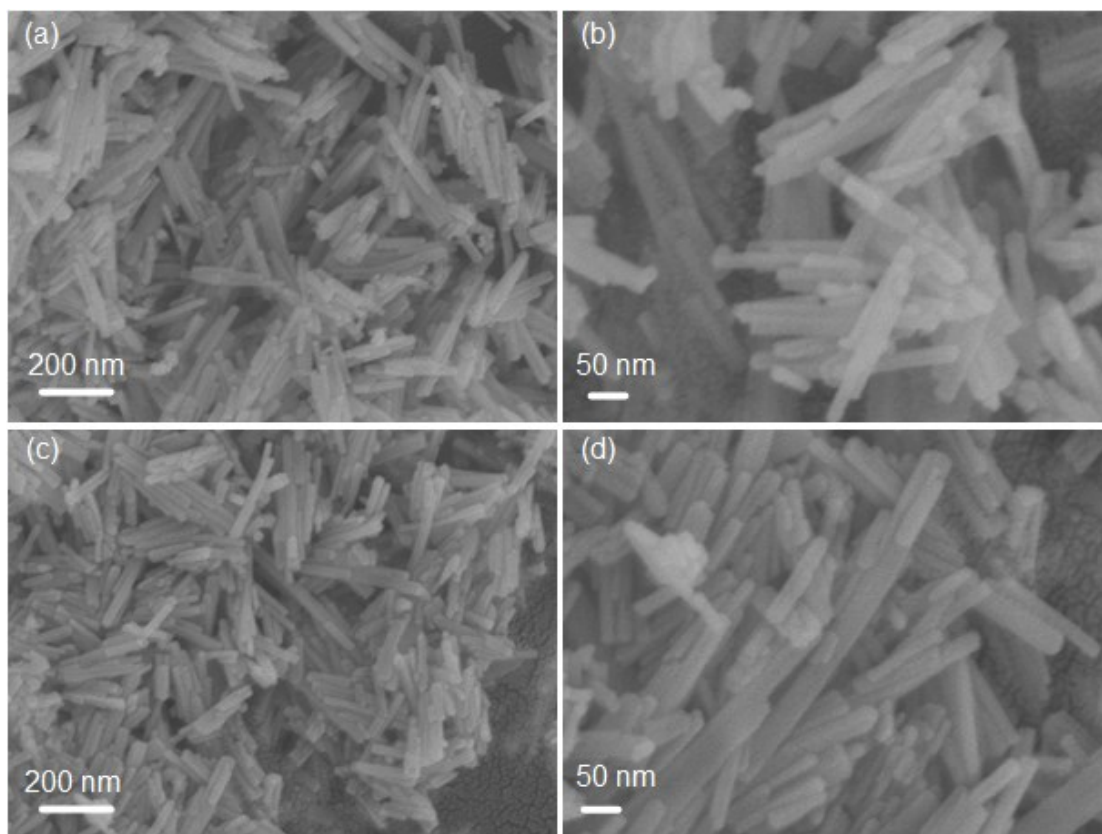


Fig. S8 FESEM images of the 7% CoP/CdS photocatalyst before (a, b) and after (c, d) stability test of photocatalytic H₂ production under visible light irradiation.

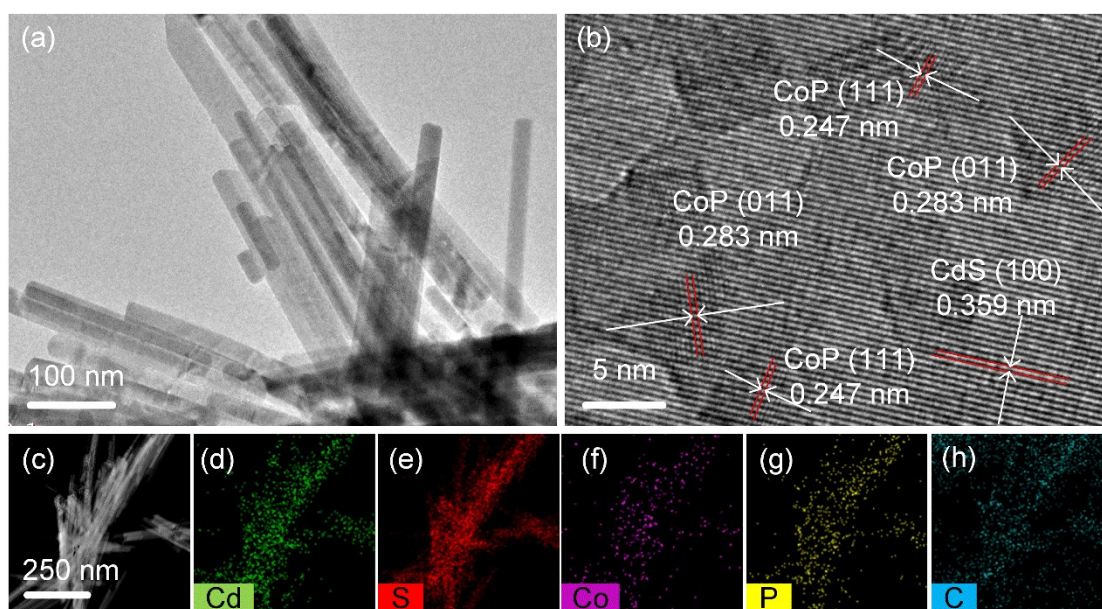


Fig. S9 (a) TEM and (b) HRTEM images, (c-h) STEM images and EDS mappings of the 7% CoP/CdS photocatalyst after stability test of photocatalytic H₂ production under visible light irradiation.

Table S1 Comparison of different co-catalysts decorated CdS NRs.

Photocatalyst	H₂ production	Reference
CdS/Co@NC	21.8 mmol h ⁻¹ g ⁻¹	1
MoS ₂ /CdS	12.38 mmol g ⁻¹ h ⁻¹	2
NiSe ₂ /CdS	61.522 mmol g ⁻¹ (5 h)	3
NixP/CdS	69.2 mmol h ⁻¹ g ⁻¹	4
WS ₂ -CdS	19.2 mmol h ⁻¹ g ⁻¹	5
WPS/CdS	123.257 mmol g ⁻¹ (5 h)	6
CoS ₂ /CdS	58 mmol h ⁻¹ g ⁻¹	7
CoOx@N, S-C/CdS	40.1 mmol h ⁻¹ g ⁻¹	8
Pt/CdS	24.15 mmol h ⁻¹ g ⁻¹	9
CoP-CdS	13.785 mmol h ⁻¹ g ⁻¹	10
CoP/CdS	104.947 mmol h ⁻¹ g ⁻¹	This work

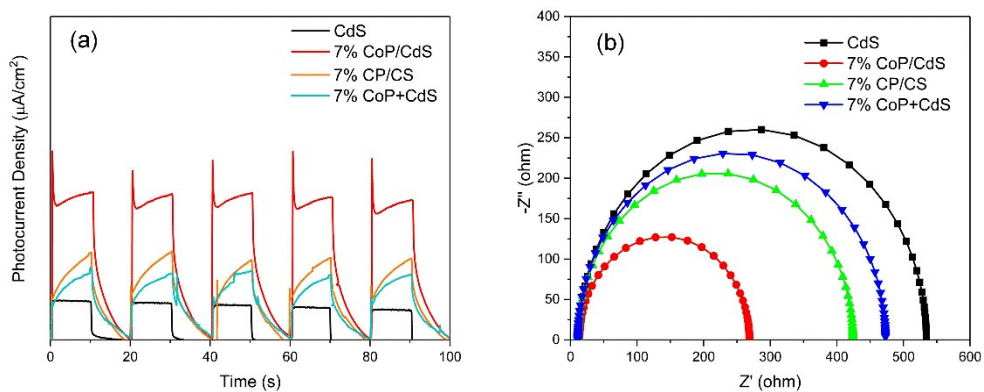


Fig. S10 Transient photocurrent density of CdS, 7% CoP/CdS, 7% CP/CS and 7% CoP+CdS (a). EIS spectra of CdS, 7% CoP/CdS, 7% CP/CS and 7% CoP+CdS (b).

References

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