

Supporting Information

Design and Synthesis of Porous ZnTiO₃/TiO₂ Nanocages with Heterojunctions for Enhanced Photocatalytic H₂ Production

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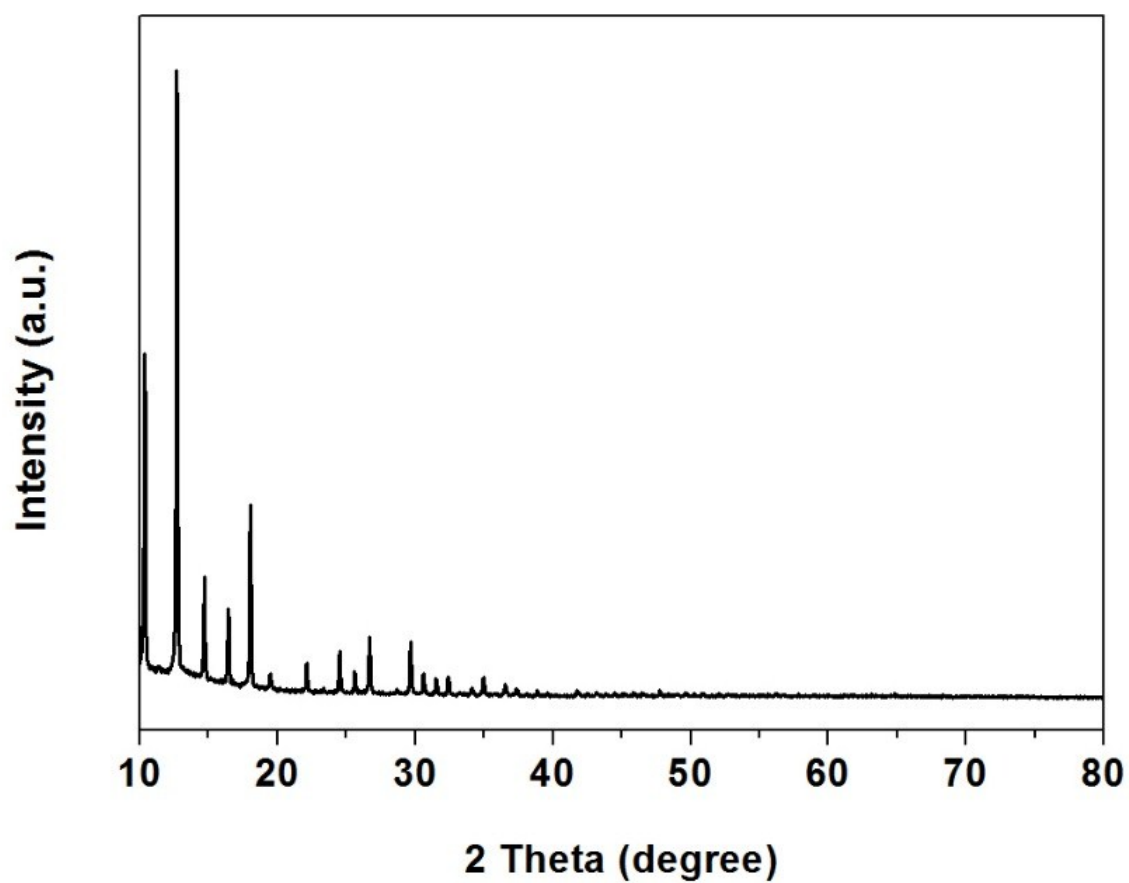


Figure S1. XRD patterns of ZIF-8.

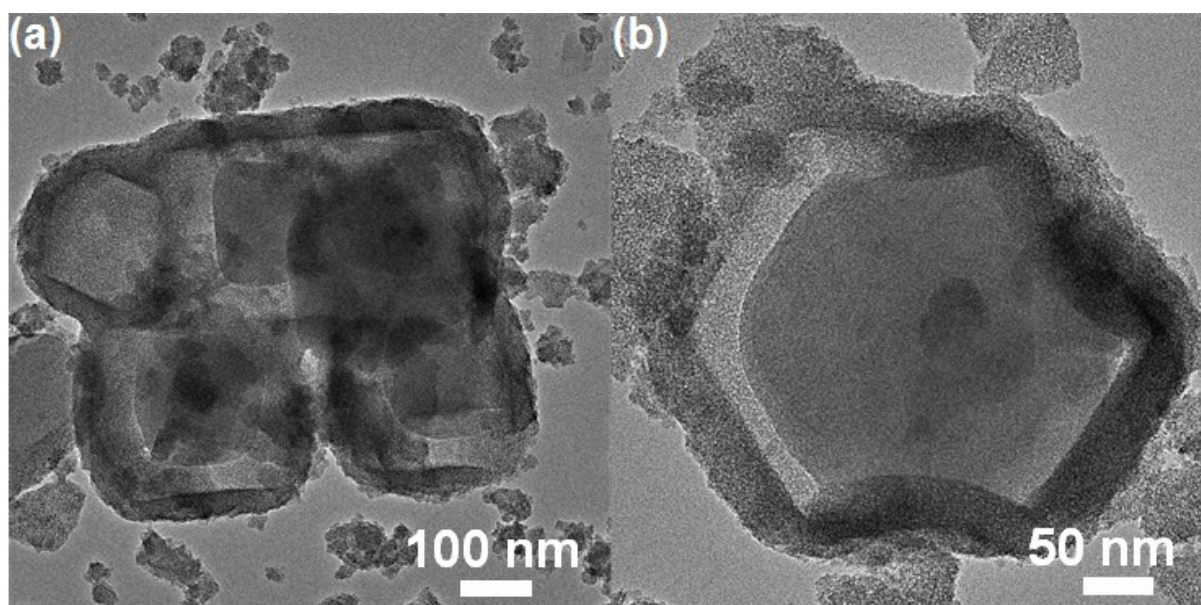


Figure S2. TEM images of ZIF-8@TiO₂ after hydrothermal treatment for 12 hour.

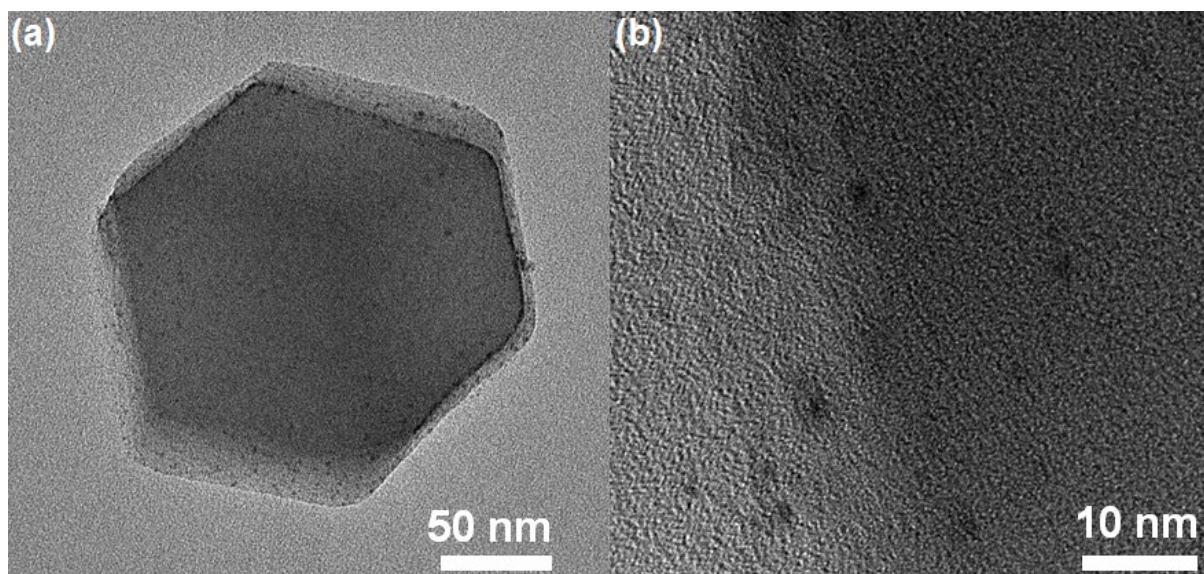


Figure S3. TEM images of PZ-1.

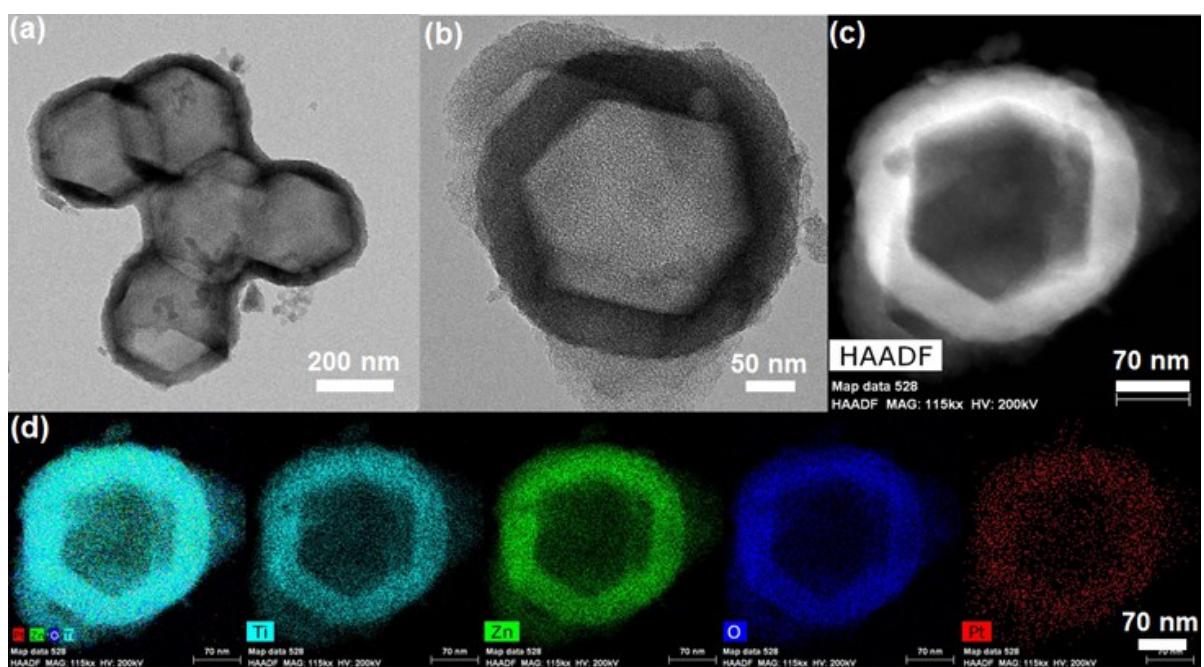


Figure S4. (a) (b)TEM, (c) HAADF and (d) STEM images and EDS mapping of PC-1.

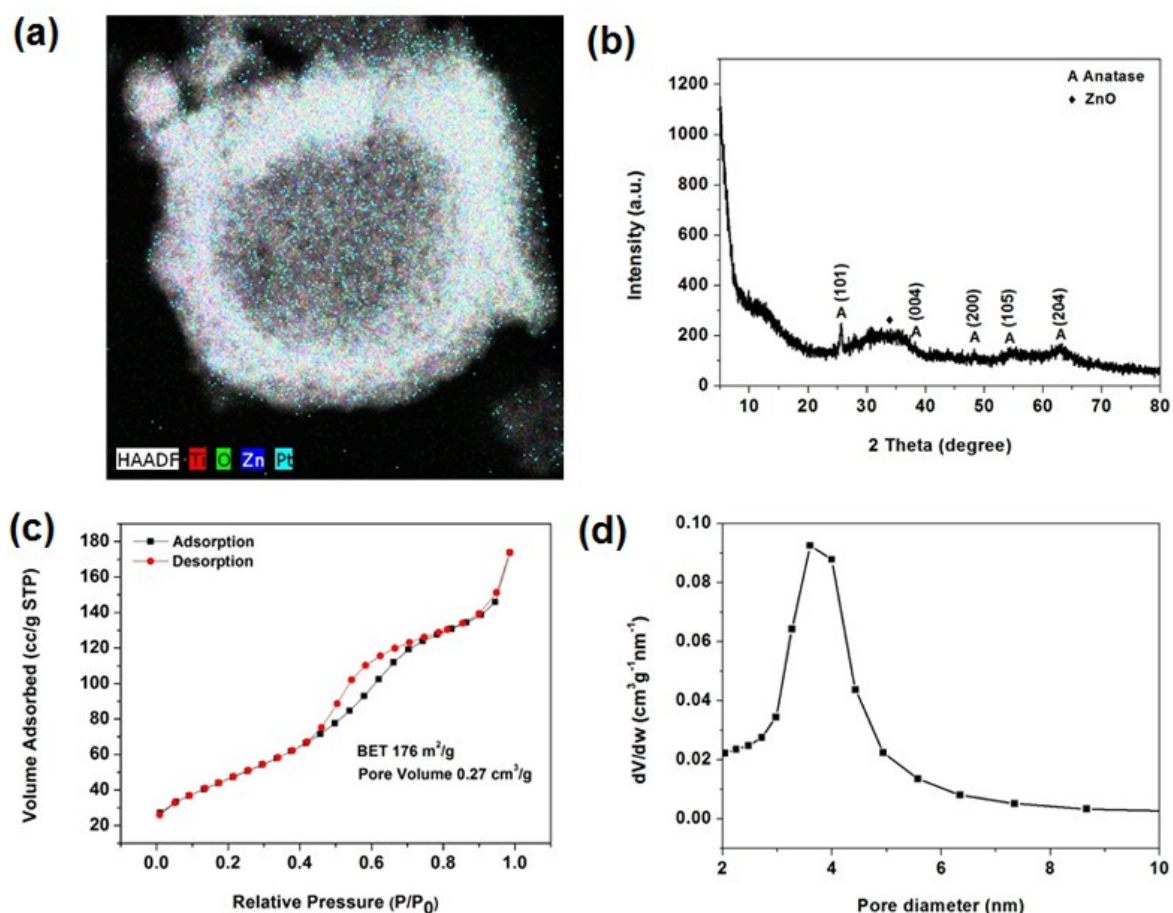


Figure S5. (a) STEM image, (b) XRD pattern, (c) N₂ adsorption–desorption isotherm and (d) pore size distribution of PHS-1

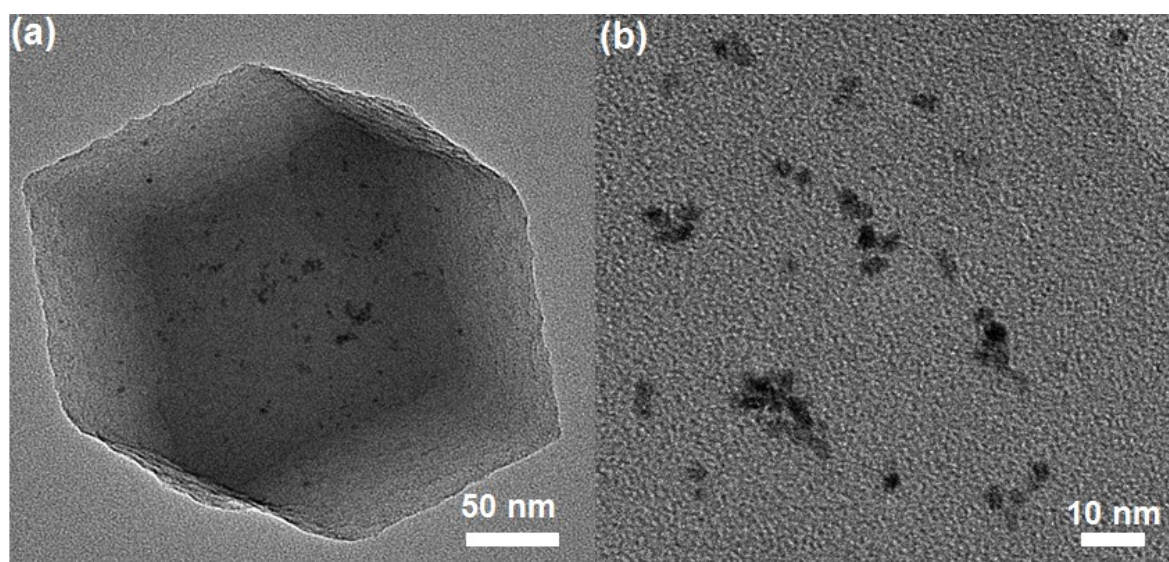


Figure S6. TEM image of PZ-2.

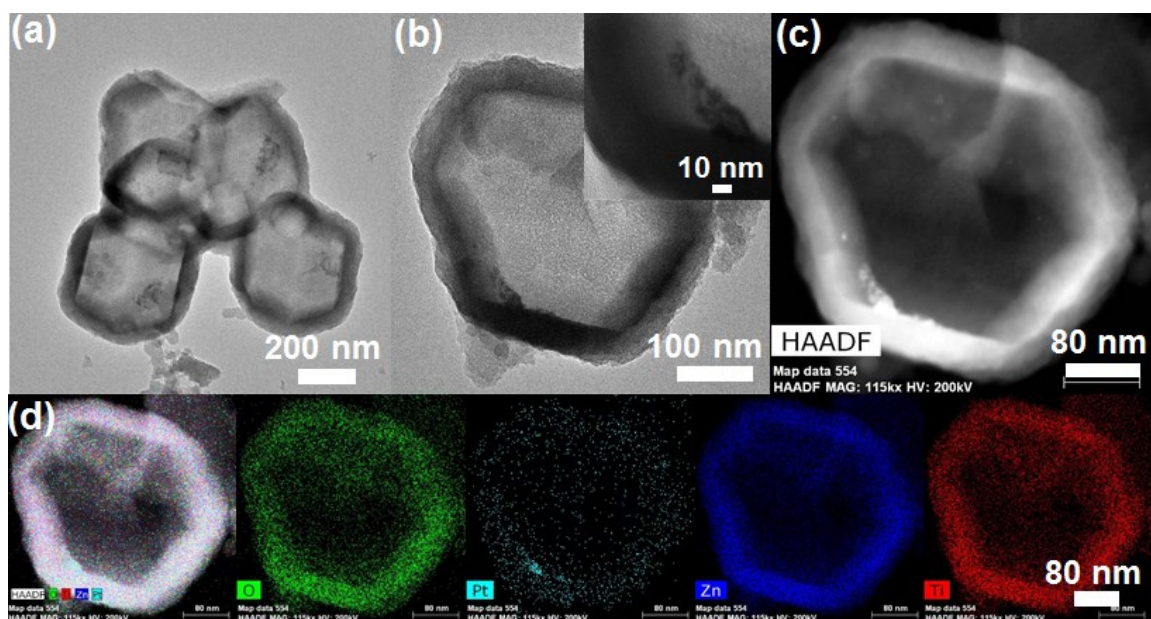


Figure S7. (a) (b)TEM, (c) HAADF and (d) STEM images and EDS mapping of PC-2.

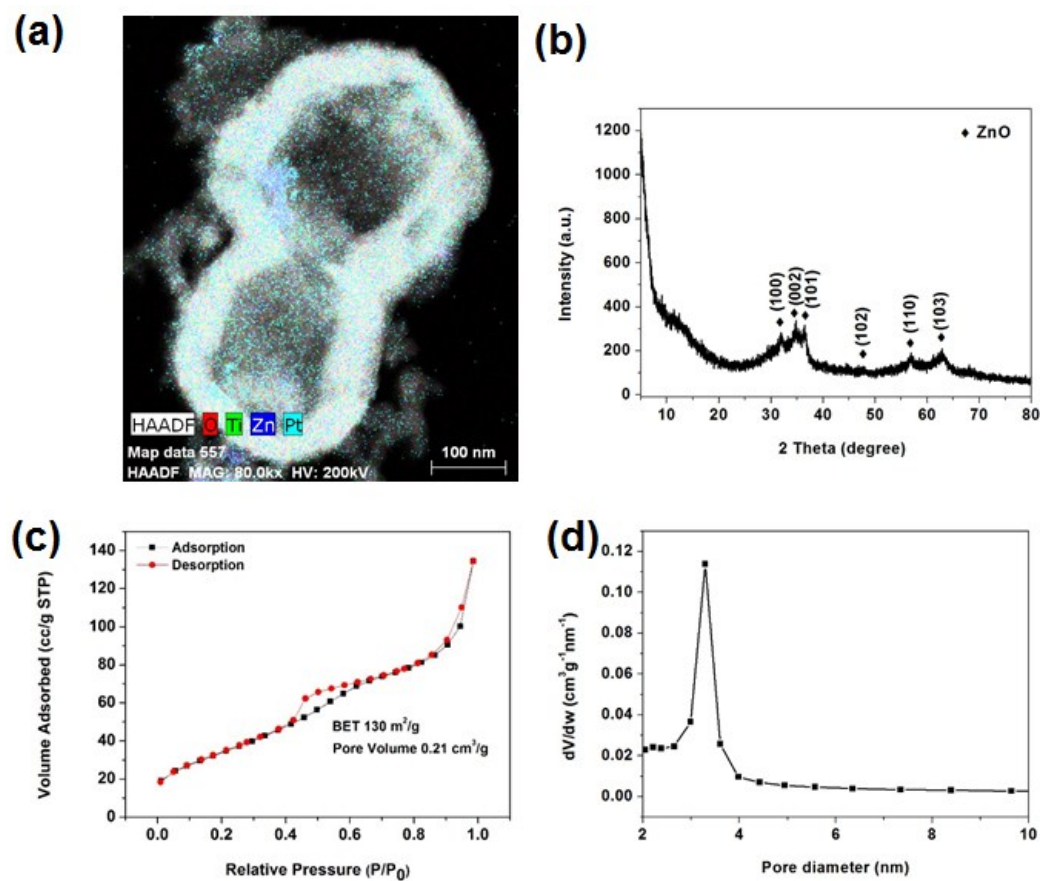


Figure S8. (a) STEM image, (b) XRD patterns, (c) N₂ adsorption–desorption isotherm and (d) pore size distribution of PHS-2

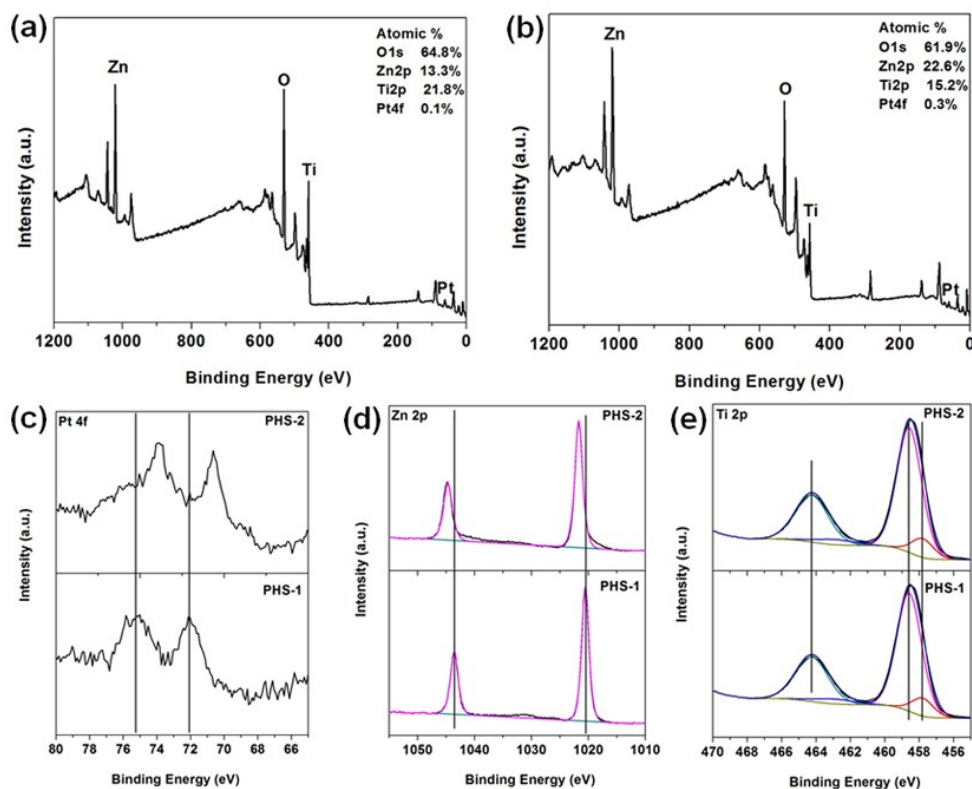


Figure S9. XPS survey spectra of PHS-1(a) and PHS-2 (b); their corresponding high-resolution Pt 4f (c), Zn 2p (d) and Ti 2p (e) peaks, respectively.

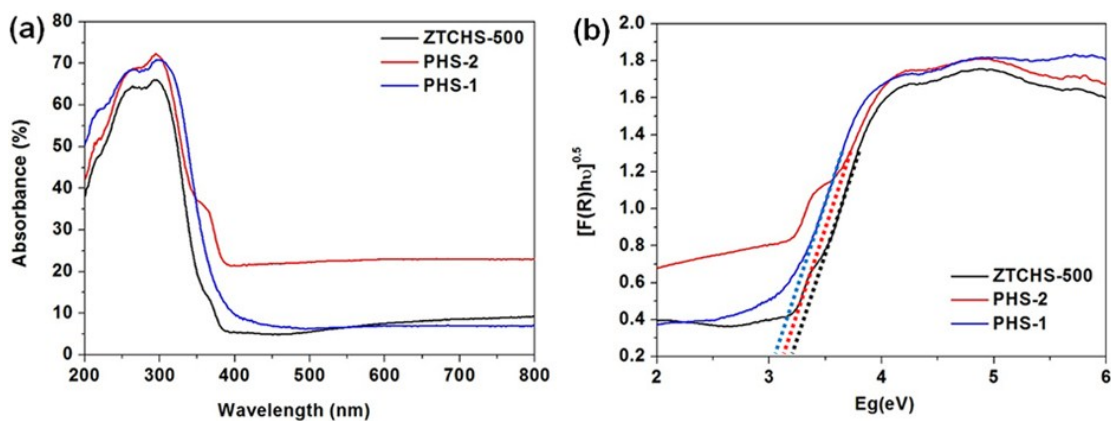


Figure S10. (a) UV-visible diffuse absorbance spectra and (b) plots of $[F(R)h\nu]^{0.5}$ vs. the energy of absorbed light of ZTCHS-500, PHS-1 and PHS-2.

Table S1. Physical properties of ZTCHS-500, PHS-1 and PHS-2.

Sample	BET surface area (m ² /g) ^a	Pore volume (cm ³ /g) ^b	Pore size (nm) ^a	Layer thickness(nm) ^c	Metal nanoparticle size (nm) ^c
ZTCHS-500	132	0.22	3.2	65	-
PHS-1	176	0.27	3.5	25	3
PHS-2	130	0.21	3.5	45	

^a Specific surface area was calculated by BET method and pore size was estimated on the basis of pore size distribution. ^b Specific pore volume was obtained from the single point adsorption at P/P₀~0.99. ^c Mean layer thickness and metal nanoparticle size were estimated by TEM analysis.

Table S2. Elemental composition of ZTCHS-500, PHS-1 and PHS-2.

Sample	Zn%	Ti%	Pt%	O%
PHS-1	26.82	46.13	0.96	26.09
PHS-2	42.90	37.80	0.82	18.48