

Supporting Information

Table S1. The ICP spectrometer analysis of metal element

Sample	Element/ Zinc (Zn) Content /wt%	Element /Zirconium (Zr) Content /wt%
PCN-222-Zn	32.22	4.73
PCN-223-Zn	38.67	10.29
PCN-224-Zn	41.05	19.77

Figure S1. HCOOH evolution amount vs illumination time on PCN-222-Zn, PCN-223-Zn, PCN-224-Zn.

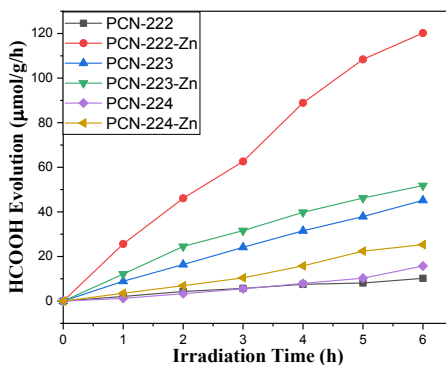


Table S2. The comparison of reported various photocatalytic systems for photoreduction of CO₂ with our work

Catalyst	Co-catalyst/sacrificial agent	Light source	Major products Rate µmol/g/h	Ref
PCN-222	-/ (MeCN/TEOA)=10 :1	Visible light 300W Xe lamp with a cut-off filter	COO ⁻ 75	<i>J. Am. Chem. Soc.</i> , 2015 , 137,13440
MOF-525-Co	-/(MeCN/TEOA)= 4:1, 2mg catalyst	Visible light 300W Xe lamp with a cut-off filter	CO/ 201.6 CH ₄ / 36.67	<i>Angew. Chem. Int. Ed.</i> , 2016 , 55, 14310

MOF-525	-(MeCN/TEOA)= 4:1, 2mg catalyst	Visible light 300W Xe lamp with a cut-off filter	CO/ 64.02 CH ₄ / 6.2	<i>Angew. Chem. Int. Ed</i> , 2016 , 55, 14310
UiO-66/C ₃ N ₄	-/H ₂ O	Visible light 300W Xe lamp with a cut-off filter	CO/ 9.79	<i>Adv.Funct. Mater</i> , 2015 , 51,3364
UiO-66(Zr/Zn)- NH ₂	-(MeCN/TEOA)= 4:1 and 0.1M BNAH	Visible light 300W Xe lamp with a cut-off filter	HCOO- 1.052	<i>Chem.Commun</i> , 2015 , 51, 5735
Zn/PMOF	H ₂ O vapor, 300mg	300W high- pressure Hg lamp	CH ₄ / 8.7	<i>J. CO₂ Util</i> , 2016 , 16,450
NNU-28	MeCN/TEOA (30:1) 50mg catalyst	Visible light 300W Xe lamp	HCOO-/ 52.8	<i>J.Mater. Chem. A</i> , 2016 , 4, 2657
Hollow anatase TiO ₂ with {101} facets	1 wt% RuO ₂ /H ₂ O	UV-vis light: 300W Xe lamp	CH ₄ / 0.0017	<i>ACS Catal</i> , 2012 ,2, 1854