Supplementary Information

Cerium and nitrogen doped CoP nanorod array for hydrogen evolution in all pH conditions

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Fig. S1 XRD pattern of V-Ni $_3S_2$ /CC after catalytic measurement.



Fig. S2 CV curves of (a) Ce, N-CoP/CC and (b) CoP/CC obtained in 1 M KOH at the varied scan rate from 20 mV s⁻¹ to 120 mV s⁻¹.

Table S1 HER activity comparison between the present Ce, N-CoP/CC and the recently reported pHuniversal non-noble-metal catalysts in different pH values. (η_{10} : Overpotentials at a current density of 10

mA cm ⁻² .)

Samples	$0.5 \text{ M H}_2\text{SO}_4$	1 M PBS	1 M KOH	Ref./Year
	$\eta_{10}(mV)$	$\eta_{10}(mV)$	$\eta_{10}(mV)$	
Ce, N-CoP/CC	66	72	41	This work
RuNC	61		81	[9]/2018
Co-Ni-B NPs		170	133	[23]/2016
RuP ₂ @NPC	38	57	52	[29]/2017
MoP/CNT	83	102	86	[35]/2018
Mn-Co-P/Ti	49	86	76	[42]/2017
CoSP/Ti	58	106	89	[43]/2018
V-CoP/CC	47	123	71	[44]/2018
NiCo ₂ P _x /CF	104	63	58	[45]/2017
N-Co ₂ P/CC	27	42	34	[48]/2019
V, N-CoP/CC	81	146	57	[49]/2019
S-MoP NPL	86	142	104	[51]/2019
MoSe ₂ /Rh	192	284	173	[70]/2019
MoSe ₂ /Pd	231	297	199	[70]/2019
$Co_9S_8/NC@MoS_2$	117	261	67	[71]/2017
P-W ₂ C@NC	89	185	63	[72]/2017
Mo-Ni ₂ P NWs/NF	67	84	78	[73]/2017
CoP ₃ CPs	69	168	116	[74]/2018
CoNiP	148	173	111	[75]/2018
CoNiP@NF	60	120	155	[76]/2016
Al-CoP/NF	51	83	66	[77]/2019