

Supporting Information for

Co-Fe-P Nanosheet Arrays as Highly Synergistic and Efficient Electrocatalyst for Oxygen Evolution Reaction

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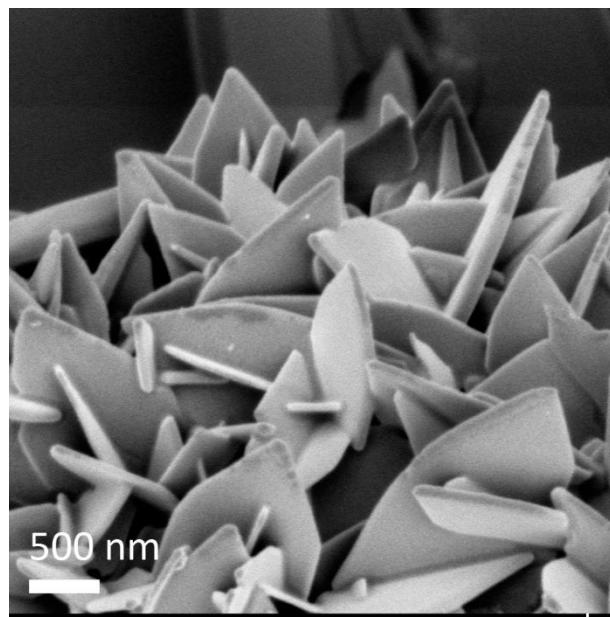


Figure S1. SEM image of Co-ZIF-L nanosheet arrays.

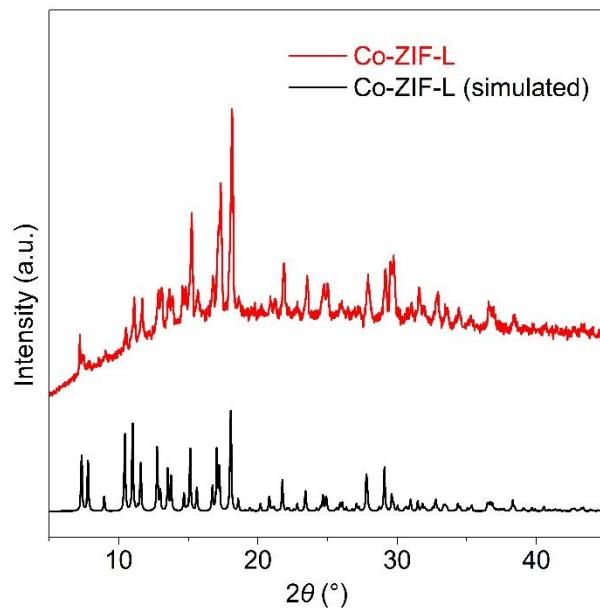


Figure S2. PXRD patterns of Co-ZIF-L nanosheet arrays.

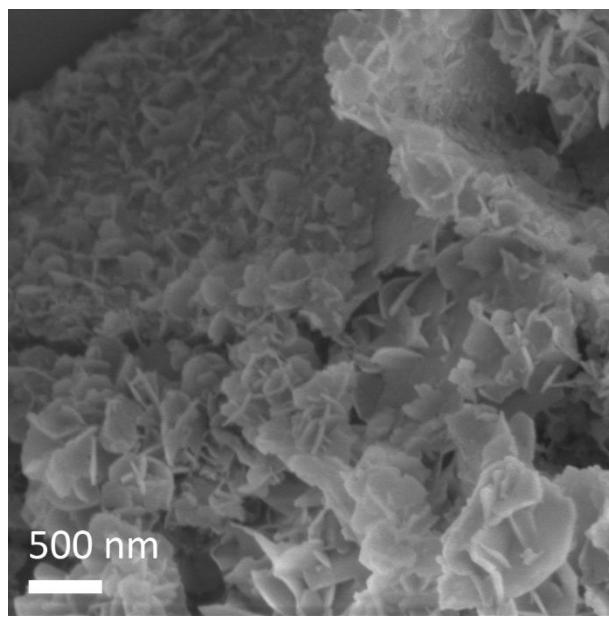


Figure S3. SEM image of Co-Fe-LDH nanosheet.



Figure S4. TEM image of Co-Fe-LDH nanosheet.

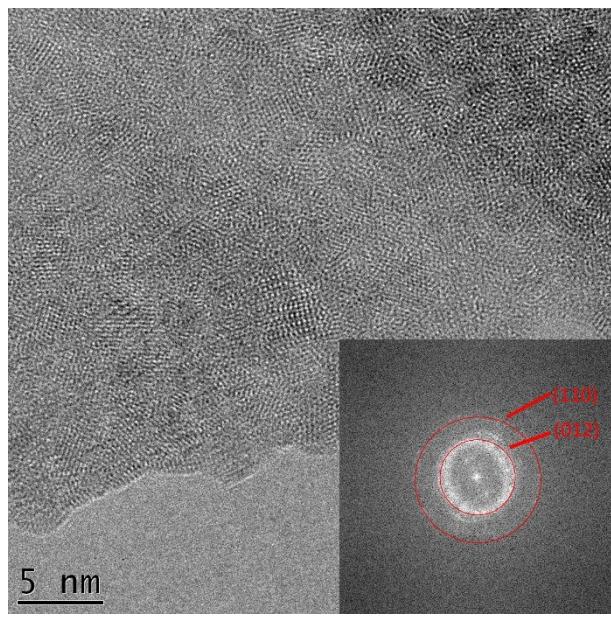


Figure S5. HRTEM image of Co-Fe-LDH nanosheet. Insert is the FFT (Fast Fourier Transform)

pattern.

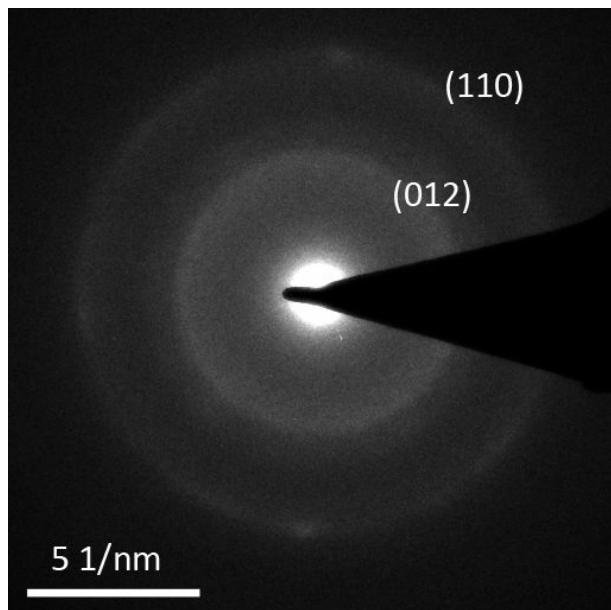


Figure S6. SAED pattern of Co-Fe-LDH nanosheet arrays.

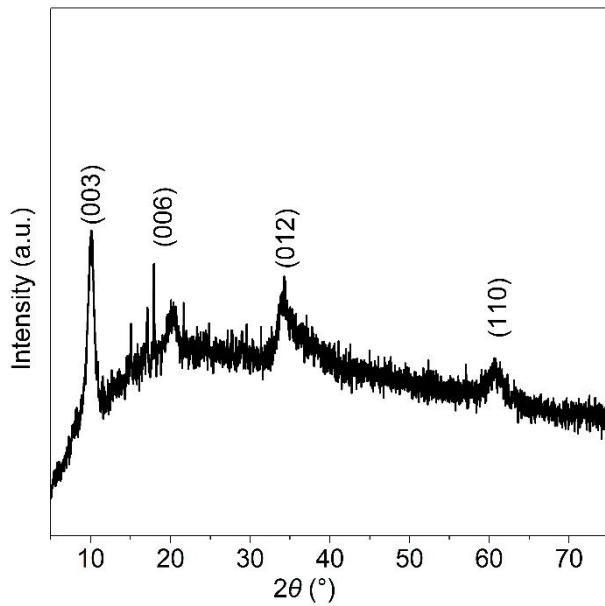


Figure S7. PXRD pattern of Co-Fe-LDH nanosheet arrays.

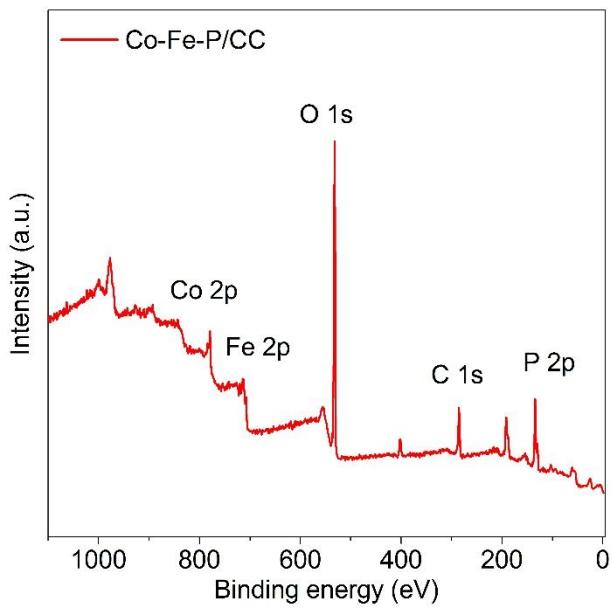


Figure S8. XPS spectrum of Co-Fe-P/CC nanosheet arrays.

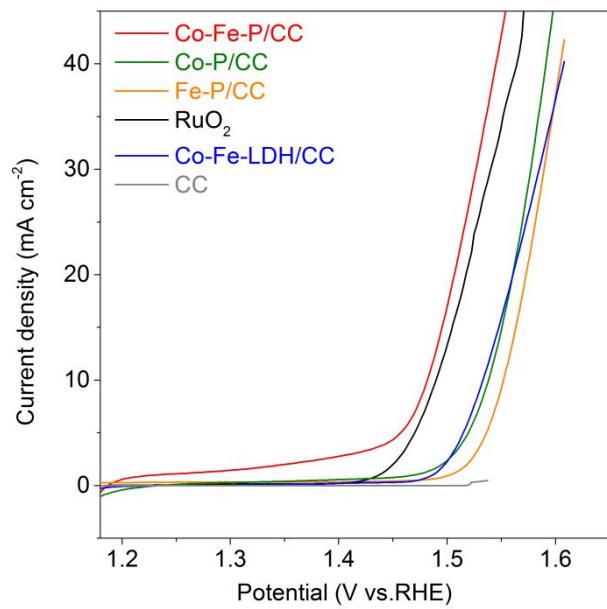


Figure S9. LSV curves of CC, Co-Fe-LDH/CC, Co-P/CC, Fe-P/CC, Co-Fe-P/CC and RuO₂

without *iR* compensation.

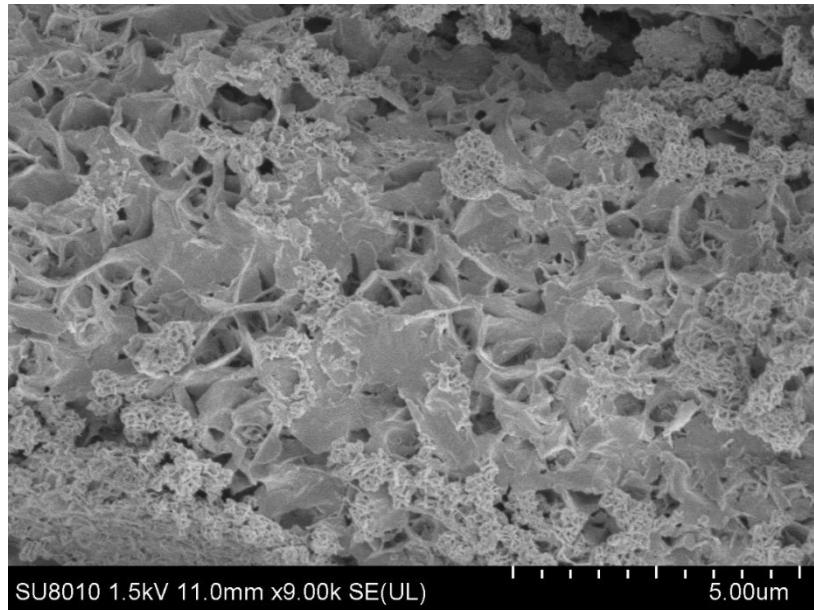


Figure S10. SEM image of Co-P/CC.

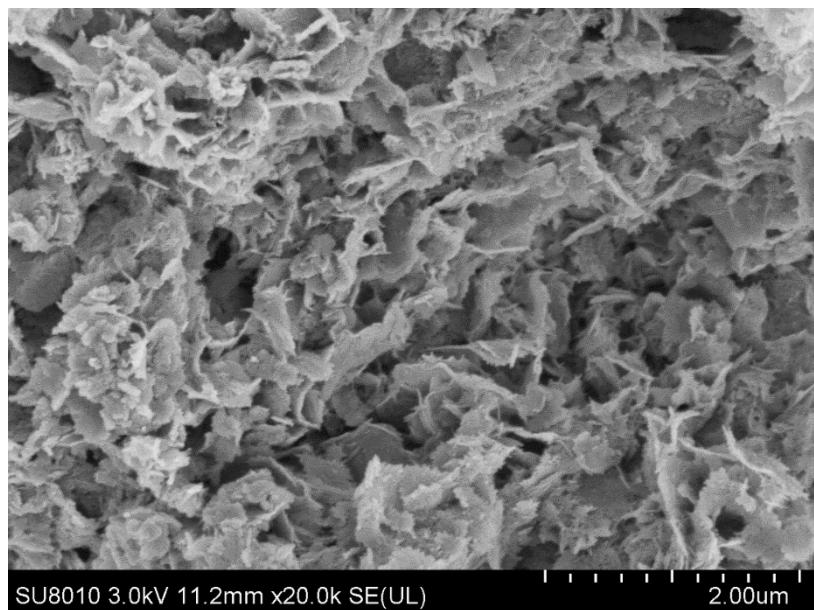


Figure S11. SEM image of Fe-P/CC.

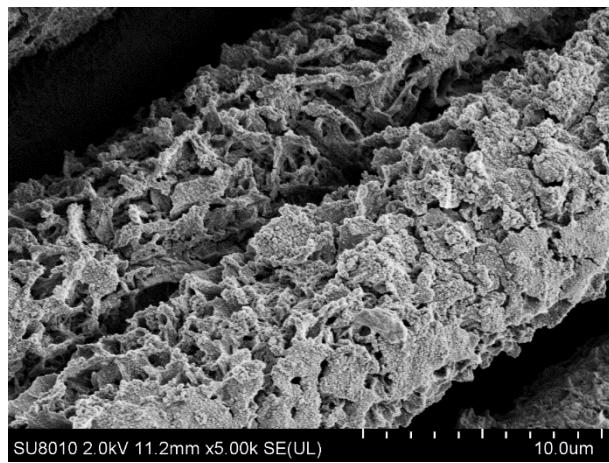


Figure S12. SEM image of Co-Fe-P/CC after OER.

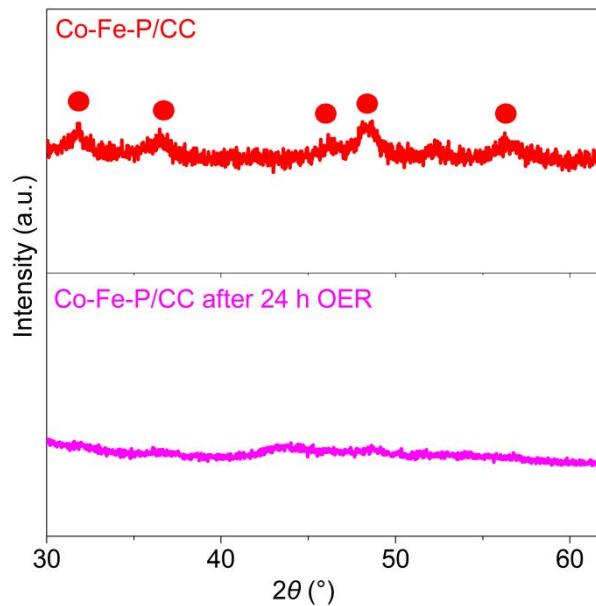


Figure S13. PXRD patterns of Co-Fe-P/CC before and after OER process for 24 h.

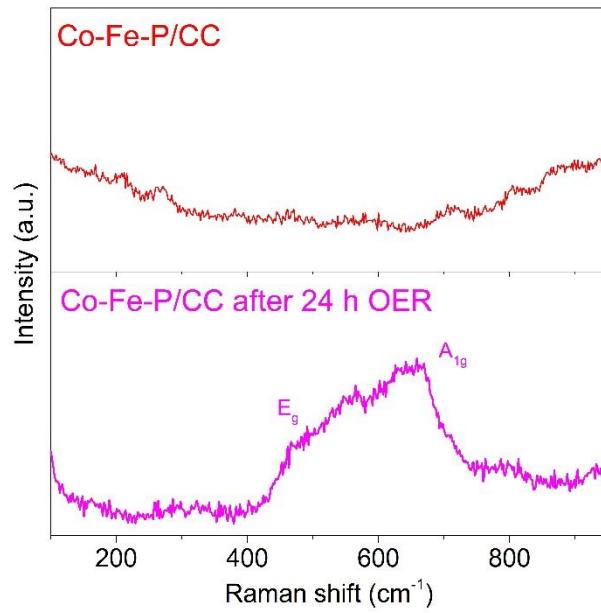


Figure S14. Raman spectra of Co-Fe-P/CC before and after OER process for 24 h.

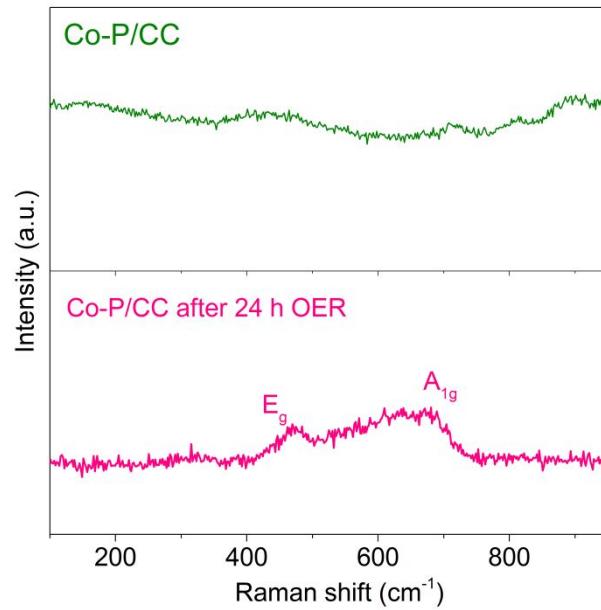


Figure S15. Raman spectra of Co-P/CC before and after OER process for 24 h.

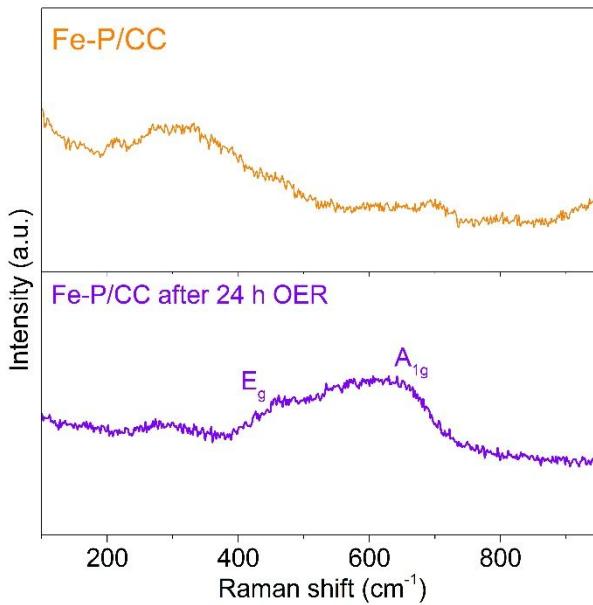


Figure S16. Raman spectra of Fe-P/CC before and after OER process for 24 h.

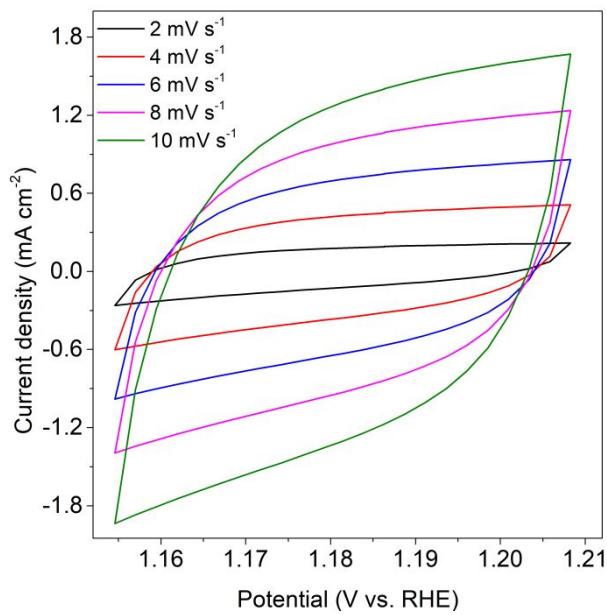


Figure S17. CV curves of Co-Fe-P/CC at different scan rates.

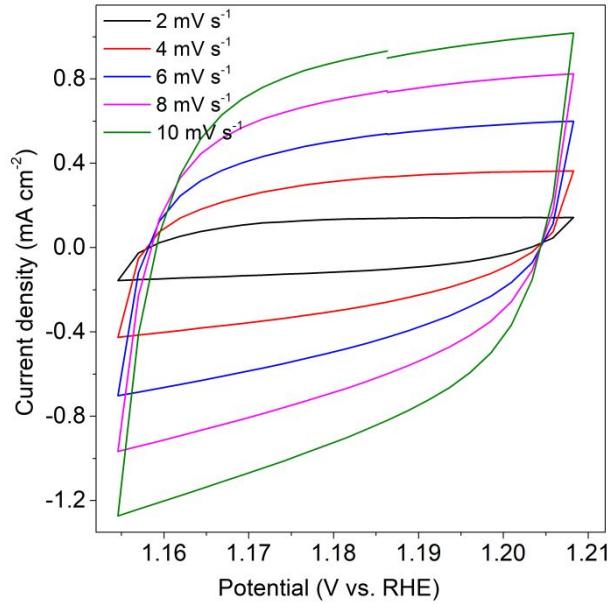


Figure S18. CV curves of Co-P/CC at different scan rates.

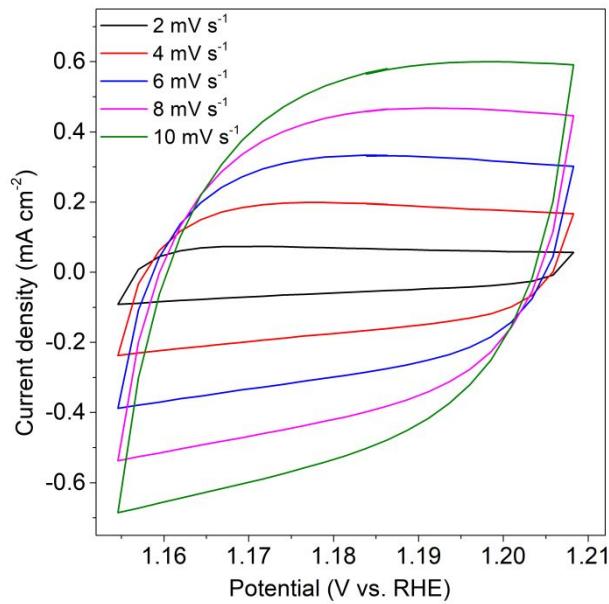


Figure S19. CV curves of Fe-P/CC at different scan rates.

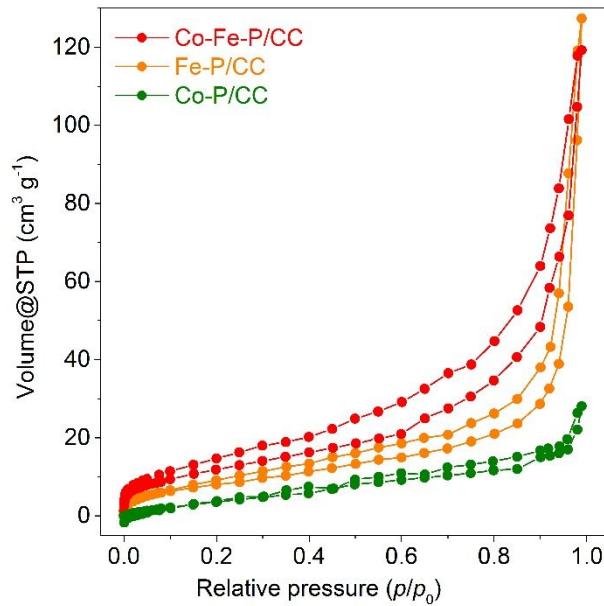


Figure S20. N₂ sorption isotherms of Co-Fe-P/CC, Fe-P/CC and Co-P/CC.

Table S1. Elemental composition of Co-Fe-LDH/CC based on EDX.

Element	C	O	Fe	Co
Content (at. %)	62.28	28.52	5.93	3.27

Table S2. Elemental composition of Co-Fe-P/CC based on ICP-AES.

Element	Fe	Co	P
Content (mg L ⁻¹)	1.98	1.50	1.91
Content (mmol L ⁻¹)	0.35	0.25	0.062

Table S3. Performance comparison between the recently developed, typical cobalt phosphide based electrocatalysts for OER in 1.0 M KOH.

Catalyst	Substrate	Overpotential (mV) ($j=10 \text{ mA cm}^{-2}$)	Tafel Slope (mV dec ⁻¹)
Hollow Co-Fe phosphide ^{S1}	NF	225	37.88
FeCoP ₂ @NPPC ^{S2}	GCE	236	83
CoFeP NS@Fe-CoP NW ^{S3}	NF	260	107
Co-Fe-P nanoboxes ^{S4}	CFP	269	31
CoFeP triangular plate arrays ^{S5}	NF	198	42
CoFeP hollow microspheres ^{S6}	GCE	350	59
CoFeP hollow cube ^{S7}	GCE	180	55
CoFeP NFs/NPCNT ^{S8}	GCE	278	39.5
Co _{0.17} Fe _{0.79} P/NC ^{S9}	GCE	299	44
FeCo-P/C Nanocomposites ^{S10}	RDE	362	50.1
CoP-FeP/CC ^{S11}	CC	250	131

Fe-Co-P hollow spheres ^{S12}	RDE	252	33
Fe-CoP triangle plate arrays ^{S13}	NF	230	43
Co _{0.7} Fe _{0.3} P/C ^{S14}	RDE	270	27
Fe-CoP ^{S15}	NF	190	36
3D porous Co-Fe-P foam ^{S16}	Cu foam	294	40
Co _{0.7} Fe _{0.3} P/CNT ^{S17}	CFP	243	36
FeCoP UNSAs ($j=20$ mA cm ⁻²) ^{S18}	NF	260	63
Co/Fe phosphides ^{S19}	NF	244	58
Co-Fe-P nanosheets arrays (This work)	CC	240	36

Supplementary References

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