Supporting Information

Efficient acidic H_2O_2 electrosynthesis over Co atoms anchored on nitrogen–doped hierarchical porous carbon

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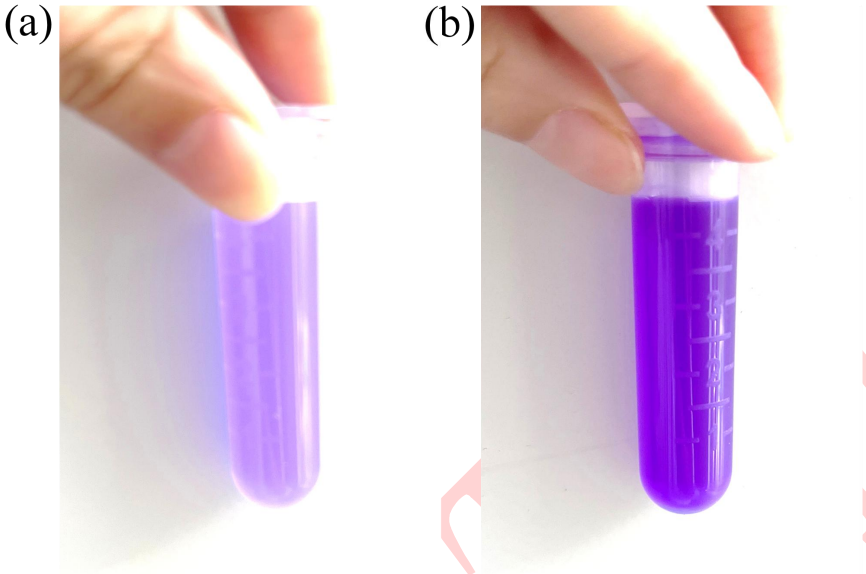

Fig. S1. Photos of (a) HP−ZIF−67 and (b) ZIF−67.

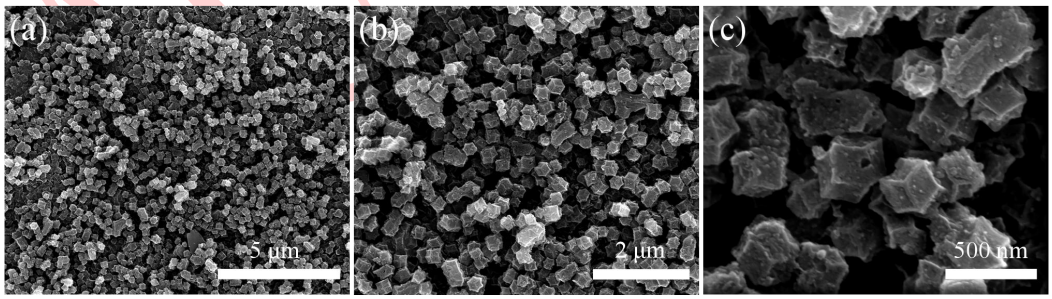

Fig. S2. (a−c) SEM images of Co−NC.

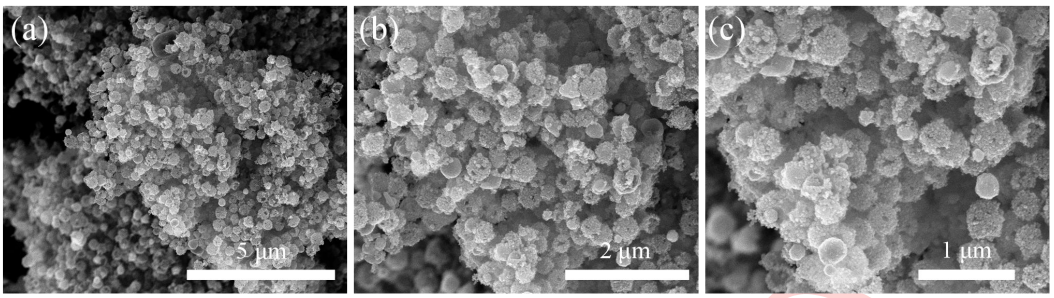

Fig. S3. (a−c) SEM images of Co−N/HPC.

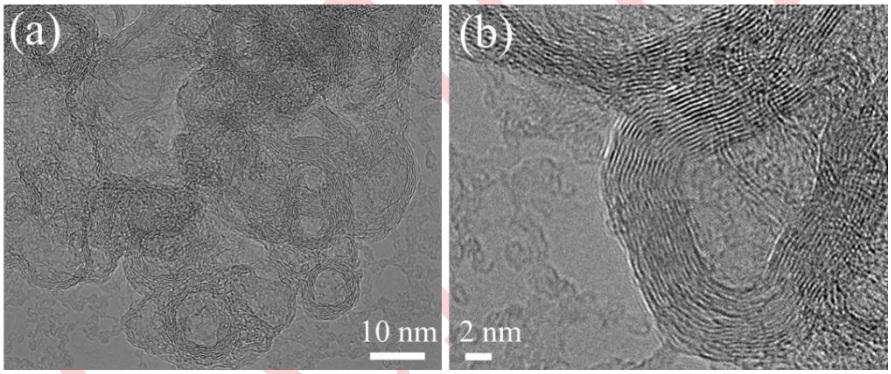

Fig. S4. (a, b) HR-TEM images of Co−N/HPC.

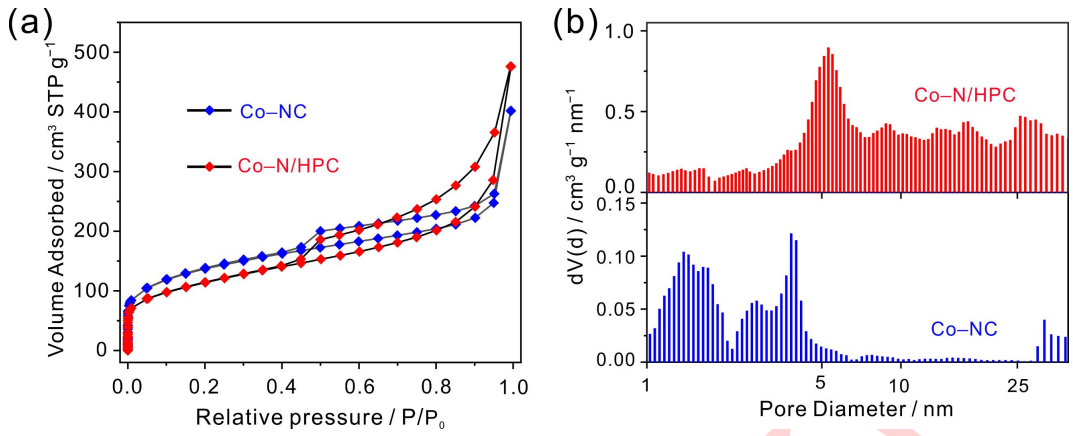

Fig. S5. (a) N_2-adsorption/desorption isotherms and (b) histograms of Co−NC and Co−N/HPC.

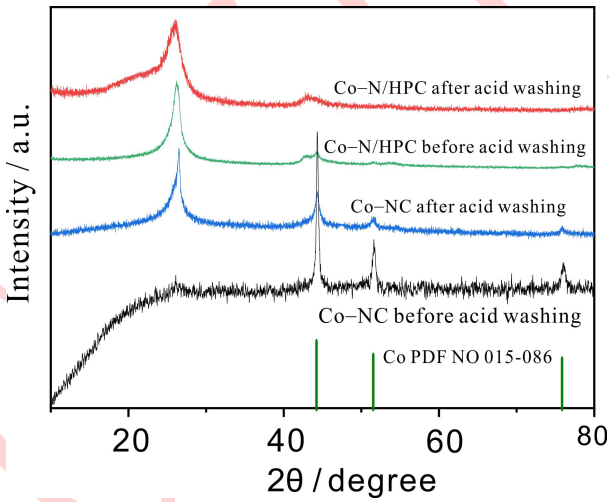

Fig. S6. XRD patterns comparison of Co−NC and Co−N/HPC before and after acid washing.

Table S1. Element composition and content of Co−NC and Co−N/HPC.

Catalyst	C (at. %)	N (at. %)	Co (at. %)	O (at. %)
Co−NC	78.65	2.56	0.12	18.67
Co−NC/HPC	94.66	2.60	0.28	2.46

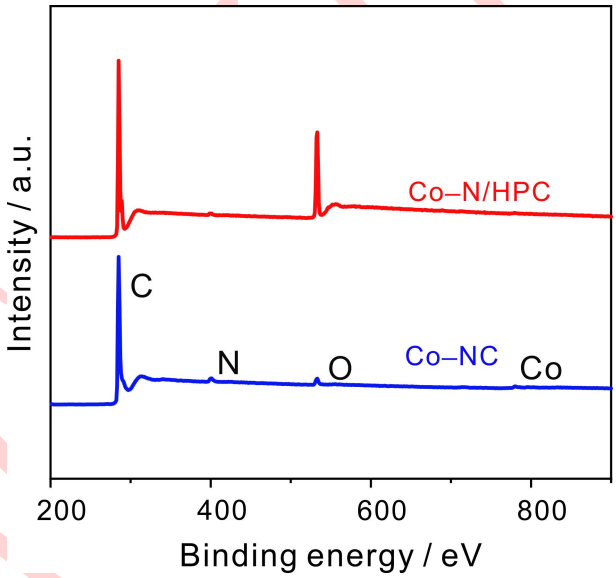

Fig. S7. XPS full spectra of Co−NC and Co−N/HPC.

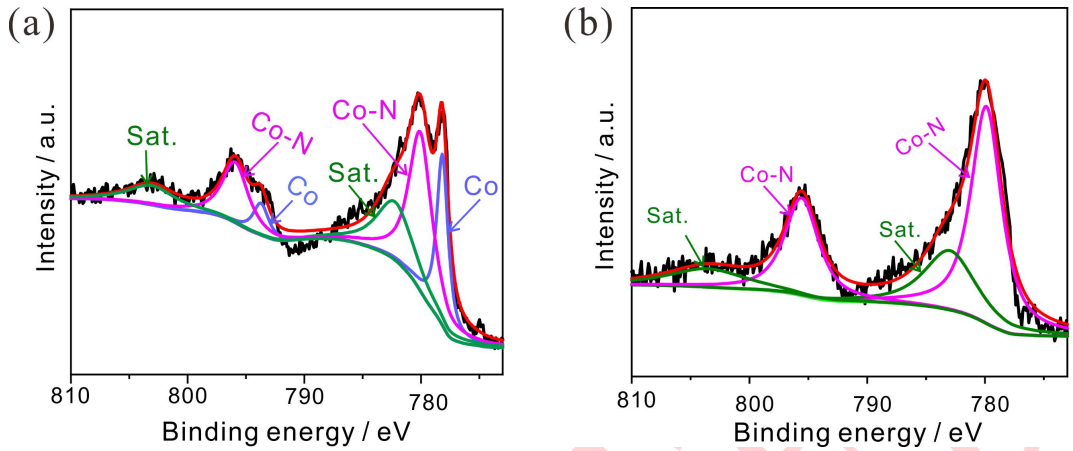

Fig. S8. Co spectra of (a) Co−NC and (b) Co−N/HPC.

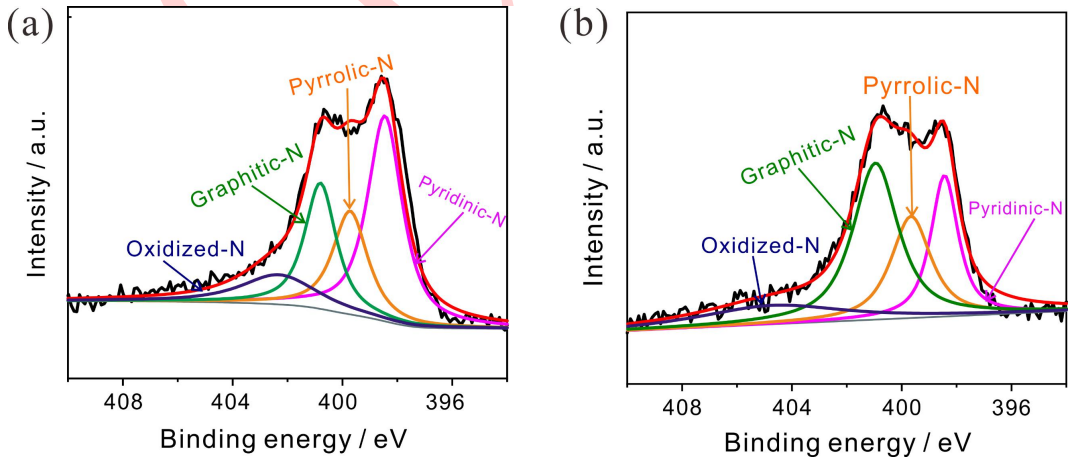

Fig. S9. N spectra of (a) Co−NC and (b) Co−N/HPC.

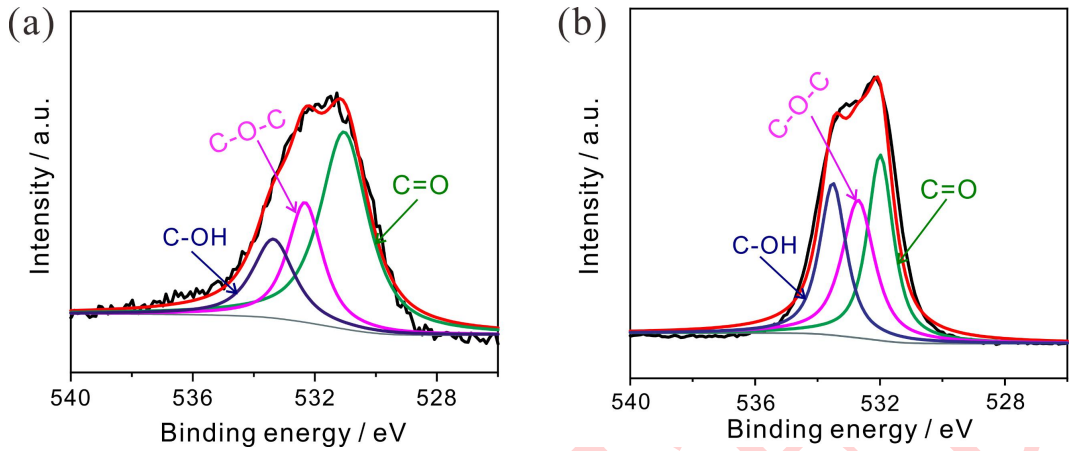

Fig. S10. O spectra of (a) Co−NC and (b) Co−N/HPC.

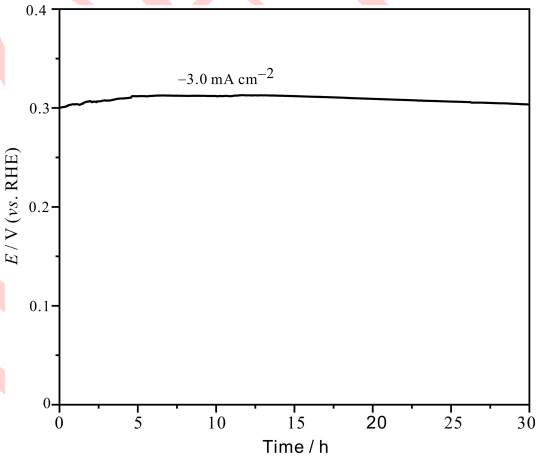

Fig. S11. Chronopotentiometric curve at a current density of -3.0 mA cm^{-2}.

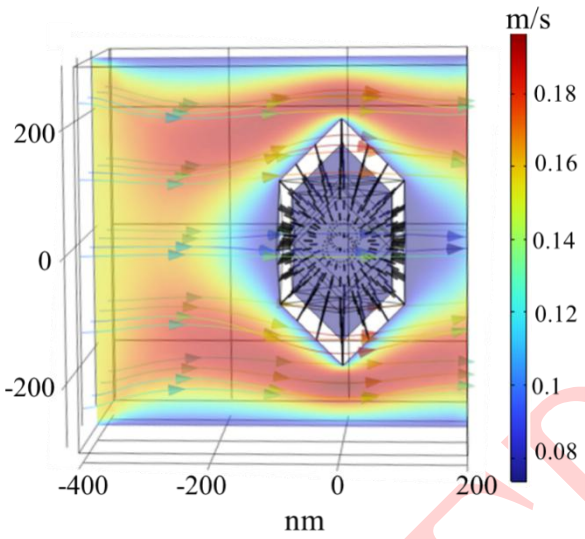

Fig. S12. The simulated velocity field of the cross section for Co−NC.

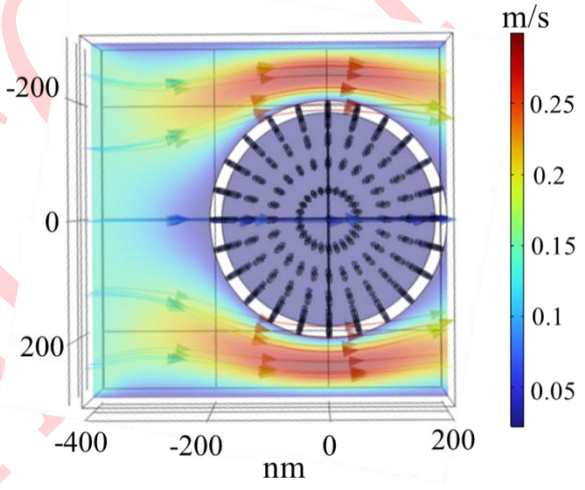

Fig. S13. The simulated velocity field of the cross section for Co−N/HPC.

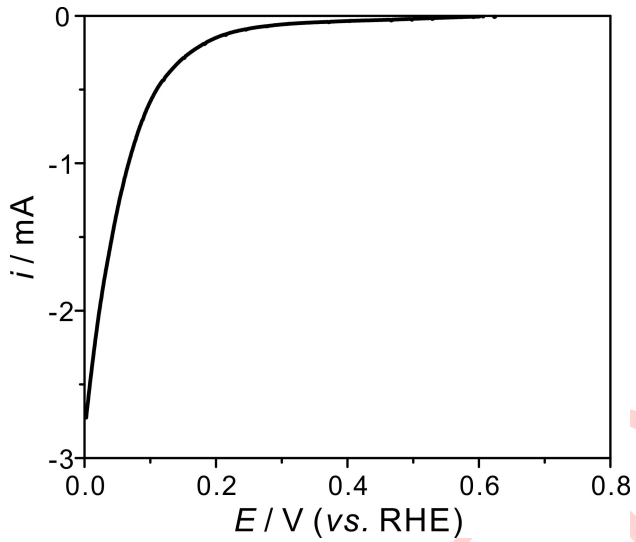

Fig. S14. LSV curves of carbon paper in flow cell.

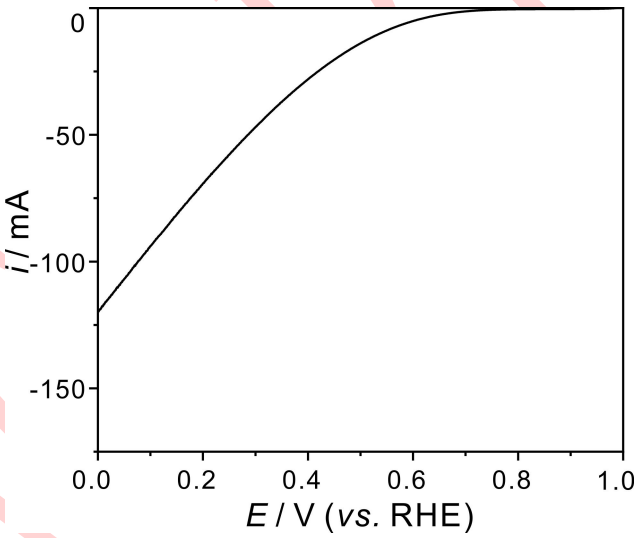

Fig. S15. LSV curves of Co−N/HPC in flow cell.

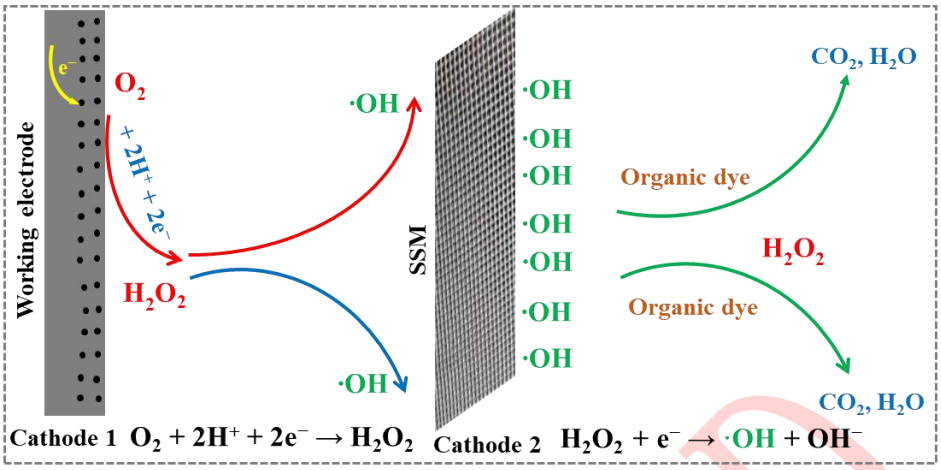

Fig. S16. Schematic of the dual-cathode technology for organic dye degradation.

Catalyst	Electrolyte	E (*vs.* RHE)	H_2O_2 production (mg L^{-1} h^{-1})	Ref.
Co−N/HPC	0.5 M H_2SO_4	0.0 V	2, 250	**This work**
Co_1-N-O	0.5 M H_2SO_4	0.4 V	1240	Ref.25
NiSA-NC	1.0 M Na_2SO_4	0.1 V	50.5	Ref.28
CoNOC	0.1 M $HClO_4$	0.1 V	345	Ref.46
Co_1–NG(O)	0.1 M KOH	0.65 V	242	Ref.49
Co–POC–O	0.1 M KOH	0.4 V	813	Ref.50
CoSA/CC	0.5 M H_2SO_4	0.1 V	460	Ref.51
$CoSe_2$@NCNTs/CP	0.1 M $HClO_4$	0.1 V	172	Ref.52
CoN@CNTs	0.1 M $HClO_4$	0.3 V	633	Ref.53

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