

Supporting Information

Iron phosphide nanocrystals in situ decorated on heteroatom-doped mesoporous carbon nanosheets for efficient oxygen reduction reaction in both alkaline and acidic media

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Table S1. BET surface areas and total pore volumes of FeP@PNC obtained at different carbonization temperatures

Samples	T(°C) ^a	S _{BET} (m ² g ⁻¹) ^b	V _{total} (cm ³ g ⁻¹) ^c
FeP@PNC-800	800	152	0.70
FeP@PNC-900	900	724	1.62
FeP@PNC-1000	1000	571	1.09

^a Carbonization temperature.

^b BET specific surface areas obtained from N₂ adsorption isotherm in the range of P/P₀ = 0.05-0.3.

^c Total pore volume was obtained at P/P₀ of 0.98.

Table S2. XPS data for the surface species of FeP@PNC-T materials obtained at the different temperatures

Samples	C (at. %)	N (at. %)	P (at. %)	Fe (at. %)	O (at. %)
FeP@PNC-800	32.41	29.04	16.41	4.58	17.56
FeP@PNC-900	81.37	4.21	3.59	1.24	9.59
FeP@PNC-1000	89.22	3.10	1.43	0.49	5.76
FeP@PNC-900-BL	81.53	4.10	1.59	0.78	12.0

Table S3. XPS data for the surface species of FeP@PNC-T materials obtained at the different temperatures and their content of carbon and nitrogen species

Sample	C1 (%)	C2 (%)	C3 (%)	C4 (%)	pyridinic-N (%)	graphitic-N (%)	oxidized-N (%)
FeP@PNC-800	47.09	42.02	10.89	-	52.62	40.73	6.65
FeP@PNC-900	58.28	33.59	5.56	2.57	46.0	46.52	7.48
FeP@PNC-1000	67.14	22.44	7.70	2.72	41.36	49.12	9.52
FeP@PNC-900-BL	61.71	20.03	5.50	4.76	41.33	49.60	9.07

Table S4. The data of catalytic activity for FeP@PNC-T in 0.1 M KOH solution

Samples	Onset-potential V (vs. Ag/AgCl)	Half-wave potential	J^a (mA cm ⁻²)
FeP@PNC-800	-0.110	-0.473	0.017
FeP@PNC-900	-0.054	-0.138	2.813
FeP@PNC-1000	0.062	-0.191	1.926
FeP@PNC-900-BL	0.013	-0.188	1.819
Pt/C	0.067	-0.155	2.375

^a The diffusion (J) limiting current density at -0.15 V determined at the polarization curve at 1600rpm in 0.1 M KOH solution

Table S5. The data of catalytic activity for FeP@PNC-T in 0.5 M H₂SO₄ solution

Samples	Onset-potential V (vs. Ag/AgCl)	Half-wave potential	J^a (mA cm ⁻²)
FeP@PNC-800	0.366	-0.067	0.510
FeP@PNC-900	0.576	0.487	4.310
FeP@PNC-1000	0.557	0.456	3.662
FeP@PNC-900-BL	0.520	0.361	2.623
Pt/C	0.634	0.547	4.247

^a The diffusion (J) limiting current density at 0.35 V determined at the polarization curve at

1600rpm in 0.5 M H₂SO₄ solution

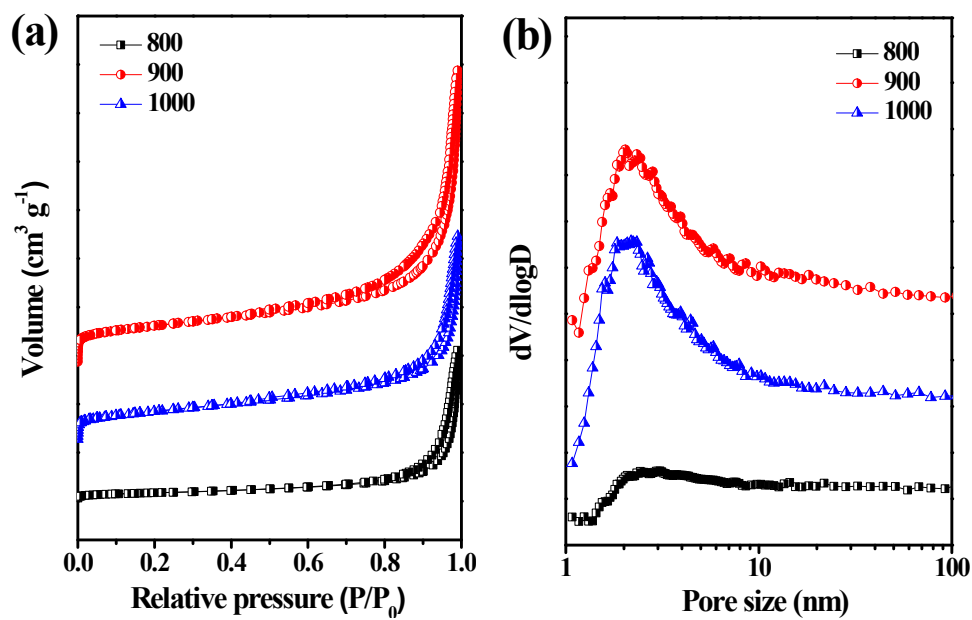


Fig. S1 (a) Nitrogen adsorption-desorption isotherms of FeP@PNC samples prepared at different carbonization temperature of 800, 900 and 1000°C, respectively; (b) the corresponding pore size distribution curves.

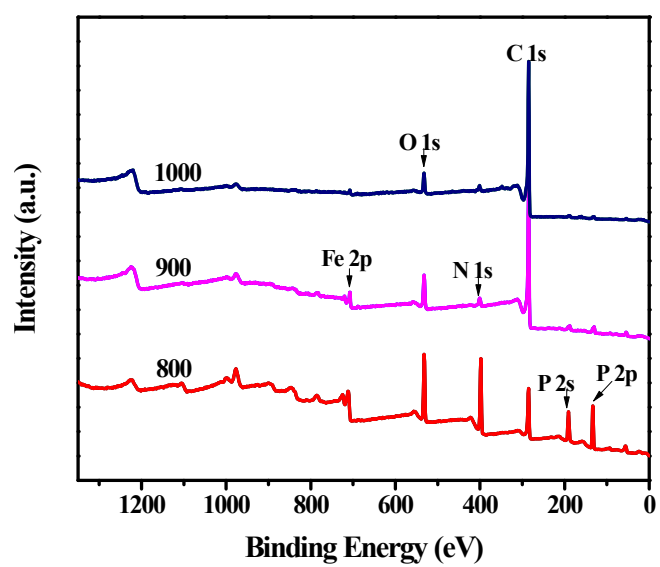


Fig. S2 Wide XPS survey of the FeP@PNC samples prepared at different carbonization temperature of 800, 900 and 1000°C, respectively.

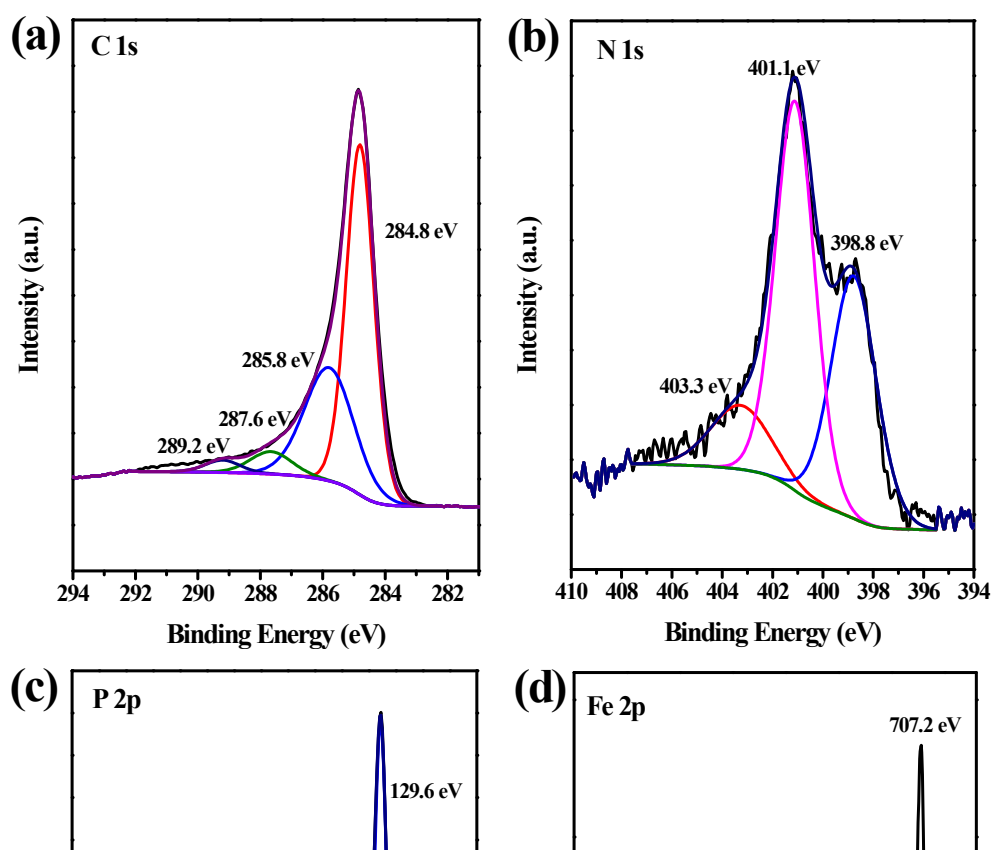


Fig. S3 High-resolution (a) C1s, (b) N1s, (c) P 2p and (d) Fe 2p spectra of the FeP@PNC-900.

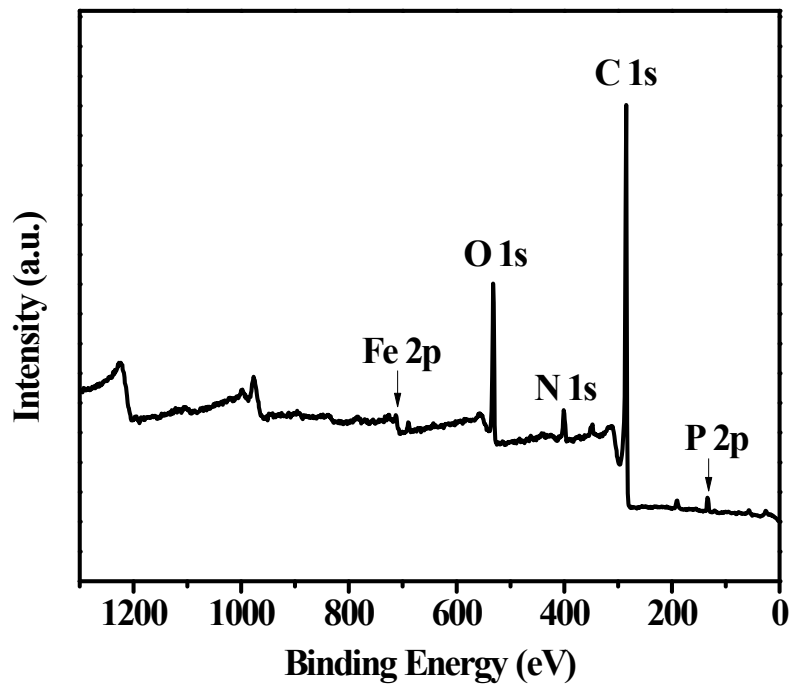


Fig. S4 Wide XPS survey of the FeP@PNC-900-BL samples.

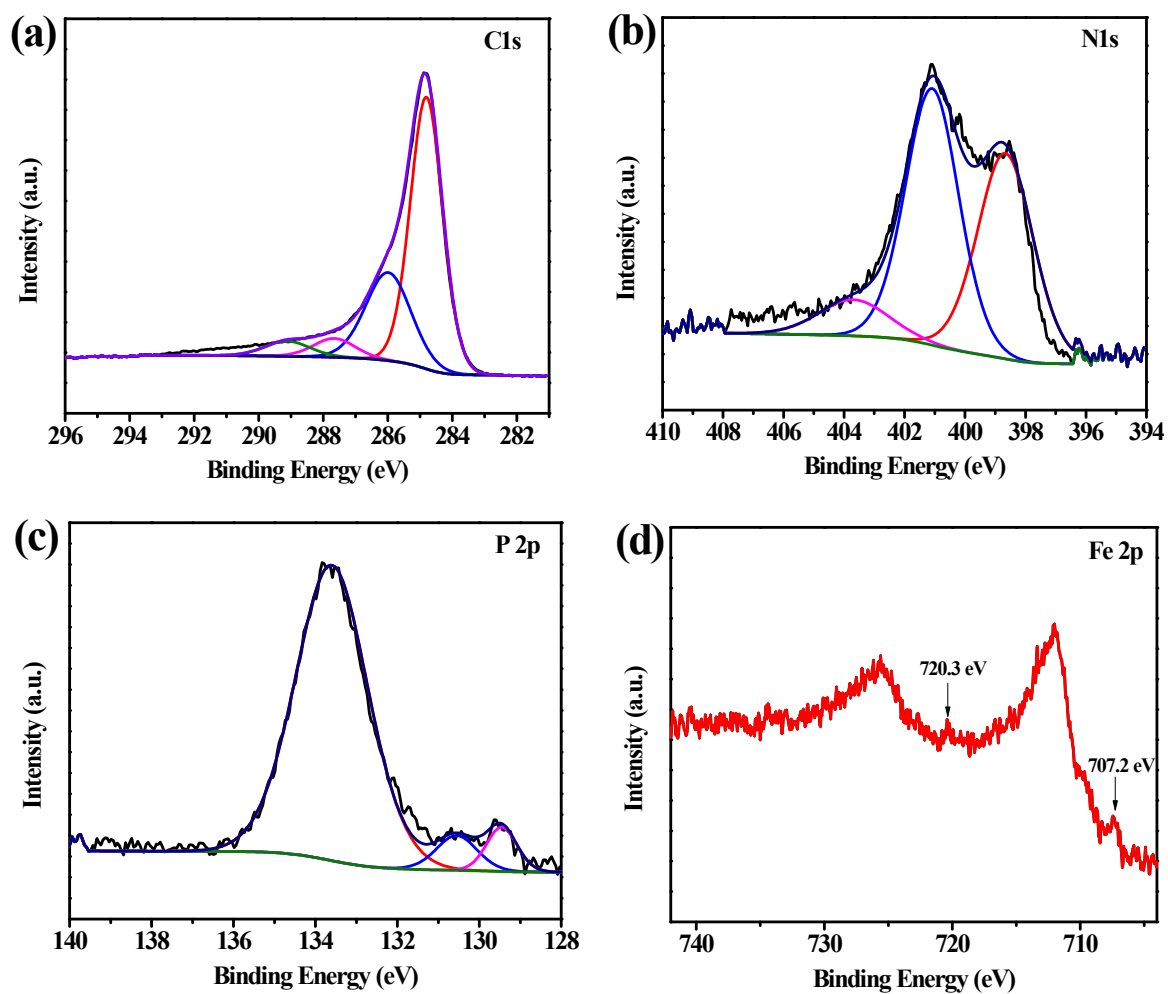


Fig. S5 High-resolution (a) C1s, (b) N1s, (c) P 2p and (d) Fe 2p spectra of the FeP@PNC-900-BL.

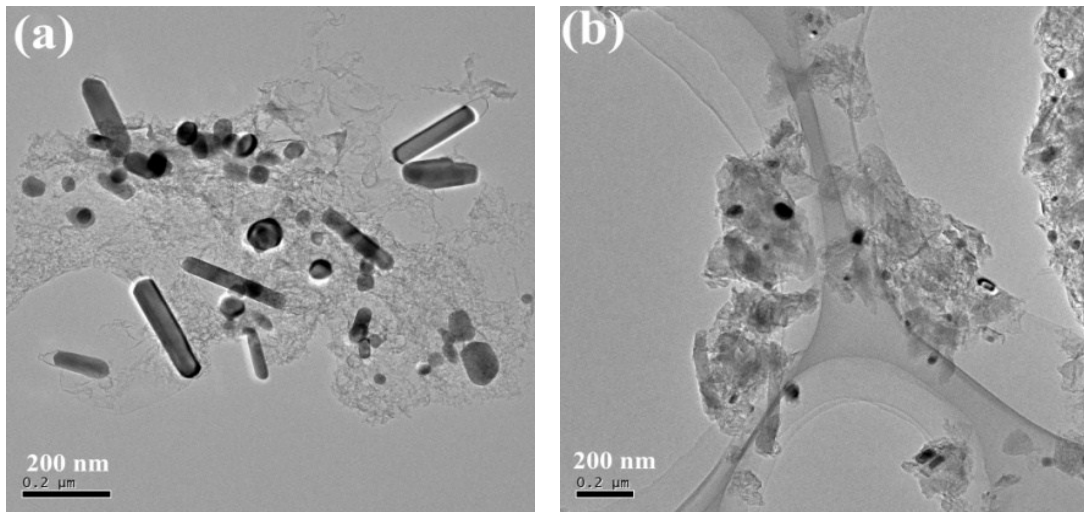


Fig. S6 TEM images of (a)FeP@PNC-900 and (b) FeP@PNC-900-BL