Nitrogen-doped graphene guided formation of monodisperse microspheres of LiFePO₄ nanoplates as the positive electrode material of lithium-ion batteries

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Fig. S1 TGA curves of LFP, LFP/G and LFP/NG.



Fig. S2 Pore-size distributions of (a) LFP, (b) LFP/G and (c) LFP/NG.

	C functional groups / (BE.eV)					N functional groups / (BE.eV)			
C_1	C ₂	C ₃	C_4	C ₅	-		N ₁	N_2	N_3
284.6	285.9	286.5	287.9	289		3	98.3	399.4	401.1
71.24	-	24.25	0.59	3.92	-		-	-	-
72.56	-	11.97	13.71	1.77			-	-	-
66.34	12.38	10.27	4.53	6.47		2	7.26	36.12	36.62
O functional groups / (BE.eV)						Fe species / (BE.eV)			
O_1	O ₂	C) ₃	O_4		Fe_1	Fe ₂	Fe ₃	Fe_4
530.9	531.5	53	2.6	533.8		709.9	713.5	723	727
56.89	32.96	5 7.	49	2.66	-	60.13	10.41	24.11	5.35
65.27	21.1	7.	58	6.05		48.06	20.44	22.05	9.44
82.48	14.79) ()	2.73		52.19	18.19	23.15	6.46
	284.6 71.24 72.56 66.34 O1 530.9 56.89 65.27 82.48	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	284.6 285.9 286.5 71.24 - 24.25 72.56 - 11.97 66.34 12.38 10.27 O functional groups O_1 O_2 O_2 530.9 531.5 533.5 56.89 32.96 7.2537 65.27 21.1 7.2537 82.48 14.79 0.6757	284.6 285.9 286.5 287.9 71.24 - 24.25 0.59 72.56 - 11.97 13.71 66.34 12.38 10.27 4.53 O functional groups / (BE.e O_1 O_2 O_3 530.9 531.5 532.6 56.89 32.96 7.49 65.27 21.1 7.58 82.48 14.79 0	284.6 285.9 286.5 287.9 289 71.24 - 24.25 0.59 3.92 72.56 - 11.97 13.71 1.77 66.34 12.38 10.27 4.53 6.47 O functional groups / (BE.eV) O_1 O_2 O_3 O_4 530.9 531.5 532.6 533.8 56.89 32.96 7.49 2.66 65.27 21.1 7.58 6.05 82.48 14.79 0 2.73	284.6 285.9 286.5 287.9 289 71.24 - 24.25 0.59 3.92 72.56 - 11.97 13.71 1.77 66.34 12.38 10.27 4.53 6.47 O functional groups / (BE.eV) O_1 O_2 O_3 O_4 530.9 531.5 532.6 533.8 56.89 32.96 7.49 2.66 65.27 21.1 7.58 6.05 82.48 14.79 0 2.73	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

Table S1 Summary of the fitting results of LFP, LFP/G and LFP/NG from XPS.

Notes. C₁: C-C; C₂: C-N; C₃: C-O; C₄: C=O; C₅: O-C=O. O₁: O-P; O₂: O-C; O₃: C=O; O₄: O-C=O. N₁: Pyridinic N; N₂: Amino N; N₃: Graphitic N; Fe₁: Fe $2p_{3/2}$; Fe₂: Fe $2p_{3/2}$ satellite peak; Fe₃: Fe $2p_{1/2}$; Fe₄: Fe $2p_{1/2}$ satellite peak.

Table S2 Summary of the EIS fitted parameters, Li⁺ diffusion coefficient and

 Warburg factor of the samples.

Samples	Fitted parameters								
	$R_u / (\Omega)$	$\mathbf{R}_{1}/(\mathbf{\Omega})$	$R_2/(\Omega)$	σ / (Ω s ^{-1/2})	D / (cm ² s ⁻¹)				
LFP	9.8	112.3	458.2	62.4	6.25×10 ⁻¹⁴				
LFP/G	7.9	42.8	239.5	25.5	3.75×10 ⁻¹³				
LFP/NG	6.6	6.7	91.2	24.8	3.99×10 ⁻¹³				