Journal Name

Supporting information

Self-assembled 3D flower-like Fe_3O_4/C architecture with superior lithium ion storage performance

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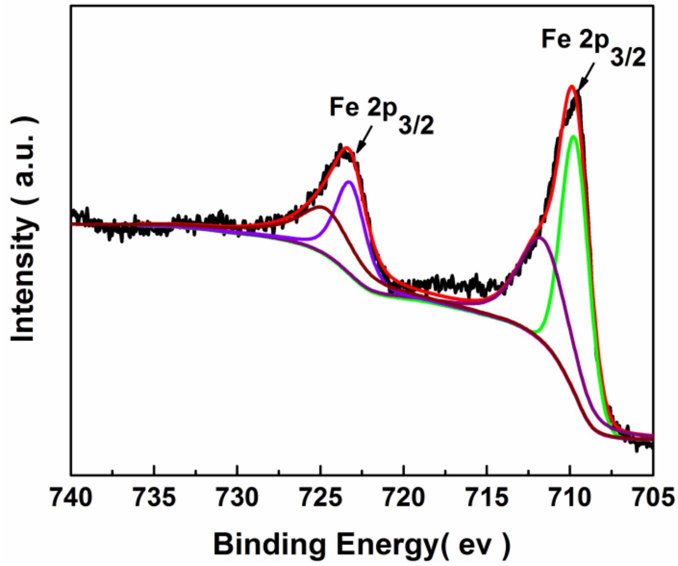

Fig. S1 Fe 2p XPS spectrum of flower-like Fe_3O_4/C precursor.

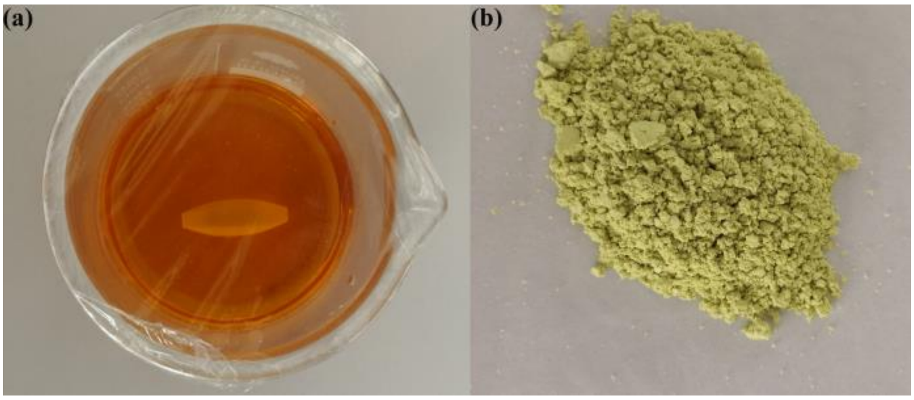

Fig. S2 Photograph of (a) Fe_3O_4/C precursor reaction solution and (b) flower-like Fe_3O_4/C precursor.

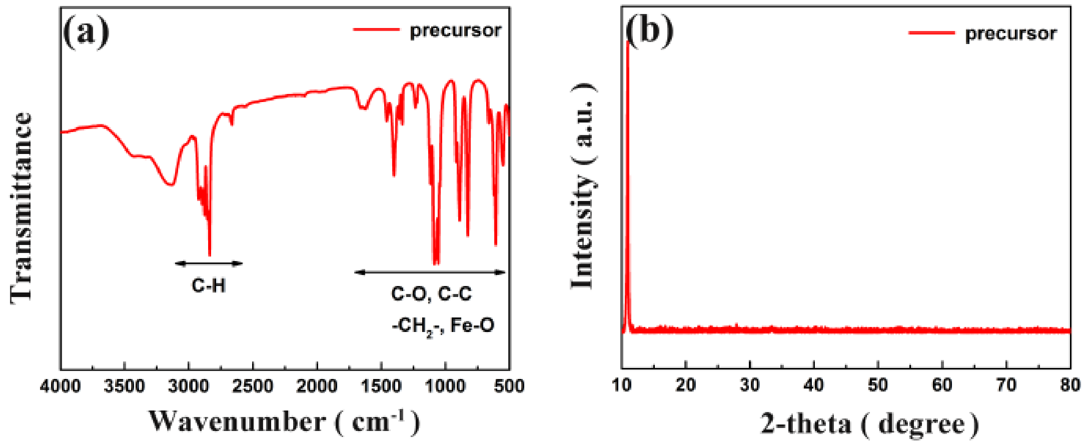

Fig. S3 (a) FTIR spectrum and (b) XRD pattern of flower-like Fe_3O_4/C precursor.

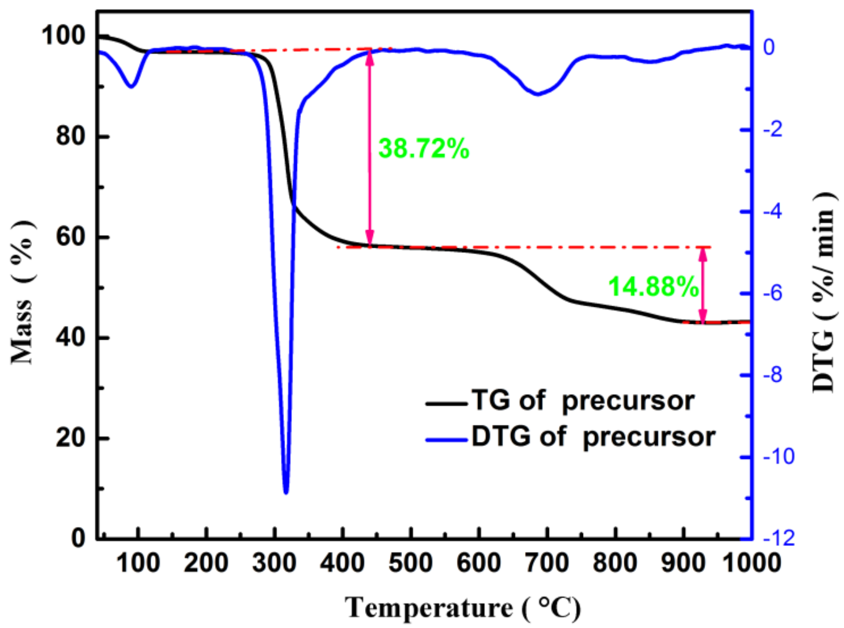

Fig. S4 (a) TG and DTG of flower-like Fe_3O_4/C precursor.

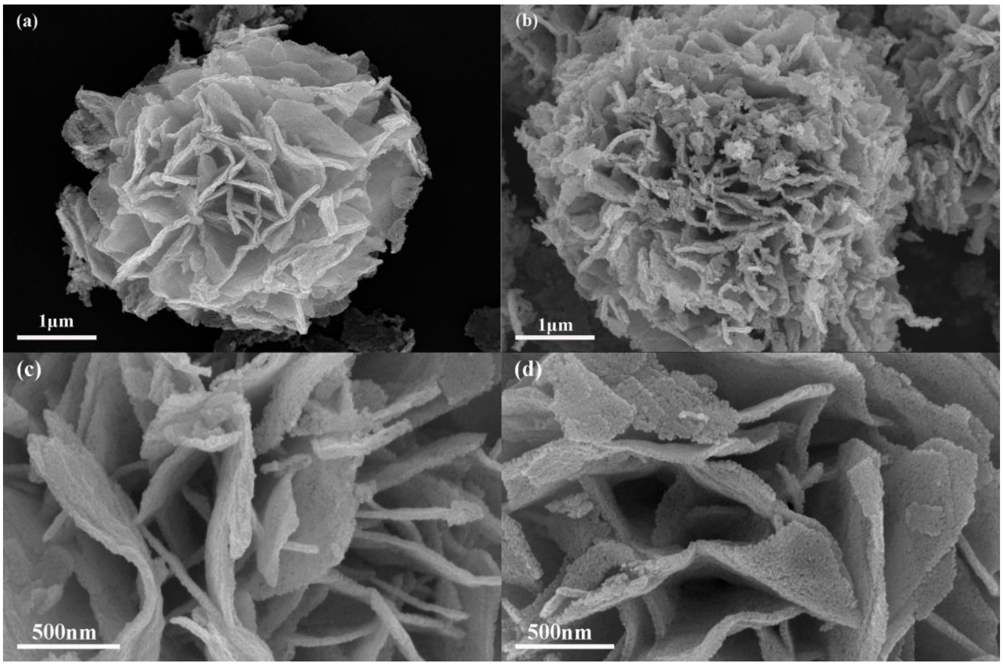

Fig. S5 FESEM images of (a, c) Fe_3O_4/C-350 and (b, d) Fe_3O_4/C-500 at different magnifications.

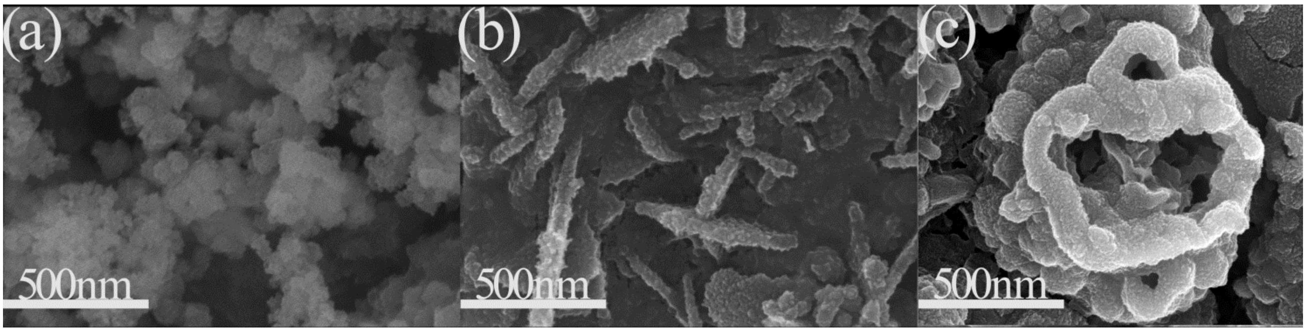

Fig. S6 FESM images of (a) Fe_3O_4/C-350, (b) Fe_3O_4/C-400, and (c) Fe_3O_4/C-500 electrodes after 300 cycles.

Table S1 Testing parameters of Fe_3O_4/C-350, Fe_3O_4/C-400, and Fe_3O_4/C-500.

Samples	**Material**	I_G/I_D	BET surface area	Mean pore diameter	R_{ct}
			(m^2 g^{-1})	(nm)	(Ω)
1	Fe_3O_4/C-350	1.32	86.04	3.412	120
2	Fe_3O_4/C-400	1.25	107.84	3.883	36.7
3	Fe_3O_4/C-500	1.41	84.43	3.407	60.8

Table S2 Lithium-storage performance of Fe_3O_4/C-400 in this work compared with other reported Fe_3O_4-based anode materials in the literatures.

Anode	Initial Coulombic Efficiency	Reversible Specific Capacity	Current Density	Cycle number	Capacity retention rate	Refs.
	(%)	(mAh g^{-1})	(mA g^{-1})	(cycles)	(%)	
Fe_3O_4/C nanotubes	-	600	139	100	82.5	Ref. S1
Fe_3O_4/C microrods	-	~ 650	200	100	~83	Ref. S2
Graphene-wrapped Fe_3O_4/graphene nanoribbons	<67	708	400	300	88.5	Ref. S3
2D carbon encapsulated hollow Fe_3O_4 nanoparticles	66	1064	500	100	98.4	Ref. S4
Graphene nanosheets encapsulated Fe_3O_4 octahedral	65	724.7	300	300	62.4	Ref. S5
Fe_3O_4/graphene composites	60	1070	200	160	86.3	Ref. S6
Graphene-doped carbon/Fe_3O_4 porous nanofibers	74.4	872	100	100	83	Ref. S7
Flower-like Fe_3O_4/C-400	80.0	1165.4	277.2	300	98	This work

Table S3 Comparison of lithium storage performance of Fe_3O_4/C-400 in this work and various flower-like anode materials reported in the literatures.

Material	Cell	Reversible Specific Capacity	Current Density	Cycle number	Refs.
	(type)	(mAh g^{-1})	(mA g^{-1})	(cycles)	
α-Fe_2O_3	Li-ion	1069	50	25	Ref. S8
SnS_2	Li-ion	432~519	100	50	Ref. S9
Co_3O_4/C	Li-ion	1085.2	200	100	Ref. S10
graphene-embedded Co_3O_4	Li-ion	990.8	90	100	Ref. S11
SnS_2/Co_3O_4	Li-ion	~715	100	100	Ref. S12
NiO/Ni	Li-ion	846	1000	100	Ref. S13
S/graphene	Li-S	1020	335	900	Ref. S14
$SnFe_5(PO_4)_4(OH)_{3.2}\cdot H_2O$/graphene	Li -ion	1000	100	100	Ref. S15
Fe_3O_4/C-400	Li-ion	1165.4	277.2	300	This work

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