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The one-pot controllable synthesis of $CoFe_2O_4$ solid, hollow and multi-shell hollow nanospheres as superior anode materials for lithium ion batteries

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Table S1 The property comparisons of as-prepared MS-CFO-HNSs and previous reported CFO electrodes.

Materials	Current density (mA g^{-1})	Initial capacity (mA h g^{-1})	Capacity retention (mA h g^{-1})	References
CoFe$_2$O$_4$ nanosheets	100	1619	1139 (100 cycles)	53
CoFe$_2$O$_4$ nanospheres/carbon nanotubes	200	1517	1046 (100 cycles)	31
CoFe$_2$O$_4$ flower-like microspheres	200	1045	734 (50 cycles)	54
C@CoFe$_2$O$_4$ nanostructure	200	1314	740 (200 cycles)	34
CoFe$_2$O$_4$ nanowire/carbon fabric	200	1186	950 (150 cycles)	42
CoFe$_2$O$_4$ quantum dots/graphene	800	615	468 (200 cycles)	12
CoFe$_2$O$_4$ nanospheres/graphene	2000		805 (305 cycles)	43
CoFe$_2$O$_4$ nanotubes	2000	1228	215 (160 cycles)	32
MS-CFO-HNSs	500	1605	1354 (500 cycles)	This work
	1000	1659	1041 (500 cycles)	This work
	5000	854	570 (500 cycles)	This work

Table S2 The simulated parameters from electrochemical impedance spectra of MS-CFO-HNSs with the fully charged state after different cycle numbers at a current density of 1000 mA g^{-1} in the frequency range from 100 kHz to 1 Hz.

	Re (Ω)	Rs (Ω)	Rct (Ω)	Zw (Ω)
Fresh coin cell	2.168	104.2	1.386	88.63
1st cycle	1.893	88.49	1.044	76.95
50th cycles	1.795	68.69	0.953	62.96
100th cycles	1.61	53.2	0.631	49.31
500th cycles	1.58	52.8	0.605	45.27
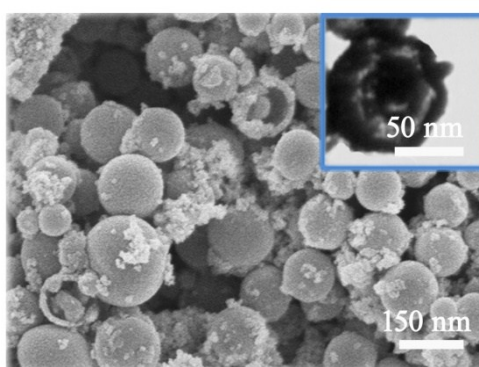
Fig. S1 The SEM image of MS-CFO-HNSs after 500 cycles at a current density of 1000 mA g^{-1}. The inset is corresponding TEM image.