

Supplementary materials

Fe₃O₄ Nanoparticle-Decorated Bimodal Porous Carbon Nanocomposite Anode for High-Performance Lithium-Ion Batteries

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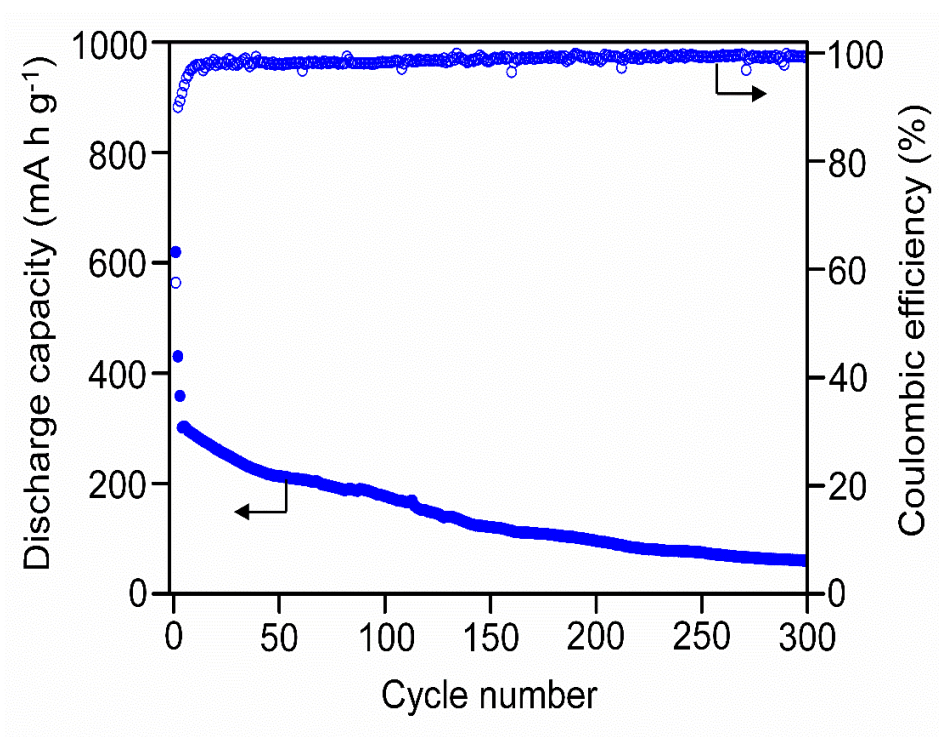


Figure S1. Cycle performance of the pristine Fe₃O₄ nanoparticles at a current density of 1000 mA g⁻¹.

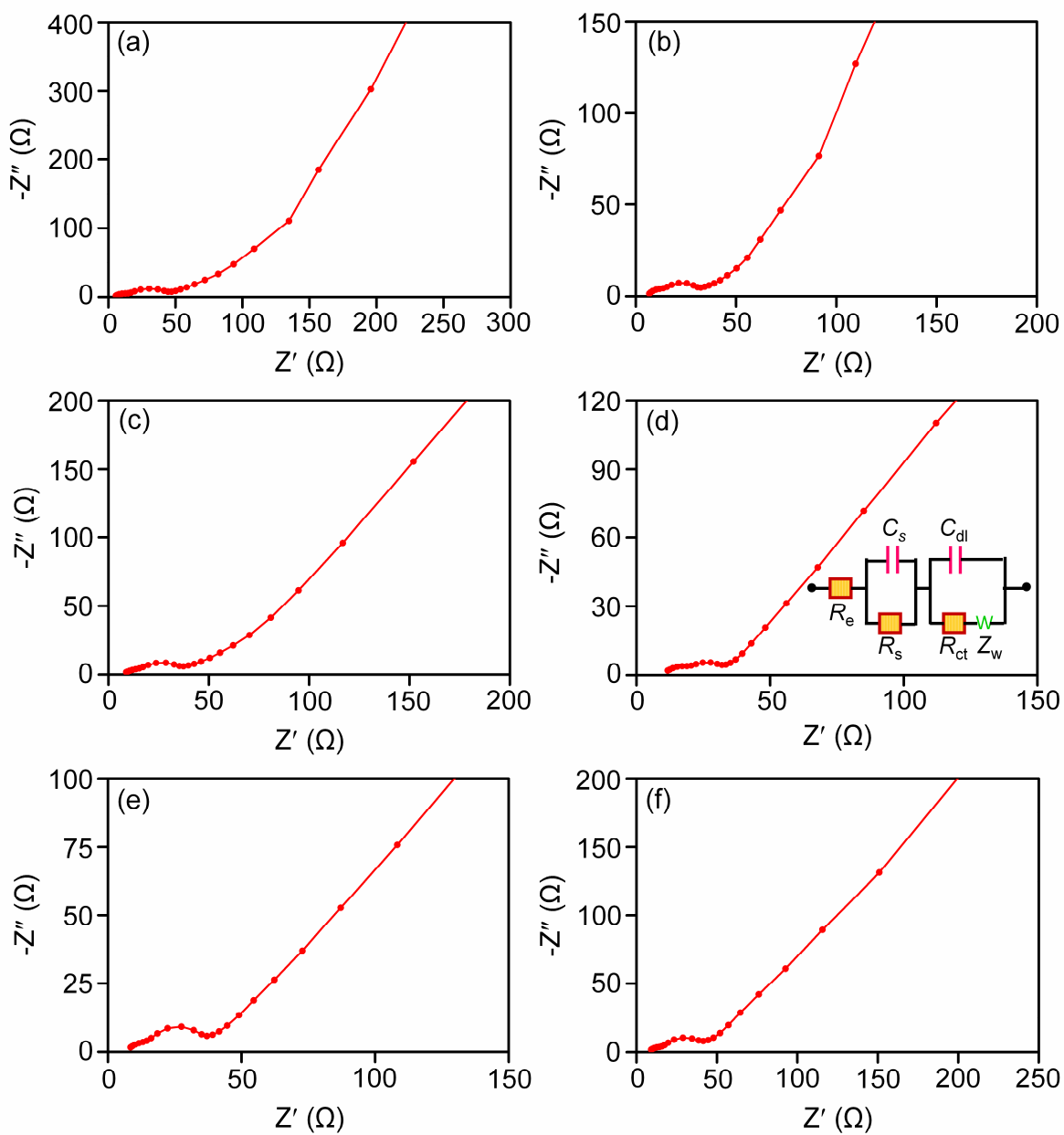


Figure S2. EIS spectra of (a) pristine CMK-9, (b) $\text{Fe}_3\text{O}_4(4)@\text{C9}$, (c) $\text{Fe}_3\text{O}_4(8)@\text{C9}$, (d) $\text{Fe}_3\text{O}_4(13)@\text{C9}$, (e) $\text{Fe}_3\text{O}_4(18)@\text{C9}$ and (f) $\text{Fe}_3\text{O}_4(25)@\text{C9}$ anodes after 100 cycles.

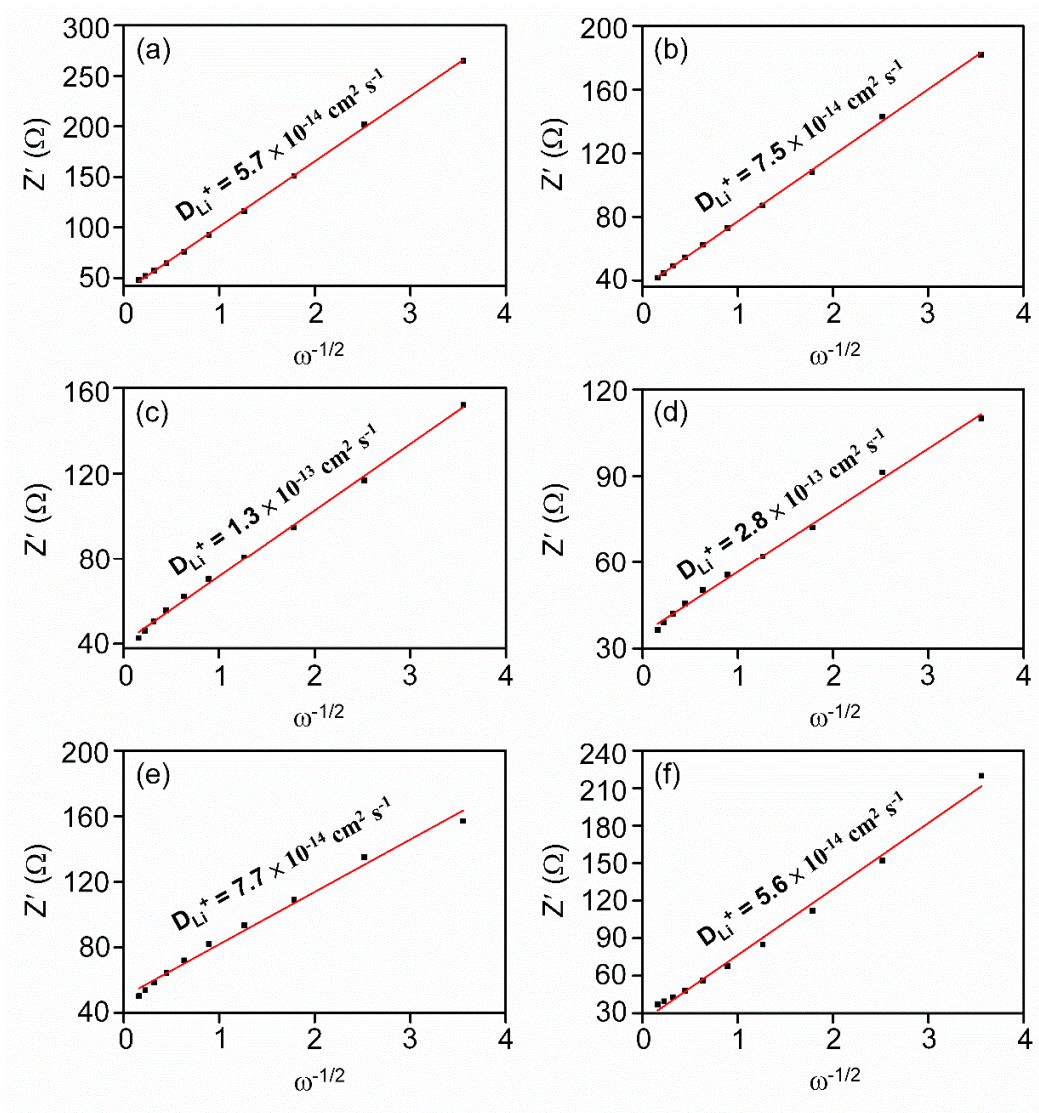


Figure S3. Z' vs. $\omega^{-1/2}$ plots of (a) pristine CMK-9, (b) $\text{Fe}_3\text{O}_4(4)@\text{C9}$, (c) $\text{Fe}_3\text{O}_4(8)@\text{C9}$, (d) $\text{Fe}_3\text{O}_4(13)@\text{C9}$, (e) $\text{Fe}_3\text{O}_4(18)@\text{C9}$ and (f) $\text{Fe}_3\text{O}_4(25)@\text{C9}$ anodes.

Table S1. Comparison of electrochemical performance of Fe₃O₄(13)@C9 with other similar anode materials reported for lithium-ion batteries.

Materials	Capacity (mA h g ⁻¹)	Current density (mA g ⁻¹)	Cycle number	Reference
Fe ₃ O ₄ /CNTs/rGO	1048	200	50	51
Graphene nanoscroll- wrapped Fe ₃ O ₄ NPs	1010	100	50	53
Fe ₃ O ₄ /Fe/carbon	600	50	40	54
MOF-derived MnO-doped Fe ₃ O ₄ @C	520	1000	200	55
Carbon-wrapped Fe ₃ O ₄ NP film on Ni foam	657	200	100	56
Fe ₃ O ₄ @rGO	1296	100	100	20
Fe ₃ O ₄ @C	865	200	120	45
	500	1000	500	
Fe ₃ O ₄ @C	864	200	600	21
	514	1000	600	
Fe ₃ O ₄ /rGO	700	881	100	57
Fe ₃ O ₄ @C@NS-rGO	532	100	100	10
Fe ₃ O ₄ /C composite	506	250	350	13
Fe ₃ O ₄ @C/Graphene	901	200	200	19
Fe ₃ O ₄ @N-HPCNs	1240	100	100	39
	581	1000	400	
Fe ₃ O ₄ @C-N	800	500	100	58
Fe ₃ O ₄ @CMK-5	850	200	60	35
Fe ₃ O ₄ -CNF electrospinning	687	100	50	18
Fe ₃ O ₄ (13)@C9	1222	100	150	Present work
	636	1000	300	