Supplementary Material (ESI) for RSC Advances
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Electronic Supporting Information

Synergistic effects from graphene oxide nanosheets and TiO_2 hierarchical structure enable robust and resilient electrodes for high-performance lithium-ion batteries†

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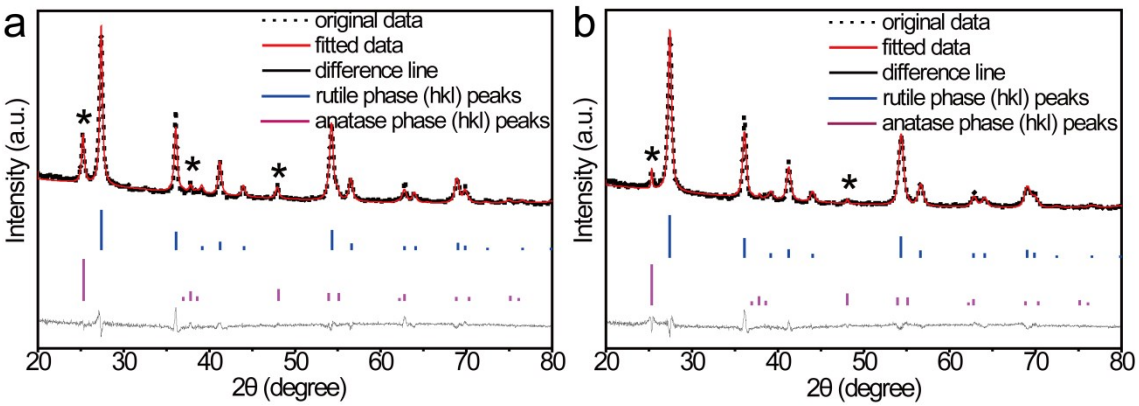


Fig. S1. Rietveld refinement of (a) rutile/anatase TiO_2 and (b) rutile/anatase TiO_2@GO samples (Asterisk * represents anatase peaks in mixed phases).

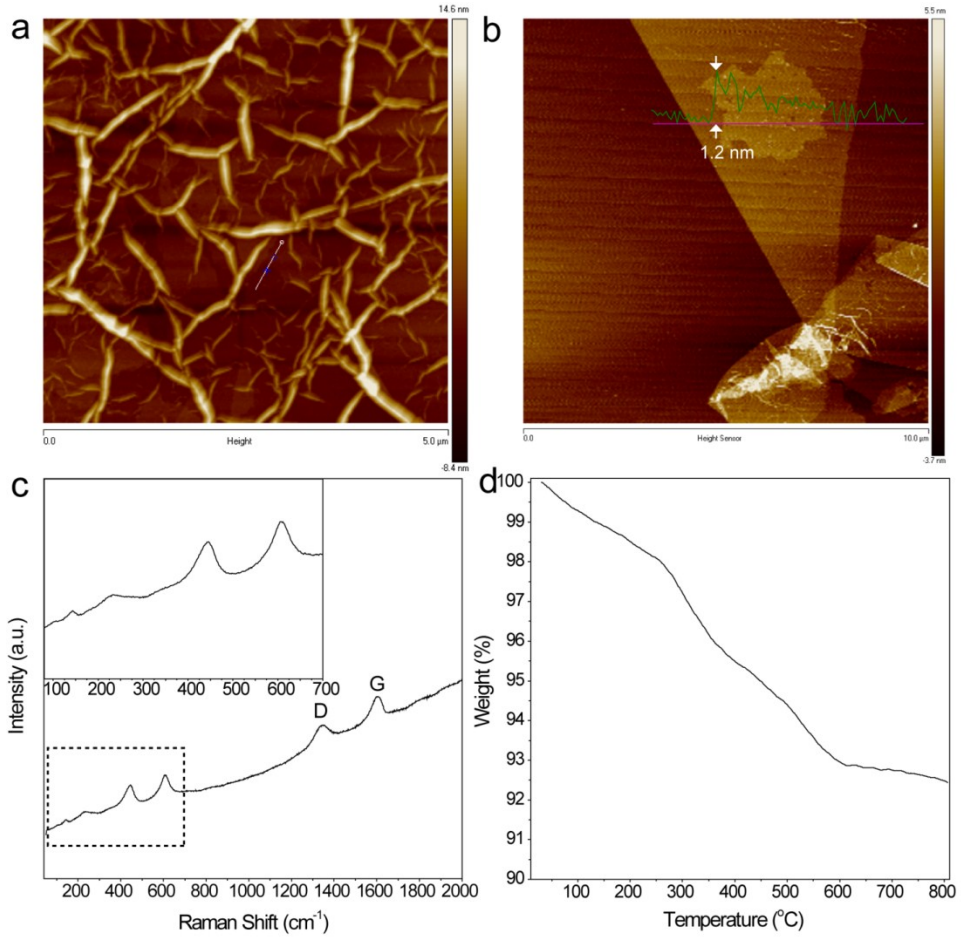
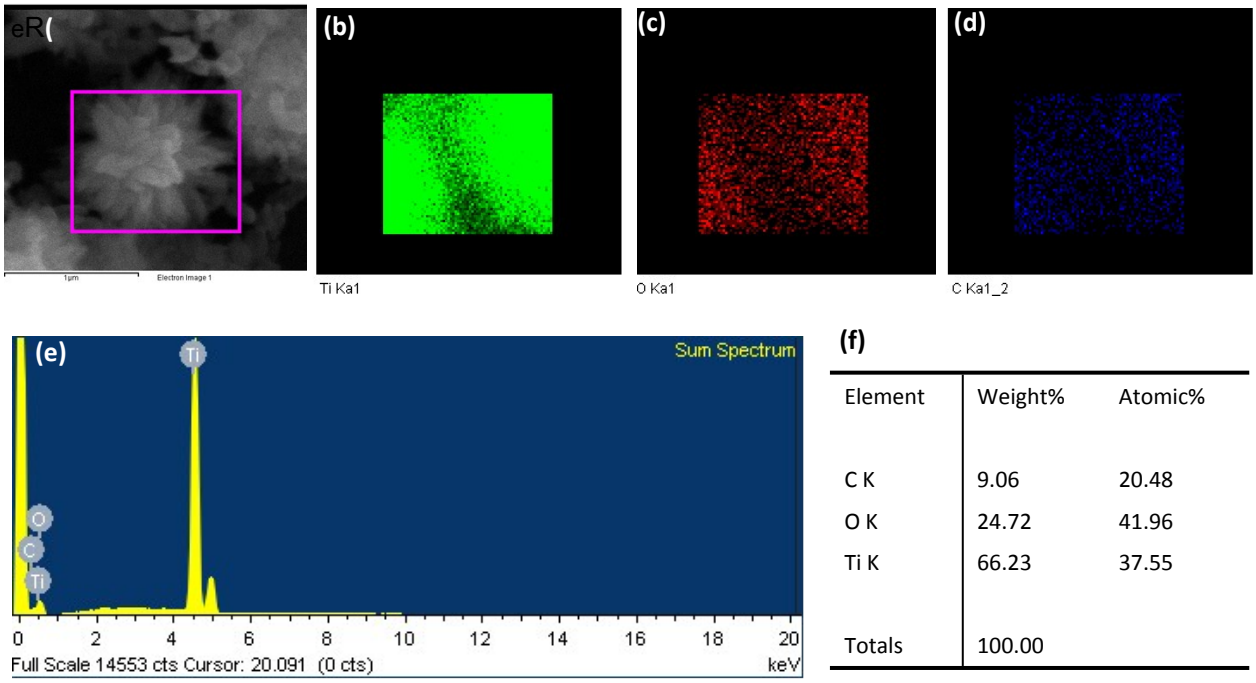


Fig. S2 (a) The representative AFM image of GO and (b) corresponding height profiles taken from the pink line. (c) Raman spectra of the rutile/anatase TiO_2@GO hierarchical structure; (b) TGA curves of the rutile/anatase TiO_2@GO hierarchical structure.



(f)

Element	Weight%	Atomic%
C K	9.06	20.48
O K	24.72	41.96
Ti K	66.23	37.55
Totals	100.00	

Fig. S3 SEM images of the (a) rutile/anatase TiO_2@GO hierarchical structure and the corresponding EDX mapping images of (b) Ti, (c) O and (d) C elements. (e) EDX spectrum and (f) sum table of rutile/anatase TiO_2@GO hierarchical structure.

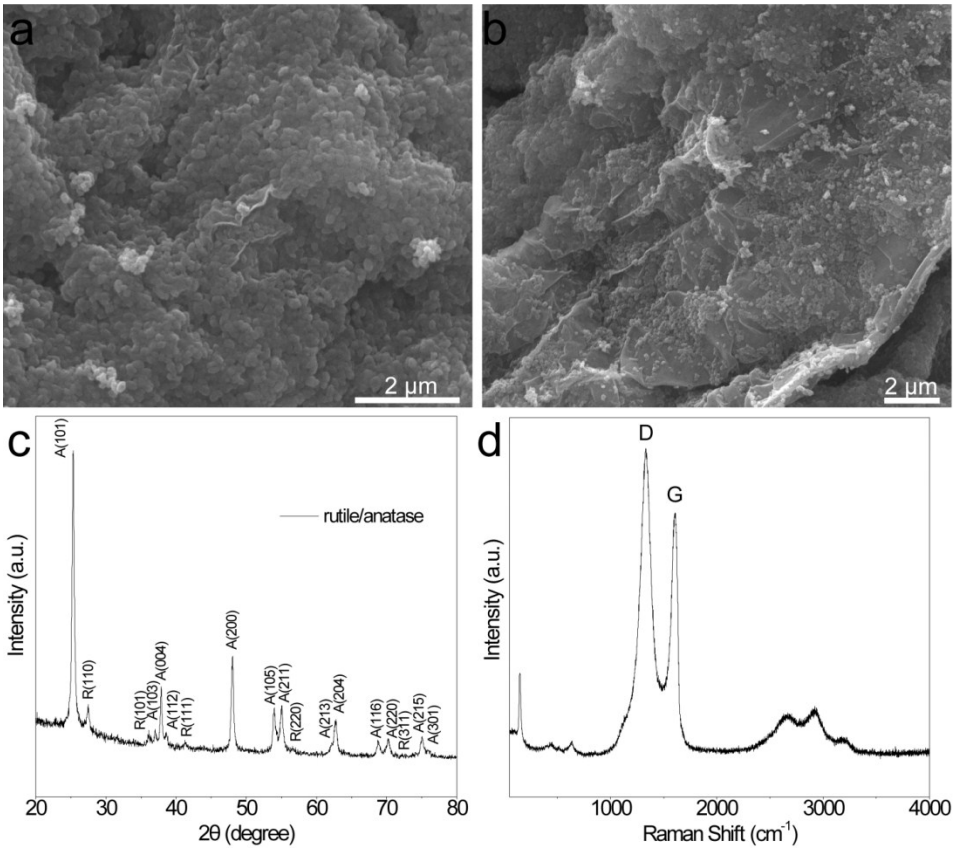


Fig. S4 (a) and (b) SEM images, (c) XRD and (d) Raman spectra of rutile/anatase TiO_2 nanoparticle/graphene composite

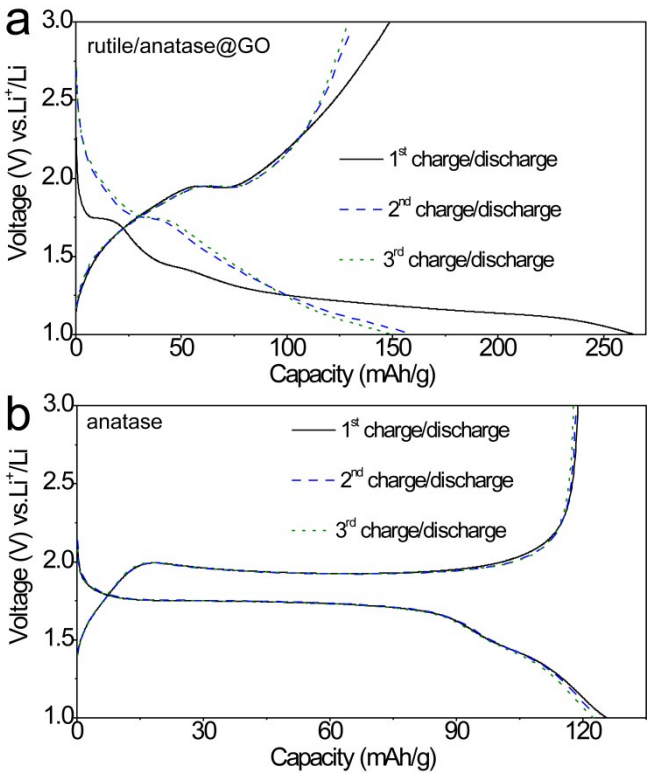


Fig. S5 Charge/discharge curves of (a) rutile/anatase@GO composite and (b) anatase electrodes between 1.0 V and 3.0 V at 0.5 C rate.

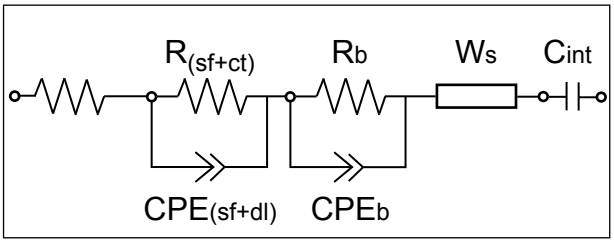


Fig. S6 The modified Randles equivalent circuit used to fit Nyquist plots.

Table S1. The kinetic parameters of rutile, rutile/anatase, anatase, and anatase/ruitle TiO_2@GO electrodes .

Samples	rutile	rutile/anatase	anatase	rutile/anatase@GO
R_e	2.5 Ω	2.5 Ω	2.9 Ω	2.6 Ω
$R_{(sf+ct)}$	20.5 Ω	6.0 Ω	4.9 Ω	1.5 Ω
R_b	43.0 Ω	30.7 Ω	37.9 Ω	26.2 Ω