Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

.Supporting Information

A new strategy to construct 3D TiO_2 nanowires/ reduced graphene oxide for high-performance lithium/sodium batteries

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1. Figures

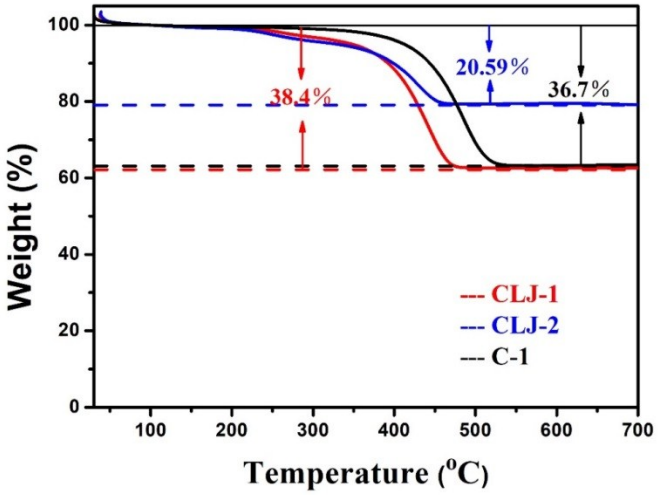

Fig. S1 TGA curves of C-1, CLJ-1 and CLJ-2 samples.

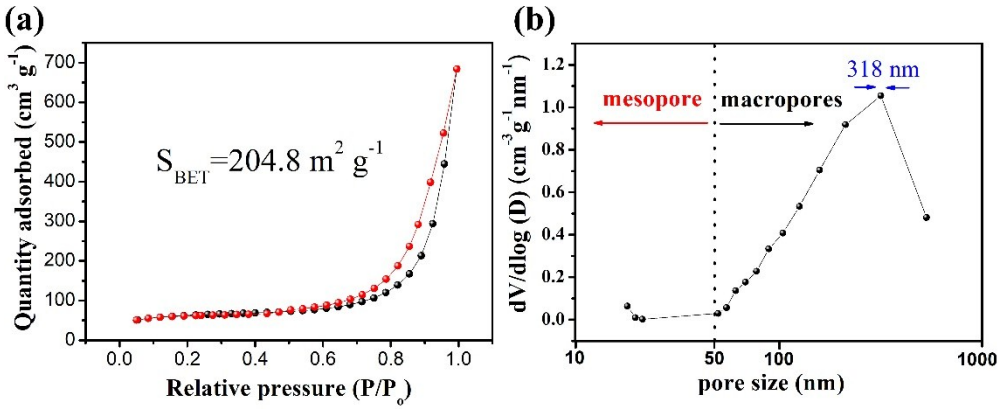

Fig. S2 (a) N_2 adsorption–desorption isotherms of CLJ-2; (b) Pore size distributions from the adsorption branch through the BJH method of CLJ-2.

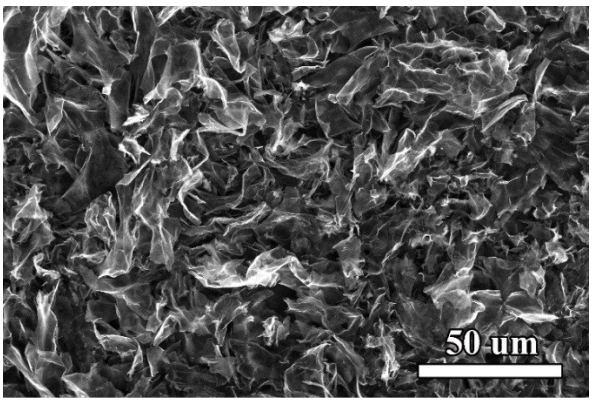

Fig. S3 The SEM image of CLJ-1.

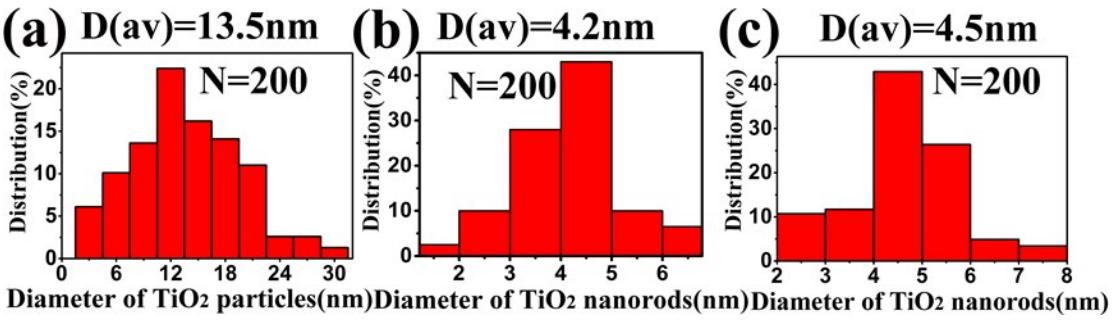

Fig. S4 Particle size distribution of C-1(a), CLJ-1(b) and CLJ-2 (c).

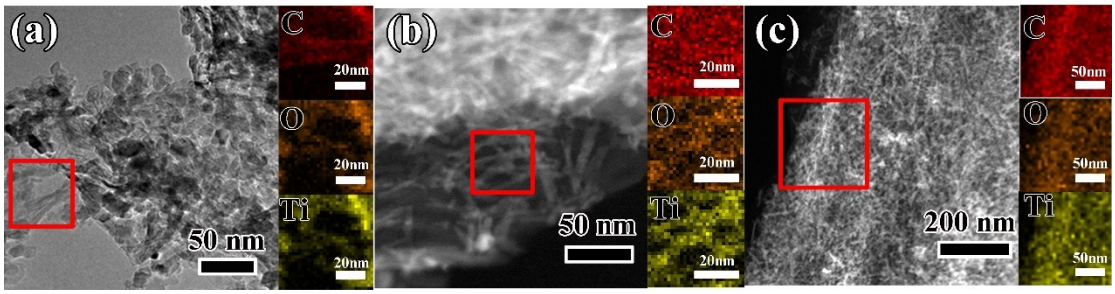

Fig. S5 The TEM mapping of C-1 (a), CLJ-1 (b) and CLJ-2 (c).

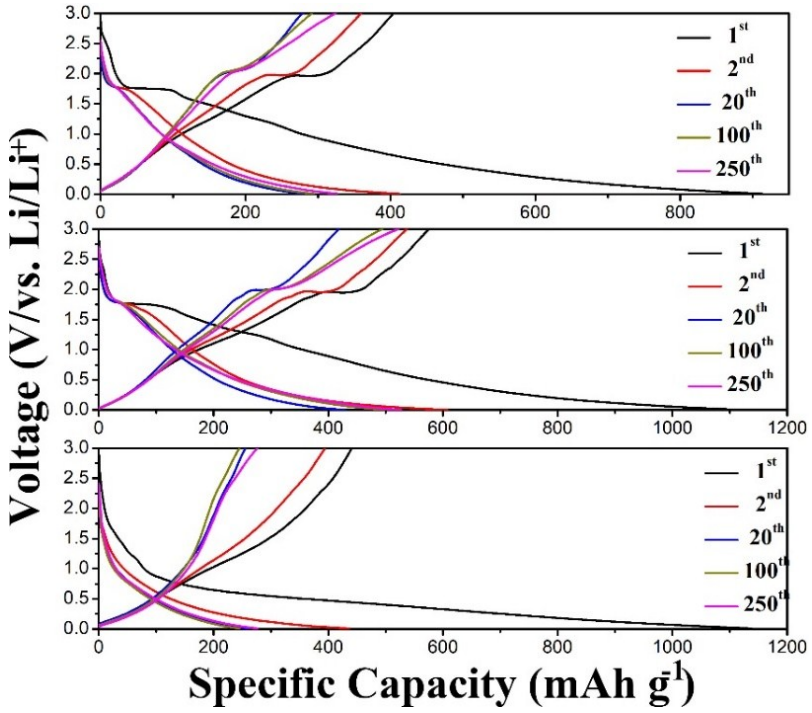

Fig. S6 Galvanostatic discharge/charge profiles of (a) C-1, (b) CLJ-2 and (c) RGO at 0.1 A g^{-1}.

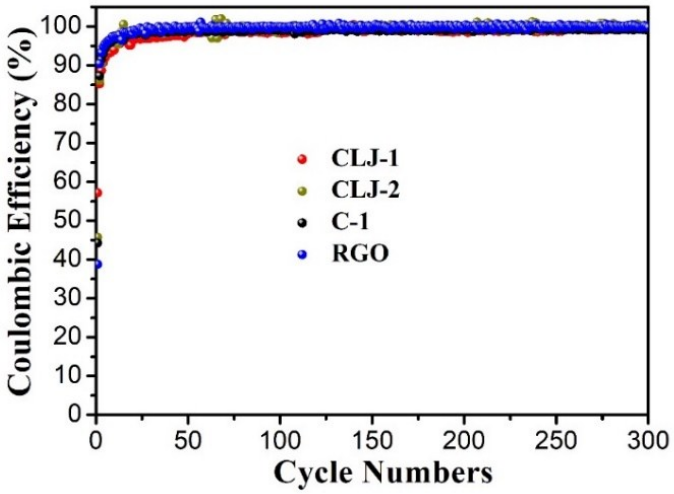

Fig. S7 The coulombic efficiency of C-1, CLJ-1, CLJ-2 and RGO at 0.1A g^{-1}.

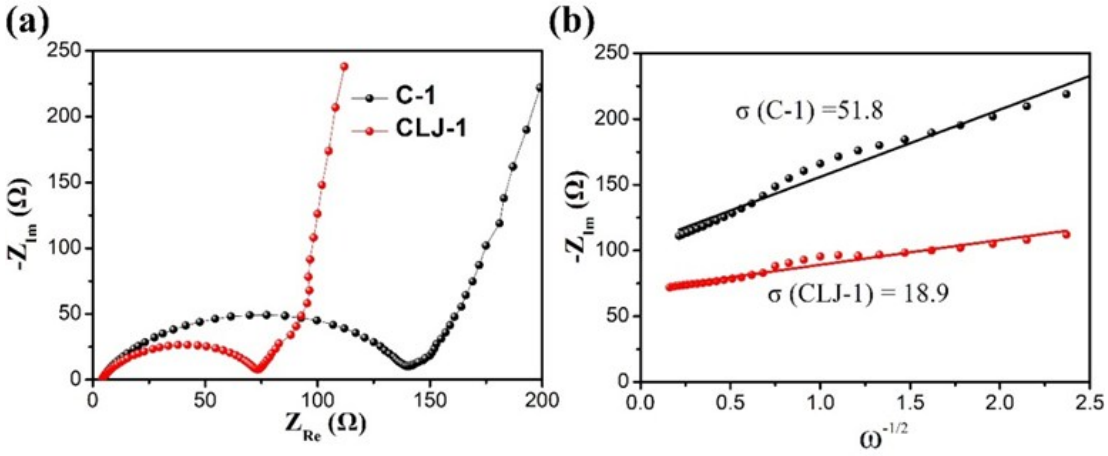

Fig. S8 (a) Nyquist plots and (b) Warburg plots of C-1 and CLJ-1 for LIBs.

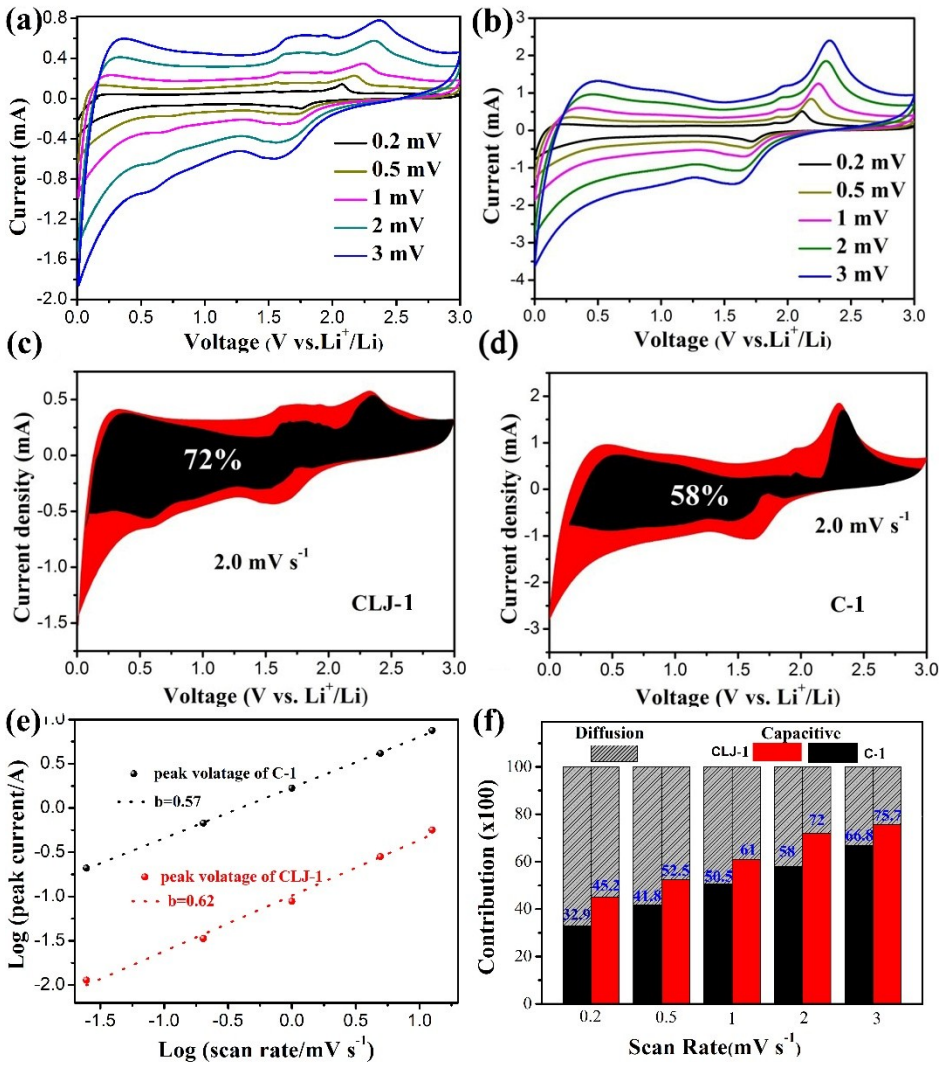

Fig. S9 CV curves of CLJ-1 (a) and C-1 (b); Capacitive contribution of CLJ-1 (c) and C-1(b); (e) Relationship between logarithm cathodic peak current and logarithm scan rates; (f) Normalized contribution ratio of capacitive capacities at different scan rates.

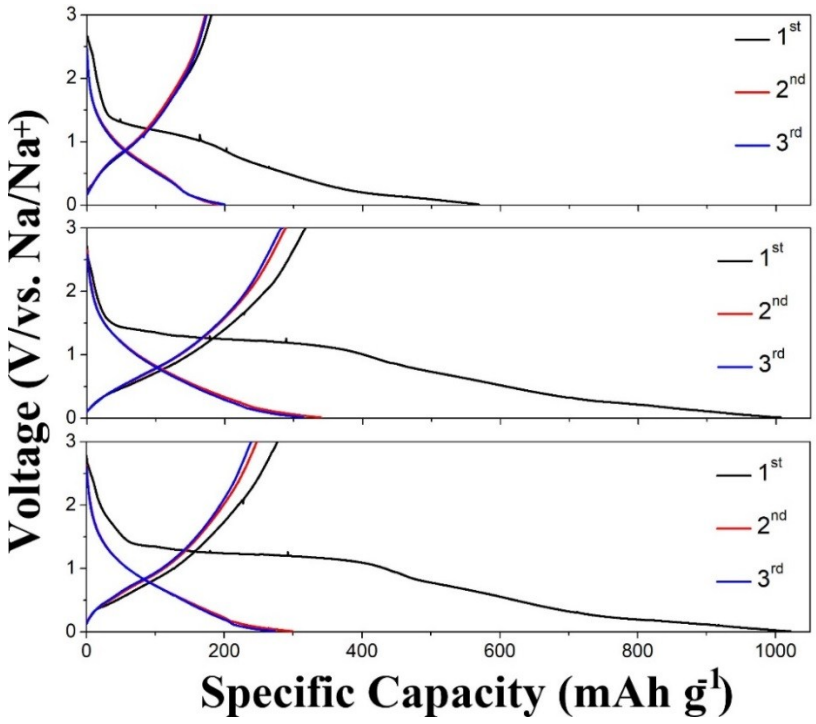

Fig. S10 Galvanostatic discharge/charge profiles of (a) C-1, (b) CLJ-1, and (c) CLJ-2 at 50 mA g^{-1}.

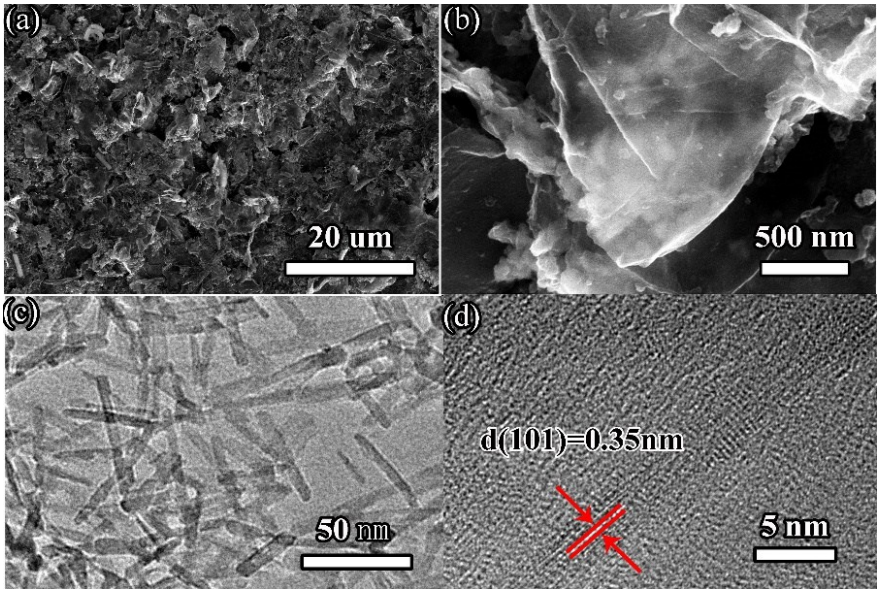

Fig. S11 SEM images (a, b), TEM images (c, d) of CLJ-1 after 5000 cycles at 5 A g^{-1}.

2. Tables

Table S1. Comparison of the electrochemical properties of various TiO_2/graphene composite used as anode materials for Na^+ batteries.

various TiO_2/graphene composite	Current (mA g^{-1})	Capacity (mAh g^{-1}) @ cycle number	References
3D titania-graphene hybrid	20	200@50	1
Mesoporous single-crystal-like TiO_2−graphene nanocomposite	3350	126@18000	2
Graphene-rich wrapped petal-like rutile TiO_2 tuned by carbon dots	3350	74.6@4000	3
Graphene-coupled titanium oxide	500	120@4300	4
Ultra-small TiO_2 coated reduced graphene oxide composite	2000	84.6@ 500	5
Ultrathin single-crystalline TiO_2 nanosheets anchored on graphene	200	200@700	6
Hierarchical TiO_2/C micro–nanospheres	1000	187@1000	7
Carbon coated anatase TiO_2 mesocrystals	3360	90@5000	8
Highly ordered three-dimensional TiO_2@C nanotube arrays	200	232@500	9
N-doped rutile TiO_2/C	33.6	175.3@100	10
Hierarchical porous nanosheets constructed by graphene-coated, interconnected TiO_2 nanoparticles	3350	126@20000	11
Mesoporous TiO_2 nanosheets anchored on graphene	3350	90@10000	12
Anatase TiO_2-reduced graphene oxide nanostructures	168	148@500	13
Phases hybriding and graphene-like TiO_2	100	150@100	14
CLJ-2	50 500 5000	247@100 165@2000 123@5000	Our work

3. References

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