Supplementary Information for

Supercritically Exfoliated Ultrathin Vanadium Pentoxide Nanosheets with High Rate Capability for Lithium Batteries†

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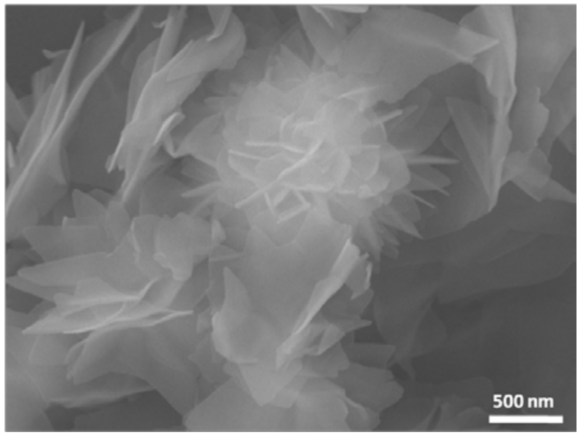

Figure S1. SEM images of the products synthesized under 10 h solvothermal reaction.

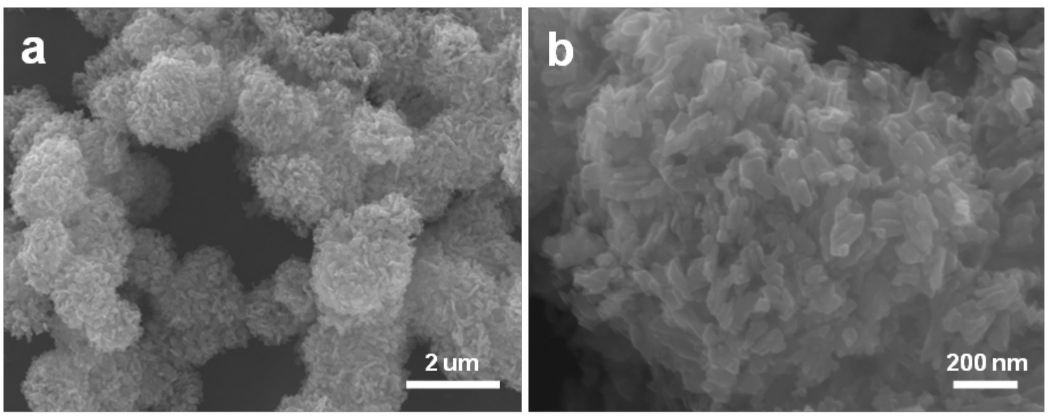

Figure S2. SEM images of V_2O_5 microspheres obtained by annealing the solvothermally prepared microflowers (duration 6 h) in air at 400 ^{o}C for 2 h.

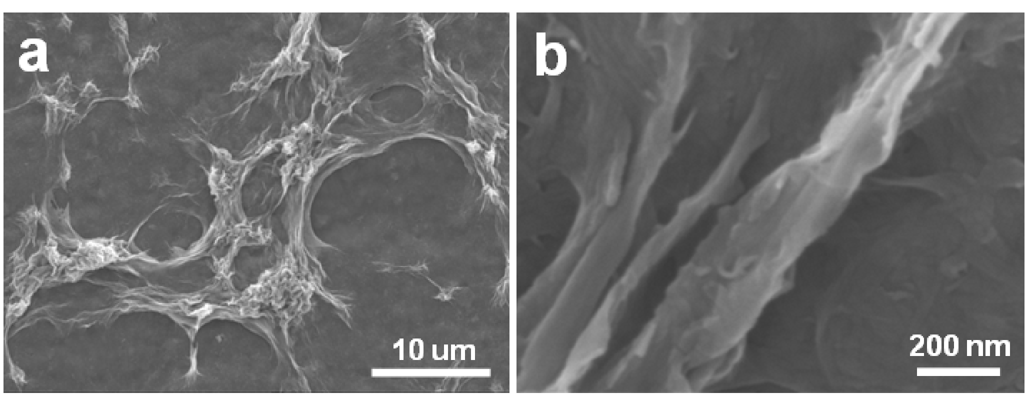

Figure S3. SEM images of the V_2O_5 ethanol-gels after dying at 70 ^{o}C.

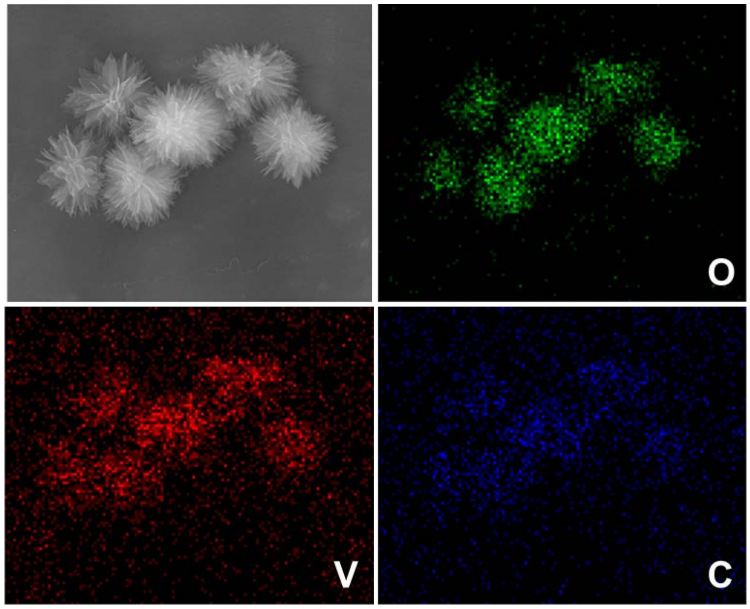

Figure S4. Energy dispersive X-ray spectrometric (EDS) mapping of the V_2O_5 microflowers obtained by solvothermal treatment (duration 6 h).

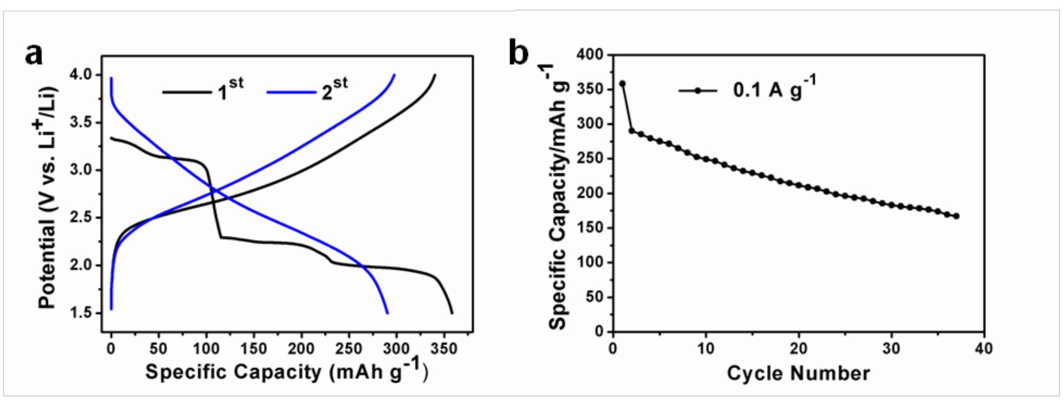

Figure S5. (a) Charge-discharge curves and (b) the cycling performance of the ultrathin V_2O_5 nanosheets, at the current density of 100 mAh g^{-1} and the charge/discharge potential range from 1.5 to 4.0 V.

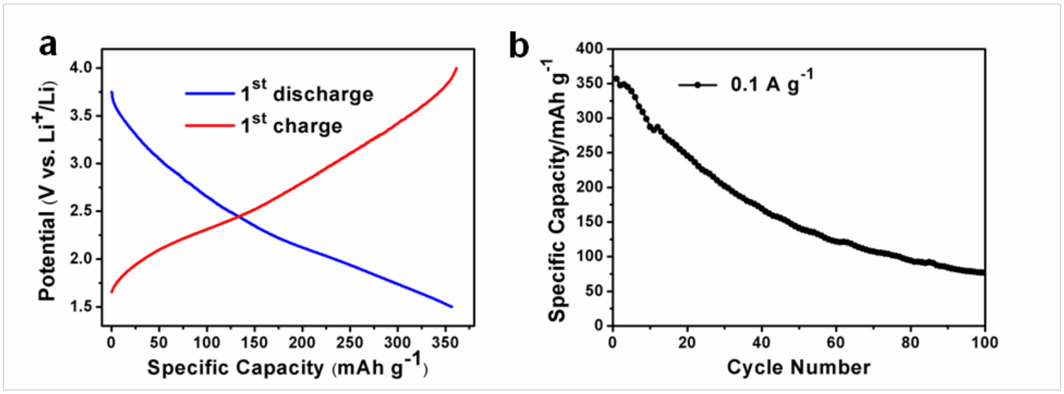

Figure S6. (a) Charge-discharge curves and (b) the cycling performance of the amorphous vanadium oxide ultrathin nanosheets, at the current density of 100 mAh g^{-1} and the charge/discharge potential range from 1.5 to 4.0 V. A high initial capacity above 350 mAh g^{-1} is achieved, but the cycleability is poor.

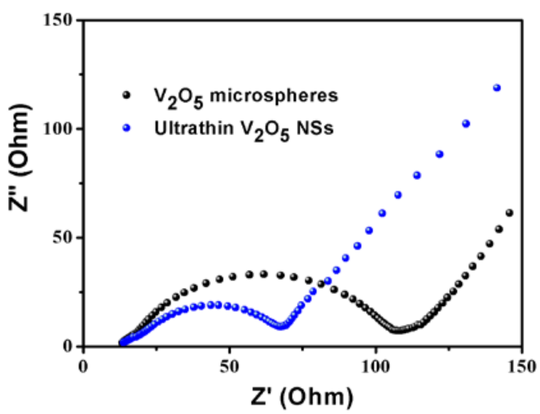

Figure S7. AC impedance plots of ultrathin V_2O_5 nanosheets and V_2O_5 microspheres cathodes, from 0.01 Hz to 100 kHz.

Table S1. The electrochemical performances (cycling performance at relevant current rate or density, and rate capability) of the V_2O_5 NSs and the reported V_2O_5 materials.

Sample	Voltage range	Capacity (mAh g^{-1}) / Cycle number	Current rate or density	Rate capacity (mA h g^{-1}) at relevant Current rate or density
V_2O_5 microspheres[1]	2.5 – 4 V	~ 135 / 100	0.2 C	92.2 at 15 C
V_2O_5 / CNTs composites[2]	2 – 4 V	104 / 200	5 C	169 at 10 C
Porous V_2O_5 nanotubes[3]	2.5 – 4 V	105 / 250	2 A g^{-1} (~ 13.5 C)	62.5 at 15 A g^{-1} (~101 C)
3D porous V_2O_5[4]	2.5 – 4 V	110 / 200	10 C	86.7 at 56 C (Charge at 1C)
Yolk-shelled V_2O_5 microspheres[5]	2–4 V	227 / 50	1 C	~150 at 8C
As-prepared V_2O_5 NSs in this work	2.4-4 V	108 / 200	10 C	100 at 15 C

References

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