Electronic Supplementary Information

Ultrafast Synthesis of Amorphous VO_x embedded into 3D Strutted Amorphous Carbon Frameworks—Short-Range Order in Dual-Amorphous Composites Boosts Lithium Storage

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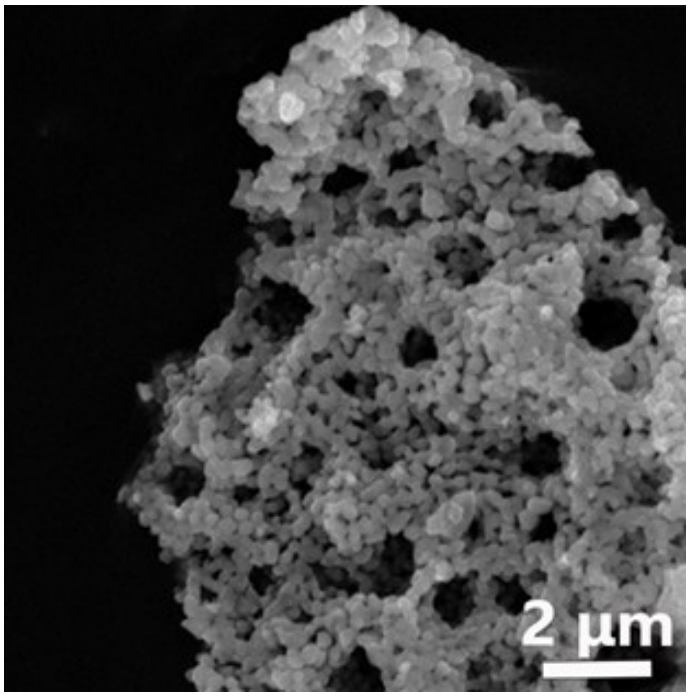

Figure S1. SEM image of the VO_x/0.2C-400.

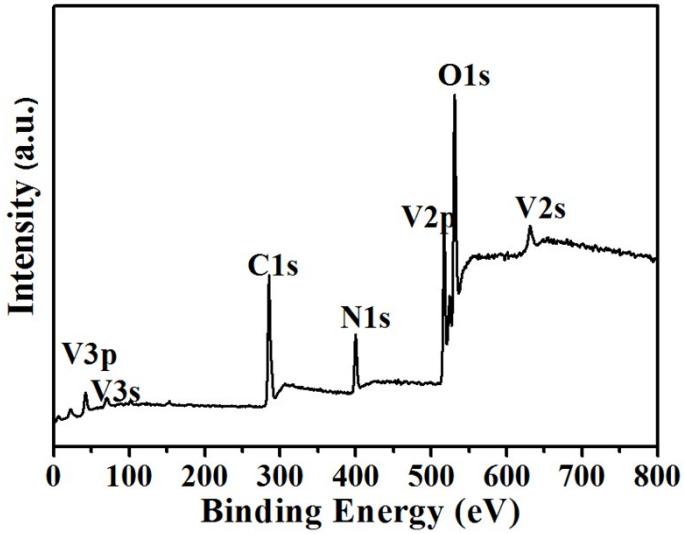

Figure S2. XPS spectrum of the VO_x/0.2C.

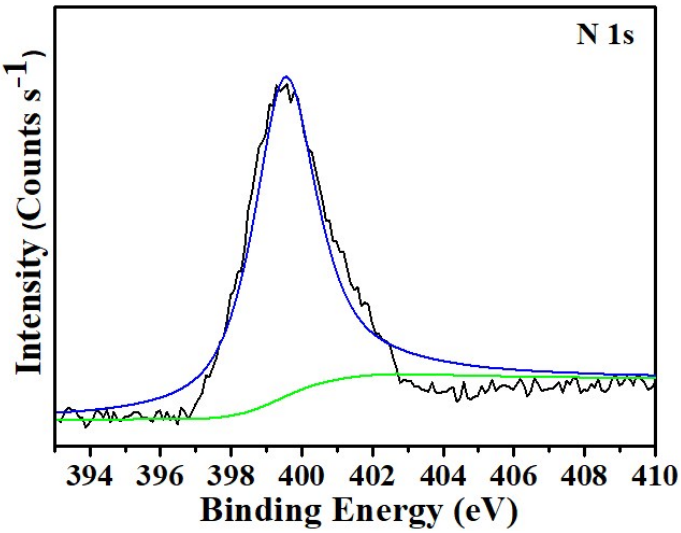

Figure S3. N1s XPS spectra of the VO_x/0.2C samples.

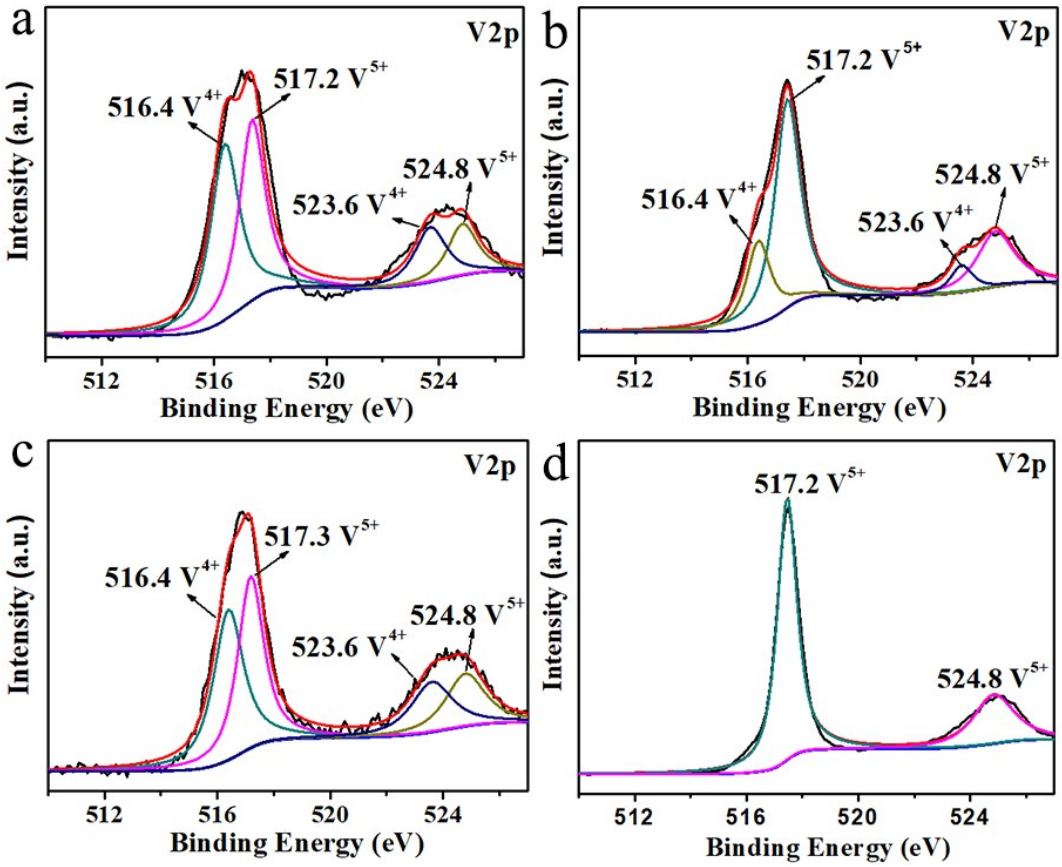

Figure S4. V2p XPS spectra of the four samples: (a) VO_x/0.2C, (b)VO_x/0.1C, (c) VO_x/1C and (d) VO_x/0.2C-400.

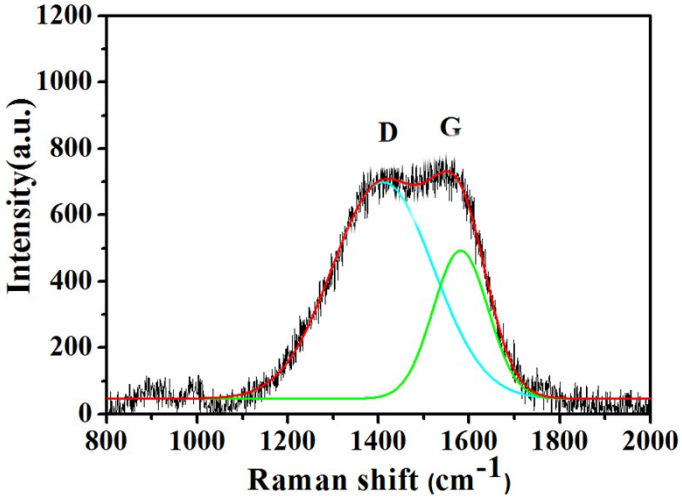

Figure S5. Raman spectrum of the VO_x/0.2C

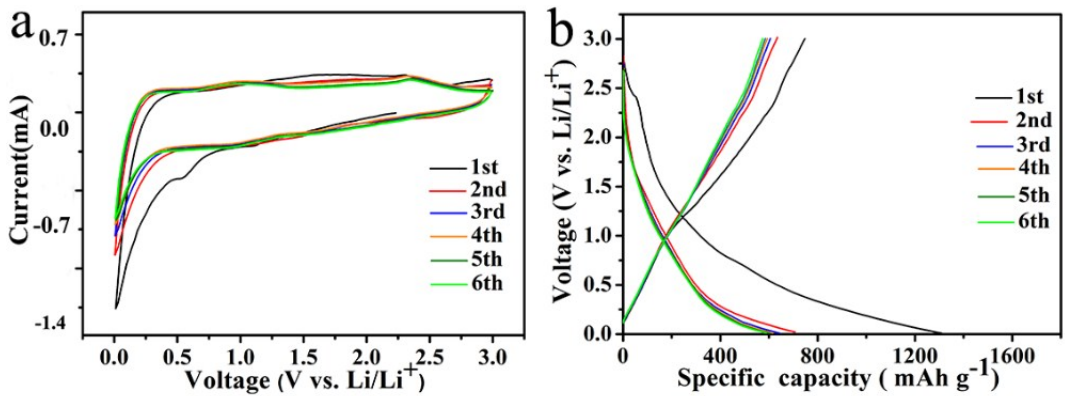

Figure S6. (a) CV curves recorded at 0.5 mV s^{-1} in the range of 0.01 to 3 V versus Li/Li^+ and (b) the corresponding charge/discharge profiles at 100 mA g^{-1} of VO_x/0.1C sample.

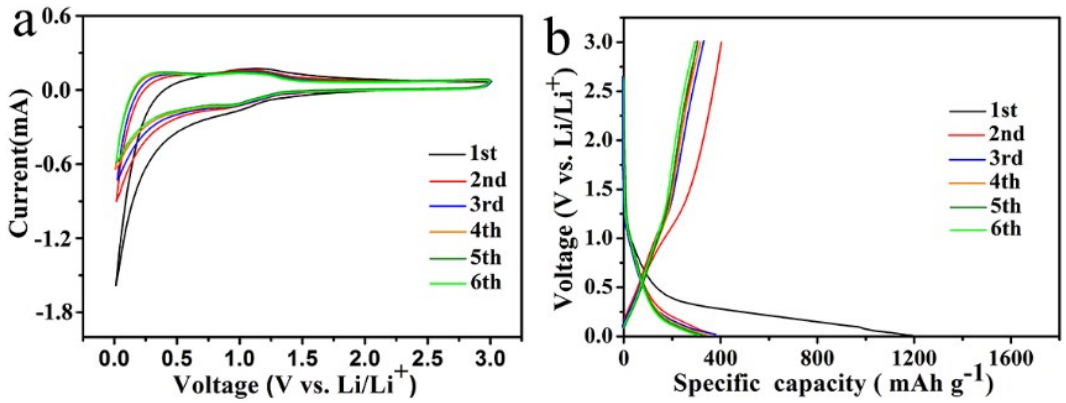

Figure S7. (a) CV curves recorded at 0.5 mV s^{-1}in the range of 0.01 to 3 V versus Li/Li^+ and (b) the corresponding charge/discharge profiles at 100 mA g^{-1} of VO_x/1C sample.

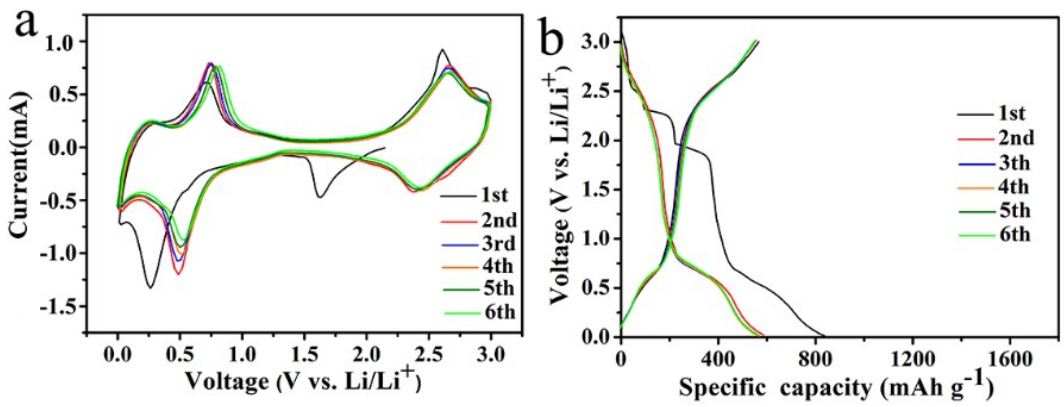

Figure S8. (a) CV curves recorded at 0.5 mV s^{-1}in the range of 0.01 to 3 V versus Li/Li^+ and (b) the corresponding charge/discharge profiles at 100 mA g^{-1} of VO_x/0.2C-400 sample.

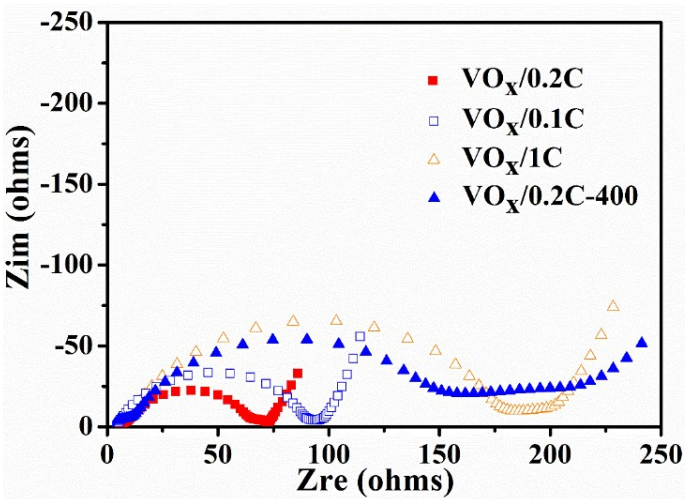

Figure S9. Nyquist plots of all the samples at fresh coin cells over the frequency range from 100 kHz to 0.01 Hz.

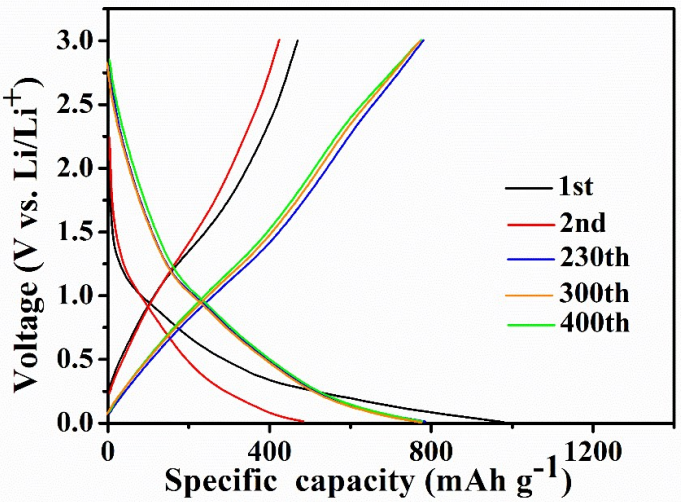

Figure S10. Charge/discharge profiles of the VO_x/0.2C performed at 1 A g^{-1}.

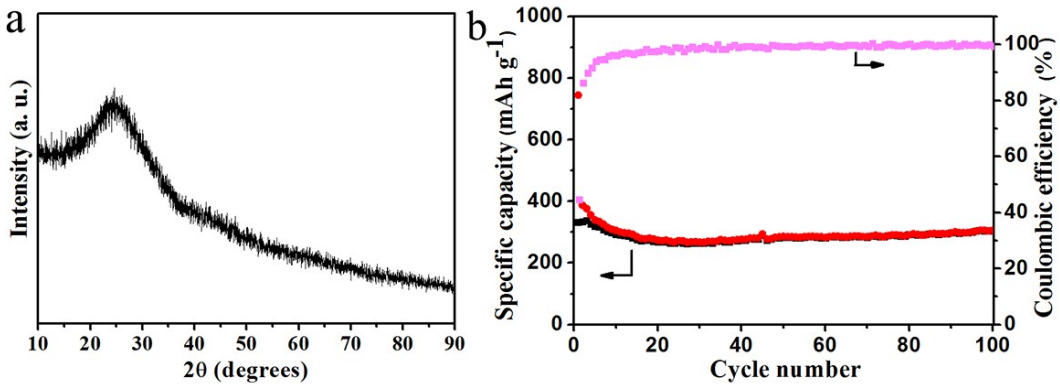

Figure S11. (a) The XRD patterns of the pyrolytic carbon, (b) Cycling performance of the pyrolytic carbon performed at a current density of 1 A g^{-1}.

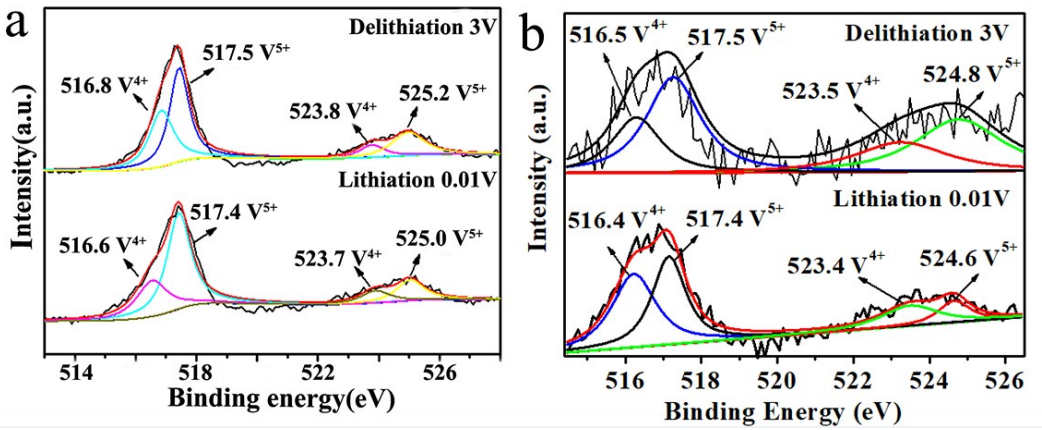

Figure S12. The V 2p XPS spectra of the lithiated and delithiated (a) VO_x/0.2C and (b) VO_x/0.2C-400 samples.

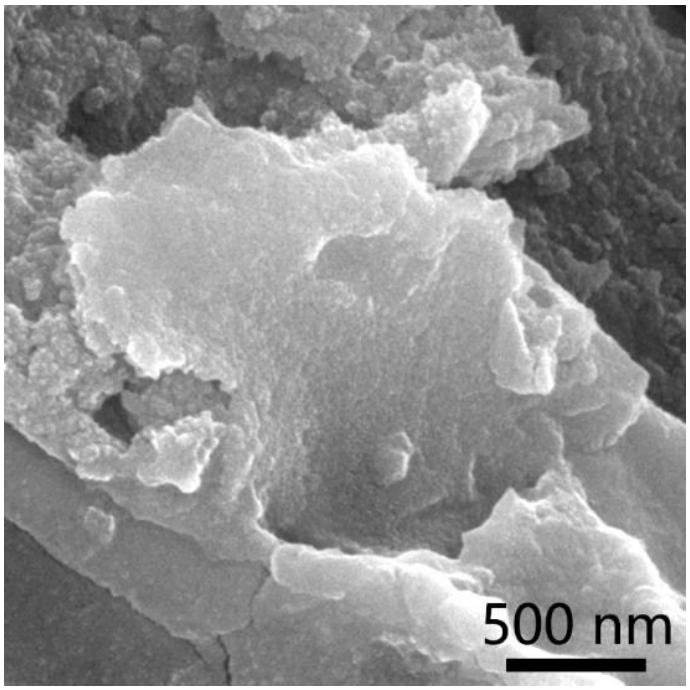

Figure S13. SEM image of the VO_x/0.2C after 400 cycles at a current density of 1 A g^{-1}.

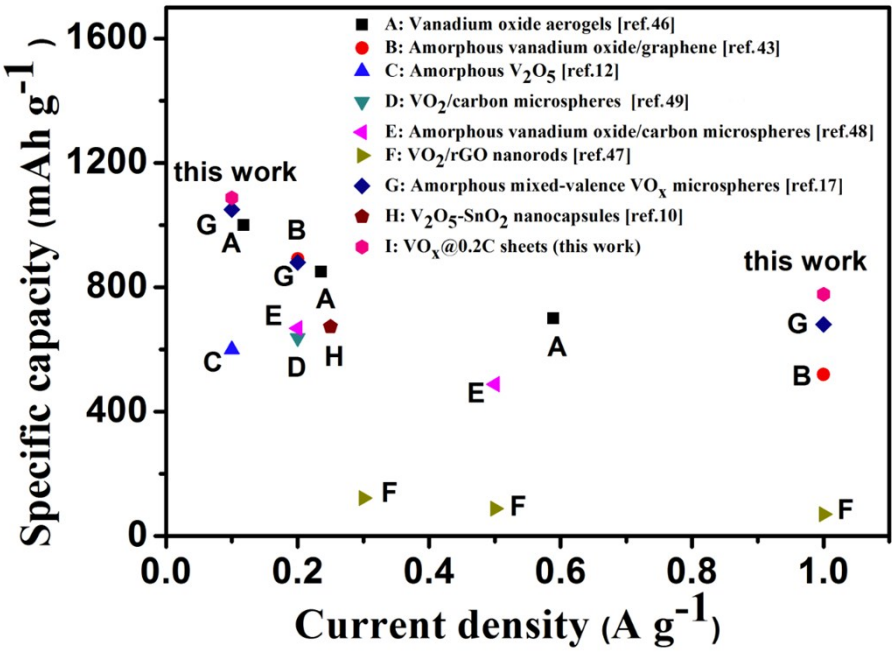

Figure S14. Electrochemical performance of VO_x/0.2C anode material compared with other vanadium oxide materials in previous works.

Table S1. Carbon content in three as-synthesized samples.

Sample	VO_x/0.1C	VO_x/0.2C	VO_x/1C
C (wt%)	7	14	30