Supporting Information

Crystal Phase and Morphology Engineering of ω-$Li_3V_2O_5$ spheres for High-Rate Lithium-Ion Capacitors

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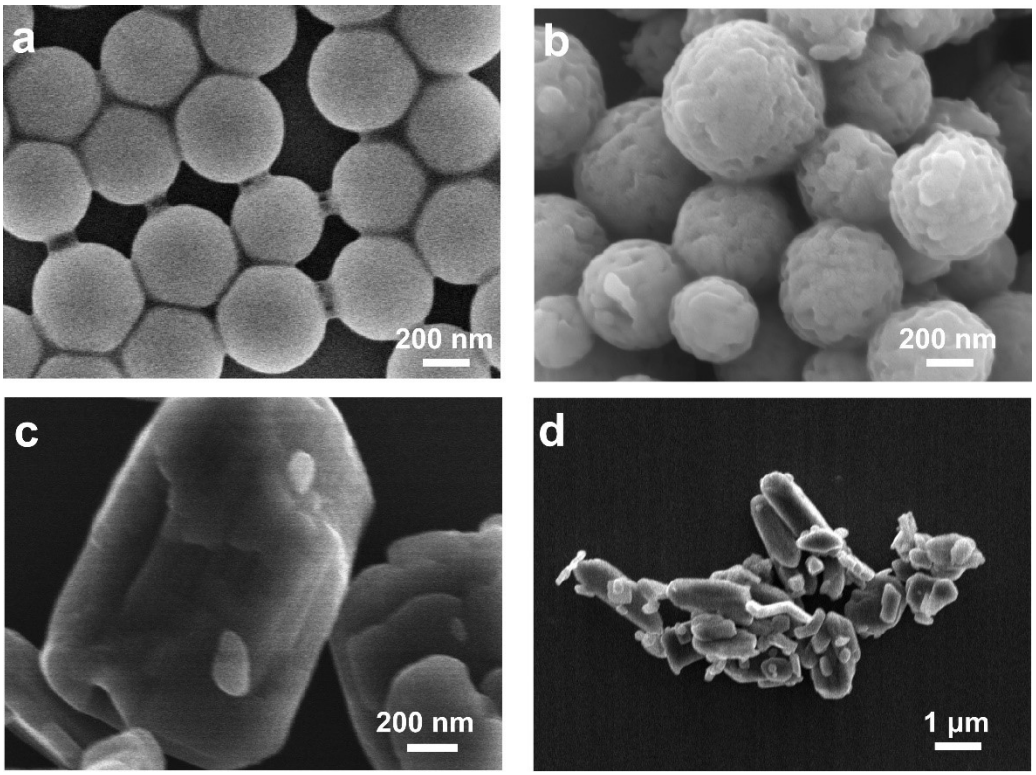

Figure S1. Supplementary figure of V_2O_5 morphology. a) SEM image of V-glycerate spheres. b) SEM image of V_2O_5 spheres. c-d) SEM image of V_2O_5 bulk.

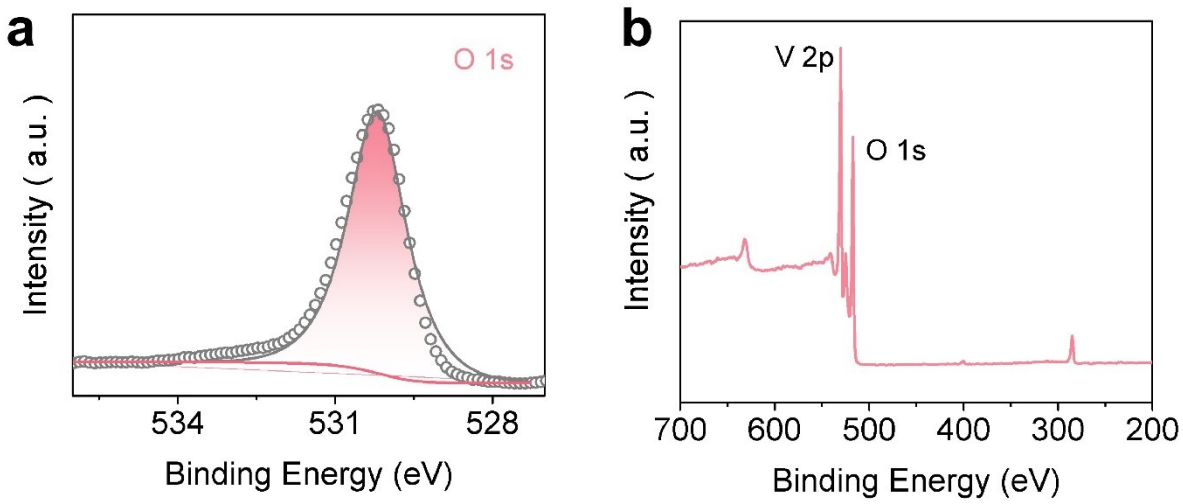

Figure S2. The XPS supplement spectrum of V_2O_5. a) The high-resolution XPS of O1s; b) The XPS full spectrum of V_2O_5.

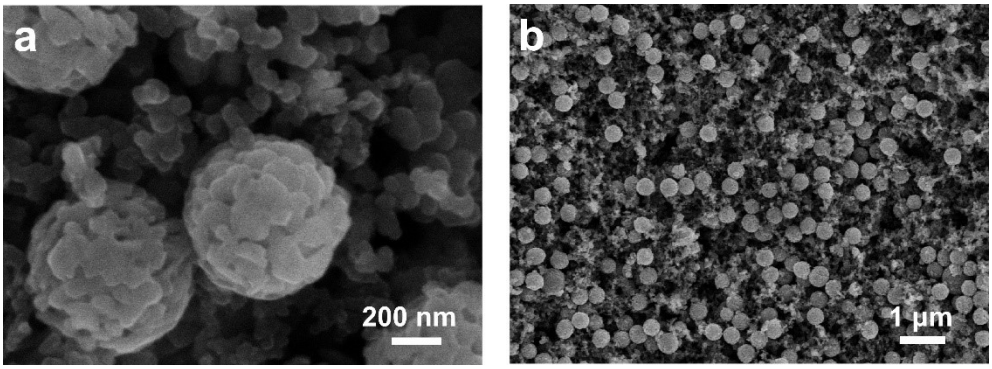

Figure S3. SEM image of $Li_3V_2O_5$ nanospheres(LVO-NS) electrodes.

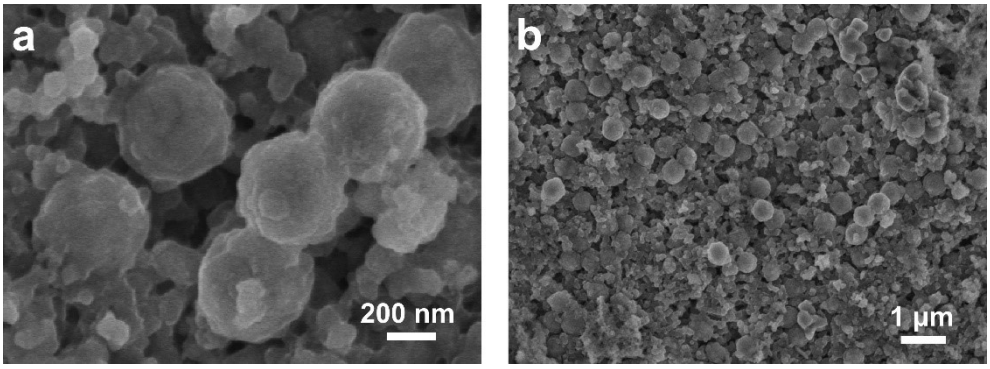

Figure S4. SEM image of $Li_3V_2O_5$ nanospheres(LVO-NS) electrodes after 6000 cycles at 10 A g^{-1}.

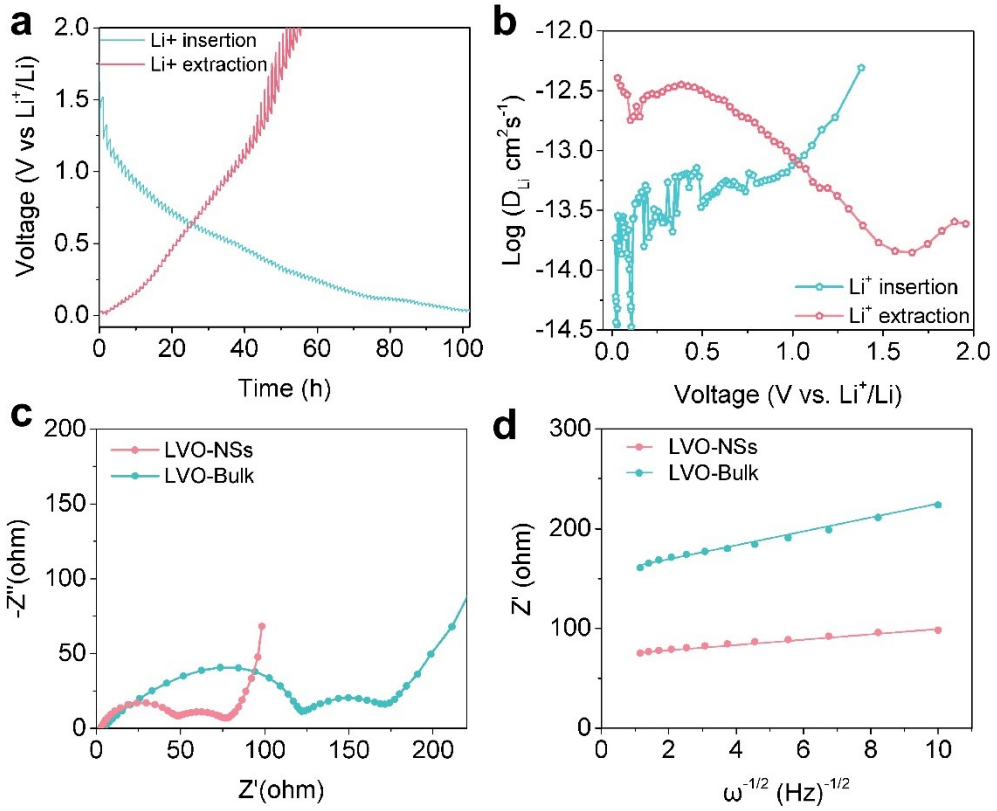

Figure S5 Kinetics analysis of the electrodes. a) GITT profiles of LVO bulk. b) Calculated D_{Li} values during charging and discharging. c)EIS profiles of LVO-NSs and LVO bulk electrodes. d) The slope determined by EIS data in Warburg region.

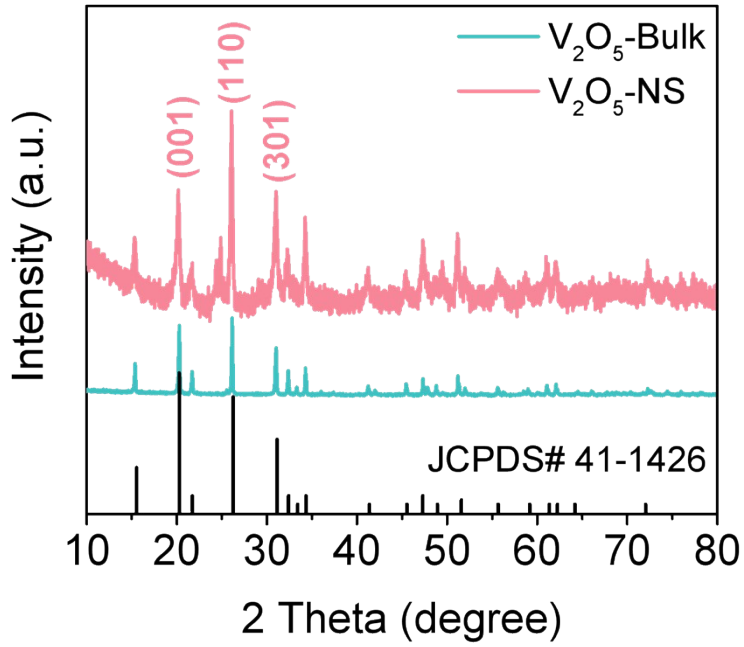

Figure S6 XRD pattern of V_2O_5 spheres and V_2O_5 bulk.

Table S2 The relative strength of different crystal planes.

Planes	(001)	(110)	(301)
V_2O_5-Bulk	100	109.4	71.7
V_2O_5-NS	100	136.8	99.3

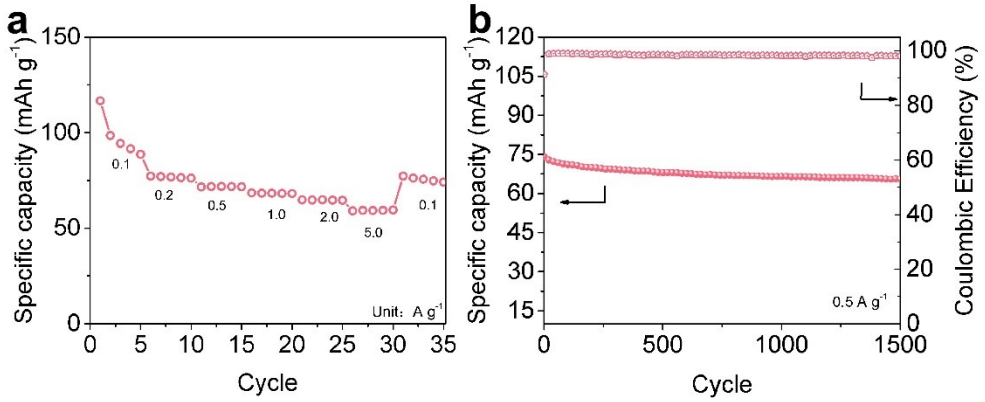

Figure S7 The evaluation of active carbon(AC). a) Rate performance comparison chart at various rates from 0.1 to 20 A g^{-1}.b) Cycle performance and coulombic efficiency comparison chart at a current density of 0.5 A g^{-1}.

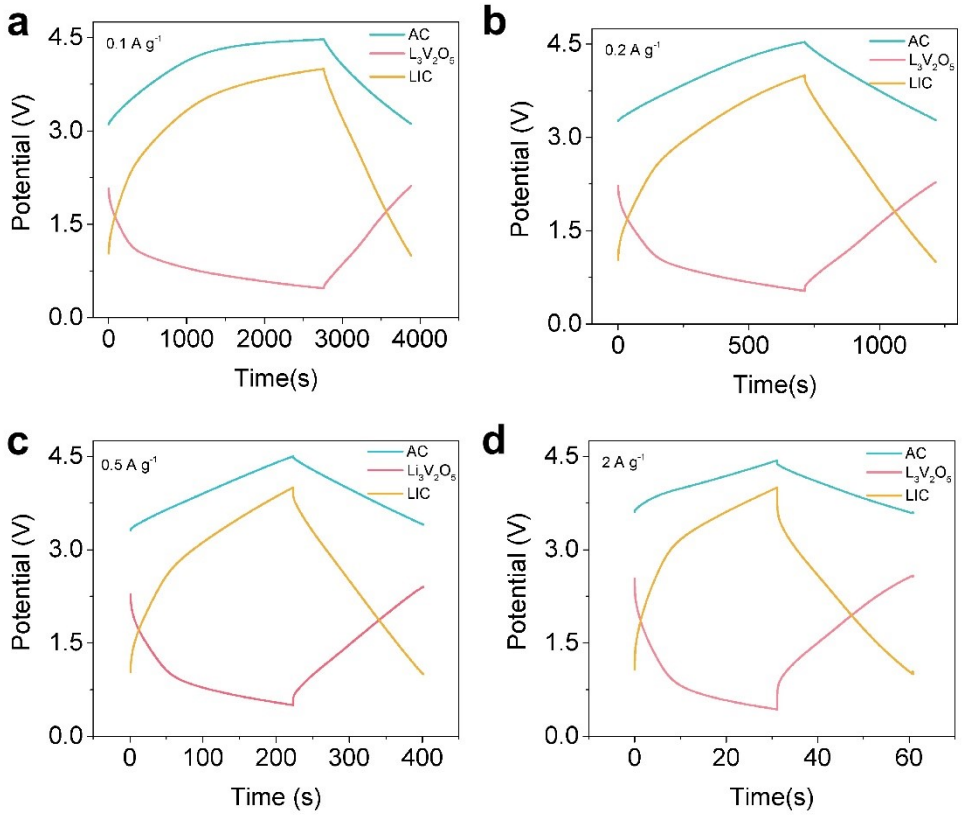

Figure S8. Galvanostatic charge/discharge curves of three-electrodes devices at different current density. a) 0.1 A g^{-1}. b) 0.2 A g^{-1}.c) 0.5 A g^{-1}. d) 2.0 A g^{-1}.

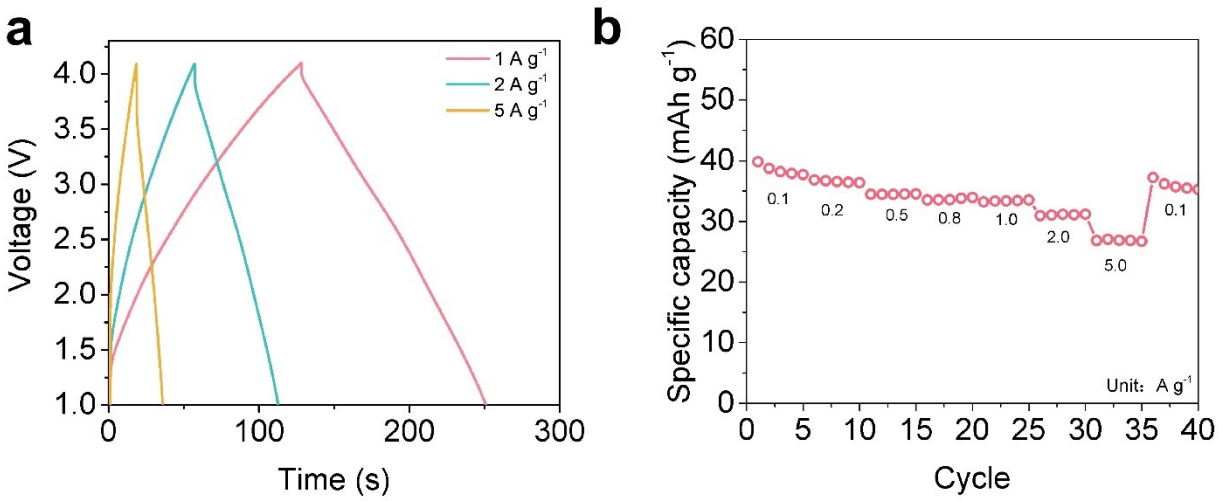

Figure S9. Supplement to the overall evaluation of LVO-NS//AC LIC. a) GCD curves at different current densities from 1 to 5.0 A g^{-1}. b) Rate performance comparison chart of LIC at various rates from 0.1 to 20 A g^{-1}.