Supporting Information

Fabrication of highly stable Nb_2O_5@C/CNTs based anolyte for lithium slurry flow battery

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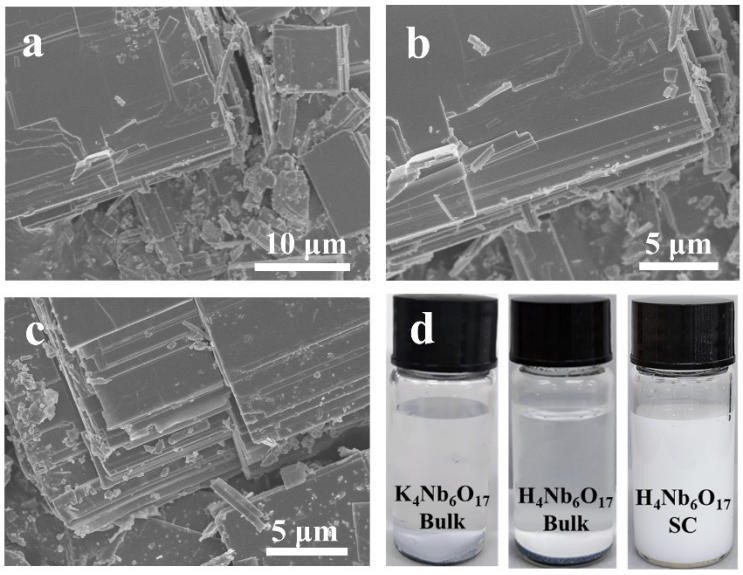

Fig. S1 SEM images of (a) (b) bulk $K_4Nb_6O_{17}$ and (c) bulk $H_4Nb_6O_{17}$. (d) Photograph shows the dispersion of bulk $K_4Nb_6O_{17}$, bulk $H_4Nb_6O_{17}$, and $H_4Nb_6O_{17}$-SC in water.

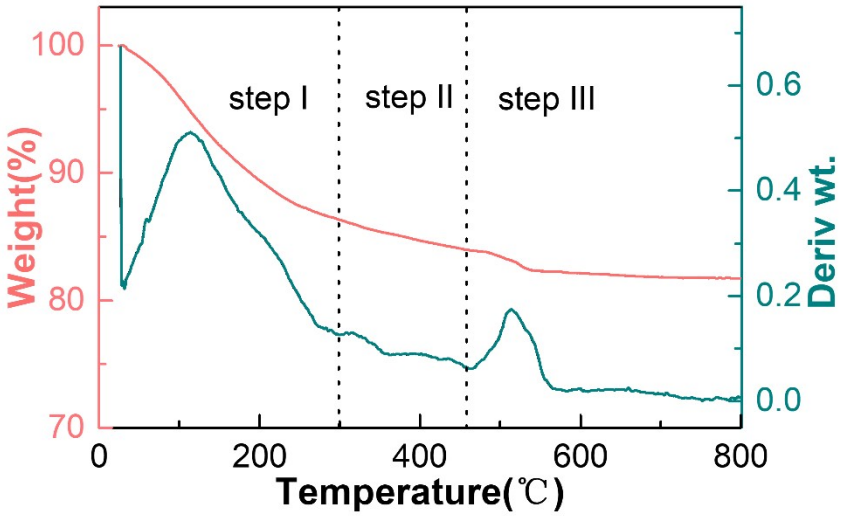

Fig. S2 Thermal gravimetry of $H_4Nb_6O_{17}$ scrolls. Data obtained under air, at a ramp rate of 10 ℃/min.

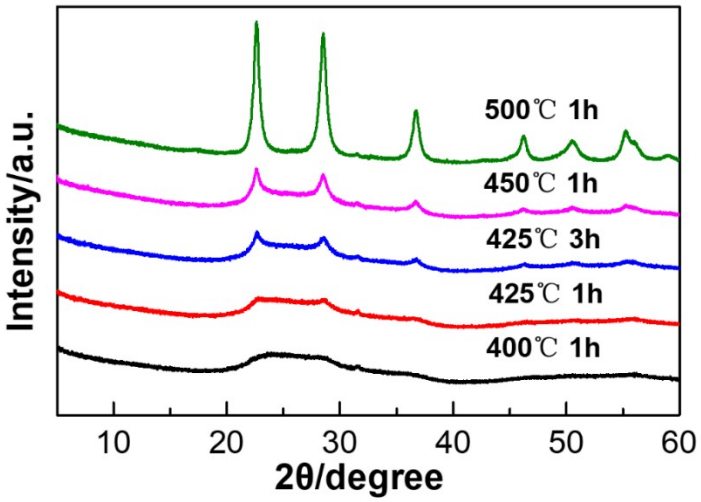

Fig. S3 XRD patterns showing the transformation from $H_4Nb_6O_{17}$ scrolls to Nb_2O_5 treated at different annealing temperature.

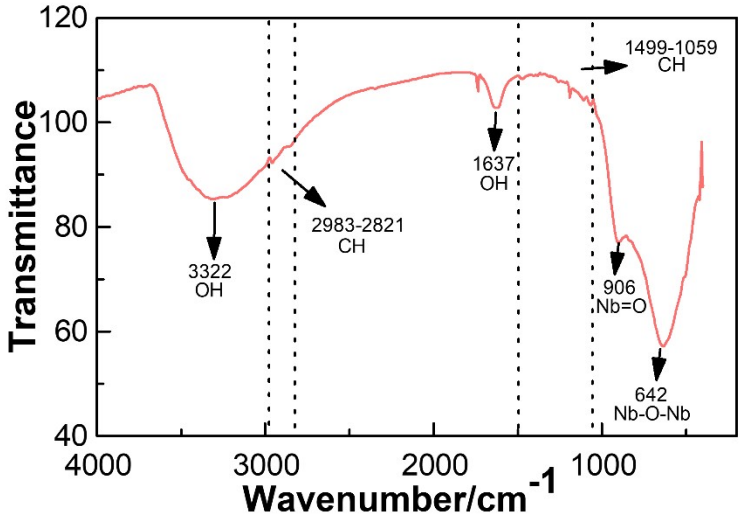

Fig. S4 IR spectra of $H_4Nb_6O_{17}$ scrolls. A very small peak at approximately 2969 cm^{-1} (C-H

stretching mode) indicates only trace amounts of tetrabutylammonium cations.

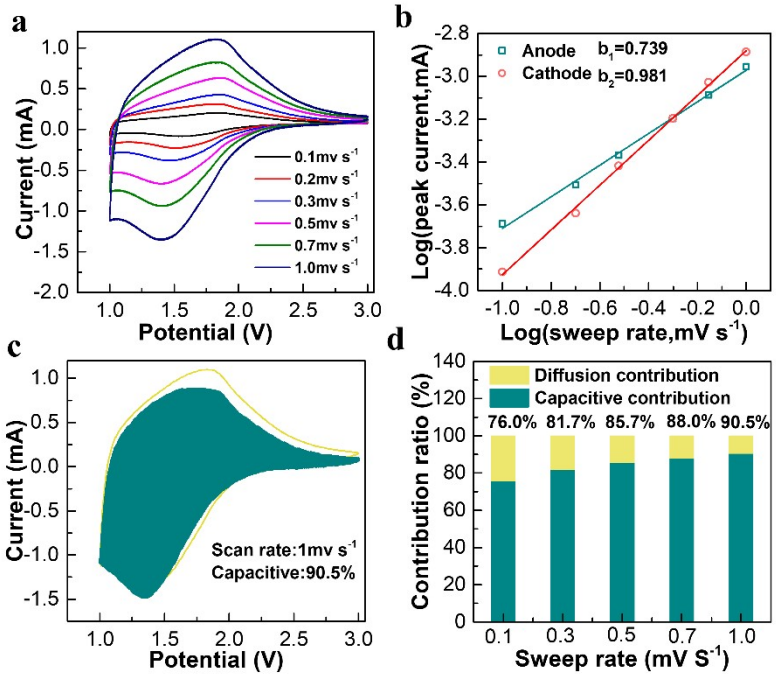

Fig. S5 Kinetics analysis of Nb_2O_5@C/CNTs solid electrode. (a) CV curves at various scan rates from 0.1 to 1 mv s^{-1}. (b) Determination of the b value using the relationship between peak current and scan rate. (c) Separation of the capacitive and diffusion currents at a scan rate of 1 mV s^{-1}. (d) Contribution ratio of the capacitive and diffusion-controlled charge versus scan rate.

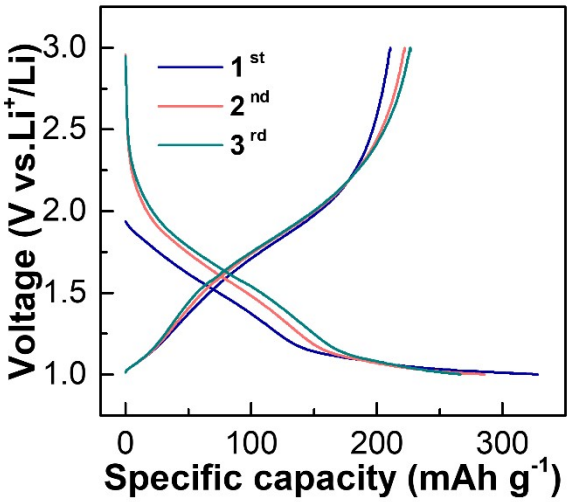

Fig. S6 Discharge–charge curves of Nb_2O_5@C/CNTs anolyte at a rate of 0.1 C.

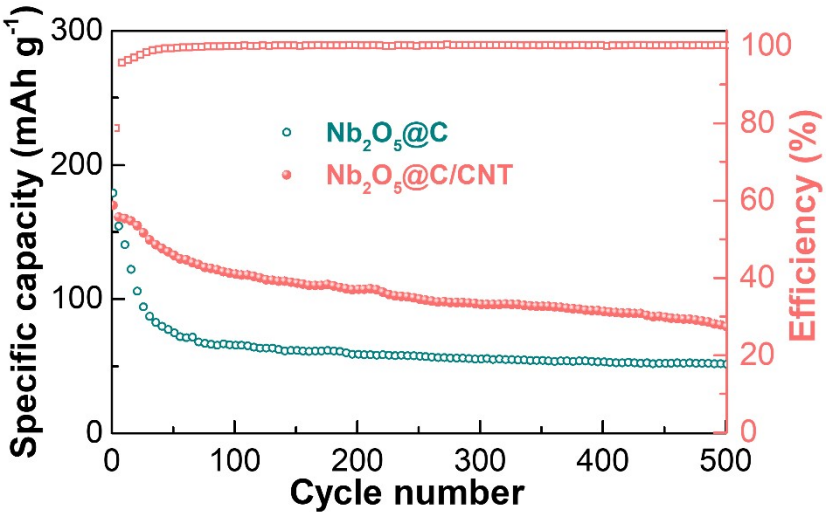

Fig. S7 Cycling performance of Nb_2O_5@C anolyte and Nb_2O_5@C/CNTs anolyte at a current density of 0.2 C.