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

Supporting information

Highly improved rechargeable stability for lithium/silver vanadium oxide battery induced via electrospinning technique

Yongzhi Wu,[a,b,c] Peining Zhu,[a,d] Xuan Zhao,[a,e] M. V. Reddy,*[c] Shengjie Peng,*[a,e]

B. V. R. Chowdari,[c] and S. Ramakrishna[a,d]

[a] Center for Nanofibers & Nanotechnology, Nanoscience and Nanotechnology Initiative, National University of Singapore, 117581, Singapore

[b] NUS Graduate School for Integrative Sciences and Engineering, 117456, Singapore

[c] Department of Physics, National University of Singapore, 117542, Singapore

[d] Department of Mechanical Engineering, National University of Singapore, 117574, Singapore

[e] School of Materials Science and Engineering, Nanyang Technological University, 639798, Singapore

*E-mail: phymvvr@nus.edu.sg; sjpeng@ntu.edu.sg

Supplementary EDS results for β-SVO NRs

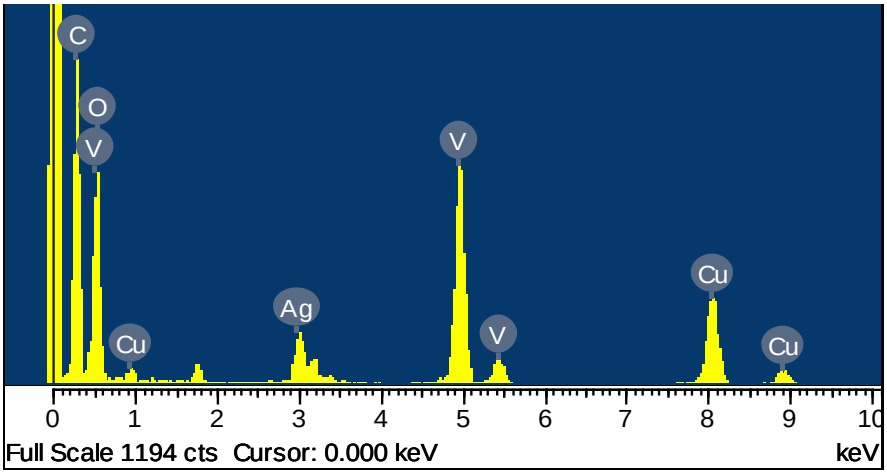

Fig. S1 Energy dispersive X-ray spectroscopy (EDS) results for β-SVO NRs of peaks for all possible elements.

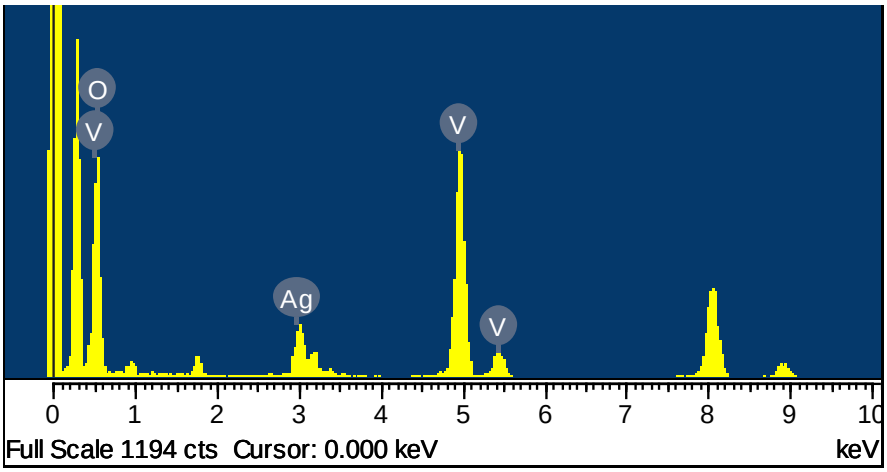

Fig. S2 EDS results for β-SVO NRs waving peaks for carbon and copper due to the carbon coated Copper TEM grid.

Spectrum processing: Peaks possibly omitted: 0.931, 1.748, 8.033, 8.899 keV

Quantitation method: Cliff Lorimer thin ratio section.

Processing option: All elements analyzed (Normalised)

Number of iterations = 1

Element	Peak Area	Area Sigma	k factor	Abs Corrn.	Weight%	Weight% Sigma	Atomic%
O K	1608	110	1.403	1.000	28.67	1.52	60.51
V K	4746	115	0.813	1.000	49.06	1.40	32.52
Ag L	1349	100	1.299	1.000	22.26	1.38	6.97

Table S1. Atomic percentages and obtained parameters for β-SVO NRs in EDS measurement.

Complementary images for materials characterization

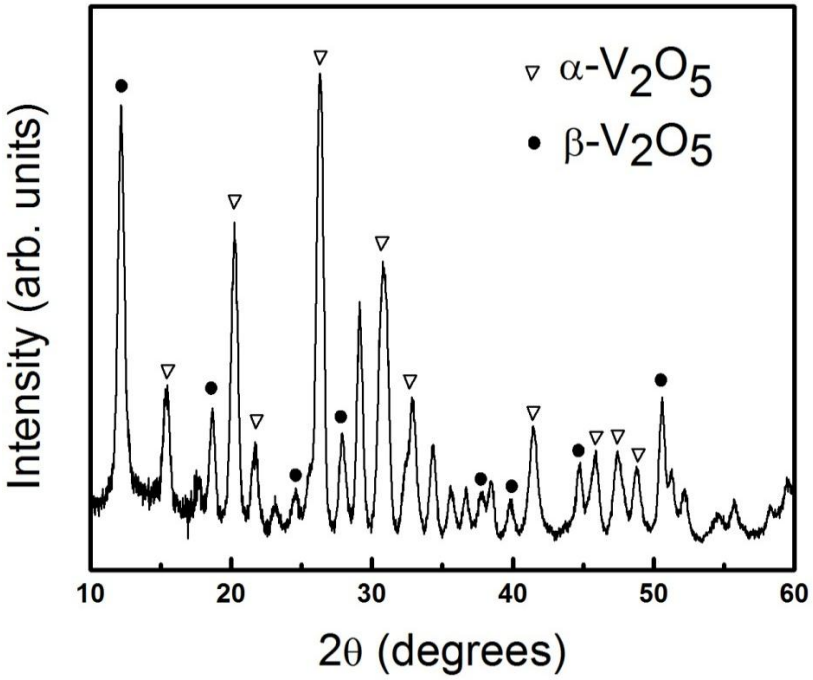

Fig. S3 XRD pattern for electrospun VOx nanofibers, corresponding to oxide precursors in step b demonstrated in Scheme 1.

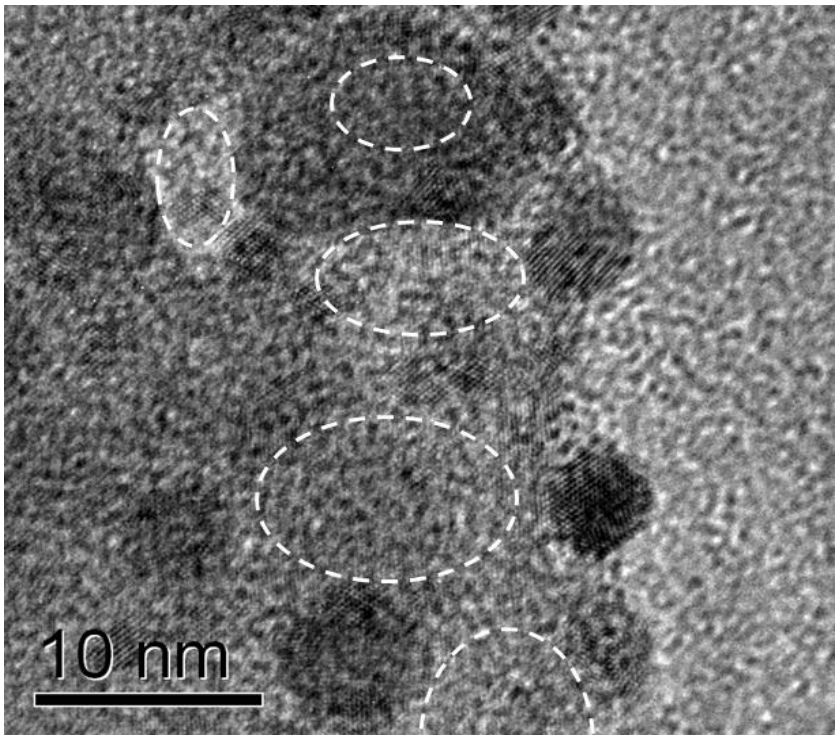

Fig. S4 TEM image for the surface on β-SVO NRs presenting nanopores between decorated Ag nanodots.

Supplementary information on the electrochemical performance of β-SVO NRs

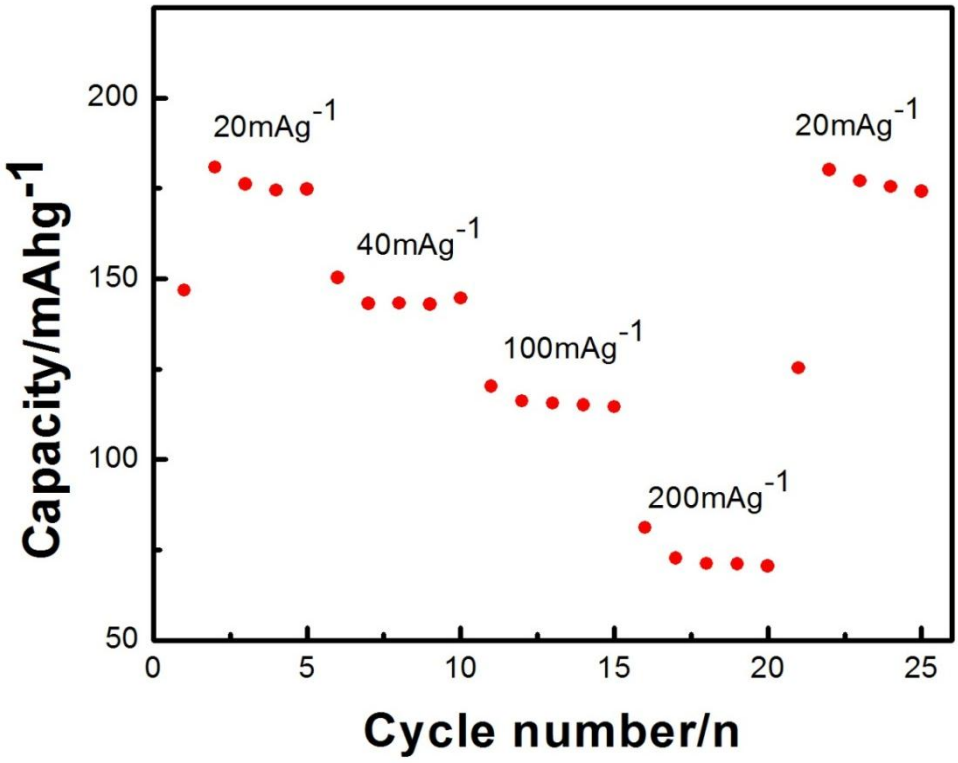

Fig. S5 Discharge capacity vs. cycle number plots of cell Li/β-SVO NRs (stored for more than four months) in the voltages range of 2–3.6 V at 20 mAg^{-1}, 40 mAg^{-1}, 100 mAg^{-1} and 200 mAg^{-1}, respectively at room temperature.

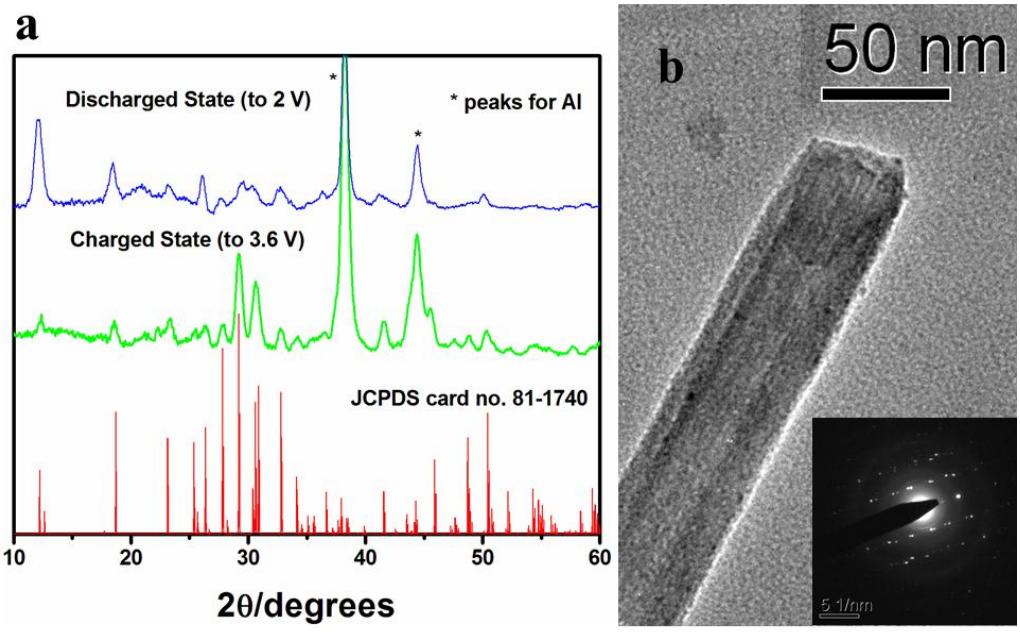

Fig. S6 ***a.*** XRD pattern for β-SVO NRs after cycling for more than 30 cycles in charged and discharged state; ***b.*** TEM images (with SAED pattern) for β-SVO NRs recharged back to 3.6 V.

Electrochemical performance in the comparison study with β-$AgVO_3$ NW

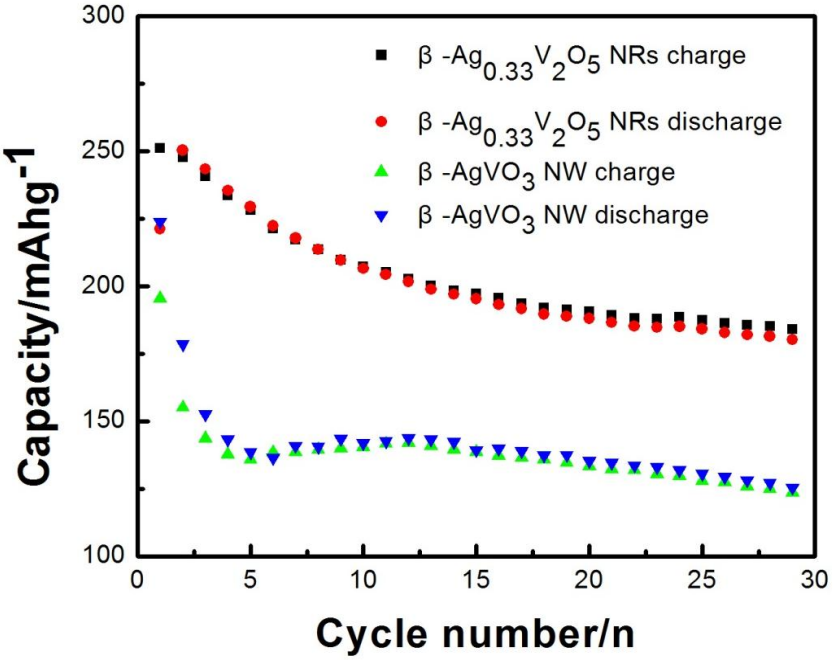

Fig. S7 Capacity vs. cycle number plots of cell Li/β-$AgVO_3$ NW in the voltage range of 2-3.6 V at 20 mAg^{-1} in comparison with β-SVO NRs.

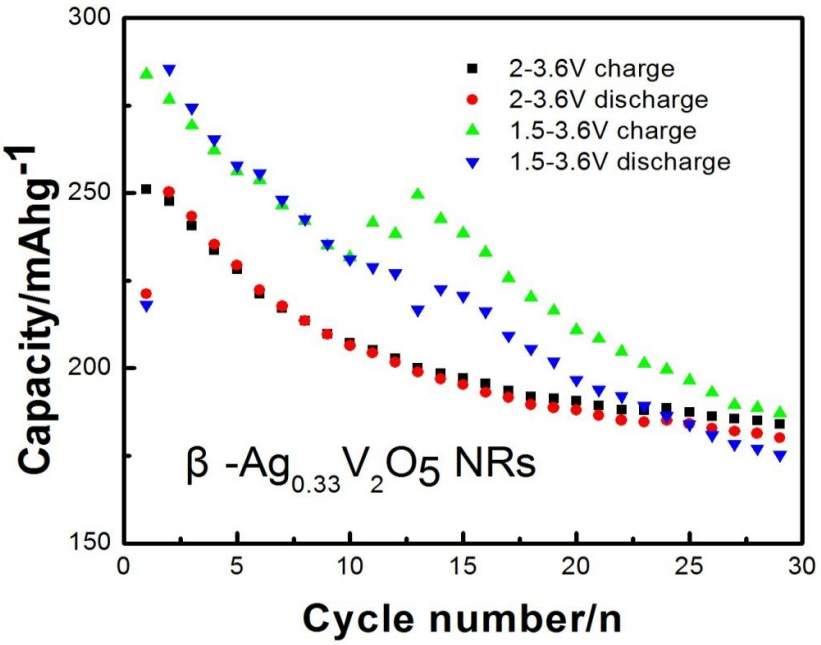

Fig. S8 Capacity vs. cycle number plots of cell Li/β-SVO NRs in the voltage window of 1.5-3.6 V and 2-3.6 V, respectively, at 20 mAg^{-1}.