

Supporting information

Polyaniline-Coated Porous Vanadium Nitride Microrods for Enhanced Performance of a Lithium–Sulfur Battery

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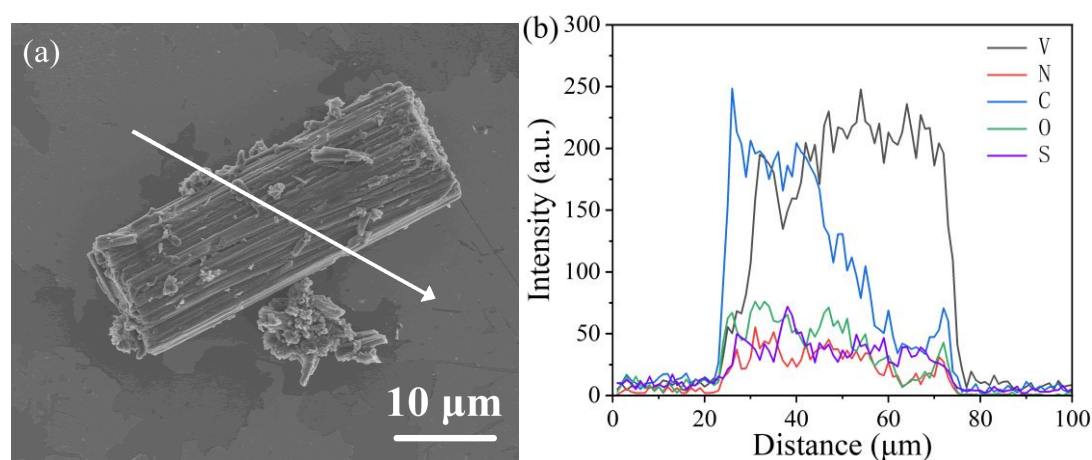


Figure S1. (a) SEM image of VN/S@PANI composite. (b) Line scanning curves of VN/S@PANI composite.

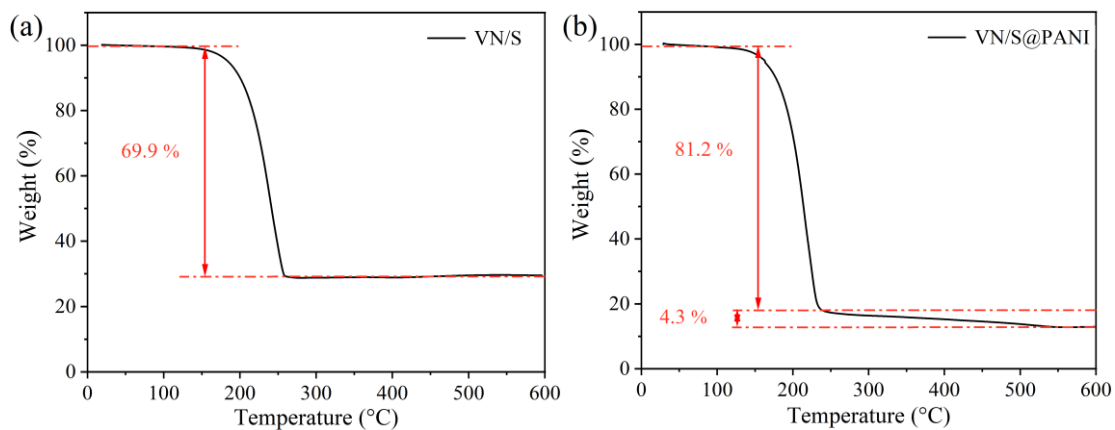


Figure S2. TGA curves of (a) VN/S microrods and (b) VN/S@PANI composite.

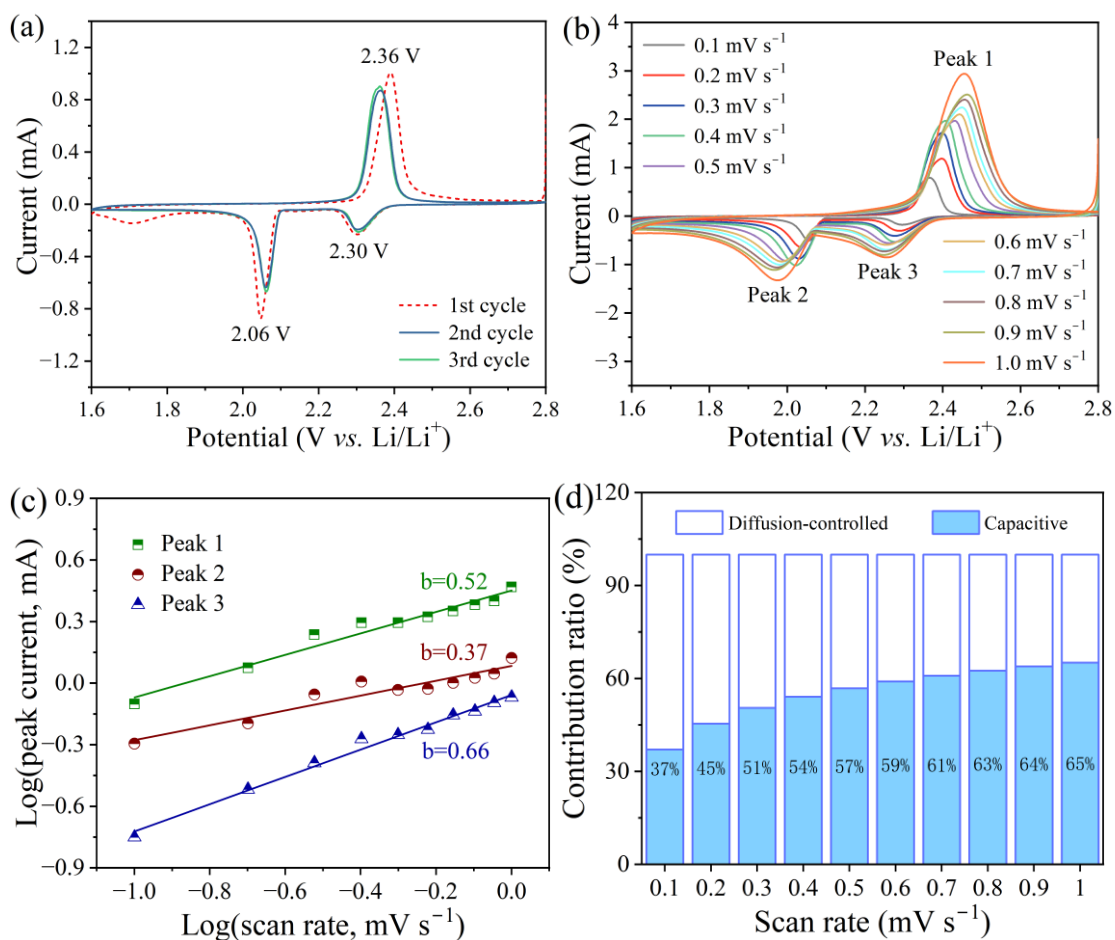


Figure S3. (a) Initial five CV curves of VN/S microrod cathode at a scan rate of 0.1 mV s^{-1} . (b) CV curves of VN/S microrod cathode at 0.1 to 1.0 mV s^{-1} . (c) The $\log(i)$ vs. $\log(v)$ of VN/S microrod cathode. (d) Contribution ratio of capacitance control and diffusion control.

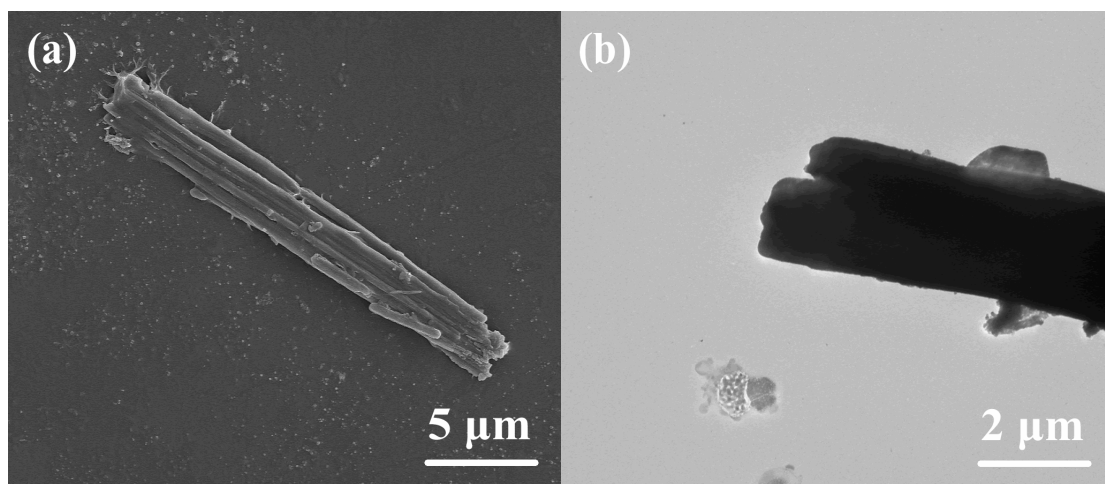


Figure S4. (a) SEM and (b) TEM images of VN/S@PANI microrod cathode after 500 cycles.

Table 1 Compared electrochemical performance of reported materials as sulfur hosts or interlayers.

Materials	Preparation method	Cycling rate (A g^{-1}) /Cycle number	Capacity (mAh g^{-1})	Ref.
VN/S microflowers	Solution-calcining method	5/500	62	[11]
PANI@BDC/S	Solution-calcining method	0.8/500	366	[35]
S/VN@CNFs	Electrospinning and spraying method	0.33/100	855	[38]
VN-NCNFs/S nanofibers	Electrospinning and spraying method	1.67/500	560	[39]
V_2O_3 -VN@NC/S	Solution-calcining method	0.33/150	716	[40]
3DNPC/VN-S nanoparticles	Template method	1.67/300	615	[41]
CFP@PANI-PP	Hydrolysis method	1.67/200	583	[42]
V_2O_3 /S	Hydrothermal method	0.33/200	509	[43]
AC@ V_2O_5 /S	Solution-calcining method	0.17/100	795	[44]
VN/S@PANI	Calcining method and coating	0.5/150 2.0/400	735 458	This work