Supporting Information

A Quasi-Solid-State Sodium-ion Full Battery with High-Power/Energy Densities

Jin-Zhi Guo,[†] *Ai-Bo Yang,*[†] *Zhen-Yi Gu,*[†‡] *Xing-Long Wu,**[†§] *Wei-Lin Pang,*[†] *Qiu-Li Ning,*[†] *Wen-Hao Li,*[†] *Jing-Ping Zhang,*[†] *Zhong-Min Su**[†]

[†] National & Local United Engineering Laboratory for Power Batteries, Faculty of Chemistry, Northeast Normal University, Changchun, Jilin 130024, P. R. China

[‡] College of Chemistry and Environmental Science, YiLi Normal University, Yining, Xinjiang 835000, P. R. China

[§] Institute of Advanced Electrochemical Energy, Xi'an University of Technology, Xi'an 710048, China.

Corresponding Authors

* E-mail: xinglong@nenu.edu.cn

* E-mail: zmsu@nenu.edu.cn

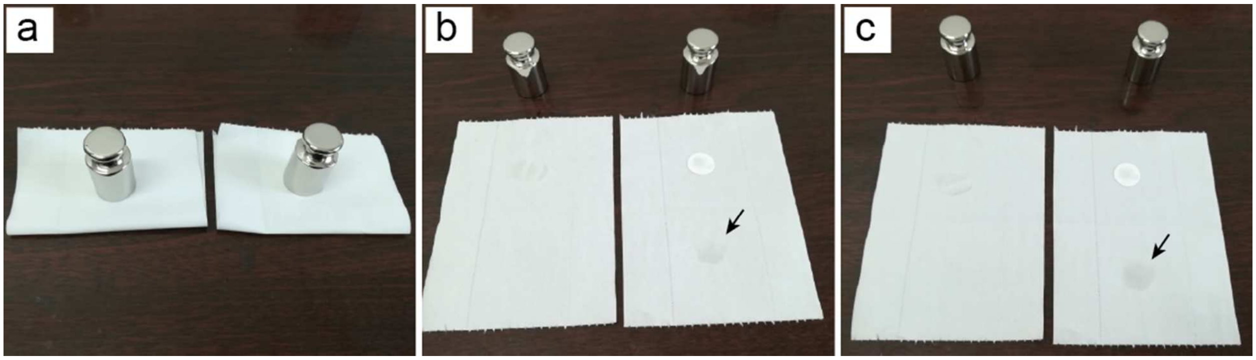

Figure S1. The ability to retain electrolyte of the P(VDF-HFP) CPE compared with the glass fiber membrane. (a) optical photograph under the 100 g pressure, (b) after 1 min, and (c) after 5 min.

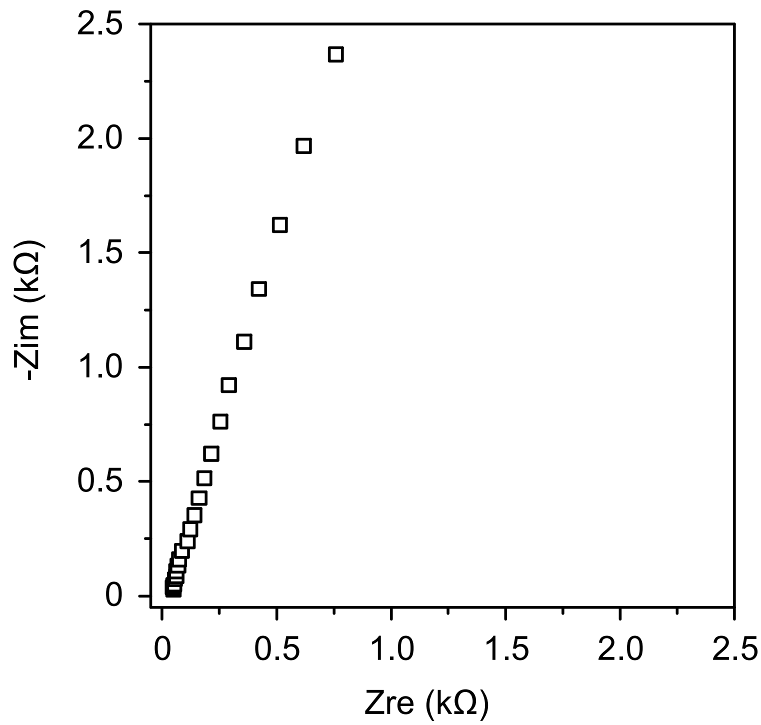

Figure S2. EIS measurement of the P(VDF-HFP) GPE at room temperature.

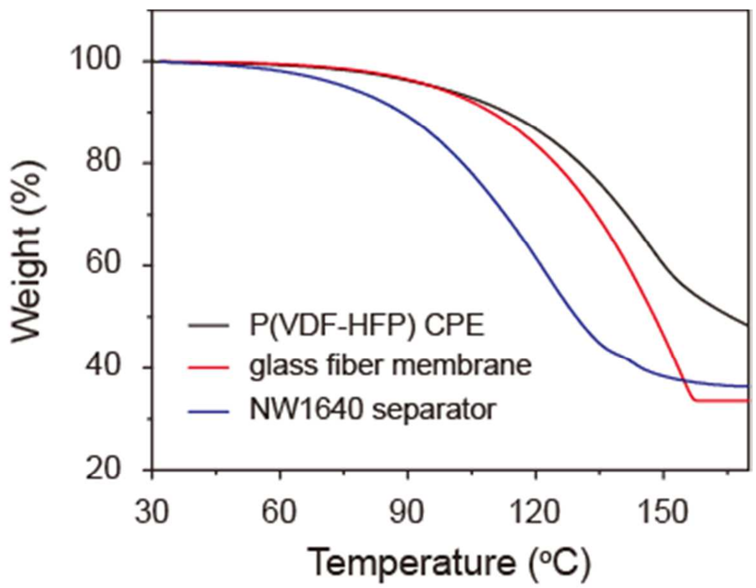

Figure S3. The comparison of TGA curves of the P(VDF-HFP) CPE with the glass fiber membrane and commercial separator NW1640 (Cangzhou Mingzhu Lithium Battery Separator co., ltd) after absorbing the organic electrolyte at the same amount as that in P(VDF-HFP) CPE.

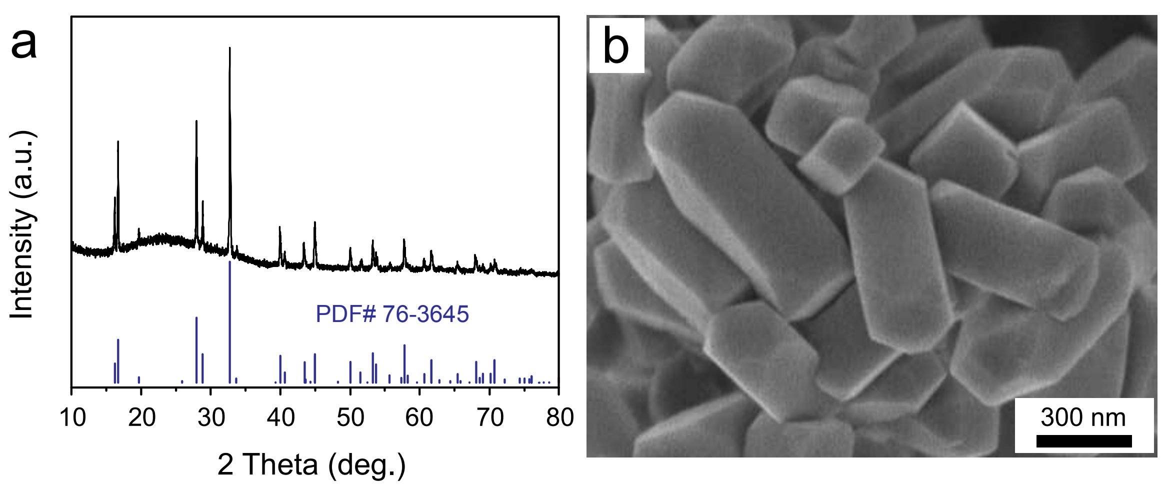

Figure S4. (a) XRD pattern, and (b) SEM image of the NVPOF cathode materials.

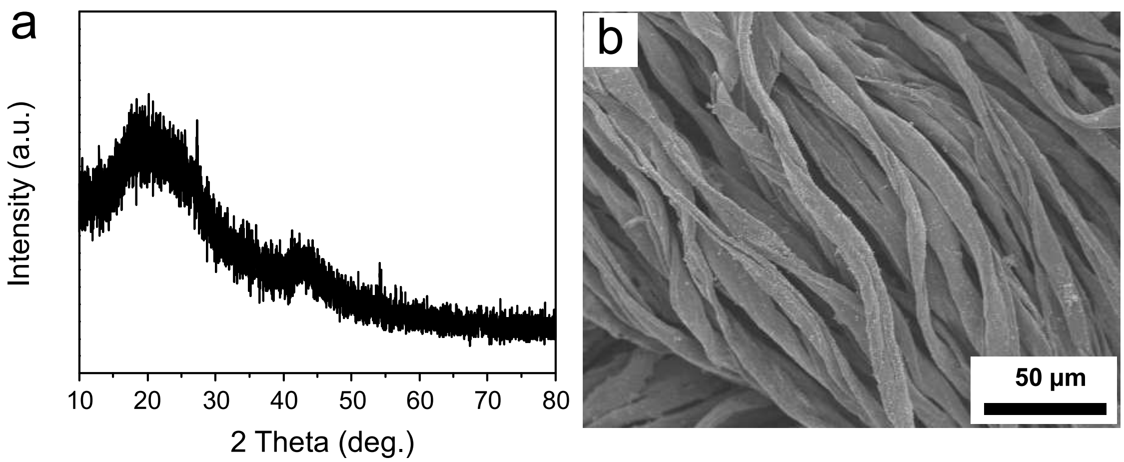

Figure S5. (a) XRD pattern, and (b) SEM image of the CC anode materials.

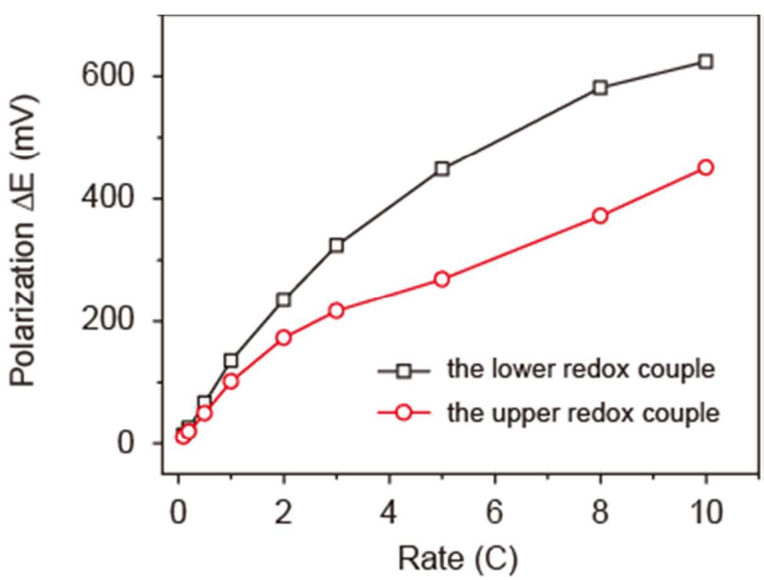

Figure S6. The varitions of polarization values (ΔE) of the upper/lower redox couples for the NVPOF cathode along with C rates.

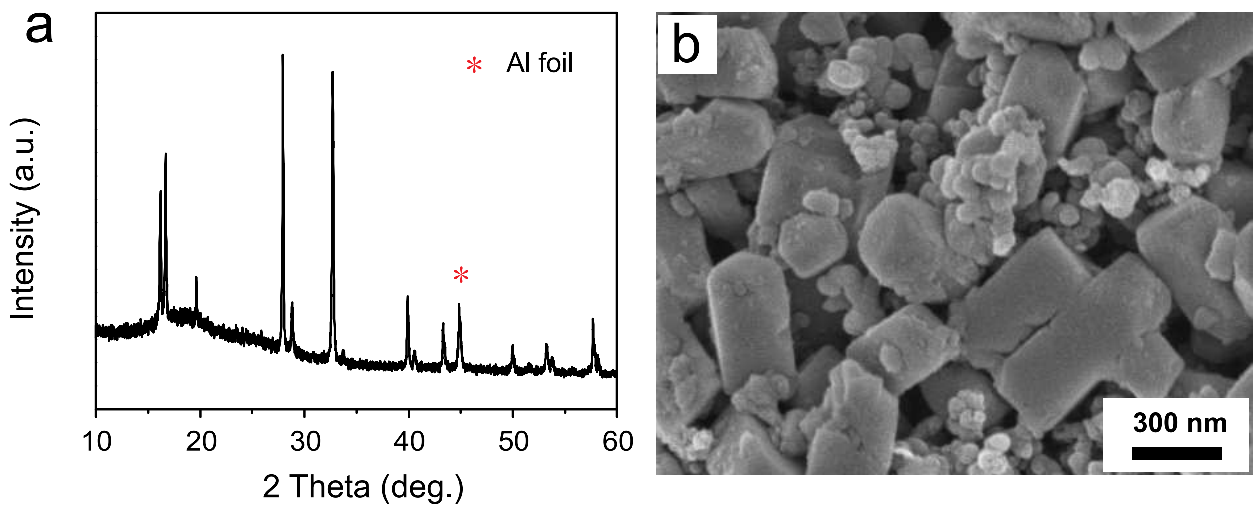

Figure S7. (a) XRD pattern and (b) SEM image of the NVPOF cathode after 50 cycles at 1 C.

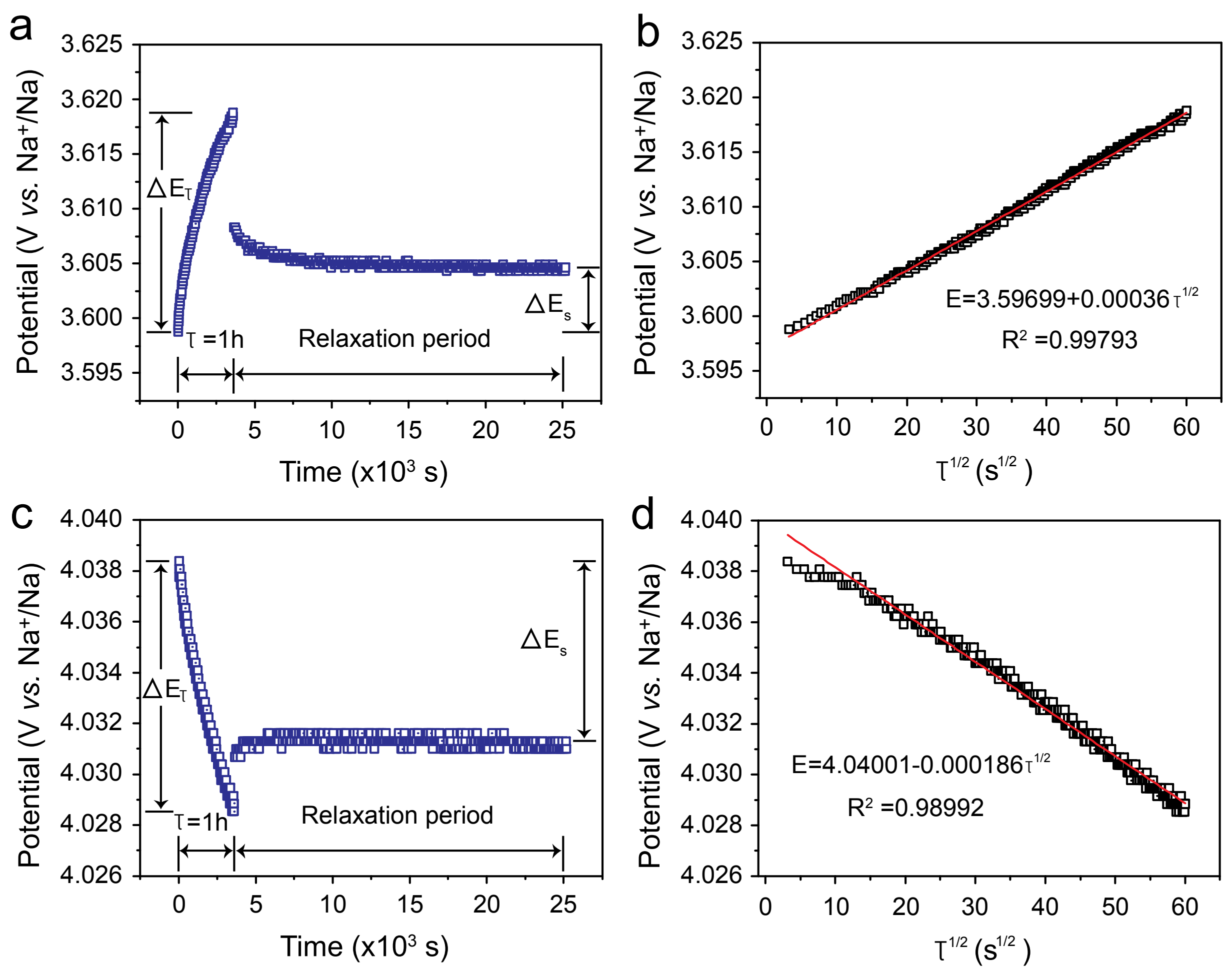

Figure S8. A single GITT profile for charge and discharge process. τ vs. E profiles for a single GITT titration during (**a**) charge and (**c**) discharge processes. The corresponding linearly fitting behavior of E vs. $\tau^{1/2}$ for the (**b**) charge and (**d**) discharge GITT titration.

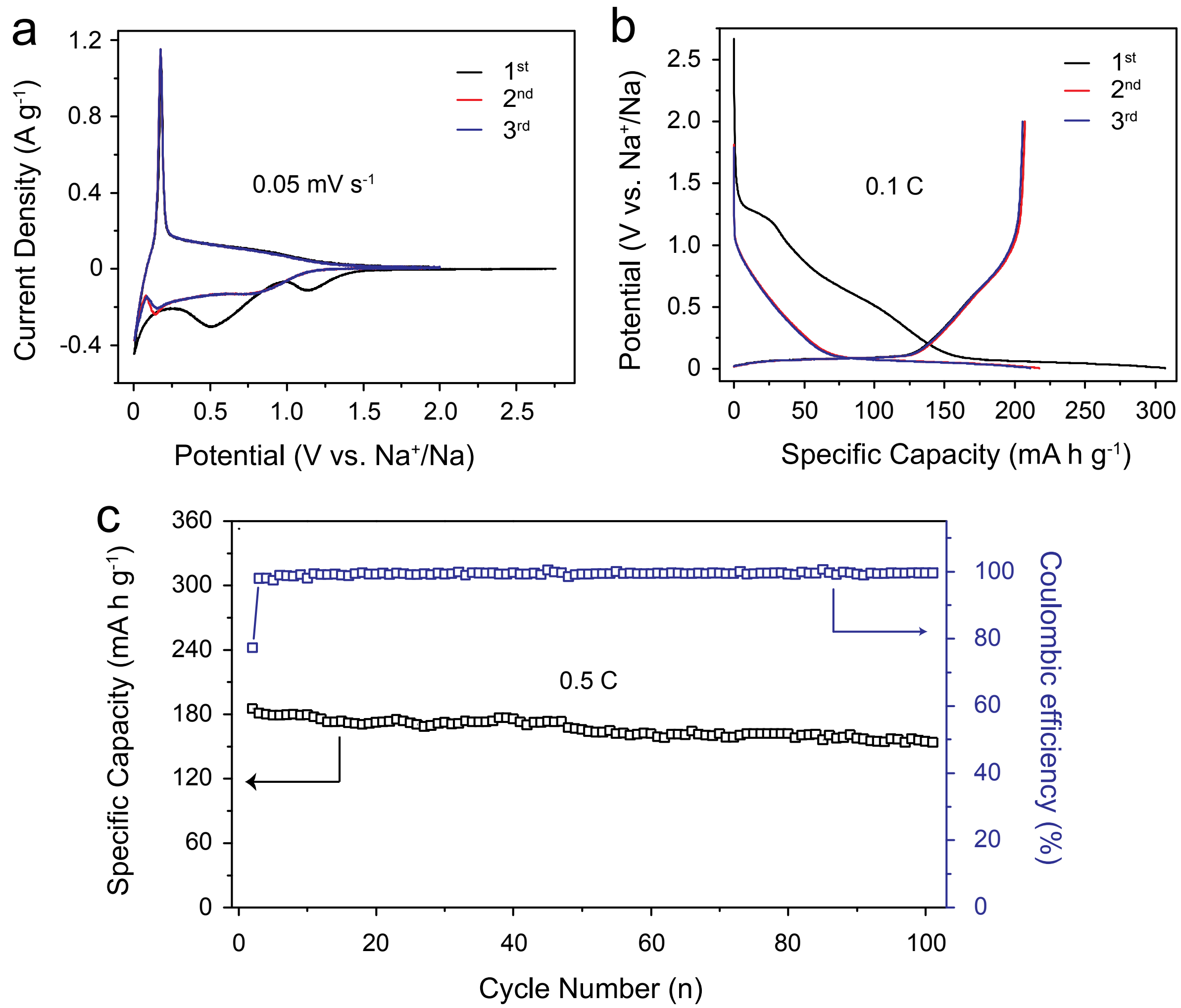

Figure S9. The Na-storage properties of CC anodes: (a) CV patterns of the initial 3 cycles, (b) GCD curves of the initial 3 cycles, and (c) cycling performance at 0.5 C.

Table S1. The ability to retain electrolyte of the P(VDF-HFP) membrane compared with the common separator of glass fiber.

Separator	The mass of the absorbed liquid electrolyte (mg)	Under the pressure of 100g, the mass of the retained electrolyte (mg)	
		After 1 min	After 5 mins
P(VDF-HFP)	34.02	33.66	33.40
Galss fiber	34.02	31.67	29.70

Table S2. Electrochemical properties for the CC//NVPOF full cells compared with other literature works.

Configuration	Voltage (V)	Capacity (mAh g^{-1})	Rate capability	References
CC//NVPOF	3.80	121.0	78.1 (10 C)	This work
graphite// $Li(Ni_{1/3}Co_{1/3}Mn_{1/3})O_2$	3.80	138	114 (1 C)	1
graphite//$LiFePO_4$	3.25	137	85.1 (7 C)	2
Sn-C// $LiMn_{0.5}Fe_{0.5}PO_4$	3.20	110	100 (0.2C)	3
Sb//$Na_3V_2(PO_4)_3$	2.70	106.8	61.1 (10 C)	4

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