Supporting Information

Tailored Polyimide as Positive Electrode and Polyimide-Derived Carbon as Negative Electrode for Sodium Ion Full Battery

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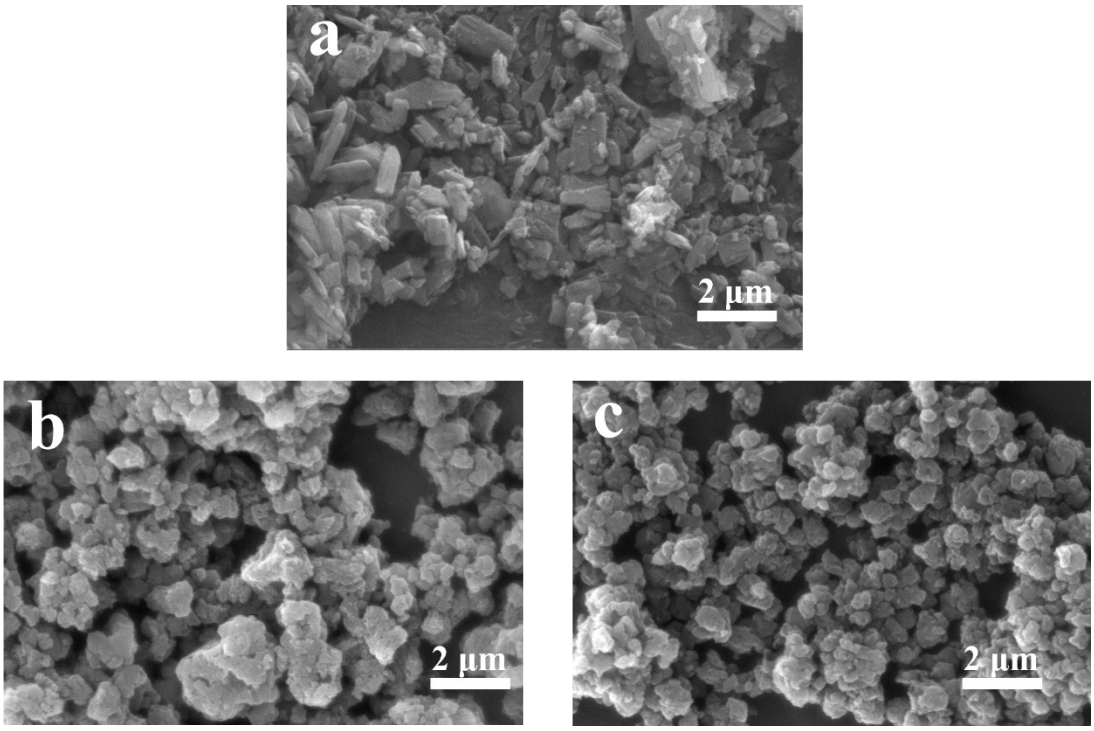

Fig. S1. SEM images of (a) NTCDA, (b) PI and (c) CPI.

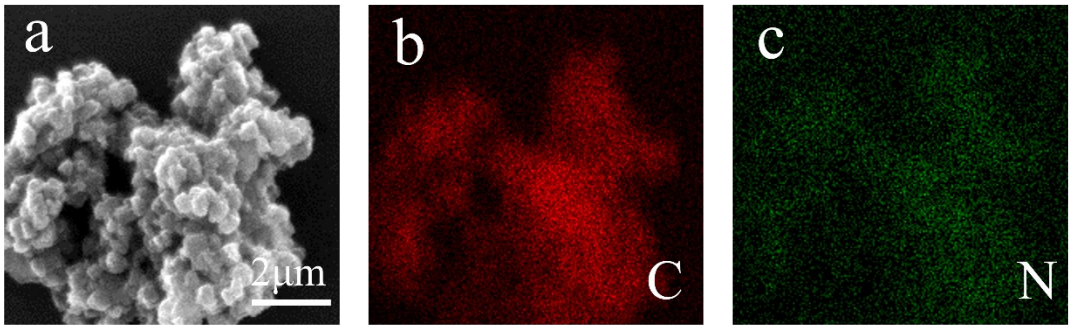

Fig. S2. Elemental mapping of CPI

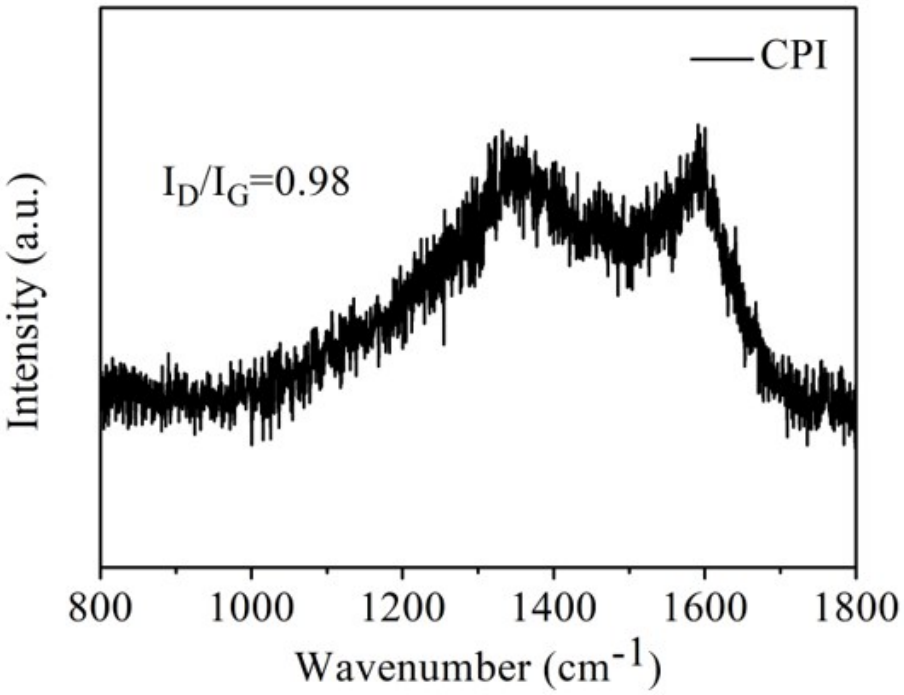

Fig. S3 Raman spectra of CPI

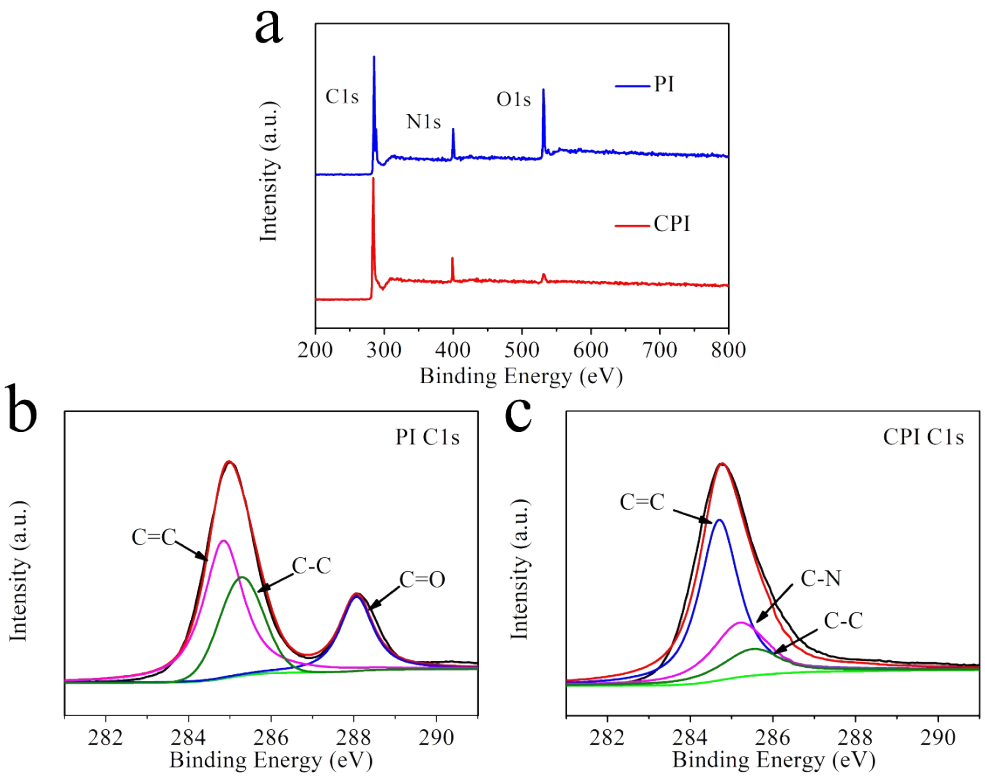

Fig. S4. (a) XPS survey spectrum of PI and CPI. High-resolution XPS C1s spectrum of (b) PI and (c) CPI.

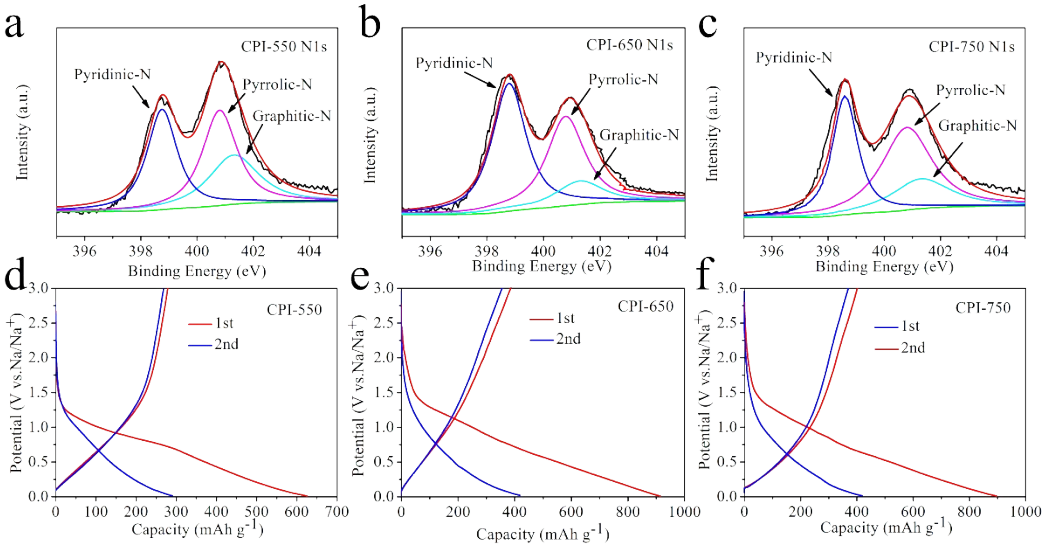

Fig. S5. High resolution N1s XPS spectra of (a) CPI-550, (b) CPI-650 and (c) CPI-750. Discharge/charge curves of (d) CPI-550, (e) CPI-650, (f) CPI-750.

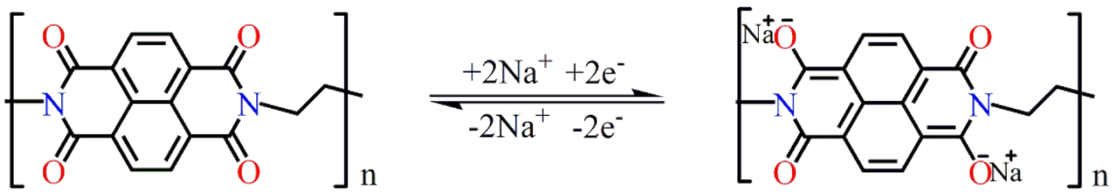

Fig. S6. Electrochemical redox mechanism of PI electrode material for SIB.

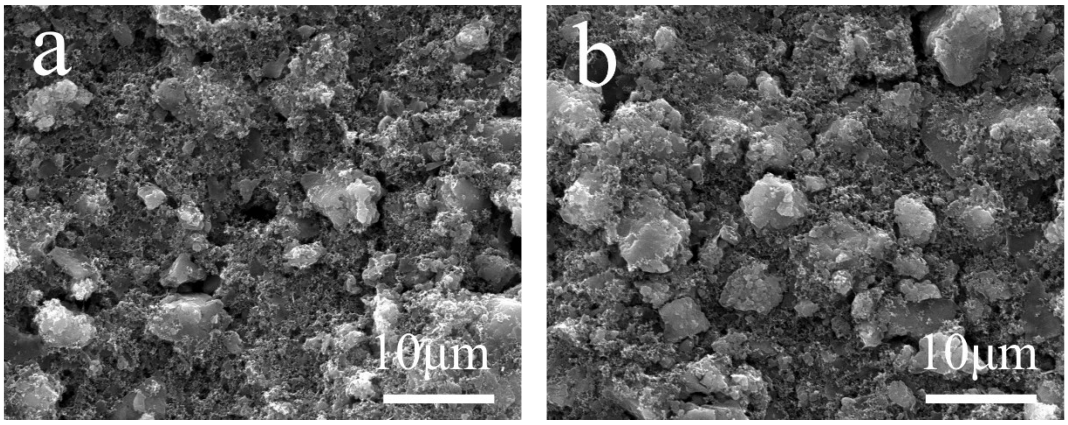

Fig. S7. SEM images of PI cathode (a) initial and after (b) 200 charge-discharge cycles.

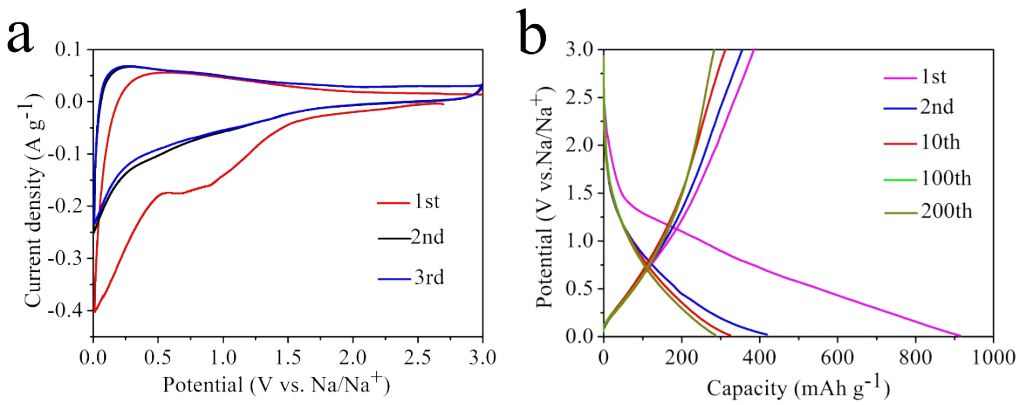

Fig. S8. Electrochemical measurements of CPI as electrode. (a) CV curves of CPI electrode (first 3 cycles) at the scan rate of 0.1 mV s^{-1}. (b) Charge/discharge profiles of CPI electrode measured at 100 mA g^{-1}.

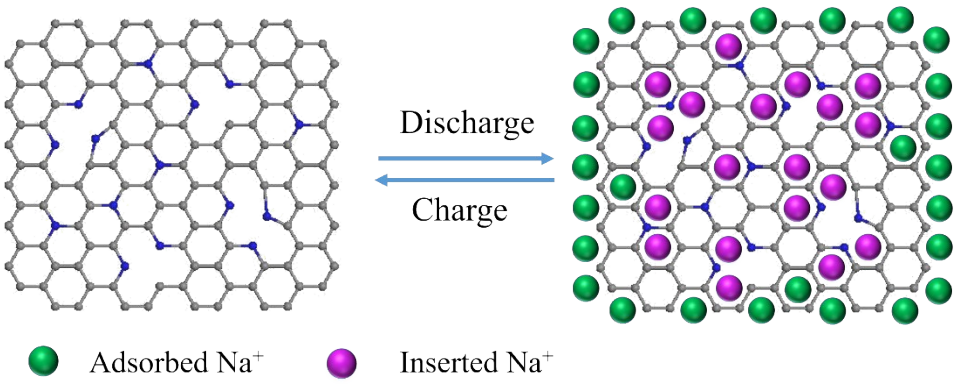

Fig. S9. Schematic diagram of the reversible Na-ion storage process in CPI electrode.

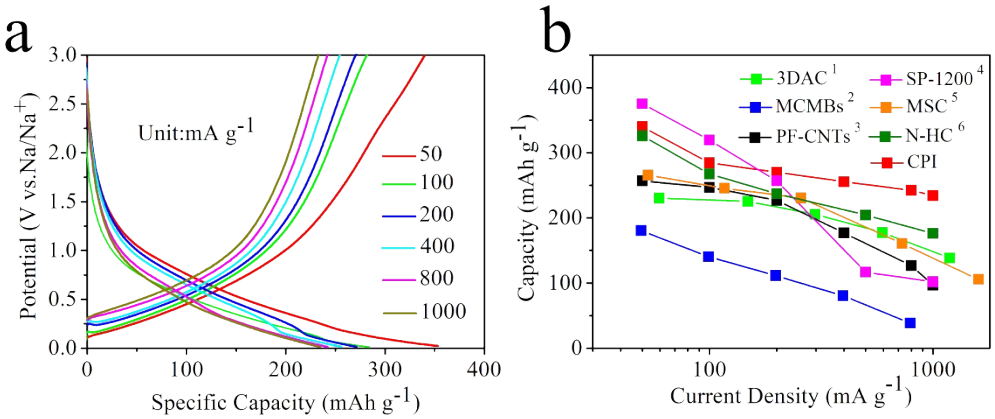

Fig. S10. (a) Galvanostatic charge/discharge curves of CPI at different values of current density. (b) Rate capacities of CPI and other reported carbon materials.

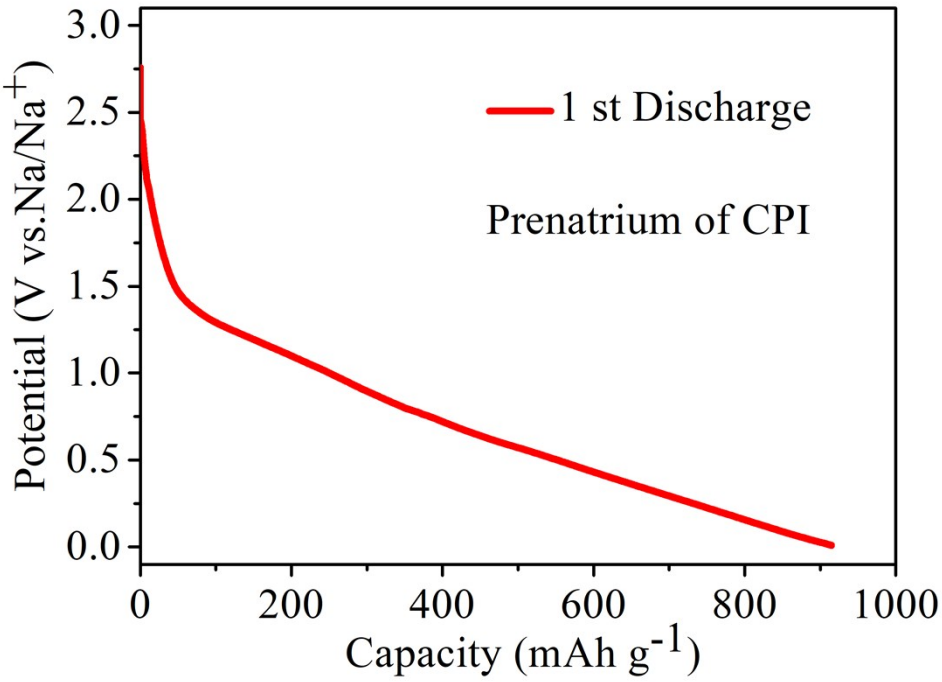

Fig. S11. Pre-natrium discharge curve of CPI electrode by deeply discharging it to a low potential of 0.01 V at a current density of 100 mA g^{-1}.

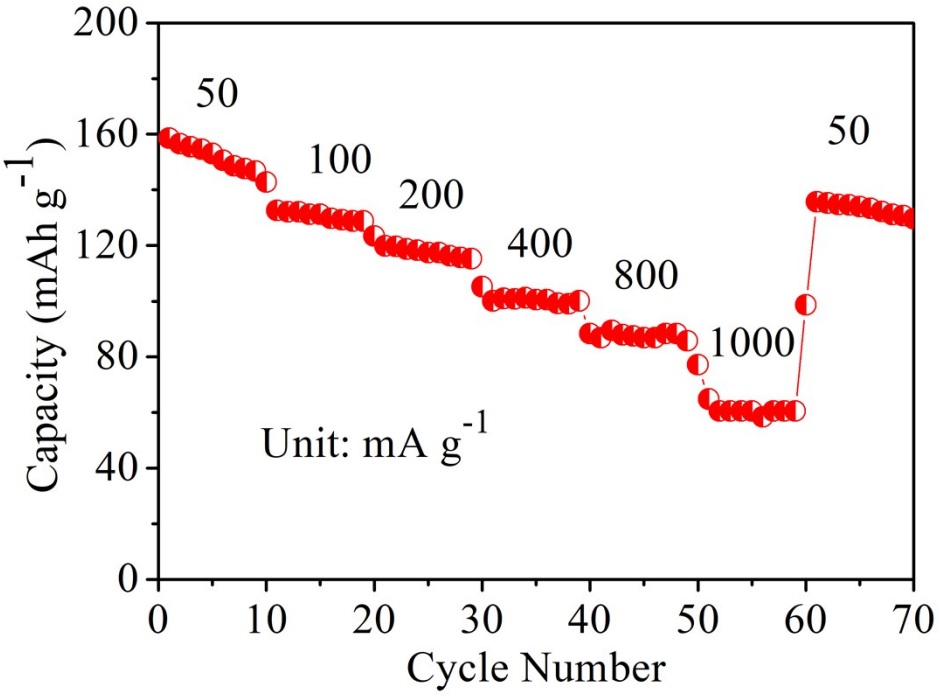

Fig. S12. Full-battery rate stability at different values of current density.

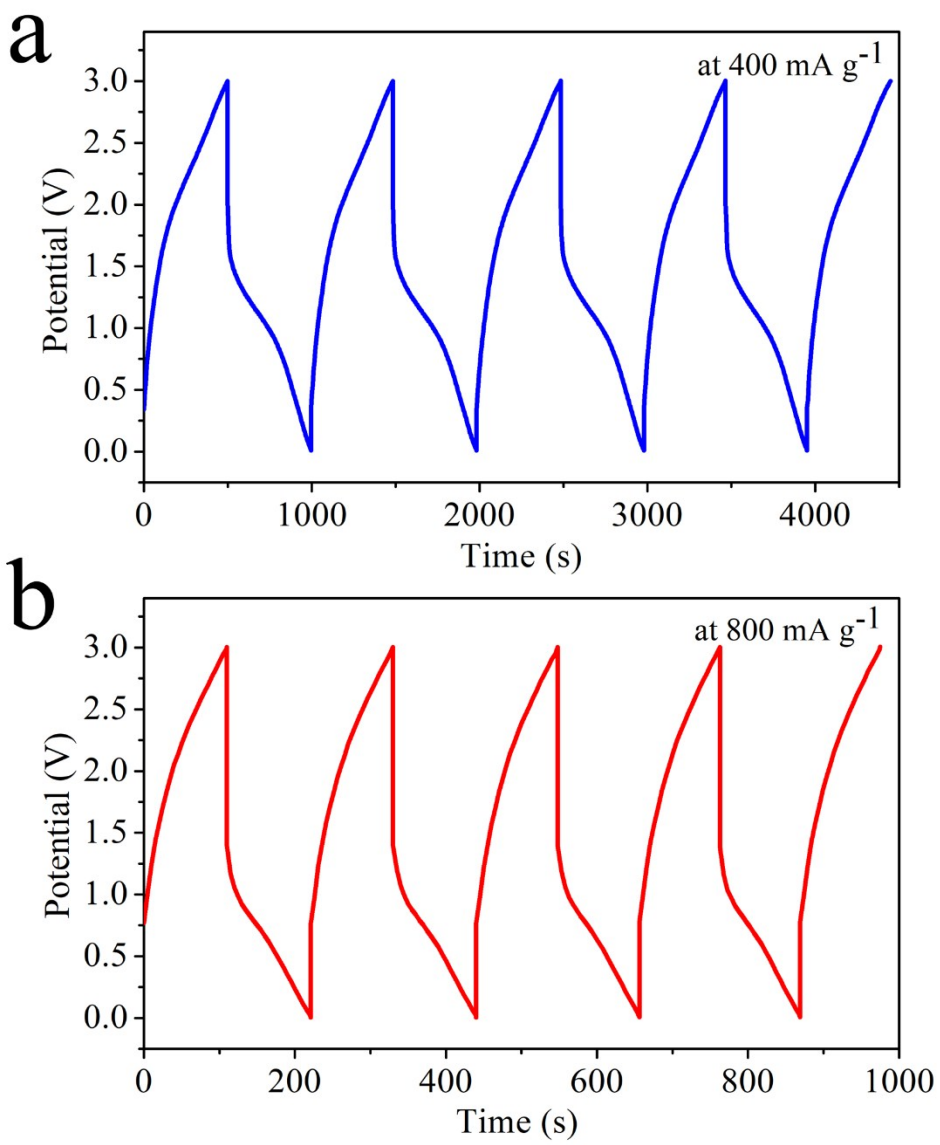

Fig. S13. Voltage versus time duration curves of full-battery at the high current density of 400 and 800 mA g^{-1}.

References

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