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Interface and electronic structure engineering induced Prussian blue analogues with ultra-stable capability for aqueous NH_4^+ storage

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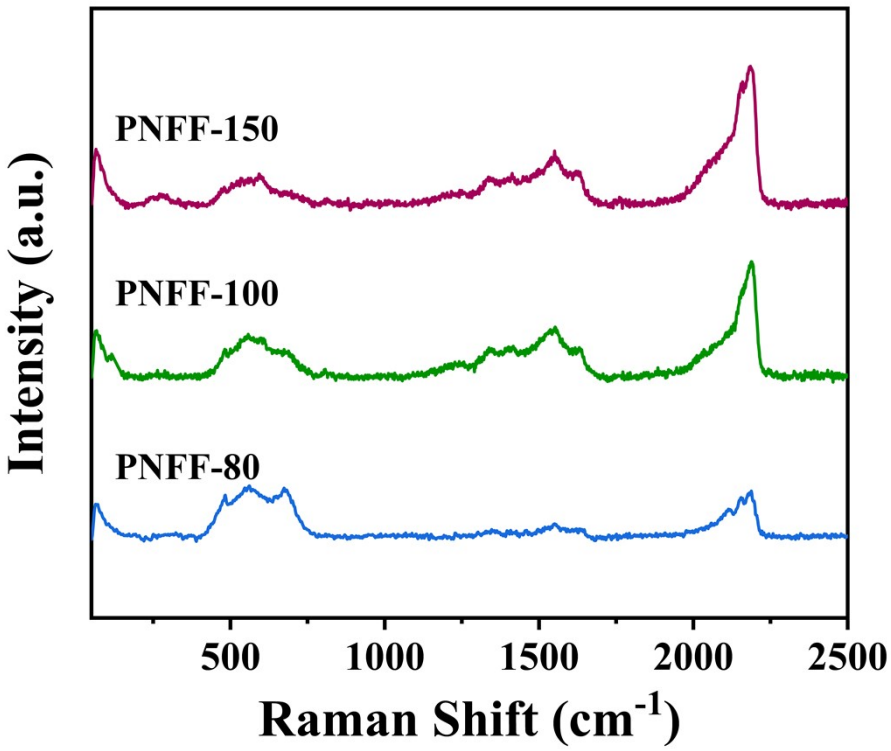

Fig S1. Raman spectra of PNFF-80, PNFF-100 and PNFF-150.

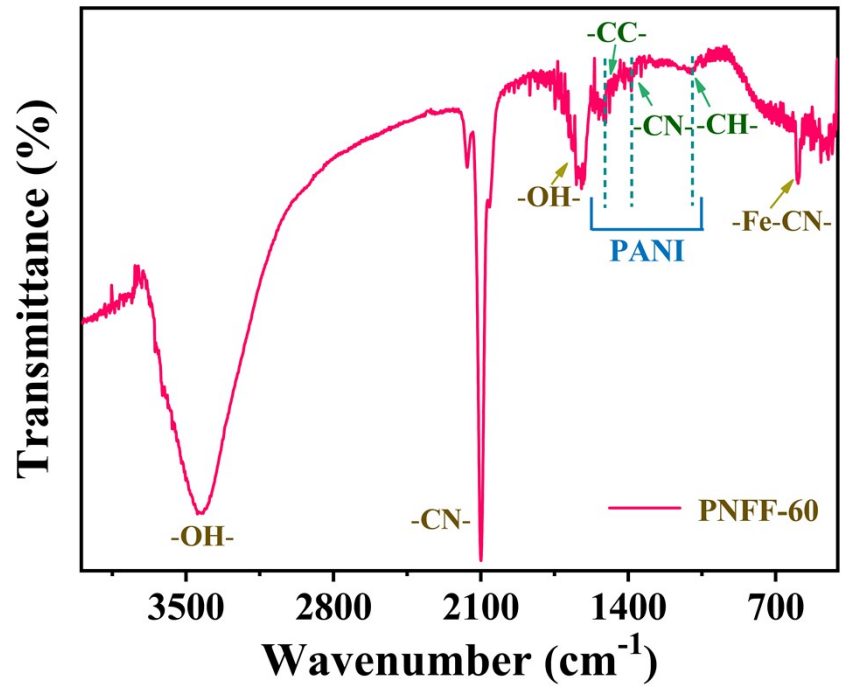

Fig S2. (a). Typical charge/discharge profiles of PNFF-60.

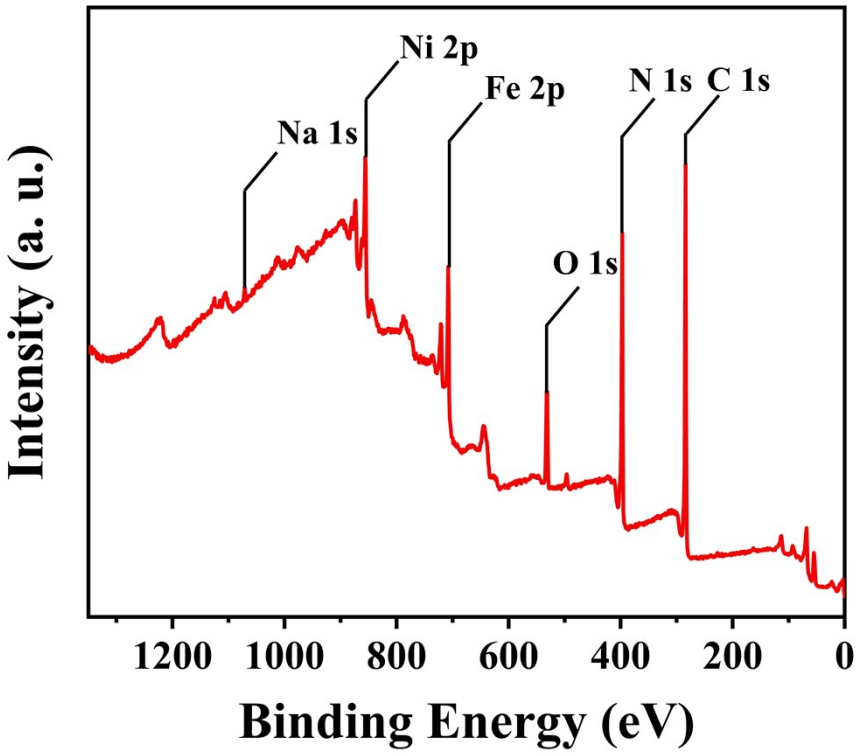

Fig S3. XPS spectrum of PNFF-60.

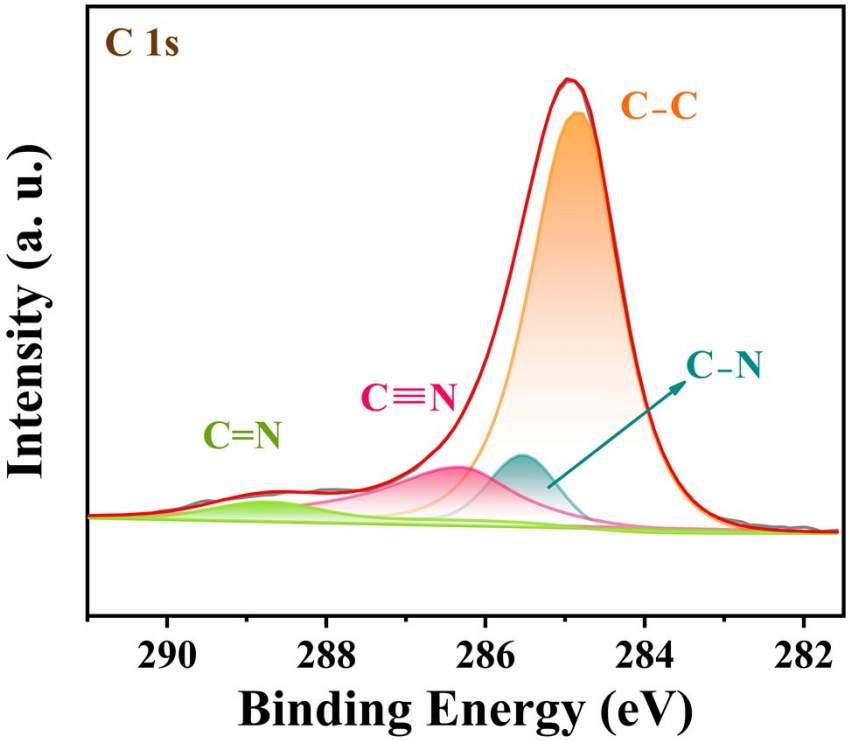

Fig S4. C 1s XPS spectra of PNFF-60.

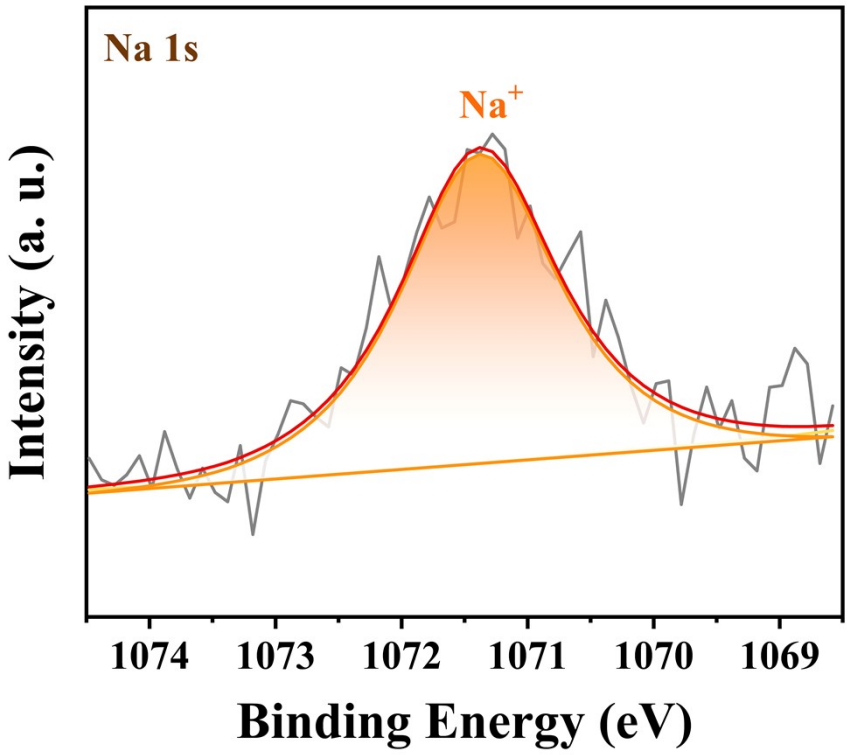

Fig S5. Na 1s XPS spectra of PNFF-60.

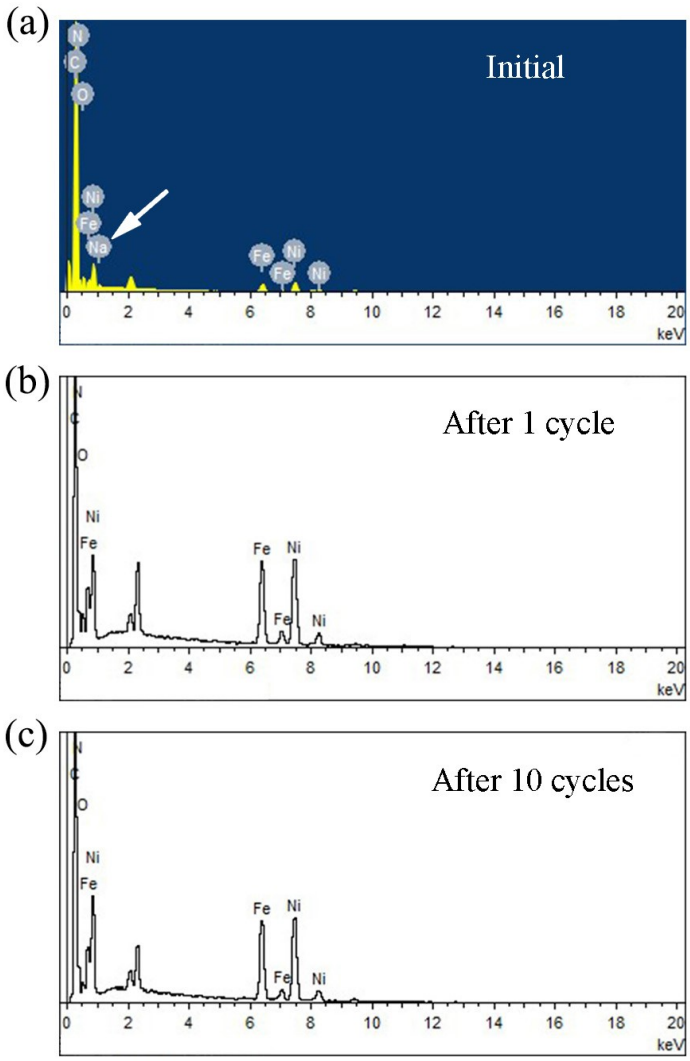

Fig S6. Energy dispersive X-ray spectroscopy (EDS) analyses of PNFF-60 at different cycle.

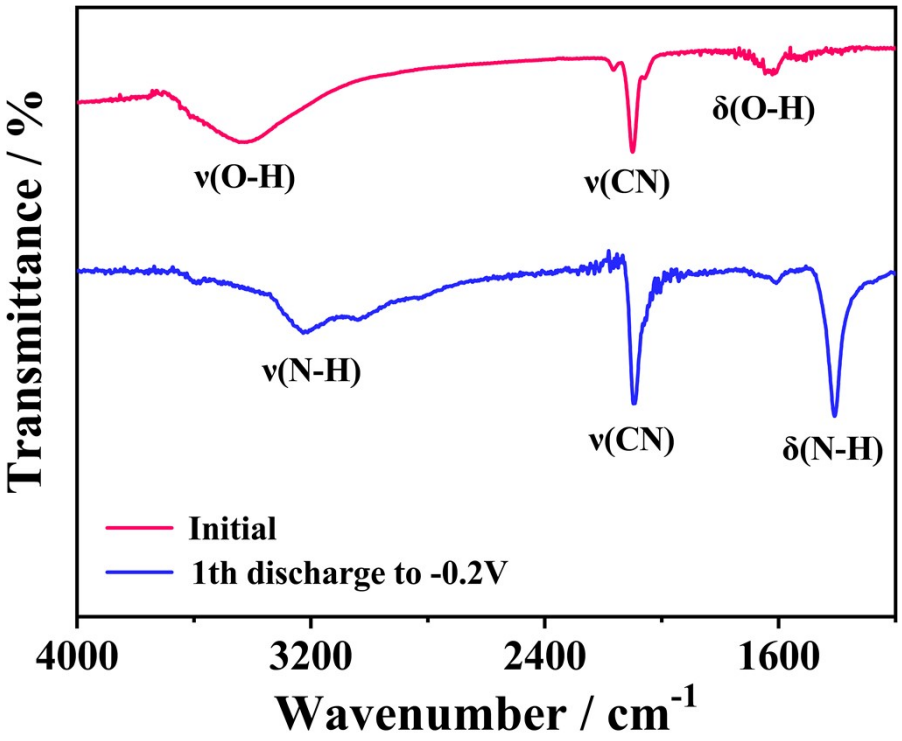

Fig S7. FT-IR spectra of PNFF-60 at different cycle.

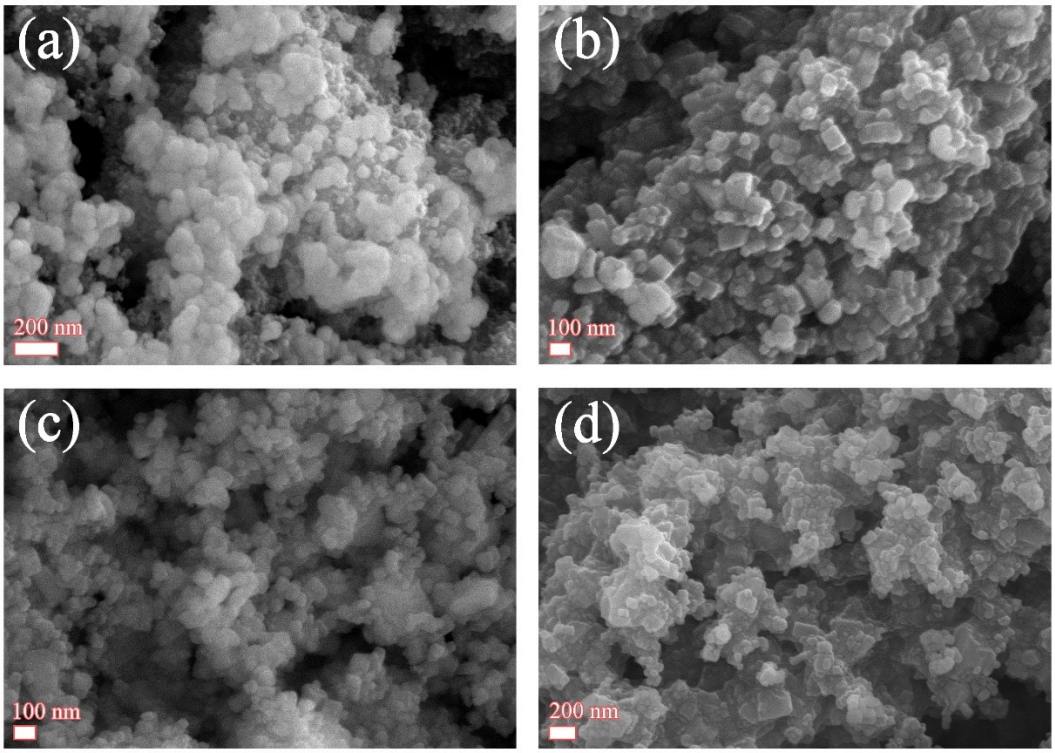

Fig S8. SEM image of a) NFF, b) PNFF-80, c) PNFF-100, d) PNFF-150.

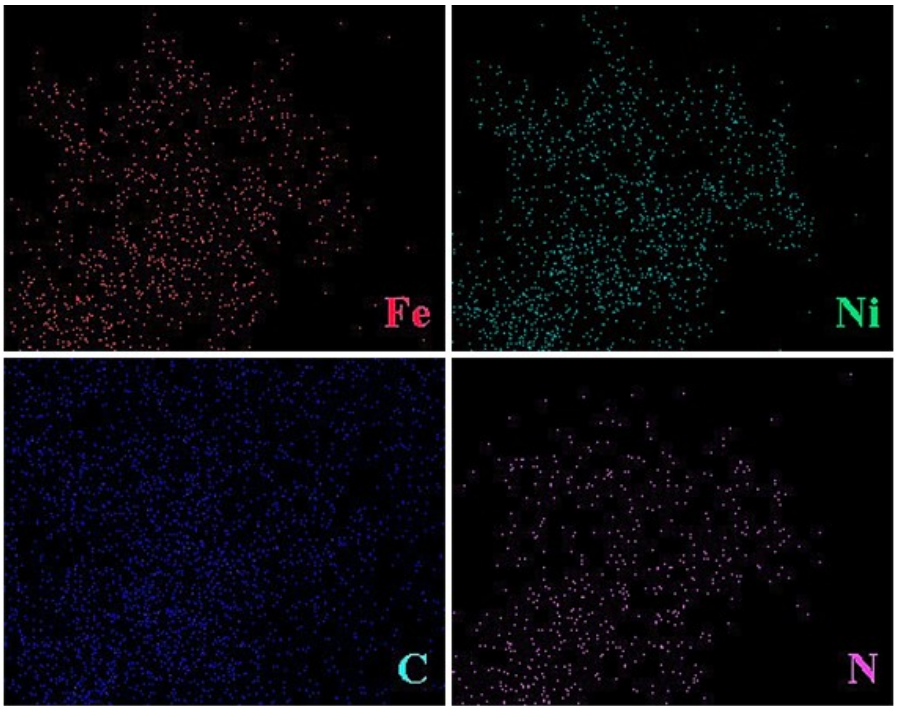

Fig S9. EDS mapping images of PNFF-60.

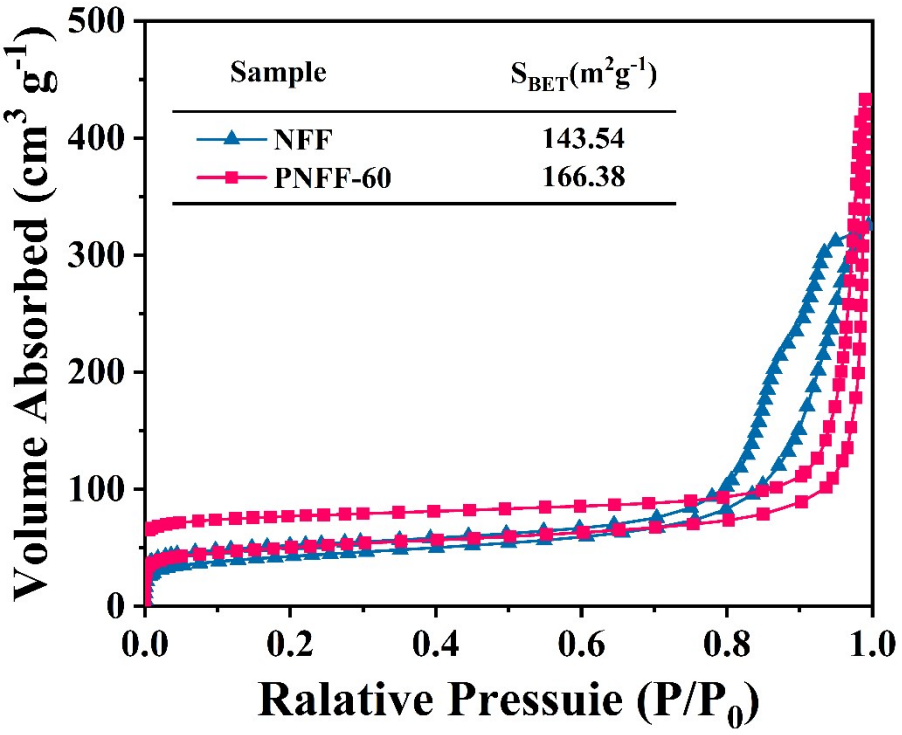

Fig S10. Nitrogen adsorption-desorption isotherm of PNFF-60.

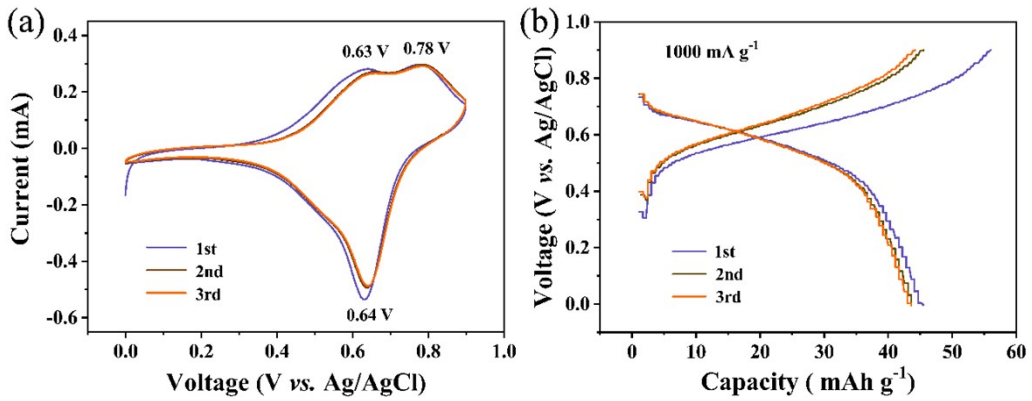

Fig S11. Electrochemical characterization of NFF electrode for NH_4^+ storage a) The first three CV curves at 1 mV s^{-1}. b) The first three GCD profiles at 1000 mA g^{-1}.

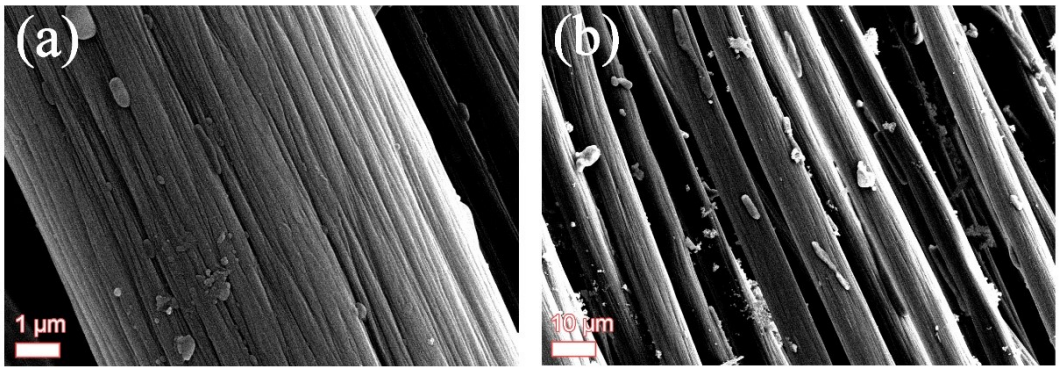

Fig S12. SEM image of PANI electrode grown on carbon cloth.

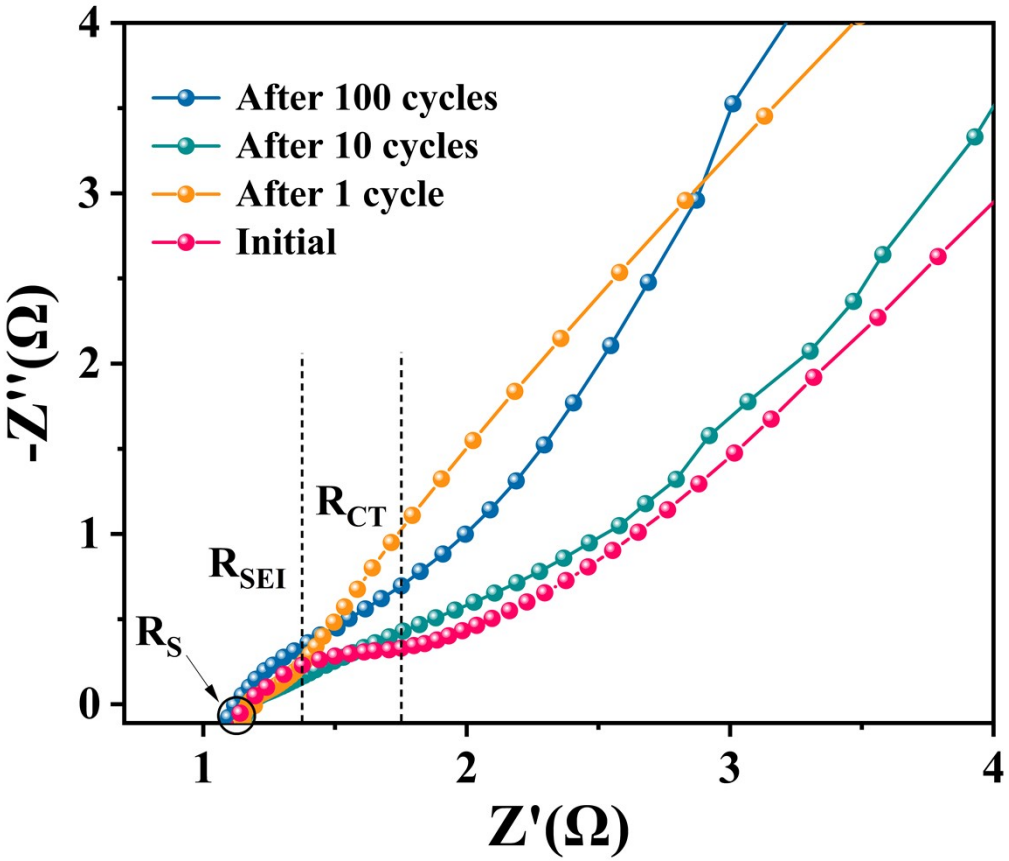

Fig S13. Nyquist plots of PNFF-60 at different cycle.

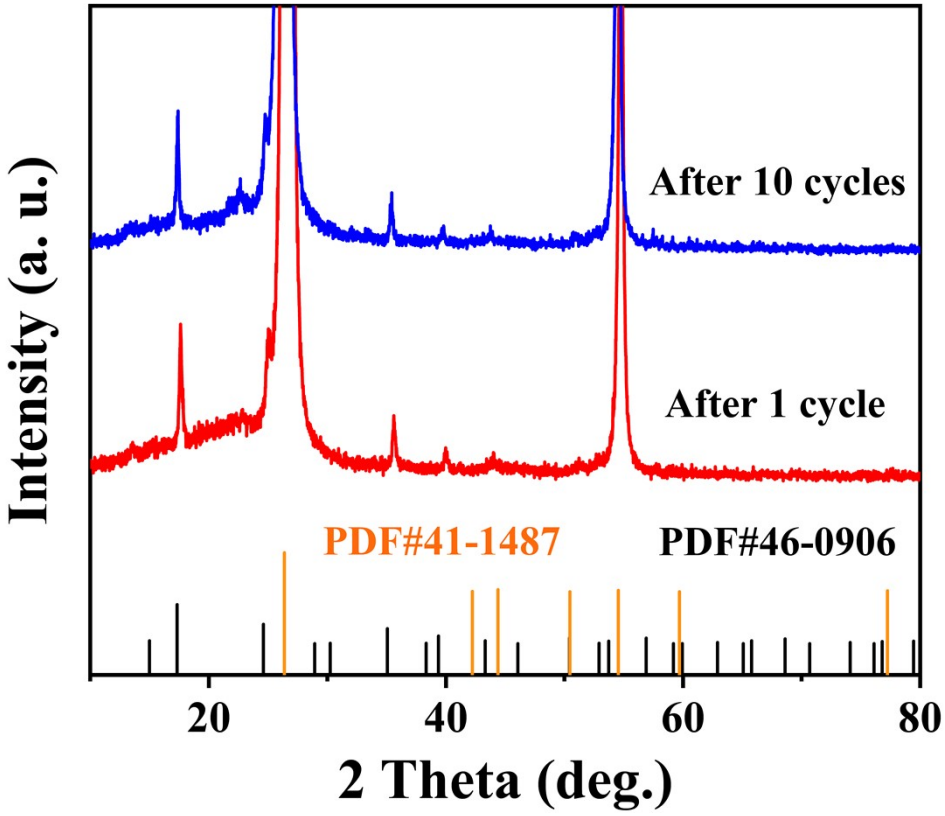

Fig S14. XRD pattern of PNFF-60 after cycles.

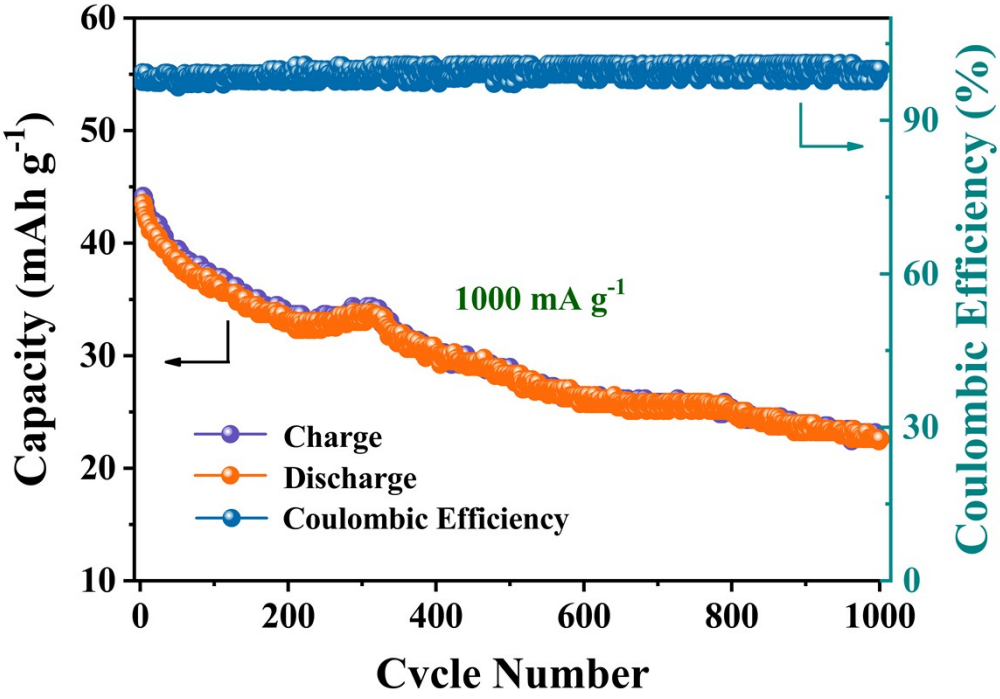

Fig S15. Long-term cycling performance of NFF at 1000 mA g^{-1}.

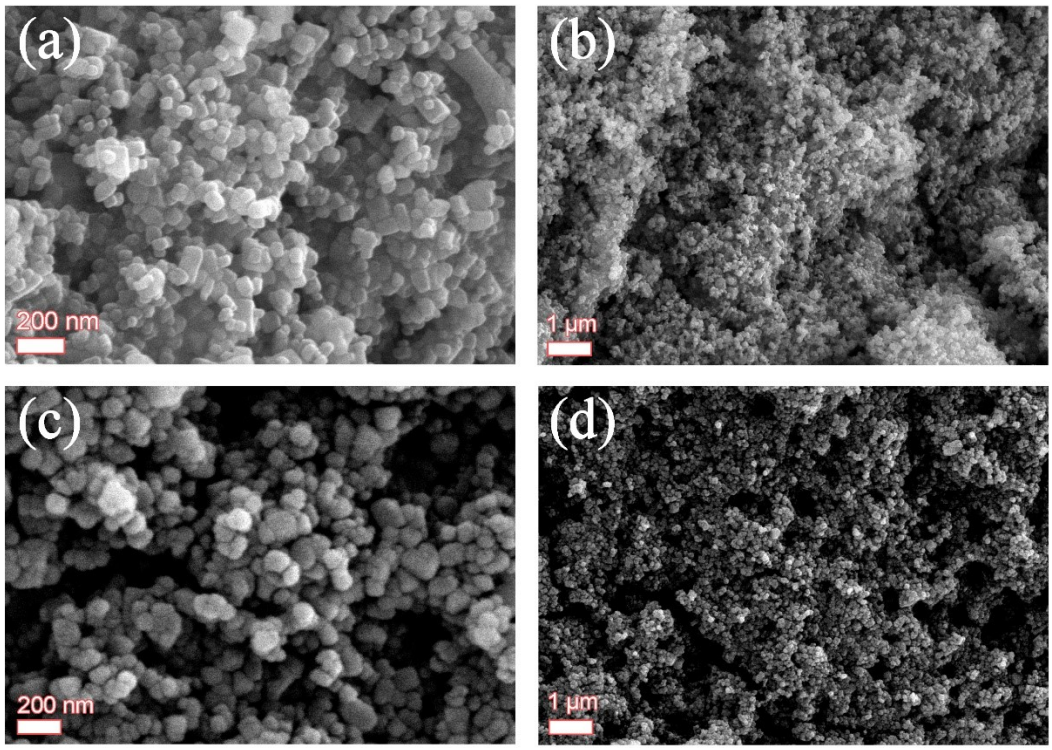

Fig S16. (a-b) SEM image of pristine PNFF-60 electrode. (c-d) SEM image of PNFF-60 electrode after 1500 cycles.

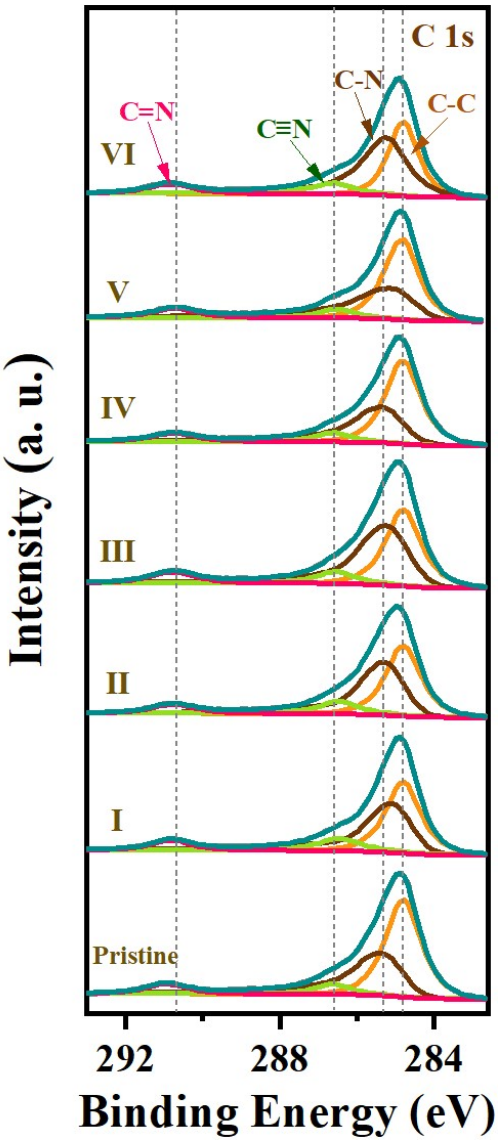

Fig S17. Ex-situ XPS spectra for C 1s at pristine and ammoniated/de-ammoniated states.

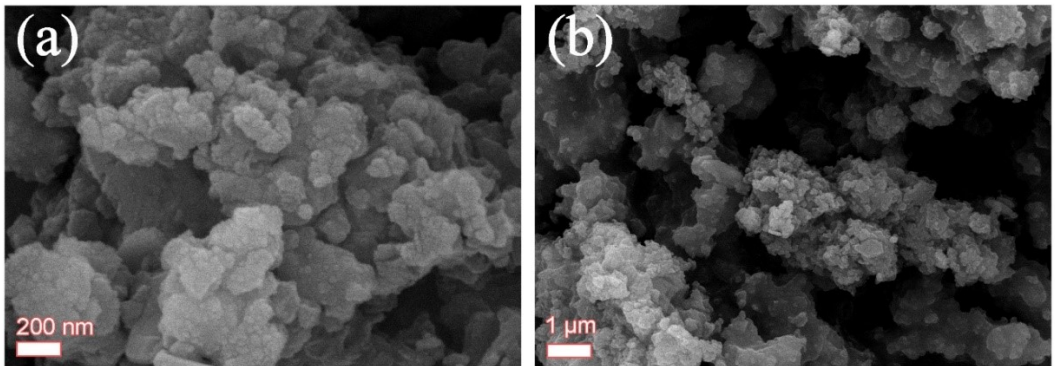

Fig S18. SEM image of PI@MXene electrode.

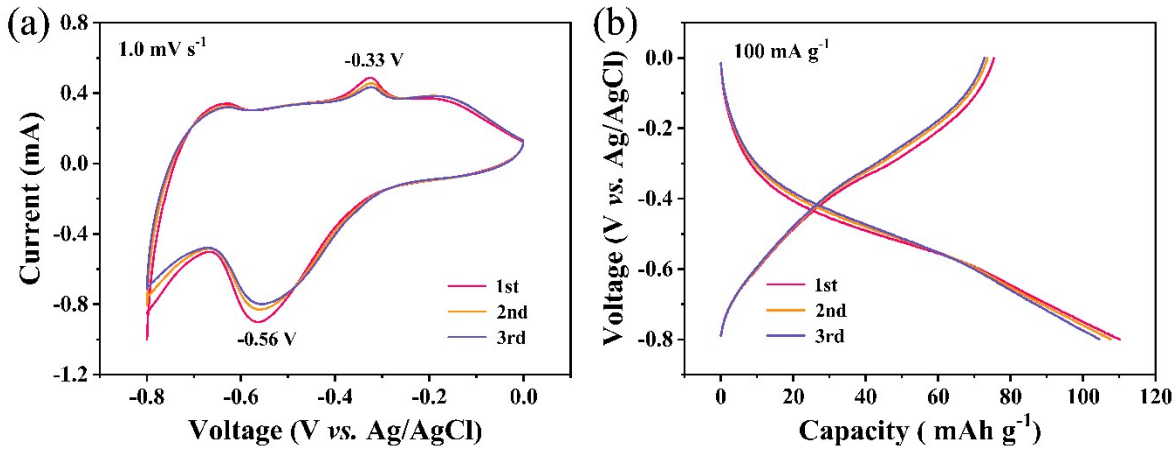

Fig S19. Electrochemical characterization of PI@MXene electrode for NH_4^+ storage a) The first three CV curves at 1 mV s^{-1}. b) The first three GCD profiles at 100 mA g^{-1}.

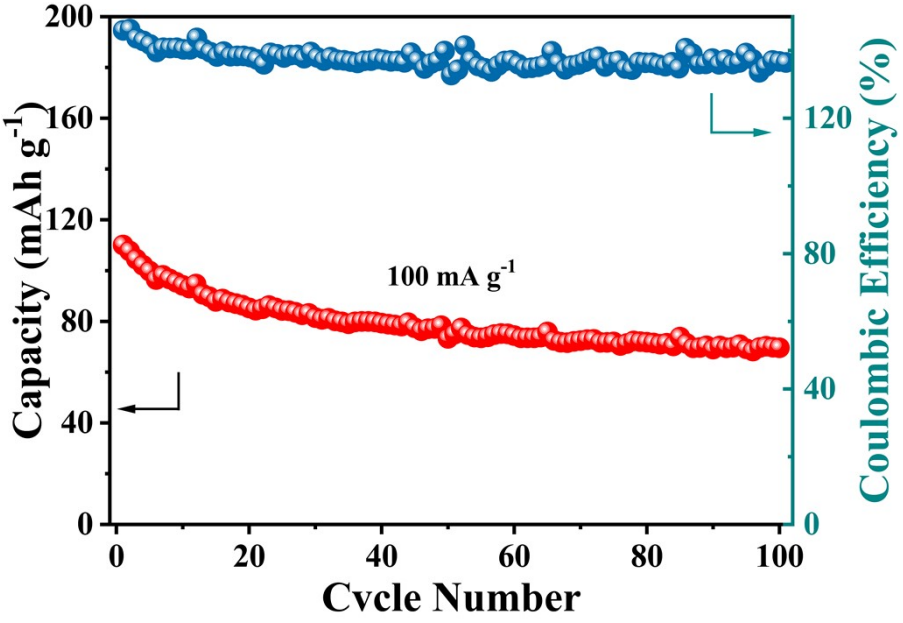

Fig S20. Long-term cycling performance of PI@MXene electrode at 100 mA g^{-1}.

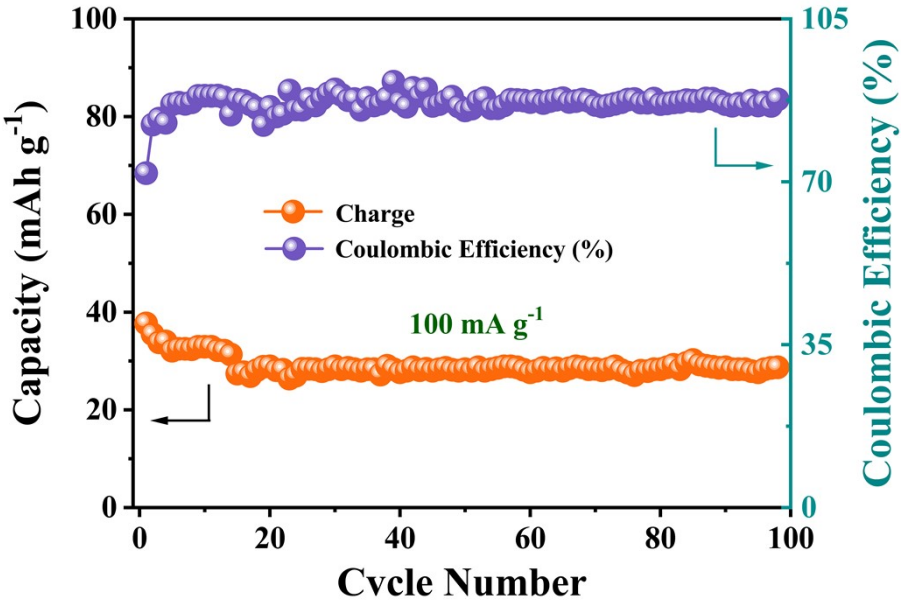

Fig S21. Long-term cycling performance of the full cell at 100 mA g^{-1} based on the total mass of anode and cathode.