Supporting Information

Novel Triphenylamine-Based Polyimides as Promissing Organic Cathode for Lithium/Sodium-ion Batteries

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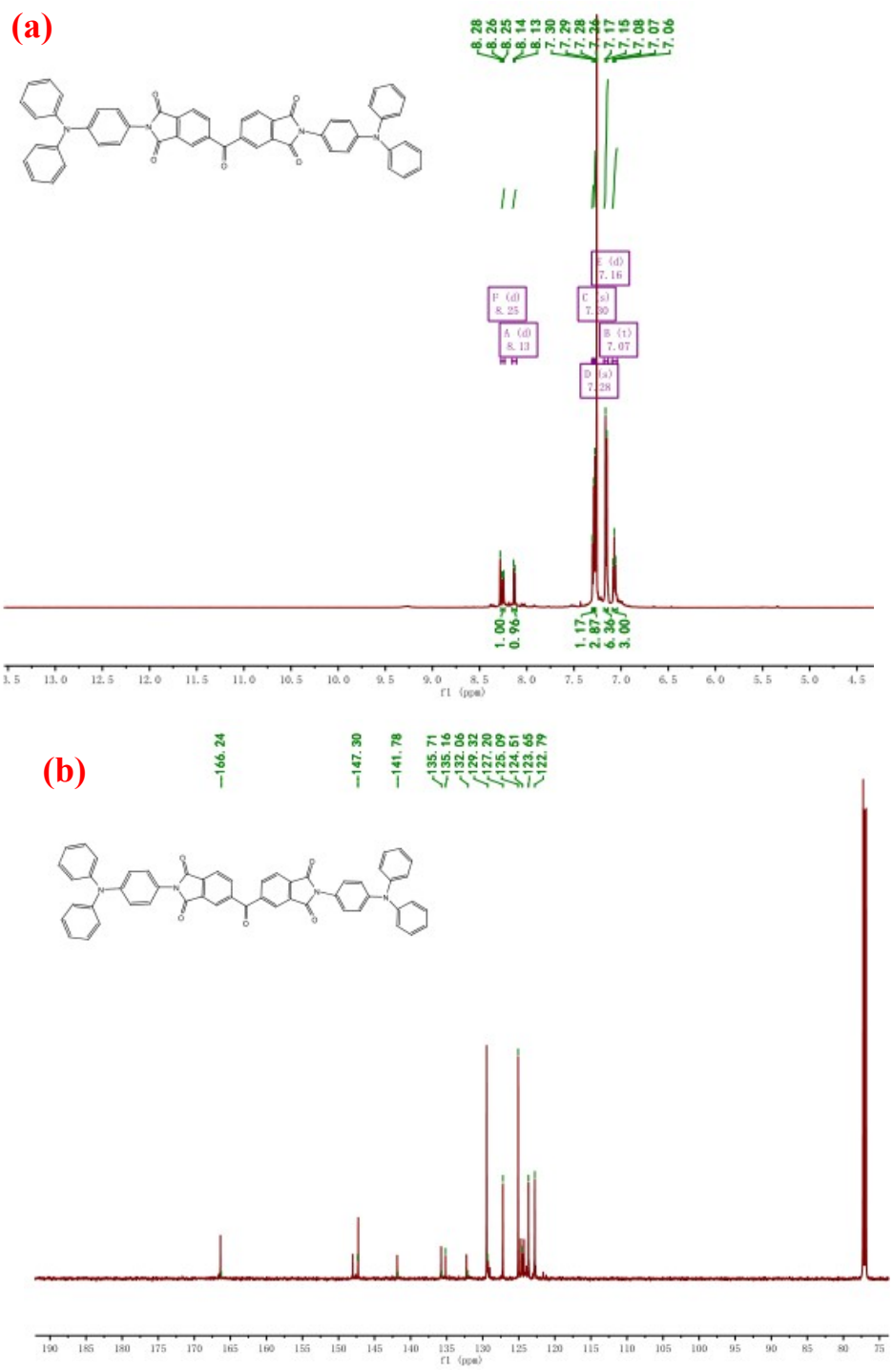


Fig. S1. [1] H NMR spectrum (a) and [13]C NMR spectrum (b) of the TNBI monomer sample ($CDCl_3$ solvent).

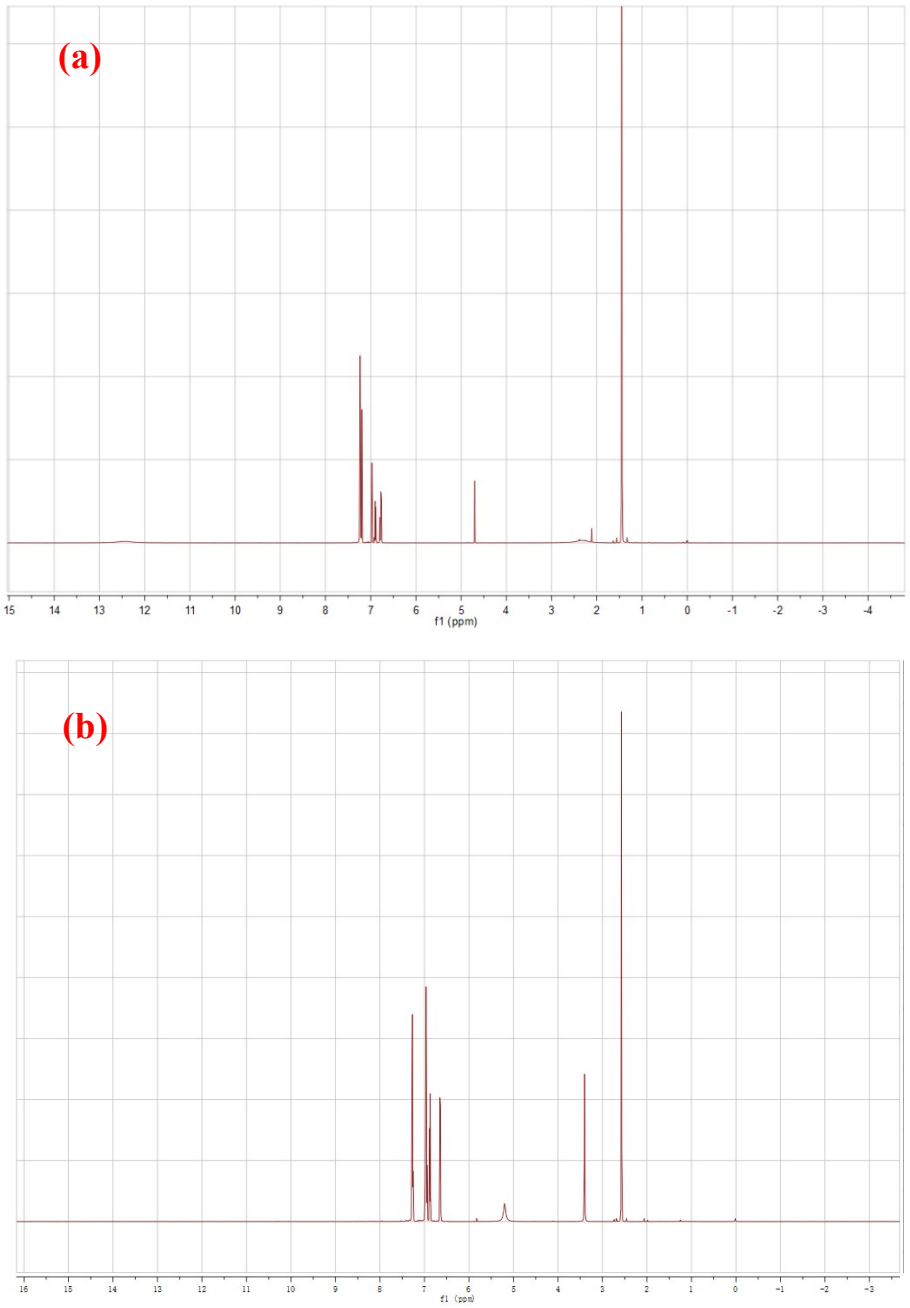


Fig. S2. ^{1}H NMR spectrum of BTDA (a) and 4-aminotriphenylamine (b) ($CDCl_3$ solvent).

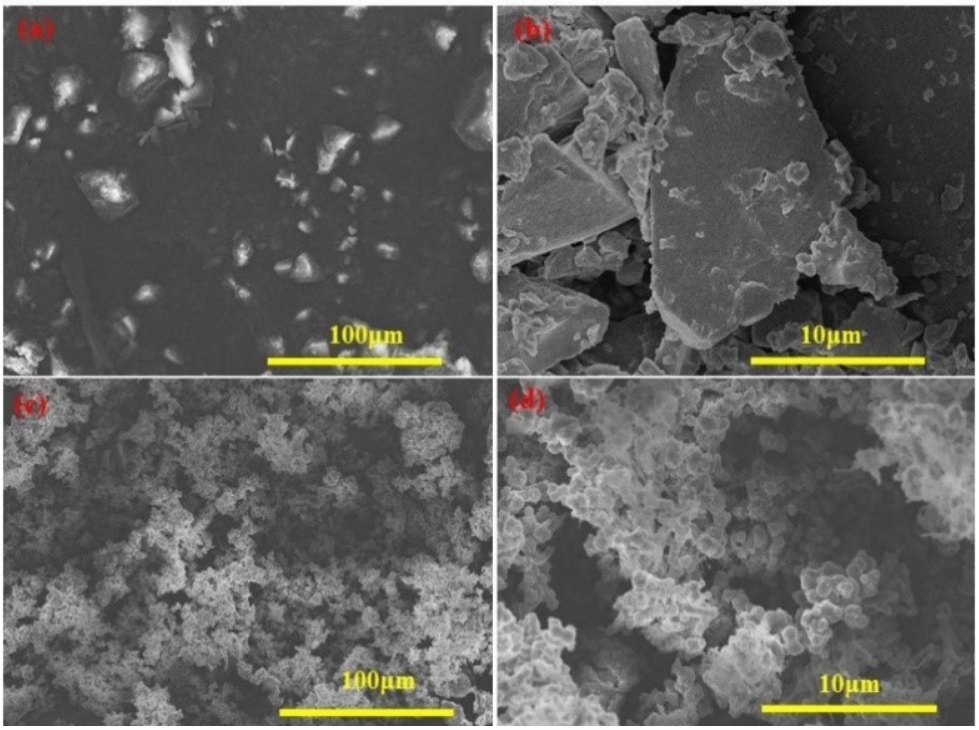


Fig. S3. SEM images of TNBI (a, b) and PTNBI (c, d).

Fig. S4. Solubility test of TNBI and PTNBI electrodes in electrolyte (1M EC: DMC=1:1).

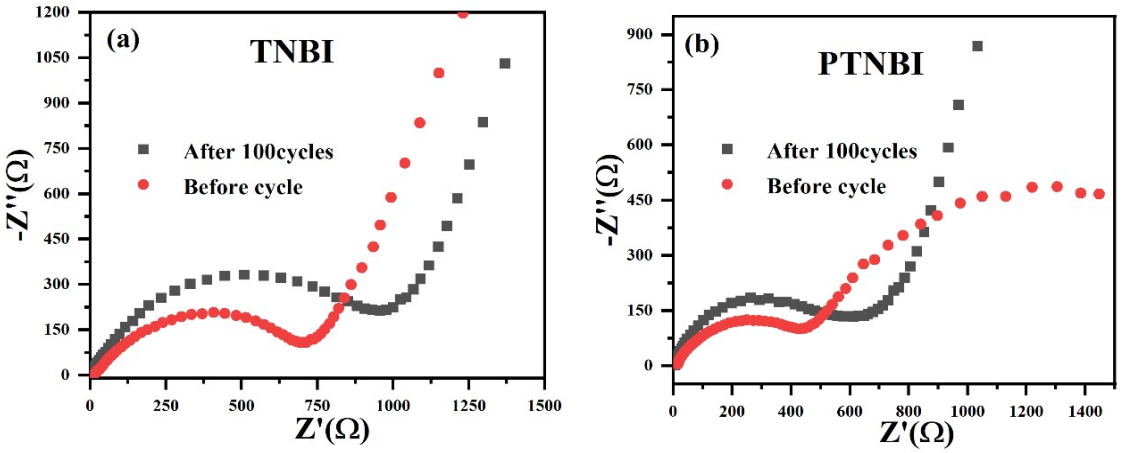


Fig. S5. The EIS pattern of TNBI (a) and PTNBI (b) of before and after 100 cycles.

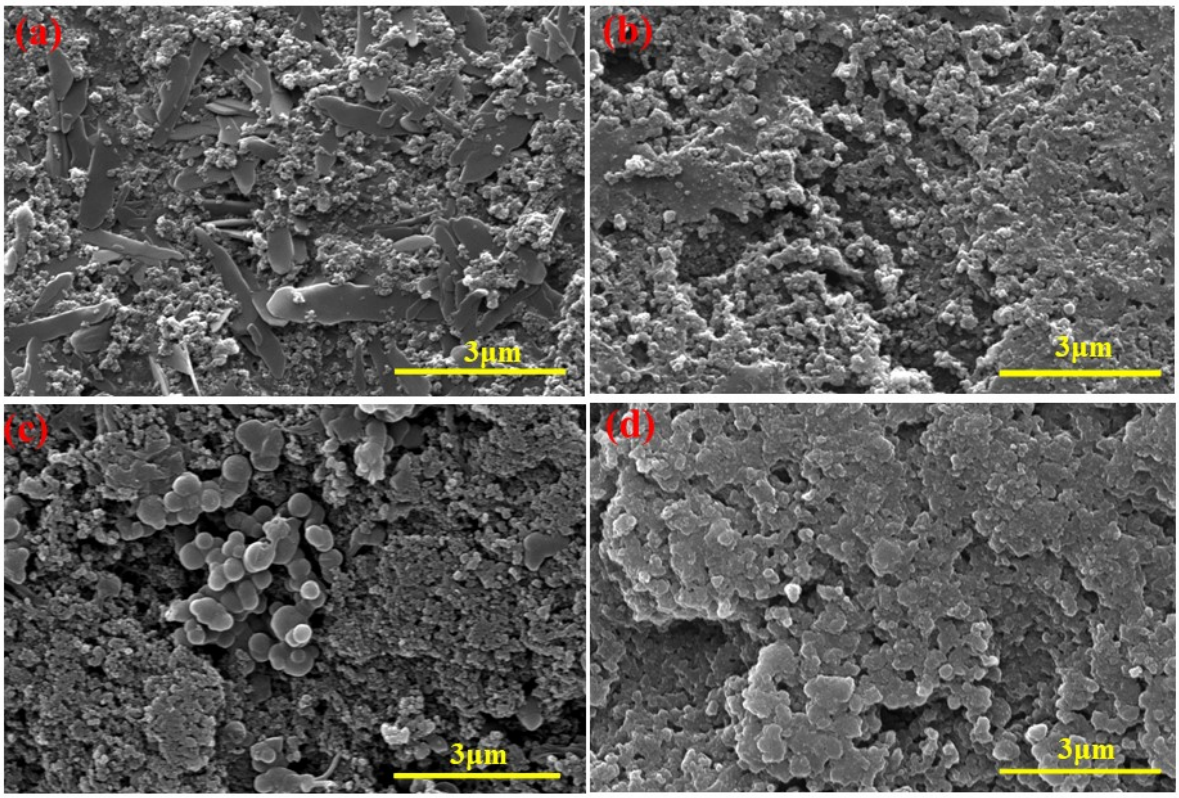
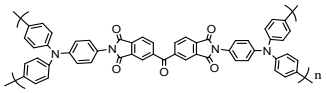
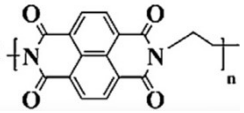
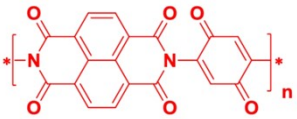
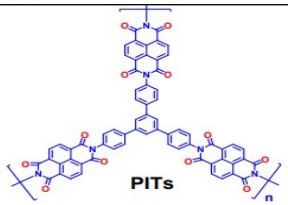
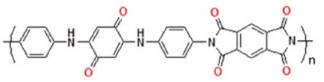
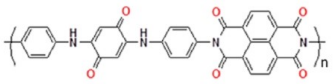


Fig. S6. SEM images of TNBI electrode for LIBs before (a) and after 100 cycles (b); PTNBI electrode for LIBs before (c) and after 100 cycles (d);

Table S1. Comparison of the electrochemical performance of carbonyl polymer

cathode in LIBs.

Carbonyl polymer cathode for lithium-ion batteries	Discharge curve (V)	Theoretical capacity (mAh g^{-1})	Current density (mA g^{-1})	Actual specific capacity (mAh g^{-1})	References
	3.5	232.82	50	135	**This work**
	2.5	200	50	133.5	Ref. [7]
	2.4	433.5	100	165	Ref. [14]
	2.4	115	25	80.5	Ref. [15]
	2.5	194.6	50	128.5	Ref. [16]
	2.4	213.5	50	118	Ref. [16]

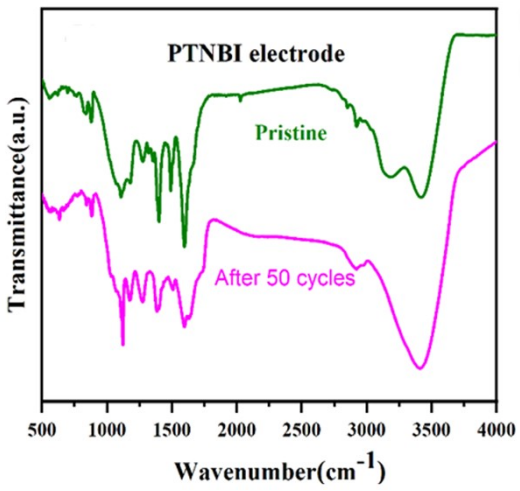


Fig. S7. FTIR spectra of PTNBI electrode for SIBs before and after 50 cycles.

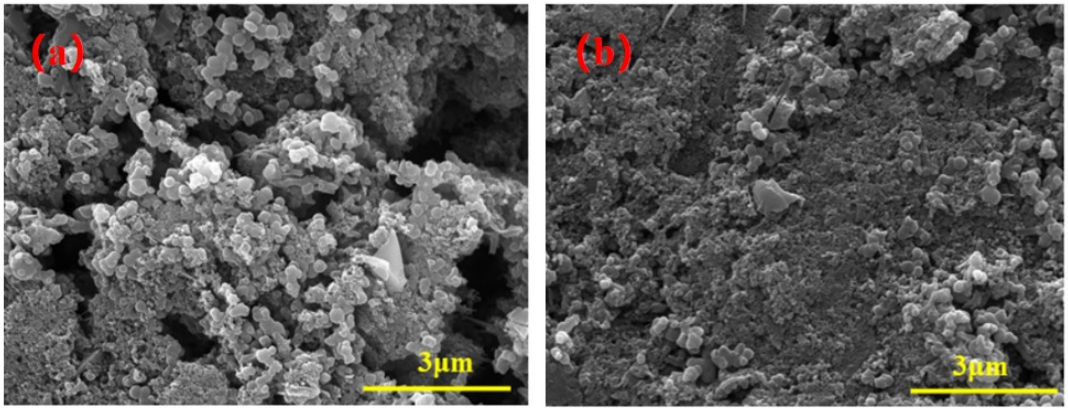


Fig. S8. SEM of electrode PTNBI for SIBs before cycle (a) and after 50 cycles (b).

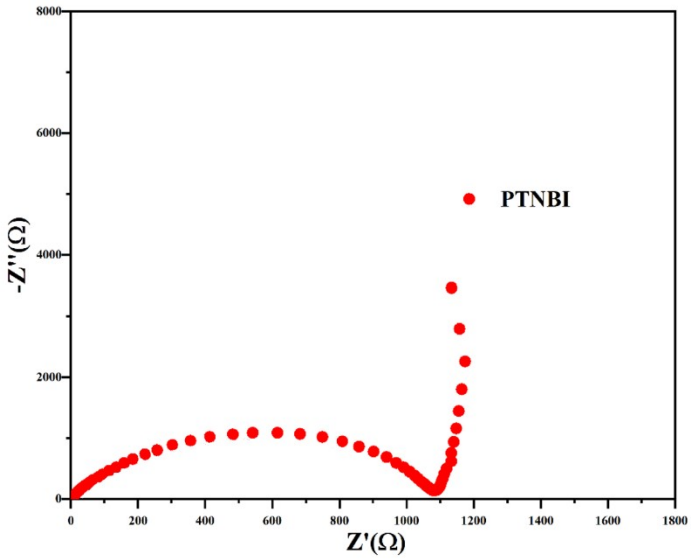


Fig. S9. The EIS pattern of PTNBI of before cycle for SIBs.