

Composite membrane with ultra-thin ion exchangeable functional layer: a new separator choice for manganese-based cathode material in lithium ion batteries

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Supporting information:

Table S1 The atomic concentration of the Li, S, C, O, F element determined by XPS

The element	Atomic concentration (%)
Li	2.82
S	2.81
C	39.02
O	8.36
F	46.99

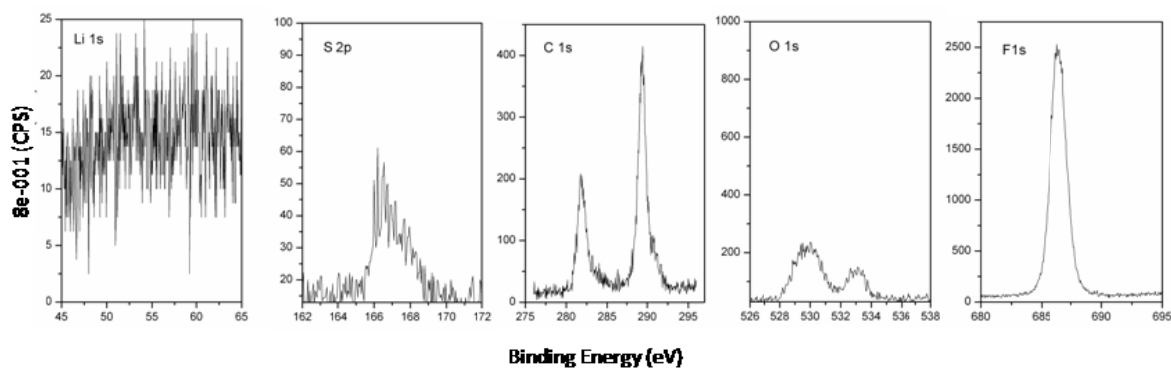


Figure S1 The XPS spectra of the Nf-PP-Li separator.

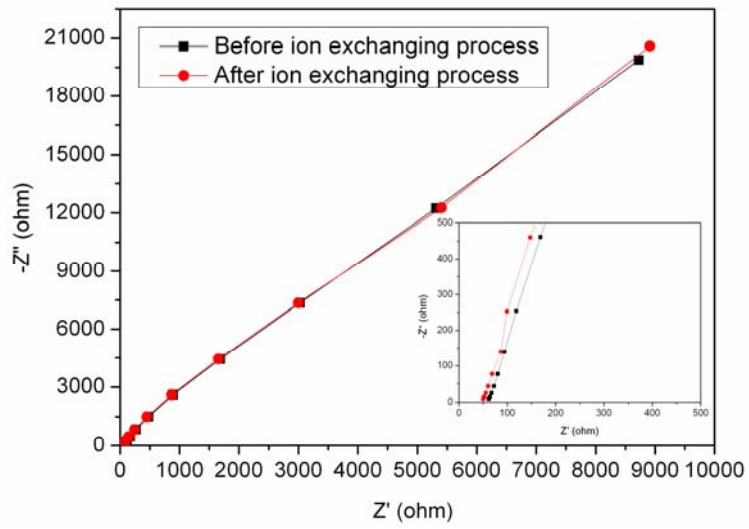


Figure S2 The Nyquist plots of the Nf-PP-Li separator before and after the ion exchange process.

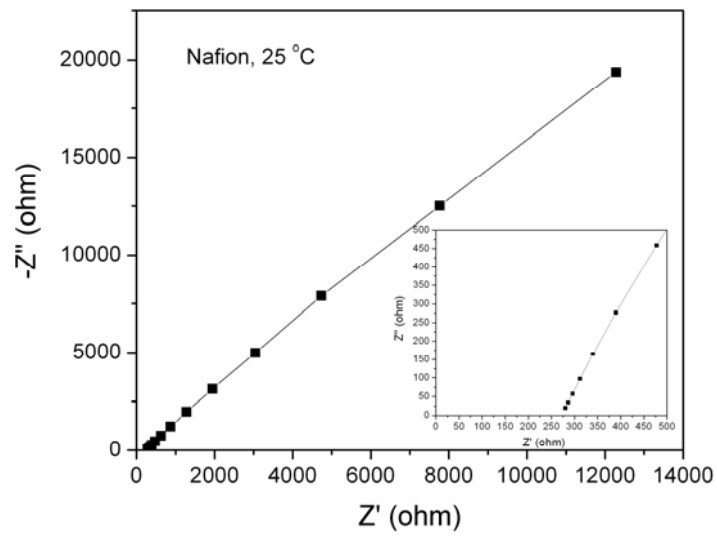


Figure S3 The Nyquist plots of the Nafion membrane.

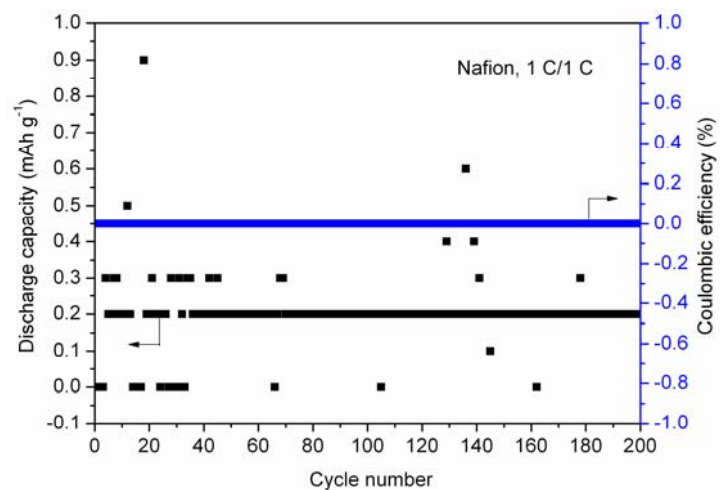


Figure S4 The discharge capacity and coulombic efficiency of the coin cells containing the Nafion membrane at 1 C. The coin cells were in the assembly of LiMn_2O_4 cathode/separator/lithium anode.