

Supplementary Information

Exploring the Working Mechanism of Li⁺ in O3-type

NaLi_{0.1}Ni_{0.35}Mn_{0.55}O₂ Cathode Materials for Rechargeable Na-ion

Batteries

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Table S1. ICP results of NaLi_{0.1}Ni_{0.35}Mn_{0.55}O₂ (NLNMO).

	Na	Li	Ni	Mn
Theoretical	1.00	0.10	0.35	0.55
Measured	1.00	0.10	0.34	0.56

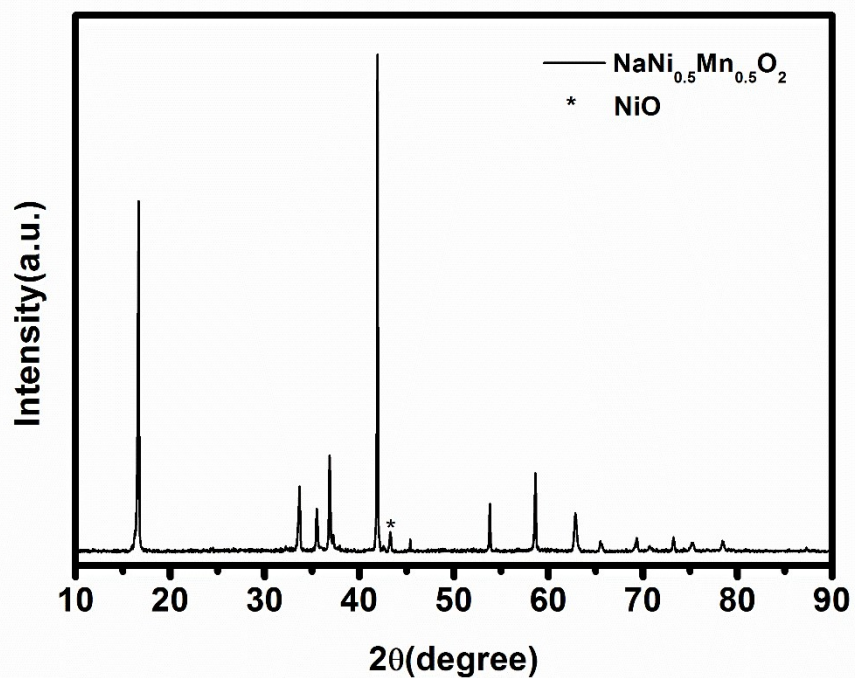


Figure S1. XRD patterns of NNMO. The asterisk represents the NiO impurity.

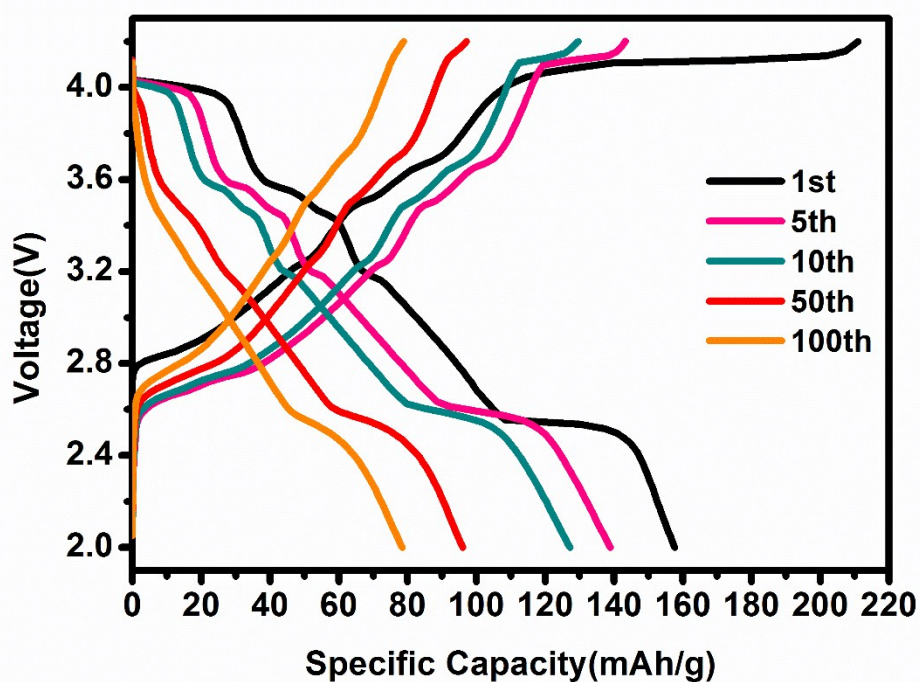


Figure S2. Charge/discharge profiles of NNMO between 2.0 V and 4.2 V at a rate of 12mA g^{-1} .

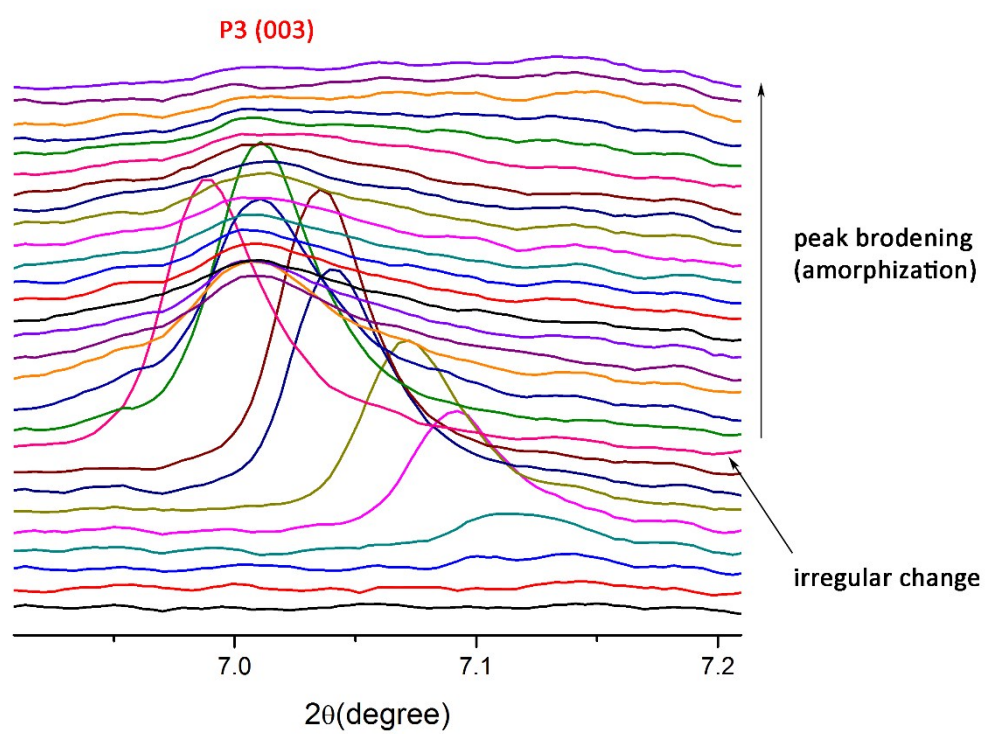


Figure S3. A detailed view of the irregular changes and peak broadening of the P3 (003) peak of an NNMO electrode.

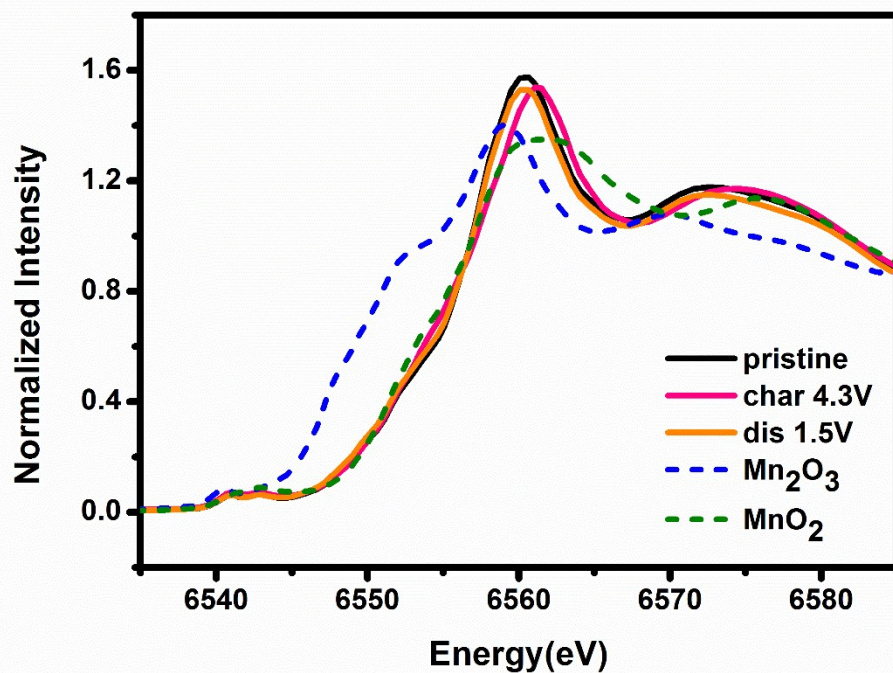


Figure S4. Ex situ XANES spectra at the Mn K-edge of NLNMO at different state of charge, including Mn₂O₃ and MnO₂ standard spectra.

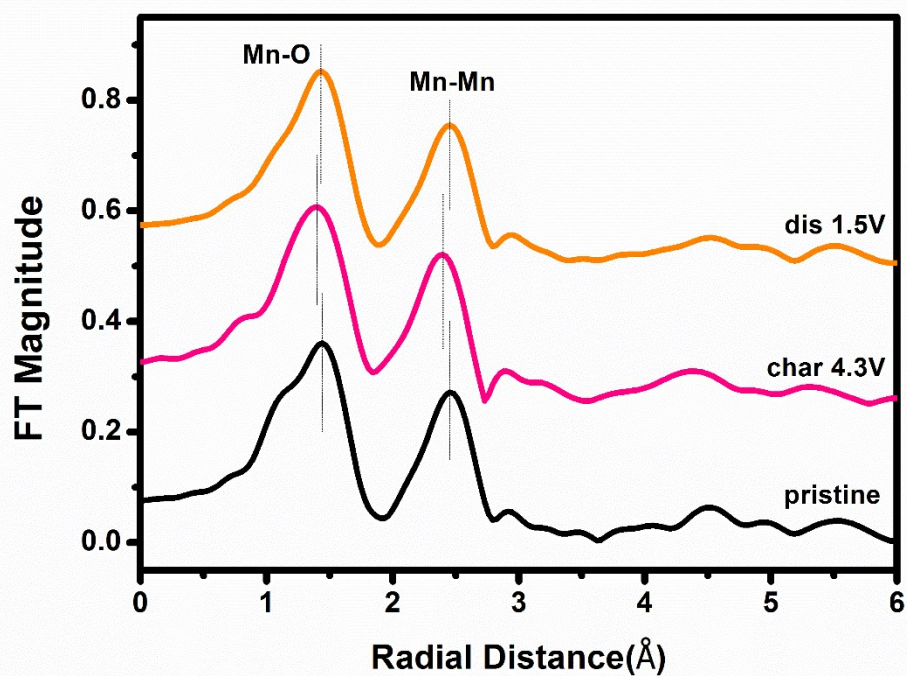


Figure S5. Ex situ EXAFS spectra at the Mn K-edge of NLNMO at different state of charge.

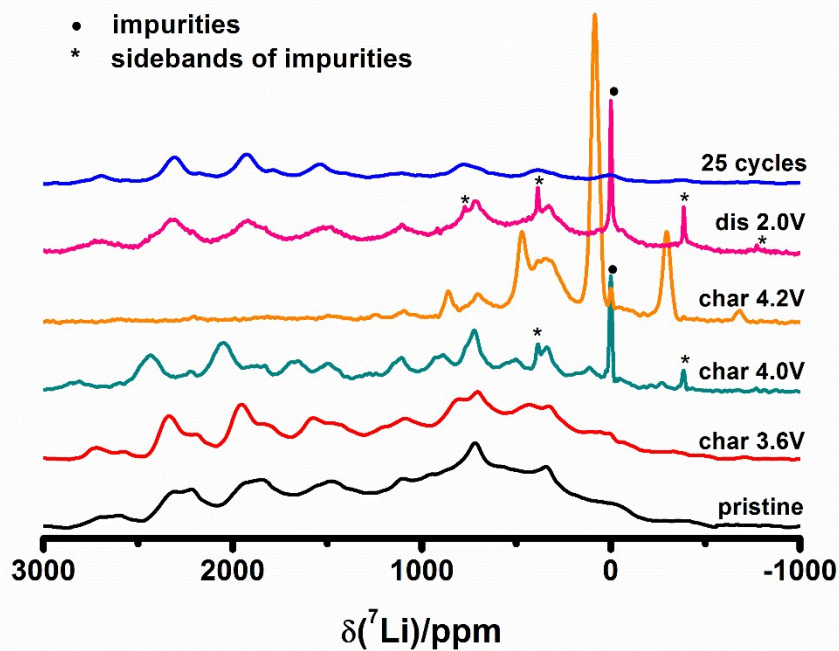


Figure S6. ^7Li spin-echo NMR spectra of NLNMO. In the data, black dots represent impurities and asterisks represent the sidebands of impurity peaks.

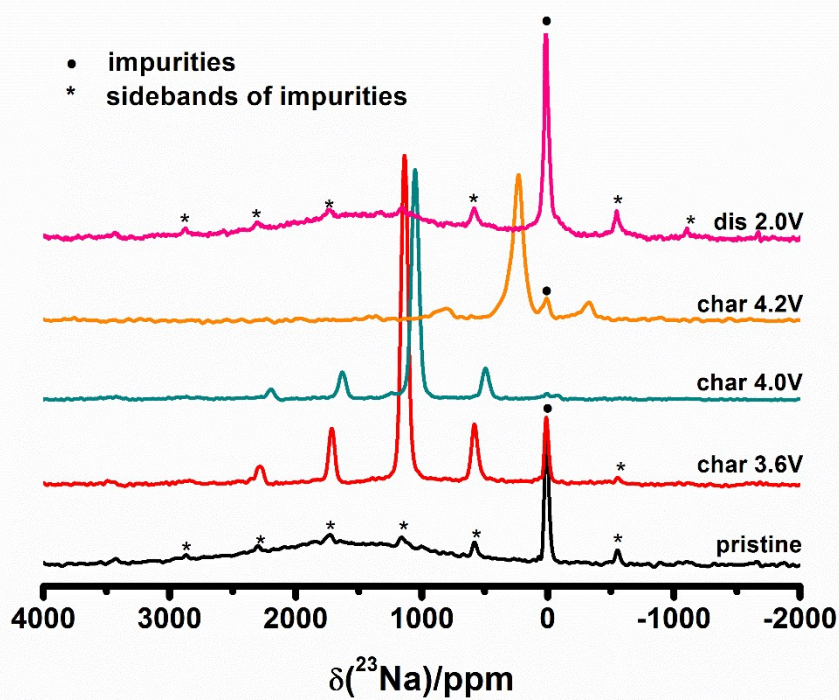


Figure S7. ^{23}Na spin-echo NMR spectra of NLNMO. In the data, black dots represent impurities and asterisks represent the sidebands of impurity peaks.