

Supporting Information

Reviving and Upgrading Storage-Degraded Nickel-rich Cathode via Solid-State Electrolyte Coating

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Results and Discussion

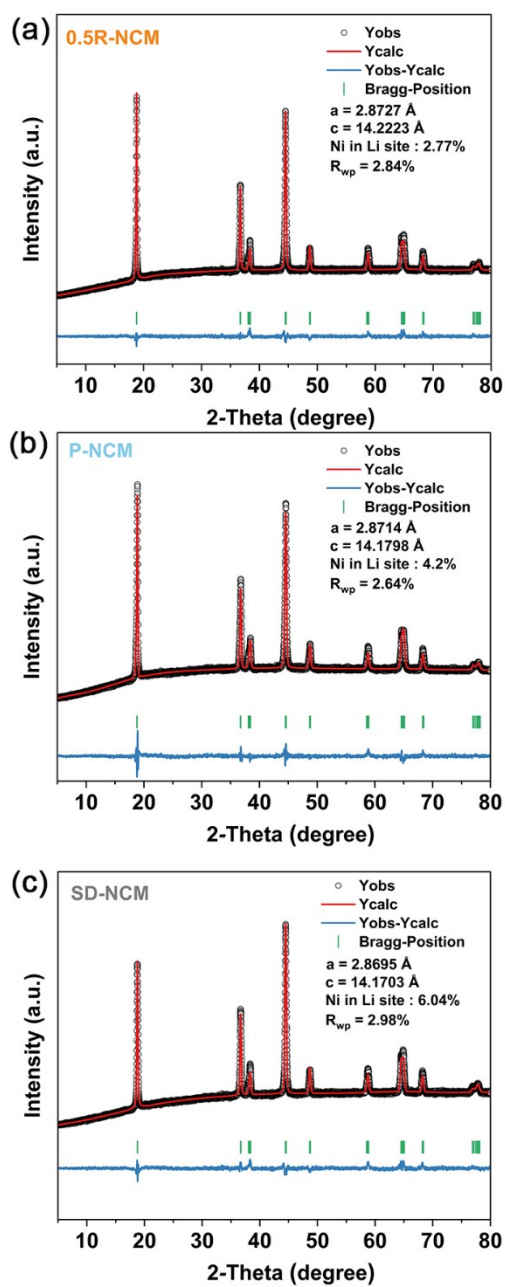


Figure S1. XRD patterns and Rietveld refinement results of (a) SD-NCM, (b) P-NCM and (c) 0.5R-NCM.

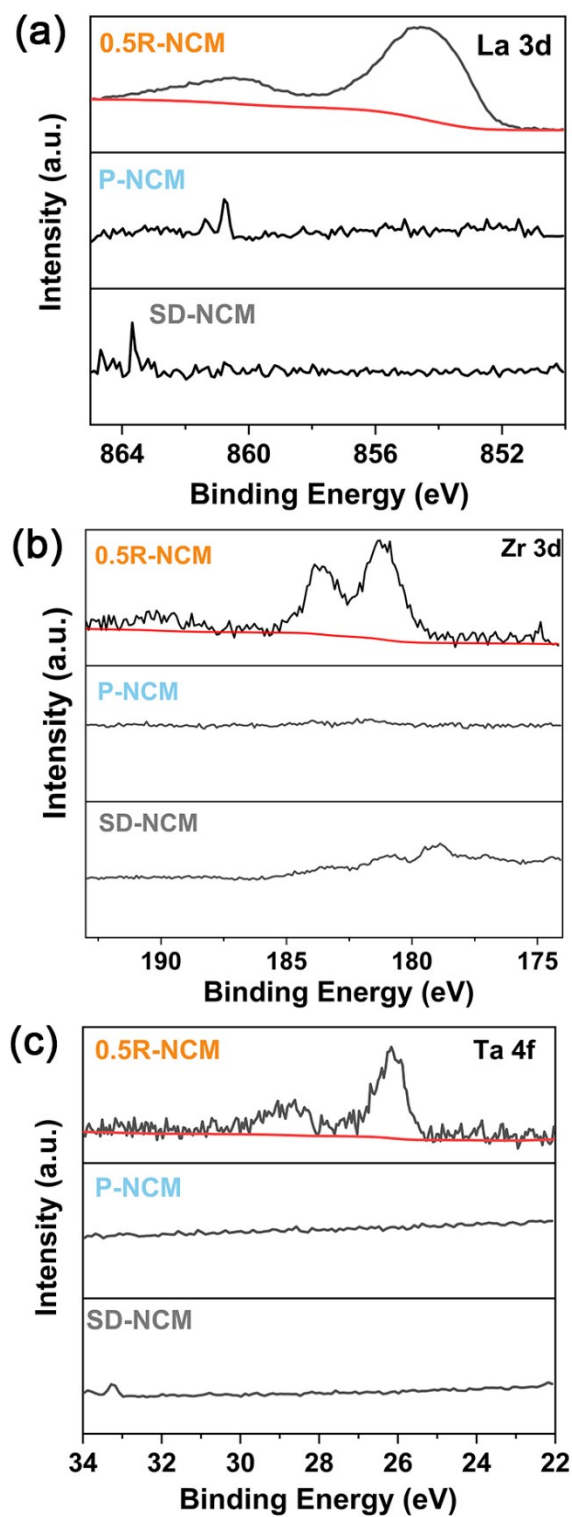


Figure S2. XPS spectra of (a) La 3d, (b) Zr 3d and (c) Ta 4f of SD-NCM, P-NCM and 0.5R-NCM.

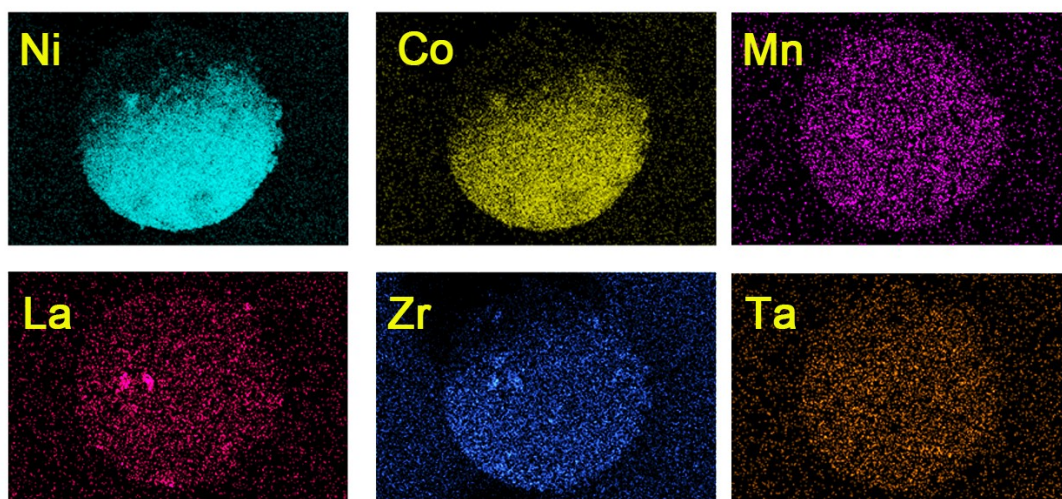


Figure S3. EDS mapping of 0.5R-NCM.

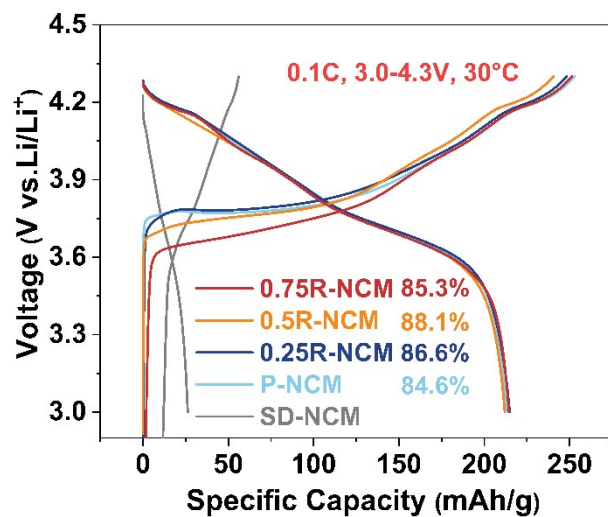


Figure S4. The initial charge-discharge profiles at 0.1 C between 3.0 and 4.3 V.

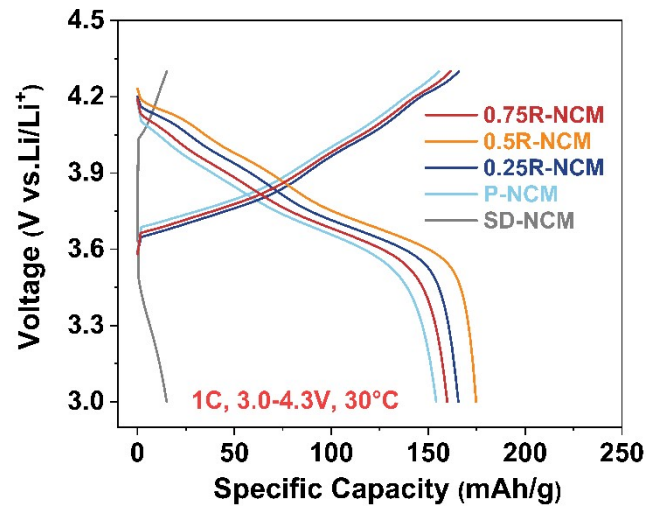


Figure S5. The charge-discharge profiles at 100 cycles.

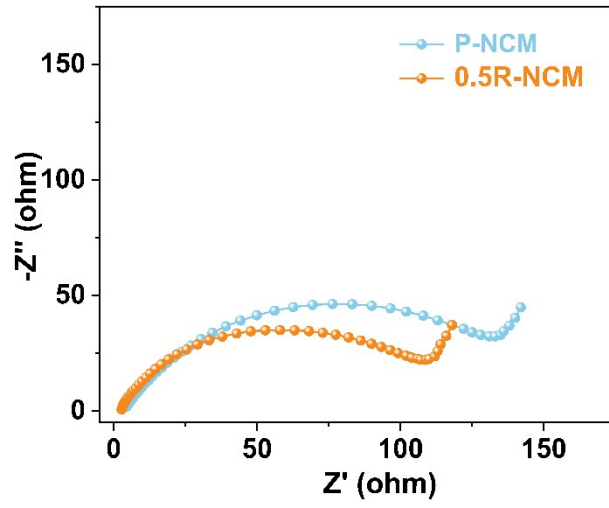


Figure S6. EIS spectra of cathodes before the test.

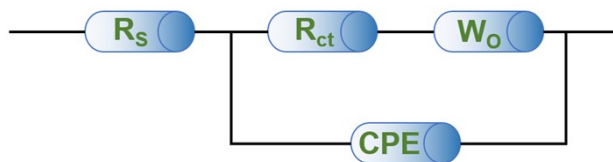


Figure S7. Equivalent electrical circuits of half-cell before cycle.

Note: R_s (Solution Resistance); R_{ct} (Charge Transfer Resistance); W_o (Warburg

Impedance); CPE (Constant Phase Element).

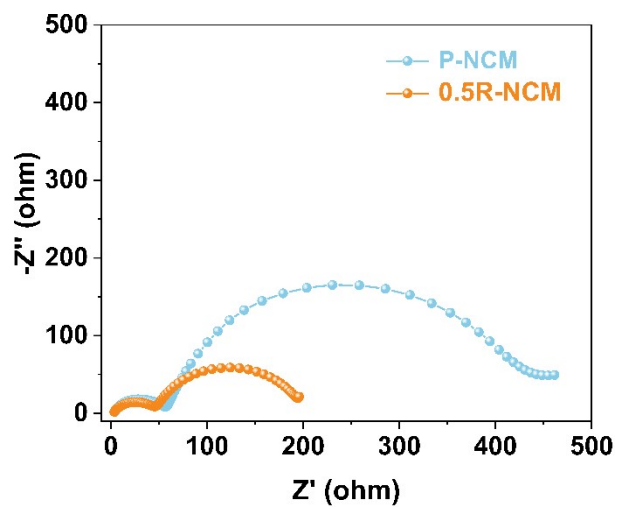


Figure S8. EIS spectra of cathodes after 100 cycles.

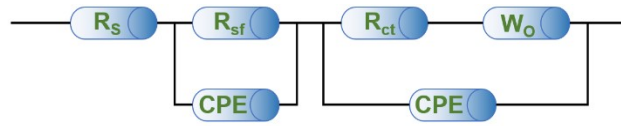


Figure S9. Equivalent electrical circuits of half-cell before cycle.

Note: R_{sf} (interfacial film resistance).

Table S1 Corresponding parameters obtained from the Nyquist plots.

Samples	Before test		after 100 cycles at 1C		
	R_s	R_{ct}	R_s	R_{sf}	R_{ct}
P-NCM	6.1	133.3	5.2	56.1	393.5
0.5R-NCM	3.2	107.8	4.5	44.6	148.3