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Supplementary Information

Method of increasing energy density of layered Ni-rich $Li[Ni_{1-2x}Co_xMn_x]O_2$ cathodes (x = 0.05, 0.1, 0.2)

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Table S1. Refined lattice parameters of as-prepared $Li[Ni_{1-2x}Co_xMn_x]O_2$ (x = 0.05 0.1, 0.2) powders.

As-prepared powder	$Li[Ni_{0.6}Co_{0.2}Mn_{0.2}]O_2$	$Li[Ni_{0.8}Co_{0.1}Mn_{0.1}]O_2$	$Li[Ni_{0.9}Co_{0.05}Mn_{0.05}]O_2$
a-axis (Å)	2.86661	2.86967	2.87293
c-axis (Å)	14.2174	14.2015	14.1995
Volume (Å)	101.178	101.281	101.497
c/a	4.9596	4.9488	4.9425

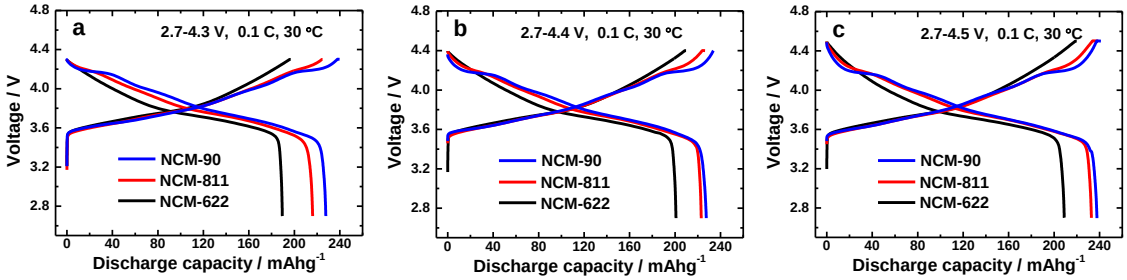

Figure S1. Initial charge–discharge curves NCM cathodes (NCM-622, 811, and 90) cycled between a) 2.7–4.3 V, b) 2.7–4.4 V, and c) 2.7–4.5 V at 0.1 C (18 mA g^{-1}) and 30 °C.

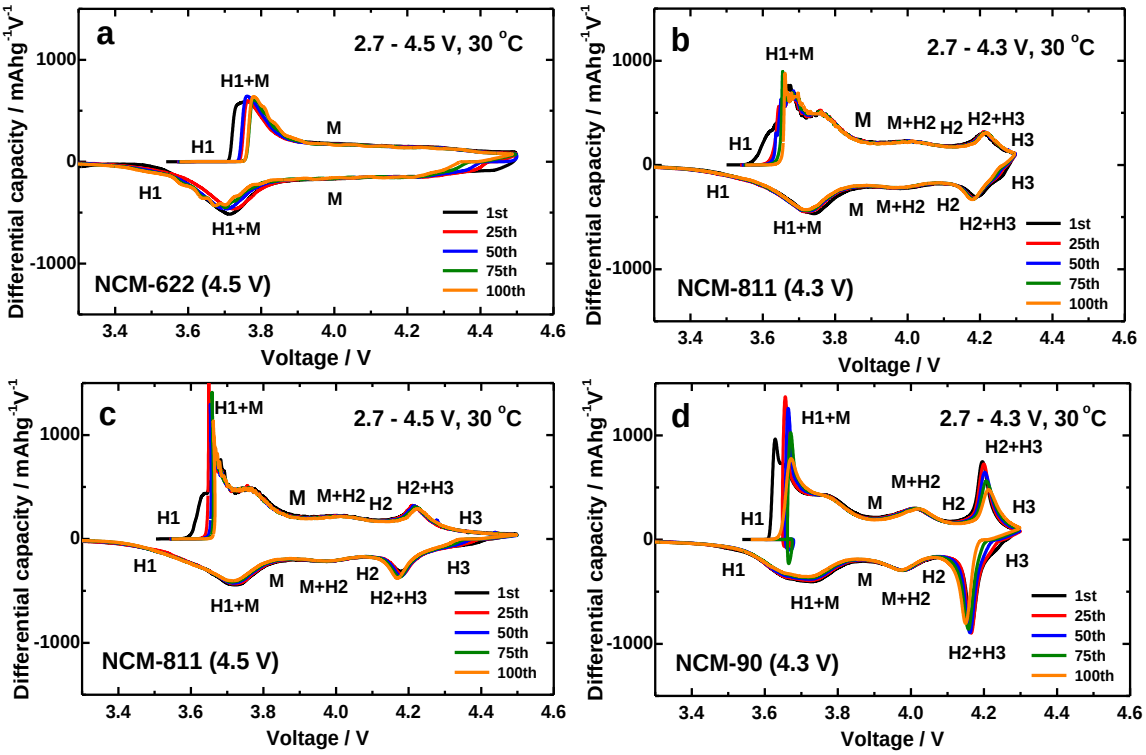

Figure S2. dQ dV^{-1} profiles of NCM cathodes (NCM-622, 811, and 90) tested for 100 cycles at different cut-off potentials of a) 4.5 V for NCM-622, b) 4.3 V for NCM-811, c) 4.5 V for NCM-811, and d) 4.3 V for NCM-90.