Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Supplementary Information

Continuous activation of Li_2MnO_3 component upon cycling in $Li_{1.167}Ni_{0.233}Co_{0.100}Mn_{0.467}Mo_{0.033}O_2$ cathode material for lithium ion batteries

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Cycle number	Charge mode	Discharge mode
1st	23 mA g^{-1} (CC) & 4.55 V (CV, cut-off at 2.3 mA g^{-1})	23 mA g^{-1} (CC) to 2 V
2nd	115 mA g^{-1} (CC) & 4.55 V (CV, cut-off at 2.3 mA g^{-1})	46 mA g^{-1} (CC) to 2 V
3rd	115 mA g^{-1} (CC) & 4.55 V (CV, cut-off at 11.5 mA g^{-1})	23 mA g^{-1} (CC) to 2 V
4th	115 mA g^{-1} (CC) & 4.55 V (CV, cut-off at 11.5 mA g^{-1})	230 mA g^{-1} (CC) to 2 V

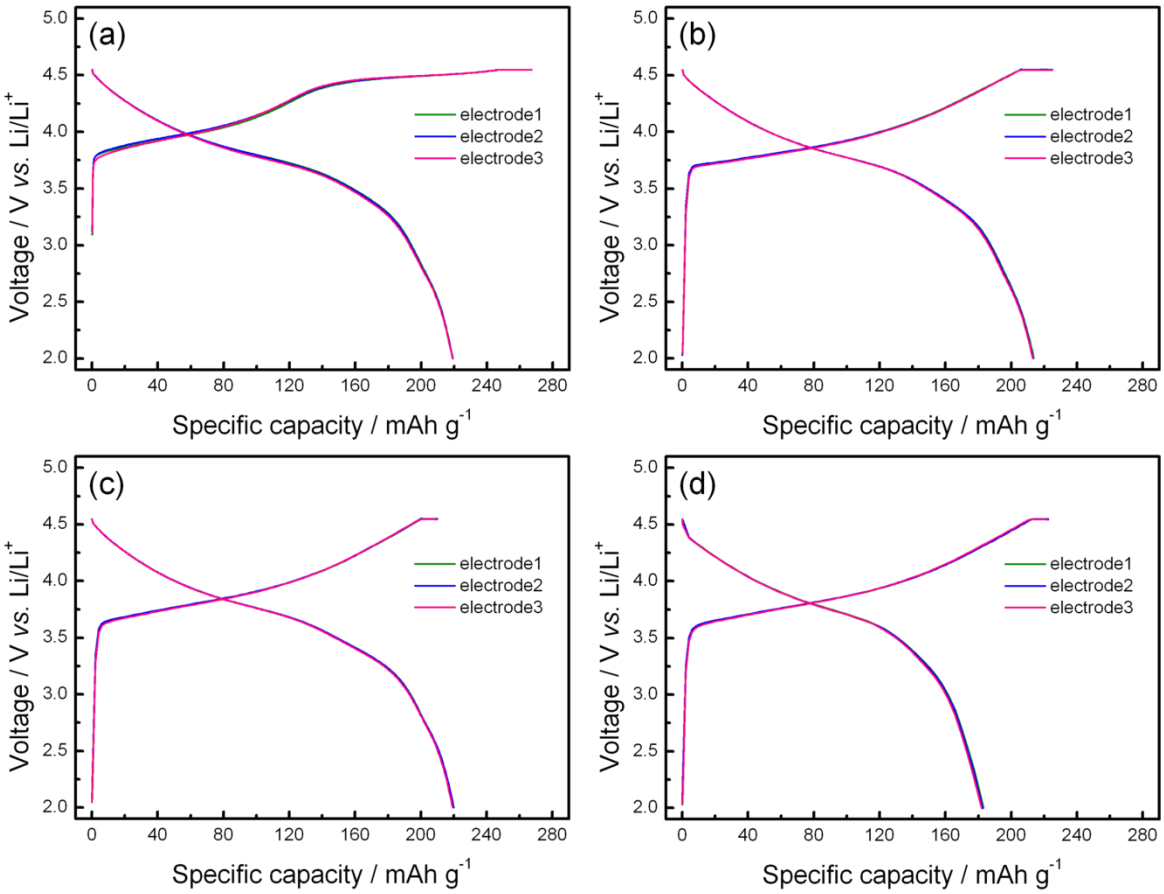

Fig. S1 Voltage profiles of $Li_{1.167}Ni_{0.233}Co_{0.100}Mn_{0.465}Mo_{0.033}O_2$ from three electrodes: (a) 1st cycle, (b) 2nd cycle, (c) 3rd cycle, (d) 4th cycle. The conditions for charge and discharge processes during 4 cycles are shown in following table (CC : constant current, CV : constant voltage). The other conditions such as composition of electrode, electrolyte and operation temperature are identical with those in manuscript.

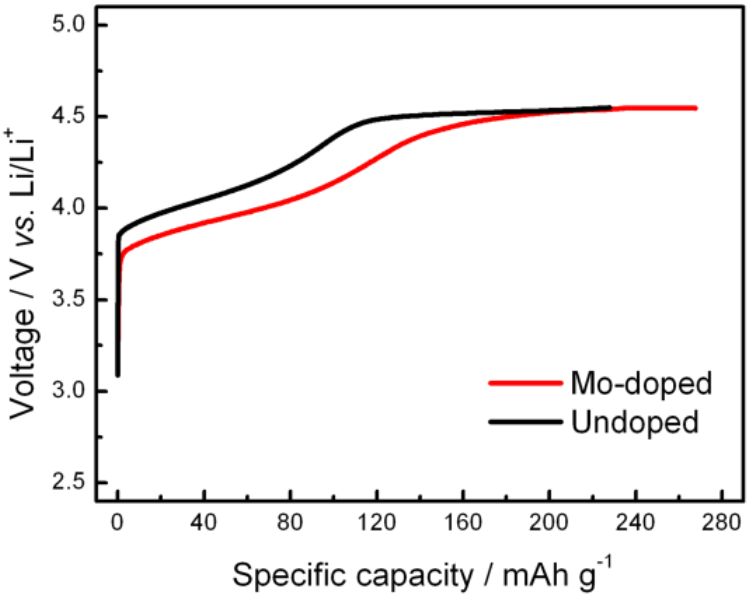

Fig. S2 The initial charge curves of Mo-doped and un-doped samples.

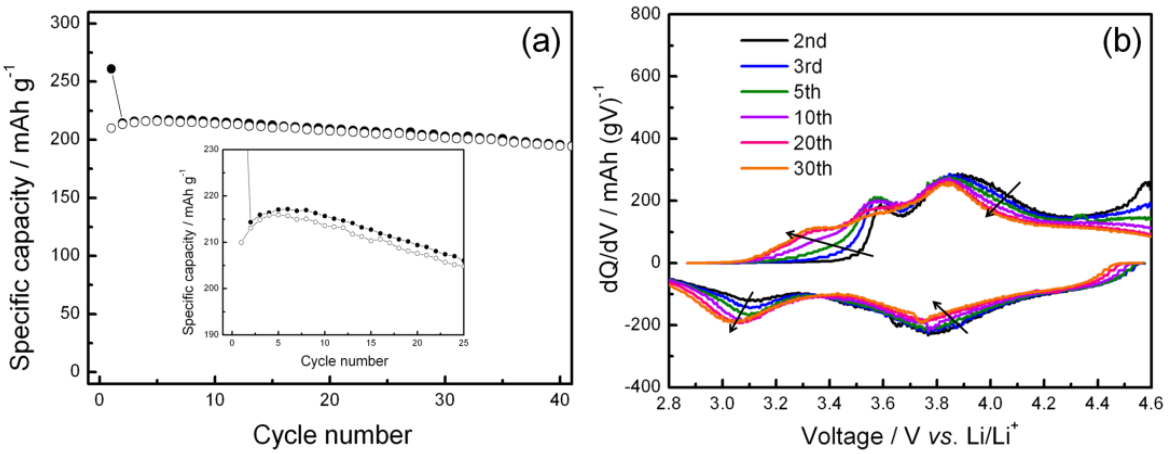

Fig. S3 (a) Cycle performance of un-doped sample between 2.8–4.6 V at 0.2 C rate with only CC mode. Inset shows the enlarged cycle performance for detailed specific capacities. (b) The corresponding differential capacity plots.