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

Supporting Information

Exploring the rate dependence of phase evolution in P2-type $Na_{2/3}Mn_{0.8}Fe_{0.1}Ti_{0.1}O_2$

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Table S1 Capacities observed during variable current cycling.

Cycle		Current (mA)	Current Density (mA/g)	Capacity (mAh/g)
1	Charge	1.04		
2	Discharge	-1.74	-43.98382204	131.706
3	Charge	1.73	43.73104146	141.475
4	Discharge	-3.48	-87.96764408	117.746
5	Charge	3.47	87.7148635	120.954
6	Discharge	-5.21	-131.6986855	103.347
7	Charge	5.21	131.6986855	105.877
8	Discharge	-10.43	-263.6501517	74.1174
9	Charge	10.42	263.3973711	75.2338
10	Discharge	-10.43	-263.6501517	70.7246
11	Charge	10.42	263.3973711	72.8603
12	Discharge	-10.43	-263.6501517	67.7002
13	Charge	-10.42	-263.3973711	69.7946
14	Discharge	-10.43	-263.6501517	64.8919
15	Charge	10.42	263.3973711	66.7788
16	Discharge	-10.43	-263.6501517	62.1215
17	Charge	10.42	263.3973711	63.9681
18	Discharge	-10.43	-263.6501517	59.7784
19	Charge	10.42	263.3973711	61.1526
20	Discharge	-10.43	-263.6501517	57.3115
21	Charge	20.84	526.7947422	53.9618
22	Discharge	-20.84	-526.7947422	30.5967
23	Charge	1.73	43.73104146	55.236
24	Rest	0	0	

XRD

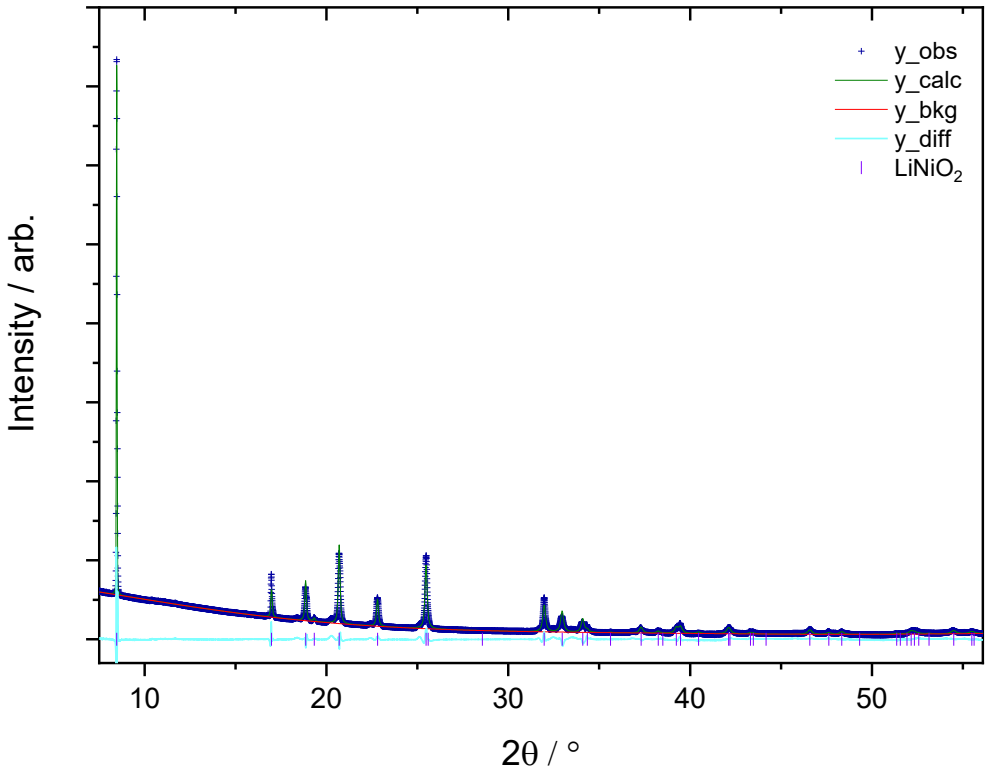

Figure S1. Rietveld refinement profile of XRD data collected on the MSPD beamline at the ALBA synchrotron from a capillary of pristine P2-type $Na_{2/3}Mn_{0.8}Fe_{0.1}Ti_{0.1}O_2$ powder prior to the *operando* experiment.

Table S2. Refined structural parameters determined from XRD data collected on the MSPD beamline at the ALBA synchrotron from a capillary of pristine P2-type $Na_{2/3}Mn_{0.8}Fe_{0.1}Ti_{0.1}O_2$ powder prior to the *operando* experiment.

Space group: *P* 63/*m m c*, R_w = 6.89 %						
a / Å	**b / Å**	**c / Å**	**alpha**	**beta**	**gamma**	**Volume / Å³**
2.910991(98)	2.910991(98)	11.18831(476)	90	90	120	82.106(5)
Atom	**Site multiplicity**	**x**	**y**	**z**	**SOF**	**U_{iso}**
Mn	2	0	0	0	0.8	0.0090(5)
Na2	2	0	0	0.25	0.282(12)	0.098(11)
O	4	0.33333	0.66667	0.09052(31)	1	0.0033(10)
Fe	2	0	0	0	0.1	0.0090(5)
Na1	2	0.33333	0.66667	0.75	0.348(10)	0.022(5)
Ti	2	0	0	0	0.1	0.0090(5)

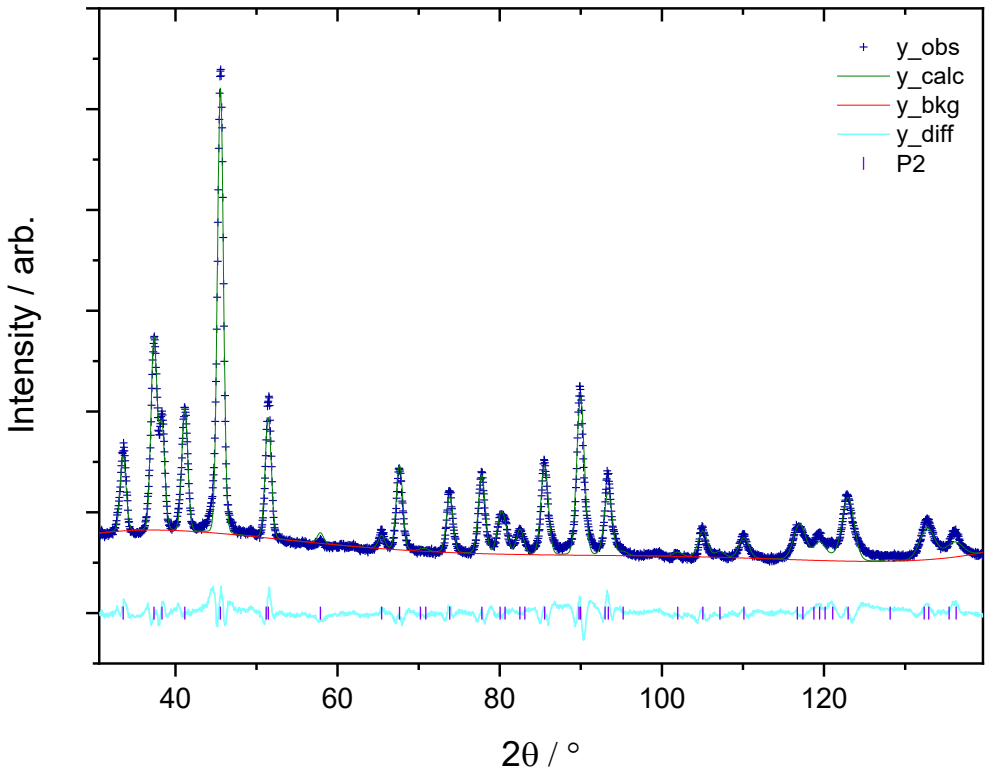

Figure S2. Rietveld refinement profile of NPD data collected using ECHIDNA at ANSTO from pristine P2-type $Na_{2/3}Mn_{0.8}Fe_{0.1}Ti_{0.1}O_2$ powder prior to the *operando* experiment.

Table S3. Refined structural parameters determined from NPD data collected ECHIDNA at ANSTO from pristine P2-type $Na_{2/3}Mn_{0.8}Fe_{0.1}Ti_{0.1}O_2$ powder prior to the *operando* experiment.

Space group: P 63/m m c, R_w = 5.96 %						
a / Å	**b / Å**	**c / Å**	**alpha**	**beta**	**gamma**	**Volume / Å^3**
2.912053(62)	2.912053	11.18414(141)	90	90	120	82.136(26)
Atom	**mult**	**x**	**y**	**z**	**frac**	**U_{iso}**
Mn	2	0	0	0	0.73(7)	0.0226(18)
Na2	2	0	0	0.25	0.238(15)	0.054(8)
O	4	0.333333	0.666667	0.09031(18)	1	0.0223(4)
Fe	2	0	0	0	0.0902(20)	0.0226(18)
Na1	2	0.333333	0.666667	0.75	0.421(19)	0.090(8)
Ti	2	0	0	0	0.18(7)	0.0226(18)