Supplementary information

Decoding the Manganese-Ion Storage Properties of Na$_{1.25}$V$_3$O$_8$ Nanorods

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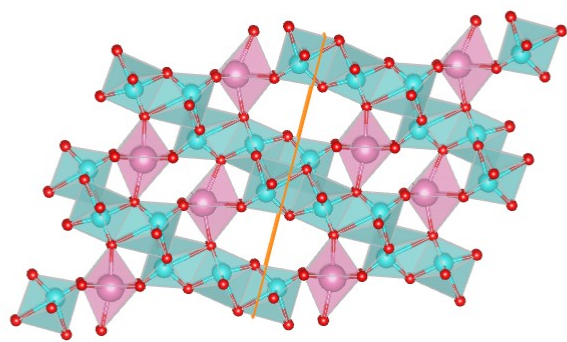
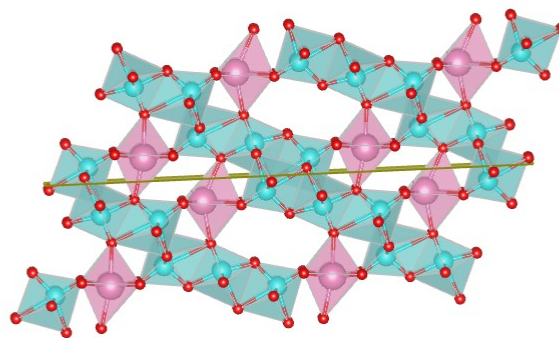Corresponding Author

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Table S1. Rietveld refinement outputs of NVO.

S.No	Elements	X	Y	Z	SOF	Sites
1	NA(1)	0.18400	0.75000	0.64100	1.250	1a
2	NA(2)	0.81600	0.25000	0.31670	1.250	1a
3	V(3)	0.11860	0.25000	0.91510	1.000	1a
4	V(4)	0.31580	0.25000	0.45970	1.000	1a
5	V(5)	0.25810	0.25000	0.19130	1.000	1a
6	V(6)	0.74190	0.75000	0.80870	1.000	1a
7	V(7)	0.68420	0.75000	0.54030	1.000	1a
8	V(8)	0.88140	0.75000	0.07920	1.000	1a
9	O(9)	0.04690	0.75000	0.92790	1.000	1a
10	O(10)	0.22230	0.25000	0.81890	1.000	1a
11	O(11)	0.19250	0.25000	0.55280	1.000	1a
12	O(12)	0.14730	0.25000	0.32580	1.000	1a
13	O(13)	0.17390	0.75000	0.17320	1.000	1a
14	O(14)	0.52320	0.75000	0.72700	1.000	1a
15	O(15)	0.39870	0.75000	0.46120	1.000	1a
16	O(16)	0.69300	0.75000	0.95030	1.000	1a
17	O(17)	0.30700	0.25000	0.04970	1.000	1a
18	O(18)	0.60130	0.25000	0.53880	1.000	1a
19	O(19)	0.47680	0.25000	0.27300	1.000	1a
20	O(20)	0.82610	0.25000	0.82680	1.000	1a
21	O(21)	0.85270	0.75000	0.67420	1.000	1a
22	O(22)	0.80750	0.75000	0.44720	1.000	1a
23	O(23)	0.77770	0.75000	0.18110	1.000	1a
24	O(24)	0.95310	0.25000	0.07210	1.000	1a

R_{wp}(%)=4.36, R_{exp}(%)=3.37, Chi^2=1.6738,   GOF=1.2938

a= 12.1180 Å,   b=3.6061 Å,   c=7.2421 Å   Space group name   P21/m

α=90°, β=106.88°, γ=90°   Unit-cell volume = 302.831736 Å^3
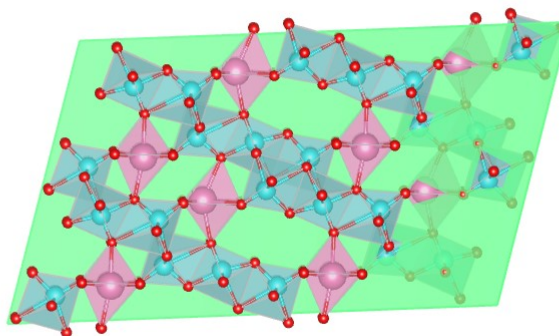
(0 0 1)

(2 0 0)
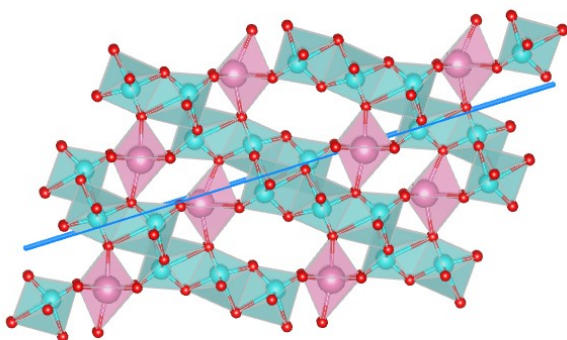
(4 0 2)

(0 1 1)

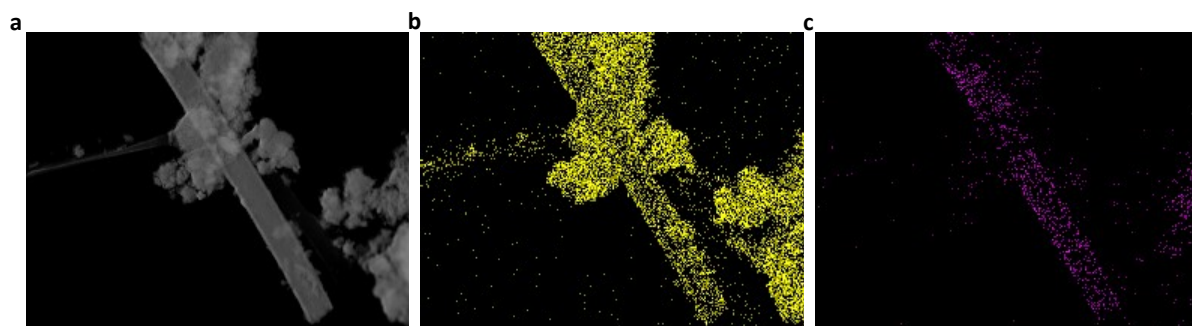**Fig. S1.** Crystal structure from Rietveld refinement outputs of NVO.

Fig. S2. The EDS-mapping Zn-Mn alloy micro-flakes.

Table S2. The R1, R2, R3, R4, and W4 for MS-NVO samples (before and after cycling).

Sample Name	R1 (Ω)	R2 (Ω)	R3 (Ω)	R4 (Ω)	W4 (Ω.S^-1/2)
Before cycle fitting	0.774	435.3	169	282.3	168
After cycle fitting	0.625	138	97	117	39.04

Table S3. The R1, R2, R3, R4, and W4 for MC-NVO samples (before and after cycling).

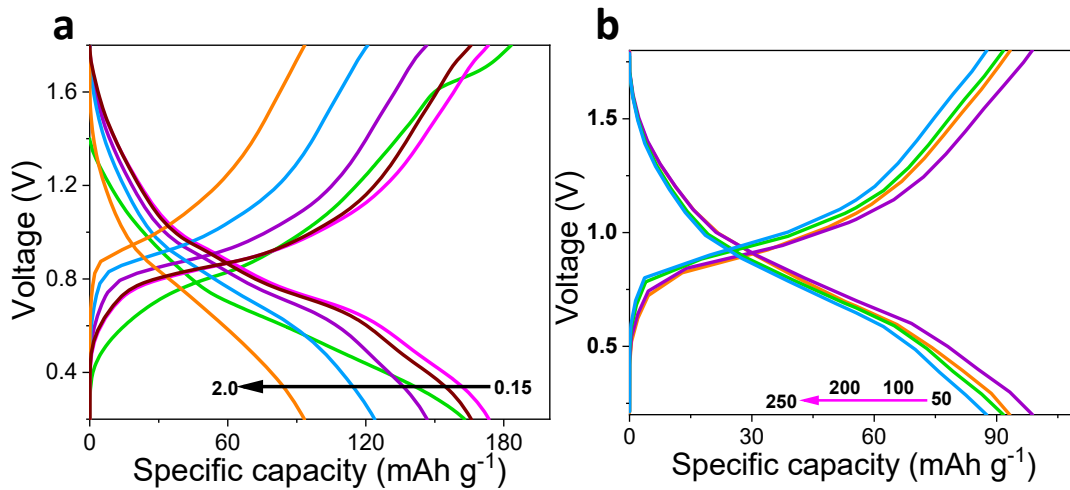| Sample Name	R1 (Ω)	R2 (Ω)	R3 (Ω)	R4 (Ω)	W4 (Ω.S^-1/2)
Before cycle fitting	0.197	253	115.7	274.1	165.6
After cycle fitting	0.145	80.8	30.68	65.68	44.16

Fig. S3. Charge/discharge curves of the NVO‖AC cell at (a) different rates and (b) 2.0 A g^{-1}.