Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information for

Improvement on high-rate performance of Mn-doped $Na_3V_2(PO_4)_3$/C as cathode materials for sodium ion batteries

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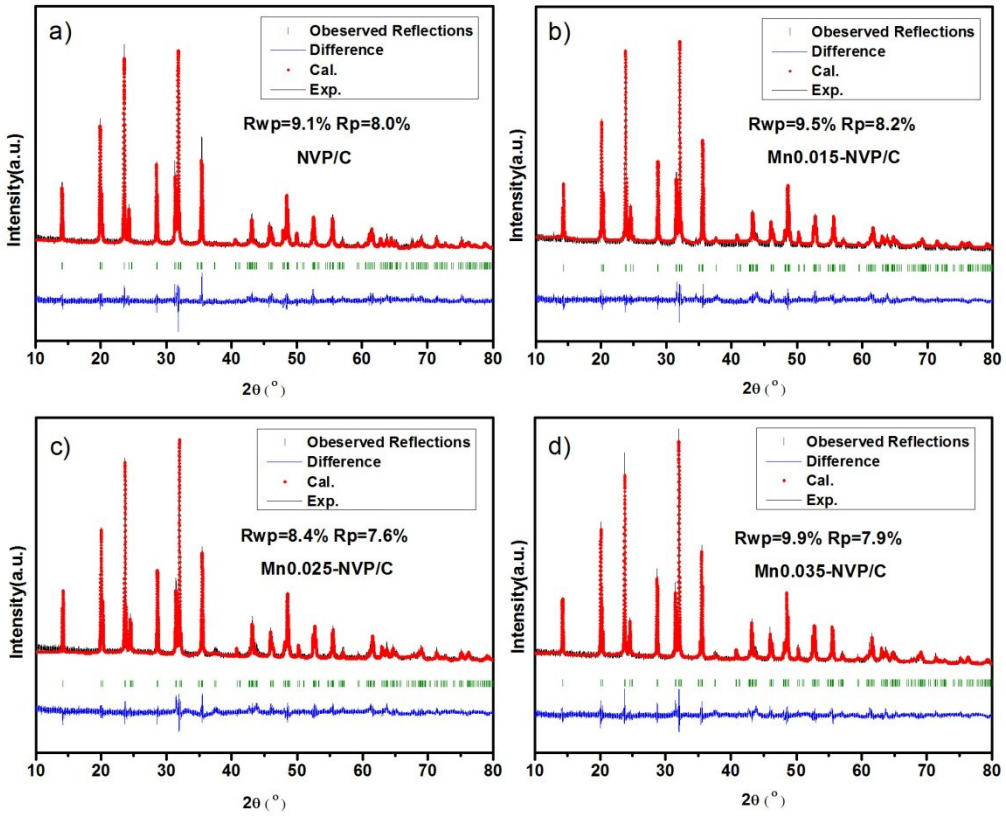

Fig. S1 Rietveld refined XRD patterns of a) NVP/C, b) Mn0.015-NVP/C, c) Mn0.025-NVP/C and d) Mn0.035-NVP/C.

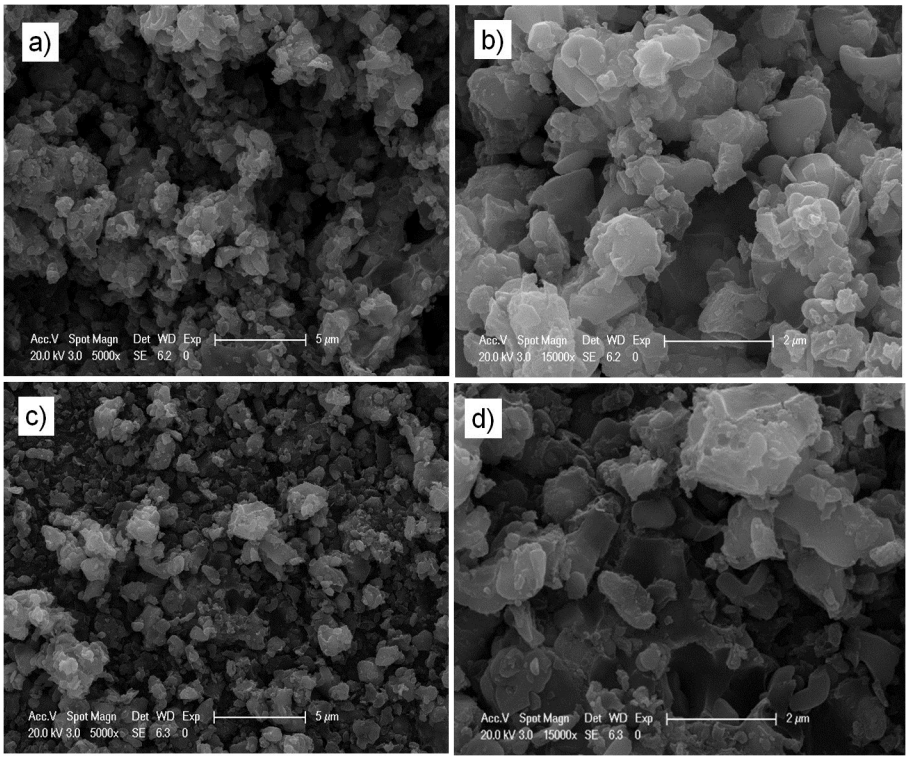

Fig. S2 SEM images of (a,b) Mn0.015-NVP/C and (c,d) Mn0.035-NVP/C samples.

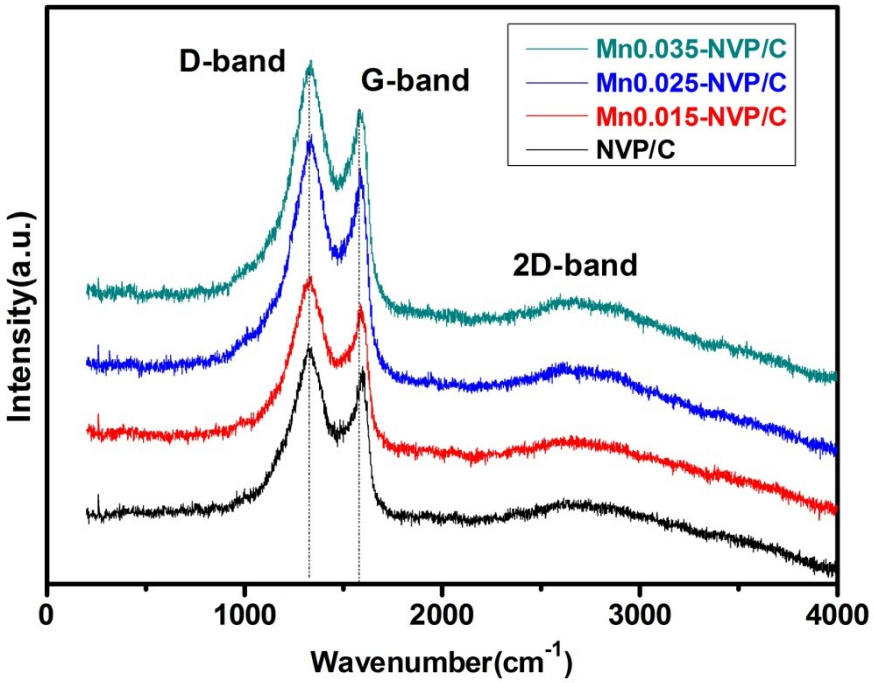

Fig. S3 Raman spectra of $Na_3V_{2-x}Mn_x(PO_4)_3/C$ (x = 0, 0.015, 0.025 and 0.035).

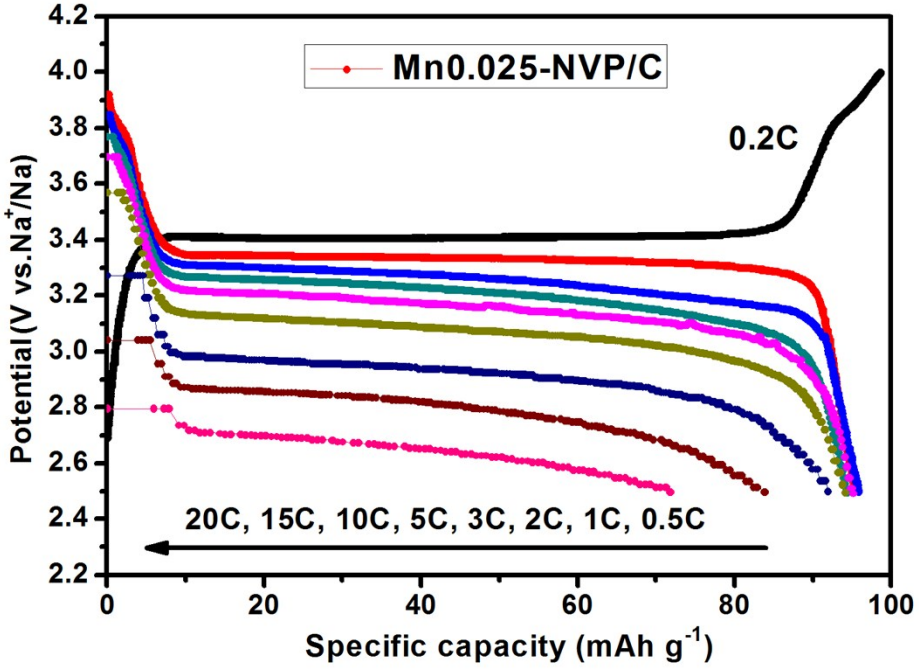

Fig. S4: Discharge profiles of Mn0.025-NVP/C at various current densities from0.5 to 20C.

Table S1: A comparison of the electrochemical performance of present Mn-doped $Na_3V_2(PO_4)_3$/C with the similar metal-ion doped $Na_3V_2(PO_4)_3$ electrodes.

Electrode definition	Specific capacity (mAh g^{-1})	Cycle performance	Reference
Mn^{2+}-doped NVP	95.2 at 2C 86.7 at 15C	79.4 after 100 cycles at 15C	This work
Mn^{3+}-doped NVP	104 at 0.5C 92 at 2C		[S1]
Al-doped NVP	103 at 0.5C 96.8 at 6C		[S2]
Mg-doped NVP	112.5 at 1C 106.4 at 20C	86.2 after 50 cycles at 20C	[S3]

References

[S1]: R. Klee, P. Lavela, M. J. Aragon, R. Alcantara, J. L. Tirado, *J. Power Sources*, 2016, **313**, 73.

[S2]: M.J. Aragón, P. Lavela, R. Alcántara, J.L. Tirado, *Electrochimica Acta*, 2015, **180**, 824.

[S3]: H. Li, X. Yu, Y. Bai, F. Wu, C. Wu, L.-Y. Liu, X.-Q. Yang, *J. Mater. Chem. A*, 2015, **3**, 9578.