

Off-stoichiometric $\text{Na}_{3-3x}\text{V}_{2+x}(\text{PO}_4)_3/\text{C}$ Nanocomposites as Cathode Materials for High-performance Sodium-ion Batteries Prepared by High-energy Ball Milling

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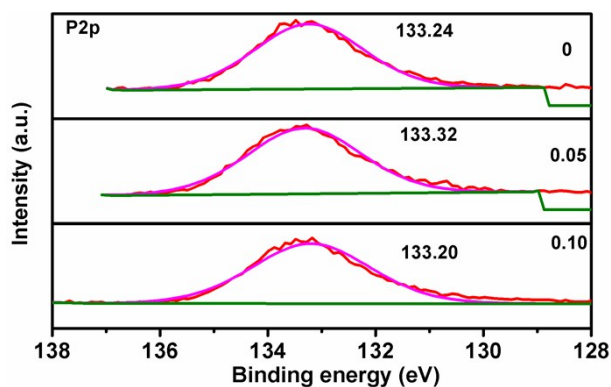


Fig. S1. P2p XPS spectra of NVP- x ($x=0-0.10$).

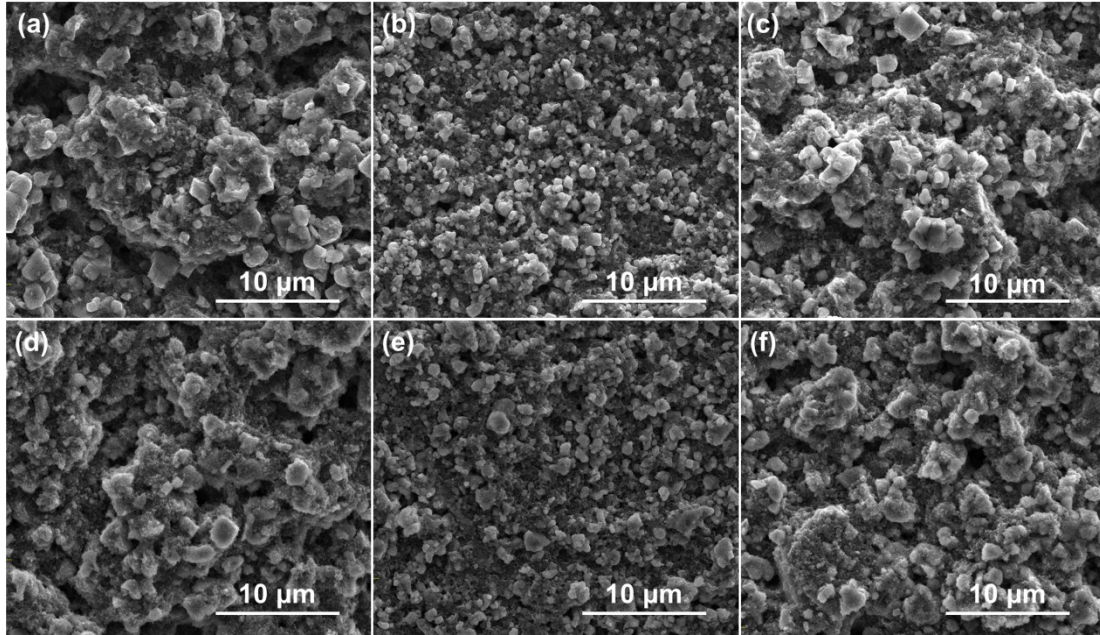


Fig. S2. SEM images of the NVP- x electrode before cycling (a) NVP-0, (b) NVP-0.05, (c) NVP-0.10; after 100 cycles at 1 C (d) NVP-0, (e) NVP-0.05, (f) NVP-0.10.

SEM experiments were done to compare the morphological changes of the NVP- x electrodes before cycling and after 100 cycles at 1 C. As shown in Fig. S2 (Supporting Information), there is no apparent difference between the SEM images of the electrode before cycling and after 100 cycles at 1 C. Before cycling, a compact electrode consisting of the NVP- x particles and acetylene black are observed. After 100 cycles at 1 C, the electrodes still maintain integral. Thus, the results suggested that the structures of NVP- x are stable and the amorphous carbons are helpful to assist in buffering volume change of Na ion insertion/extraction.