Electronic Supplementary Information

Facile Synthesis of Nitrogen-doped Carbon Derived from Polydopamine Coated $Li_3V_2(PO_4)_3$ as Cathode Materials for Lithium-Ion Batteries

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Synthesis of carbon coated $Li_3V_2(PO_4)_3$ (LVP/C)

In order to investigate the effects of nitrogen doped carbon coating accurately, a comparative experiment was carried out as follows [1]: Typically, 0.5g LVP was dispersed in a solution of 0.15g glucose dissolved in 30ml de-ionized water. The mixture was transferred into a 50 mL Teflon-lined stainless steel autoclave and then placed in an oven at 180 °C for 3 h. Finally the precipitate was collected, washed with de-ionized water and then annealed in a tube under N_2 atmosphere at 750 °C for 4 h after drying.

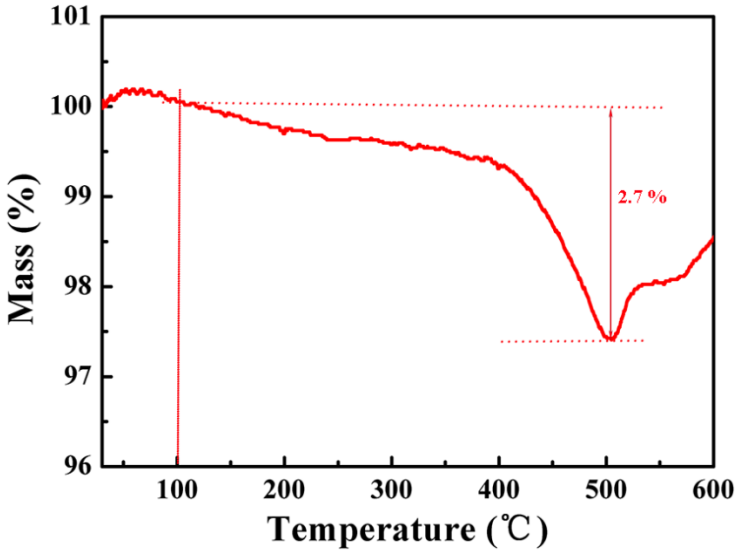

Fig. S1 TG curve of the LVP/C measured at 10 °C min^{-1} in air.

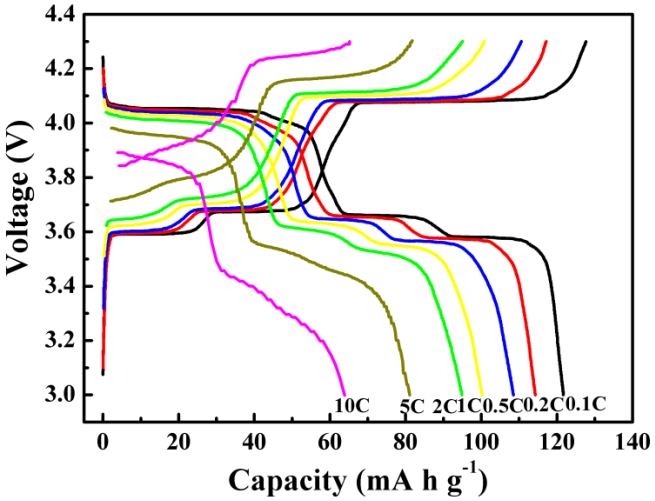

Fig.S2 Charge-discharge curves for LVP/C over a potential window of 3-4.3 V at various rates.

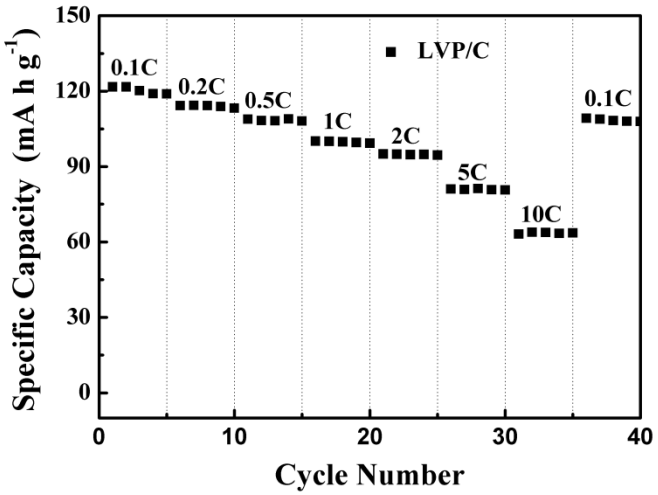

Fig. S3 The rate performances of the LVP/C sample at different current rates over a potential window of 3-4.3 V.

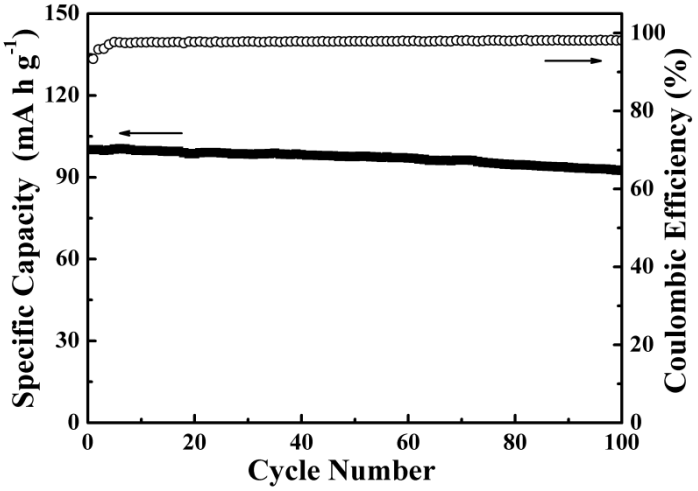

Fig.S4 The cyclability and Coulombic efficiency of the LVP/C sample at 1 C.

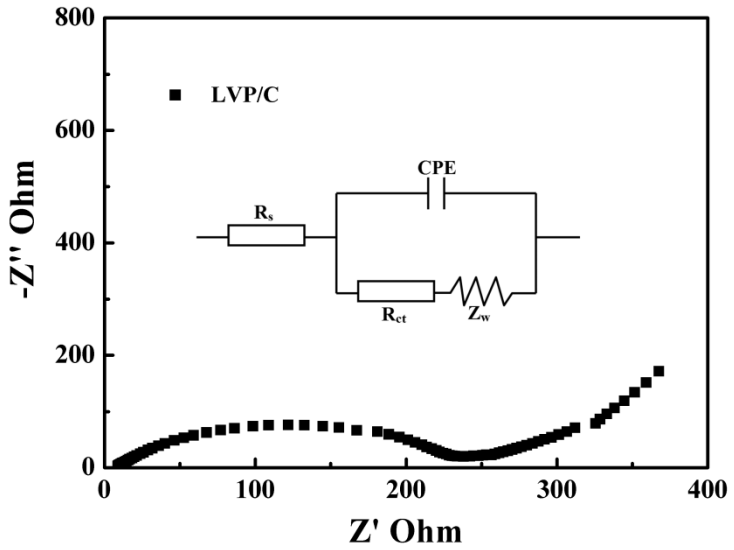

Fig.S5 EIS spectra for LVP/C with the frequency range of 100 kHz to 0.01Hz after five full cycles at 0.1 C.

TableS1 Various resistances of LVP/C cell after five full cycles at 0.1 C.

Samples	$R_s(\Omega)$	R_{ct} (Ω)
LVP/C	5.75	221

Reference

1 X. M. Sun, and Y. D.Li, *Angew. Chem. Int. Ed.*, 2004, **43**, 597