

## Support Information

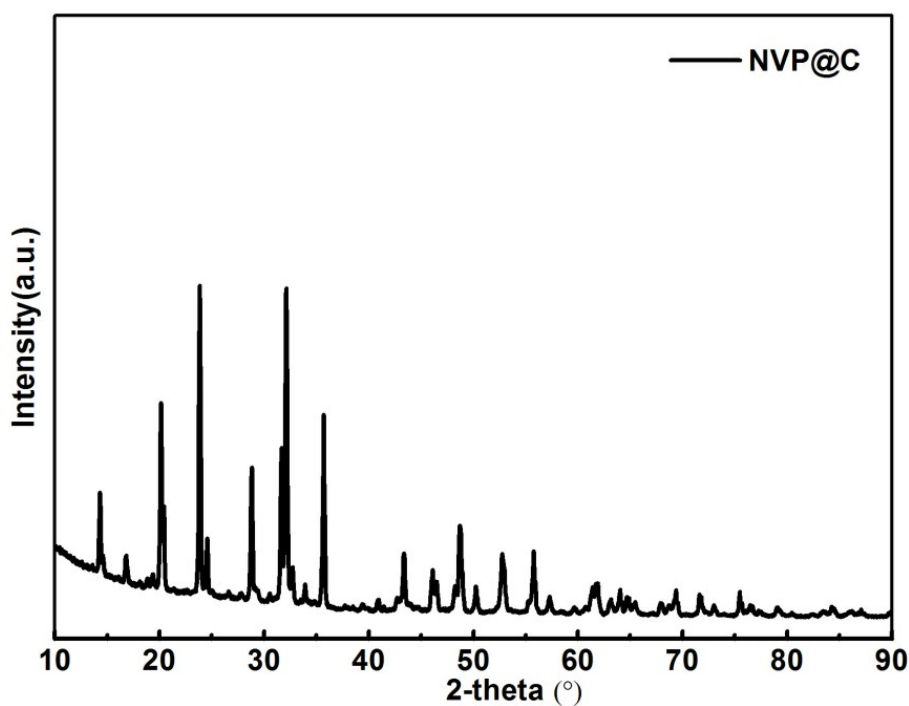
# Carbon Coated $\text{Li}_4\text{Ti}_5\text{O}_{12}$ Nano-particles with High Electrochemical Performance as Anode Material in Sodium-ion Batteries

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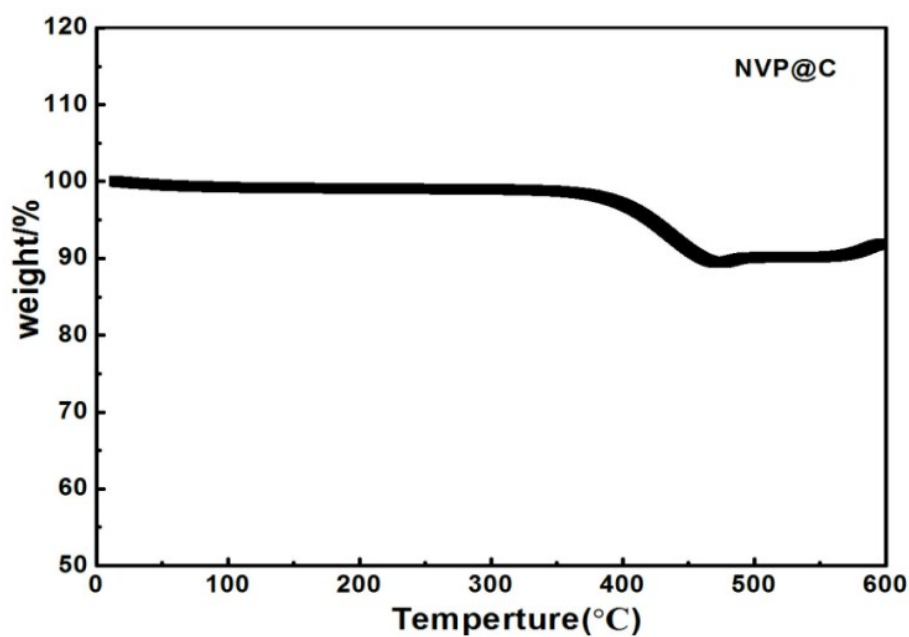
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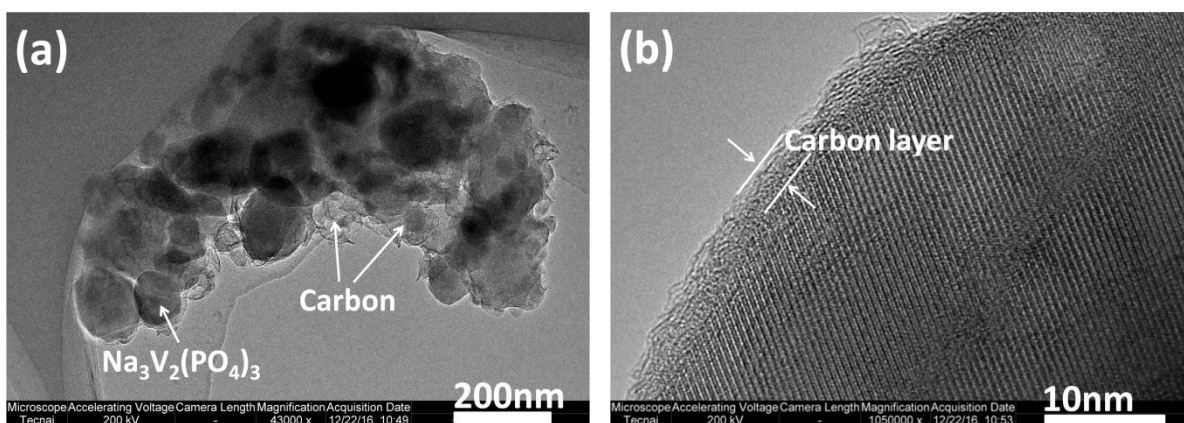
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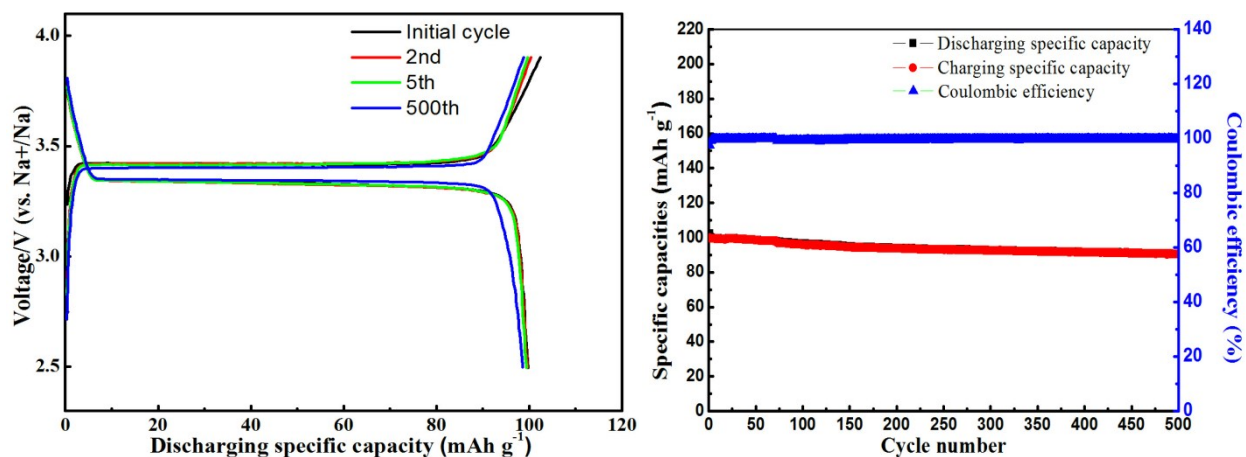
**Figure S1.** XRD patterns of NVP@C composition..



**Figure S2.** TG curves of NVP@C. The weight loses occurred in range from 400 to 450 °C, which attributed to the decomposition of the carbon under oxygen atmosphere. The weight lost was about 10% of total weight, which indicated that the carbon content of NVP@C compound is approximately 10% *wt.*



**Figure S3. (a,b)** TEM images of NVP@C composition. TEM image shows the particles size is about 100nm on average. HRTEM image indicates a uniform graphitized carbon coated on the surface of particles and the thickness of carbon layer is *ca.* 5 nm.



**Figure S4.** Electrochemical performance of NVP@C composition as cathode material in sodium-ion half cells. The initial charge/discharge specific capacities of NVP@C in sodium-ion half cell are 102.4 and 99.8 mAh g<sup>-1</sup> in the voltage window of 2.5-3.9 V at current density of 0.1 A g<sup>-1</sup>, with very flat voltage platform located at 3.4 and 3.3 V vs Na<sup>+</sup>/Na. The cycle stability of NVP@C has been evaluated at current density of 0.1 A g<sup>-1</sup>. The results indicated that the reversible discharge specific capacity remained at 90.7 mAh g<sup>-1</sup> after 500 cycles, corresponding to a capacity retention ratio of 88.6%. The coulombic efficiency was found to be 100%.