Rational construction of $K_{0.5}V_2O_5$ nanobelts/CNTs flexible cathode for multi-functional potassium ion batteries

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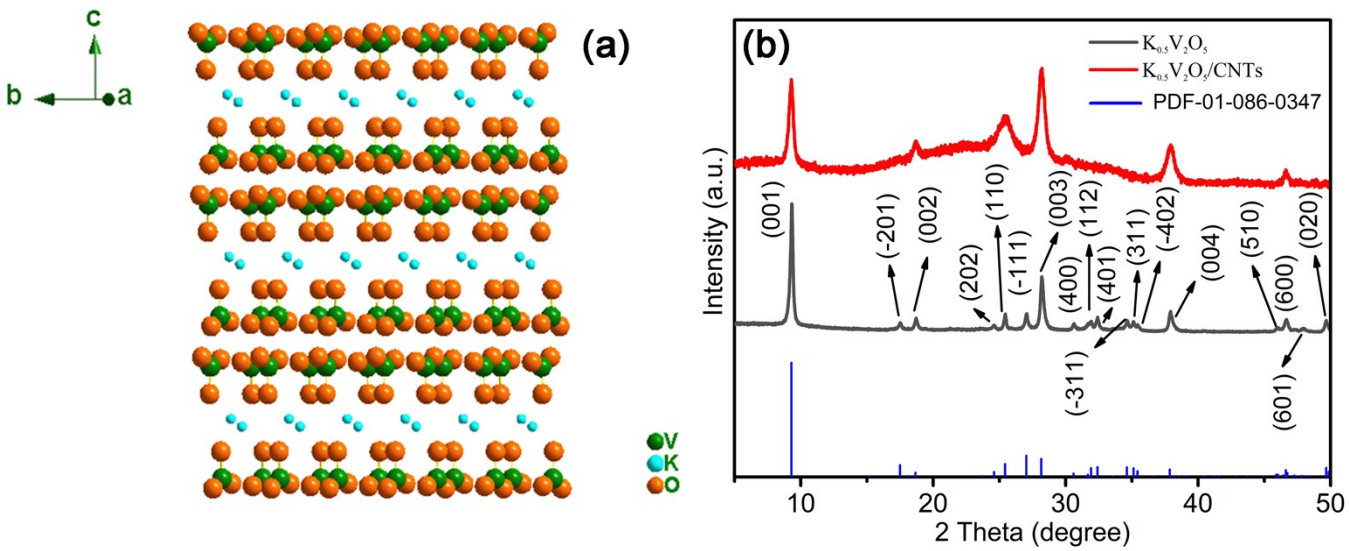

Figure S1. (a) The crystal structure of $K_{0.5}V_2O_5$. **(b)** XRD patterns of $K_{0.5}V_2O_5$ and $K_{0.5}V_2O_5$/CNTs film.

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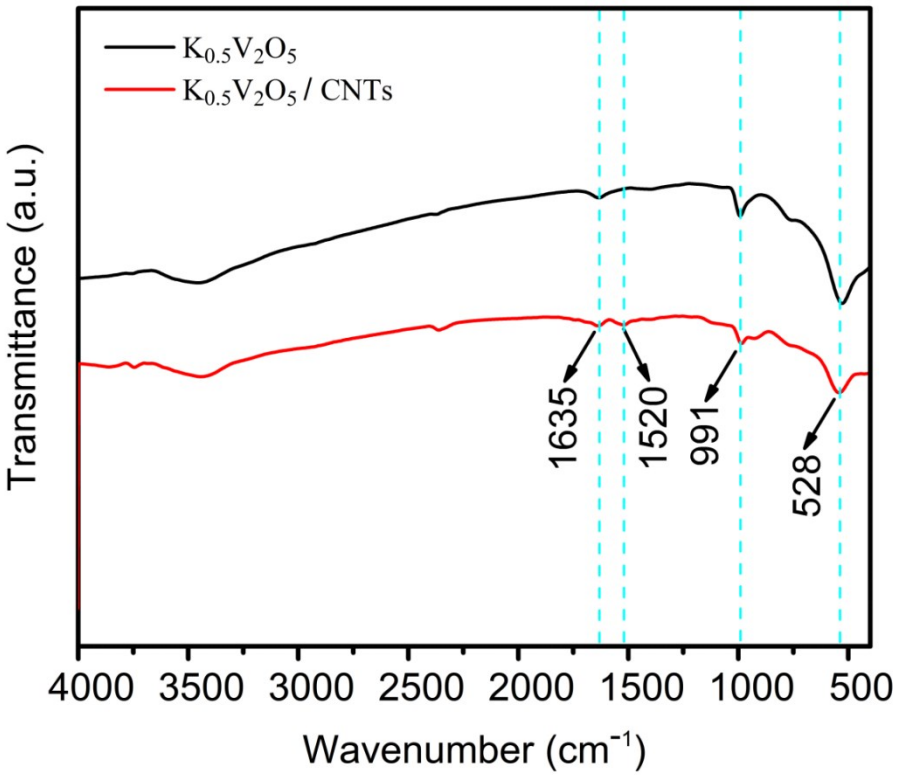

Figure S2. FTIR spectra of $K_{0.5}V_2O_5$ and $K_{0.5}V_2O_5$/CNTs.

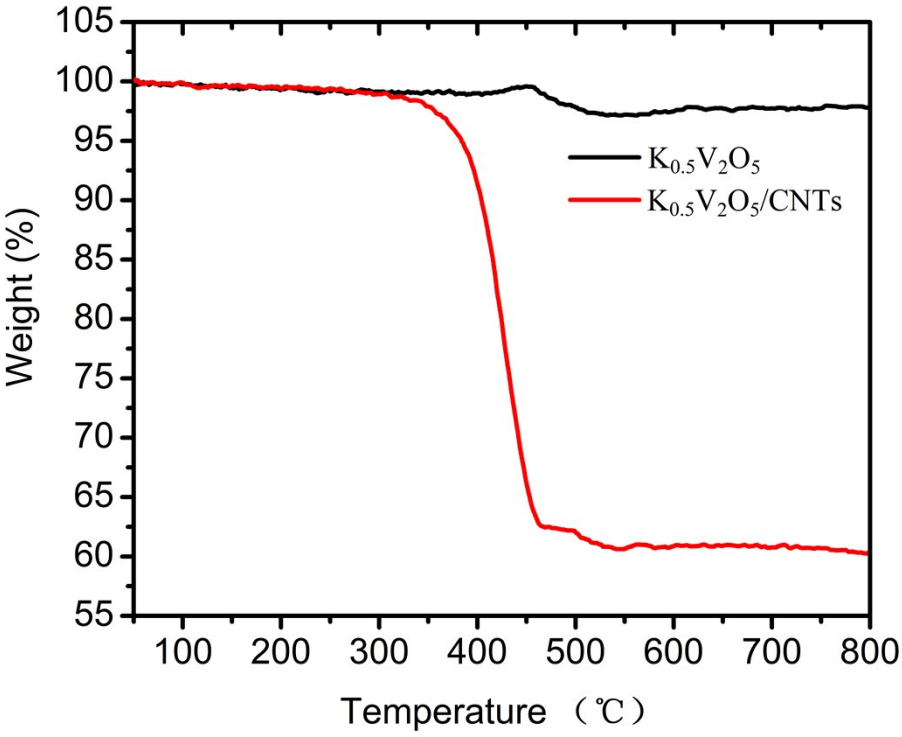

Figure S3. Weight loss curves of $K_{0.5}V_2O_5$ and $K_{0.5}V_2O_5$/CNTs determined via TGA

in air.

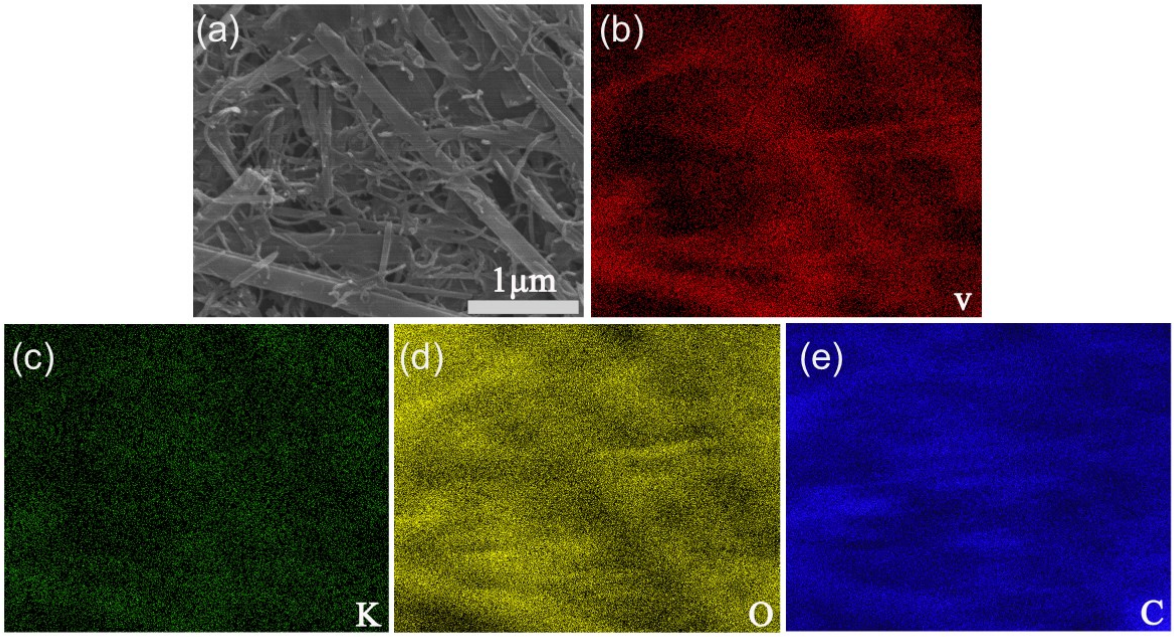

Figure S4. (a-e) SEM and EDS mapping images of $K_{0.5}V_2O_5$/CNTs film.

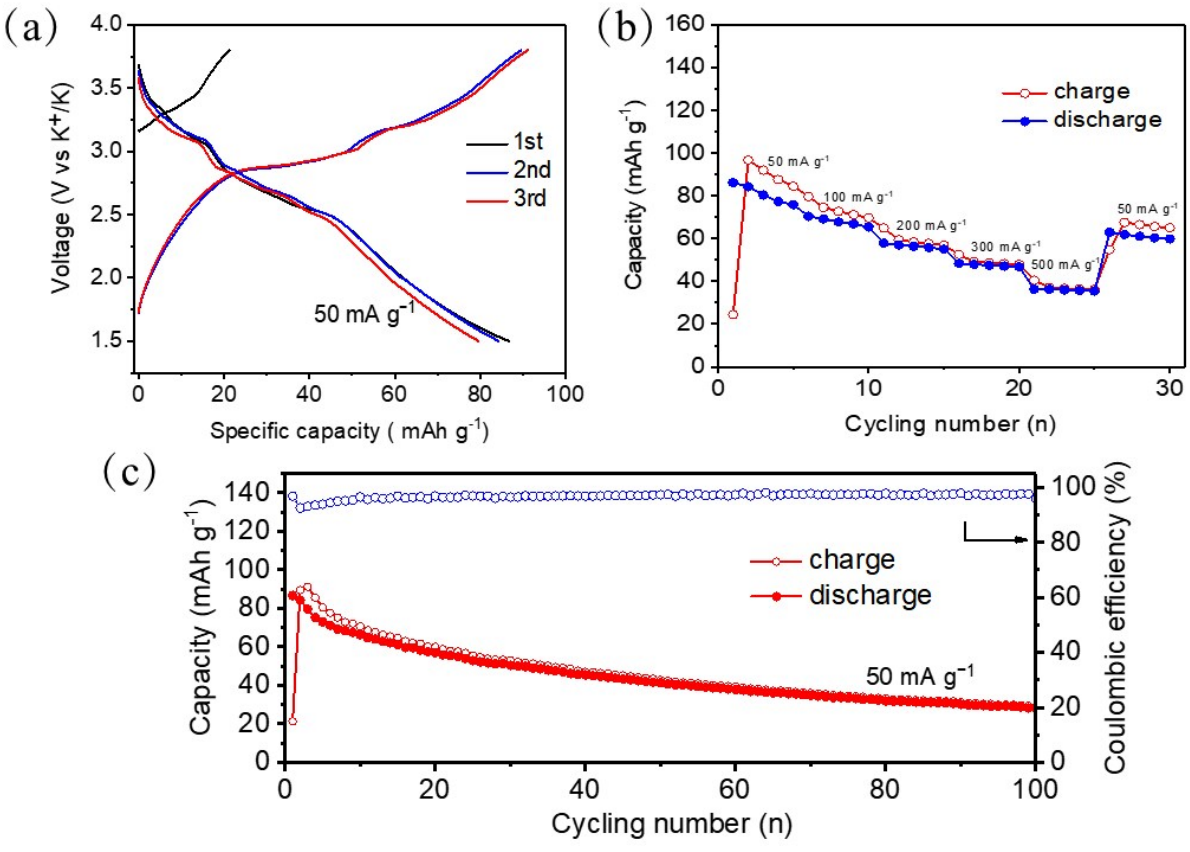

Figure S5. (a) Initial three charge/discharge curves of $K_{0.5}V_2O_5$ electrode at a current density of 50 mA g^{-1} . The electrochemical performance of $K_{0.5}V_2O_5$/CNTs electrode: (b) rate capability; and (c) cycling performance.

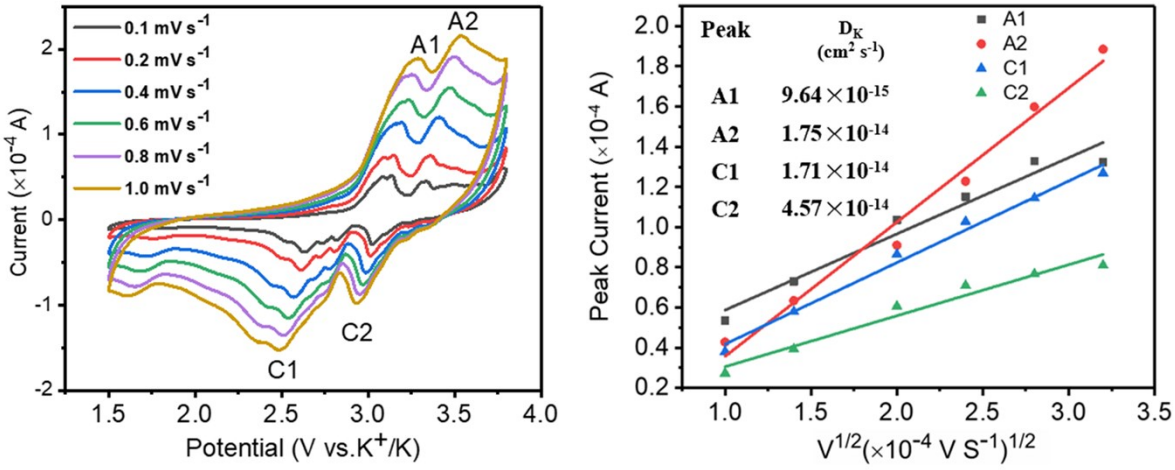

Figure S6. (a) CV curves of $K_{0.5}V_2O_5$ electrode at various scanning rates of 0.1, 0.2, 0.4, 0.6, 0.8 and 1.0 mV s^{-1} ; and (b) the corresponding linear fitting curve between the peak current (i_p) and the square root of the scan rate ($v^{1/2}$).