

Supporting Information

Ultrasmall SnO₂ Nanocrystals Embedded in Porous Carbon as Potassium Ion Battery Anodes with Long-Term Cycle Life

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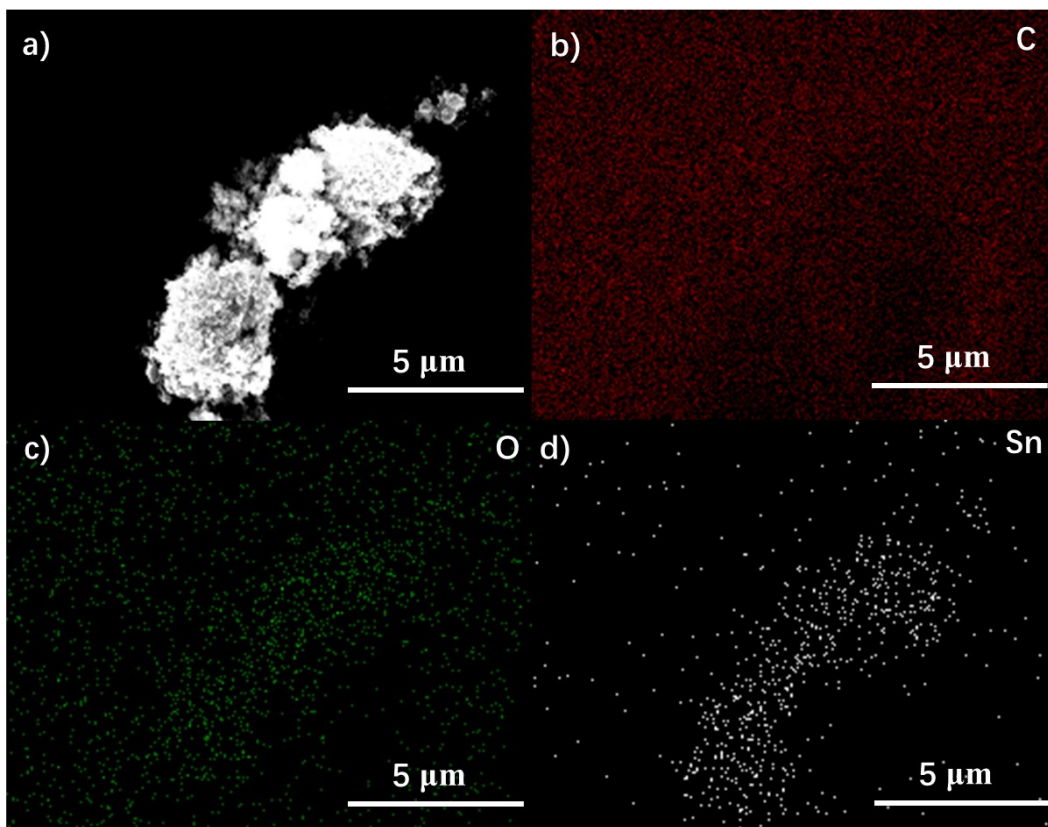


Fig. S1 SEM image and EDX analysis of the as-prepared SnO₂ NC@C sample. a) SEM image. b) Carbon, c) oxygen and d) tin element mapping images of SnO₂ NC@C sample.

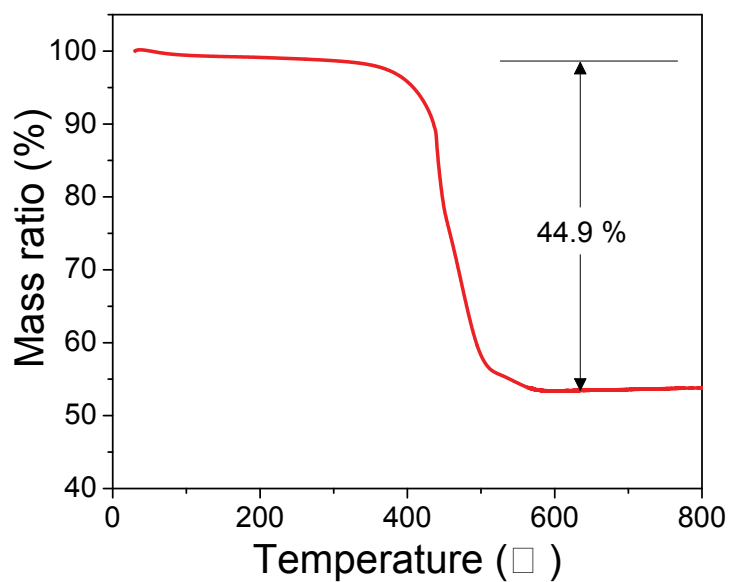


Fig. S2 TGA curves of SnO₂ NC@C powder. TGA measurement was carried out from 25 °C to 800 °C under air atmosphere with a heating rate of 10 °C min⁻¹.

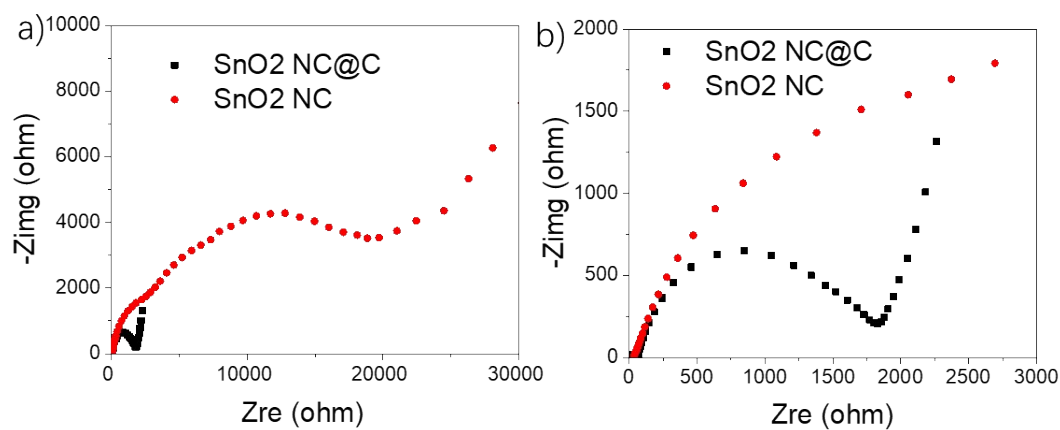


Fig. S3 Impedance of the SnO₂ NC and SnO₂ NC@C cells. EIS measurements were carried out at room temperature in two-electrode 2032 coin-type half-cells. b) is the magnification of a).

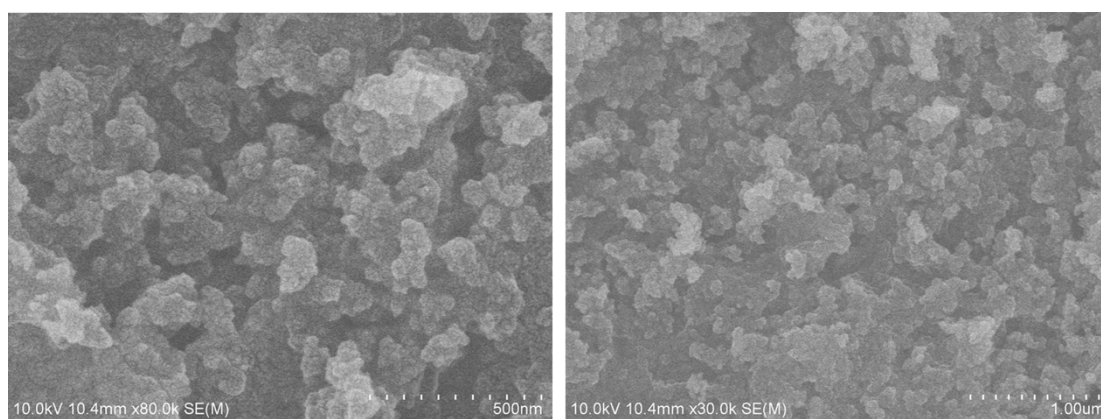


Fig. S4 SEM images of SnO₂ NC@C electrode after 1000 cycles at a current density of 1 A g⁻¹

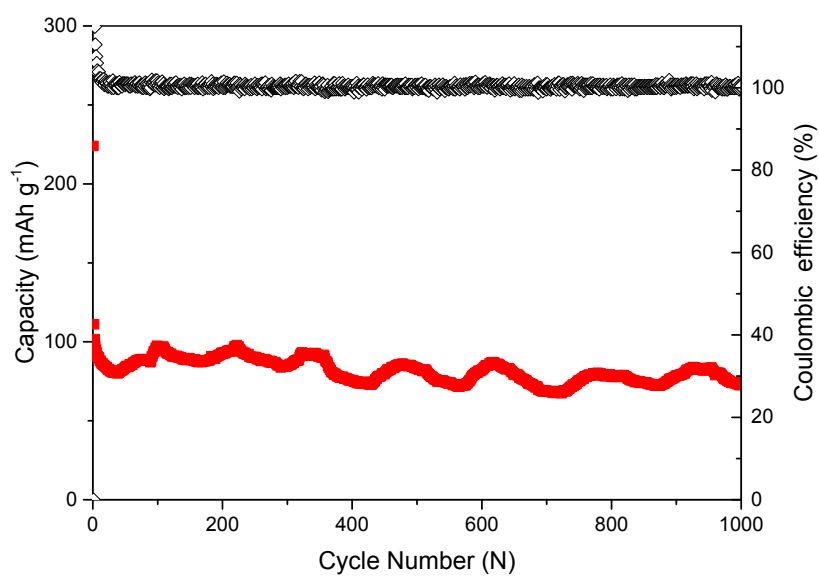


Fig. S5 Cycling performance of carbon at a current density of 1 A g⁻¹.

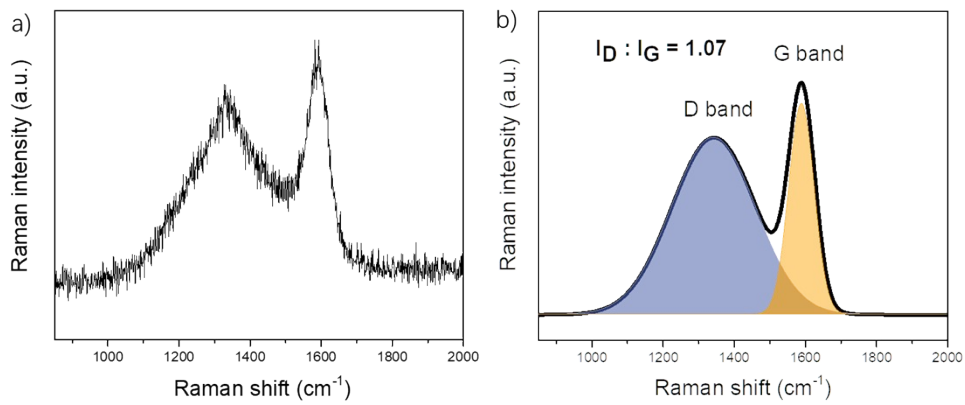


Fig. S6 Raman spectra of SnO₂ NC@C composite. I_D : I_G = 1.07.

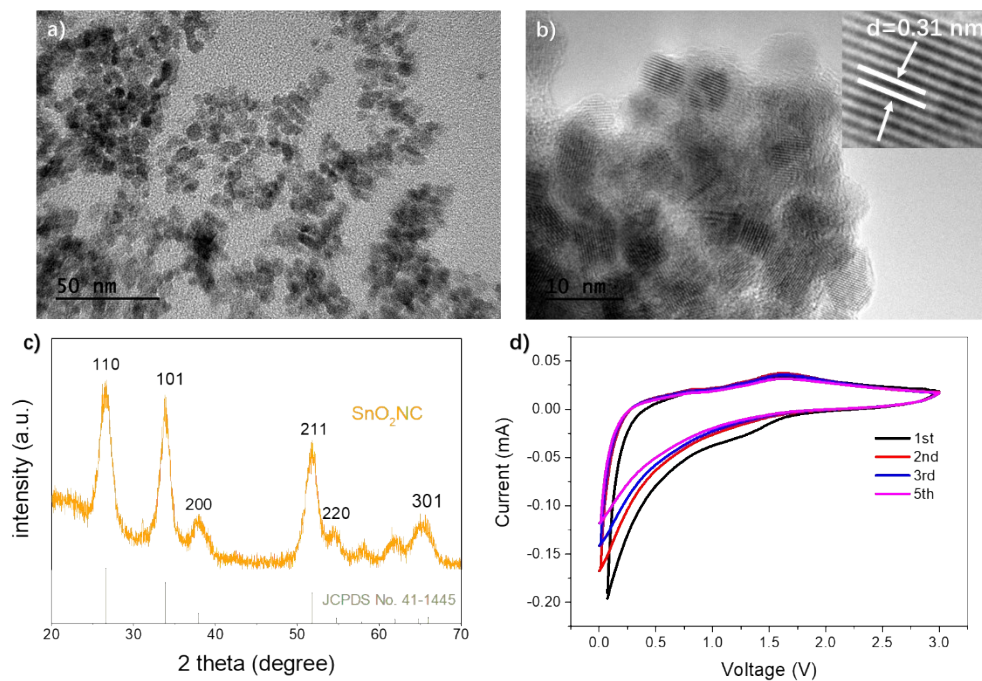


Fig. S7 Characterization of SnO₂ NC. a), b) HRTEM images, c) XRD patterns, d) CV curve of SnO₂ NC.

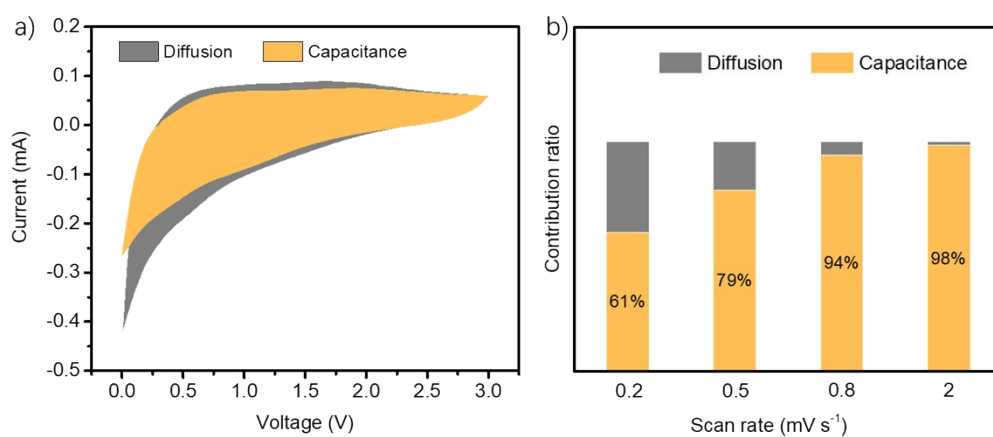


Fig. S8 a) Capacitance contribution of SnO₂ NC@C electrode at 0.5 mV s⁻¹; b) The diffusion and capacitance controlled of SnO₂ NC@C electrode at different rates from 0.2 mV s⁻¹ to 2 mV s⁻¹.