

Supplementary Information

Highly Wrinkled Carbon Tube as an Advanced Anode for K-Ion Full Battery

Peng Li, Jang-Yeon Hwang and Yang-Kook Sun*

Department of Energy Engineering, Hanyang University, Seoul 133-791, Republic of Korea

Corresponding author: Yang-Kook Sun

E-mail address: yksun@hanyang.ac.kr

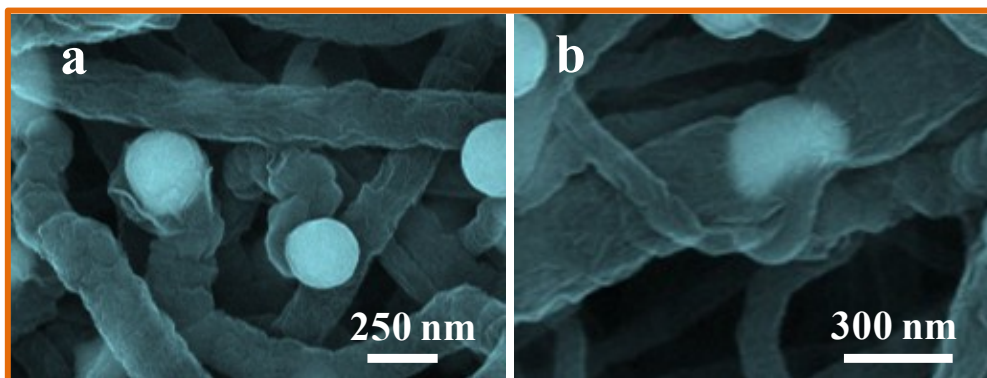


Fig. S1 SEM images of Ni-CTs with Ni particles encapsulated (a) at the top of and (b) inside Ni-CTs.

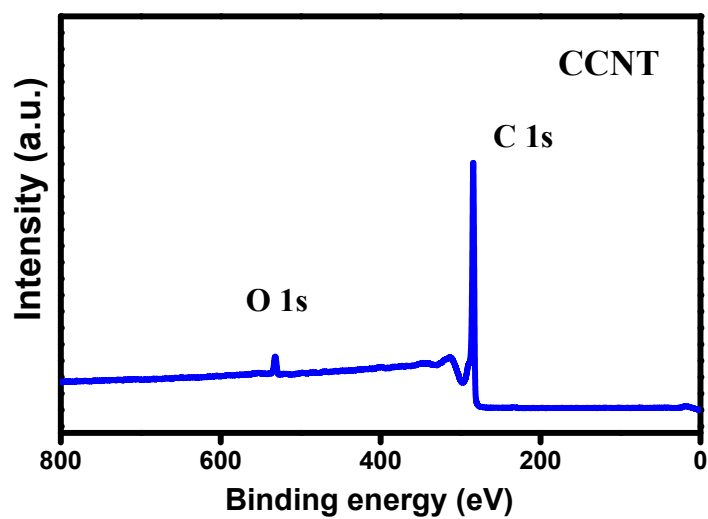


Fig. S2 XPS spectrum of CCNTs.

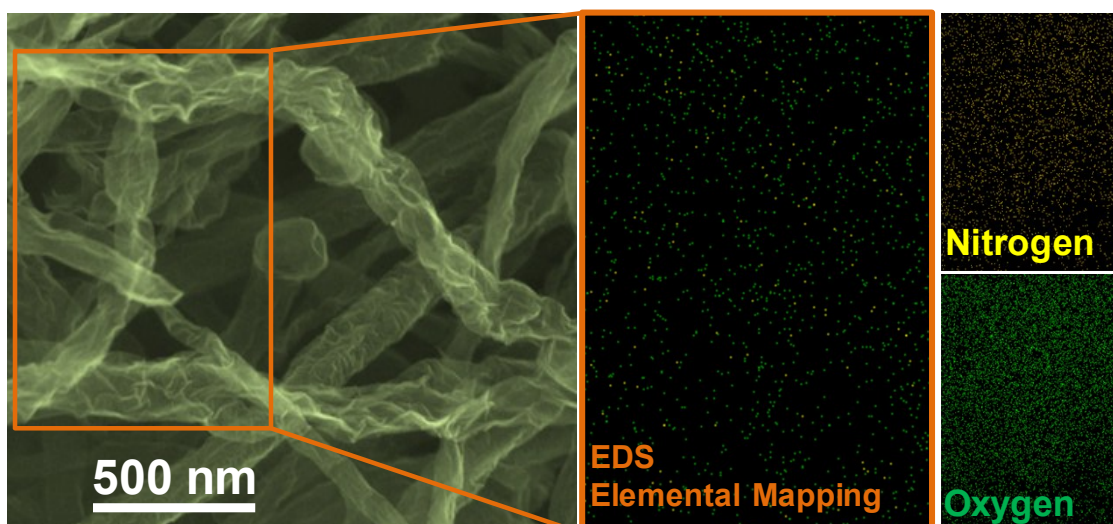


Fig. S3 SEM and corresponding elemental mapping of NO-WCT.

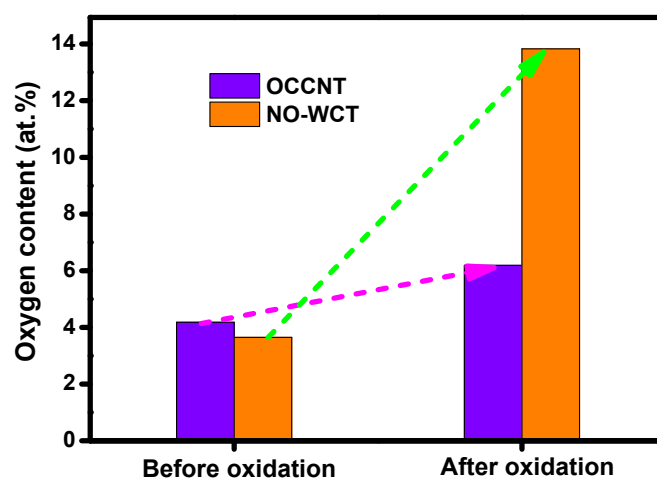


Fig. S4 Change of oxygen content in NO-WCTs and OCCNTs before and after oxidation.

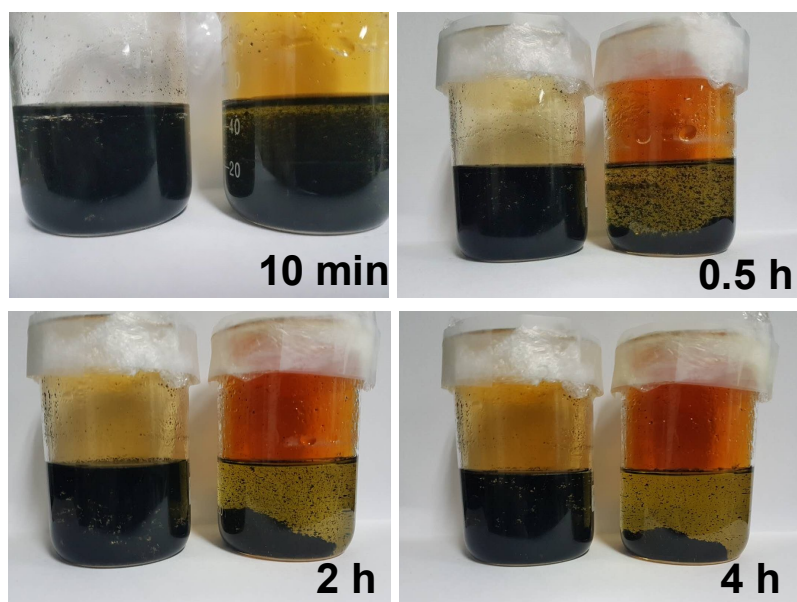


Fig. S5 Photographs of OCCNTs (left) and NO-WCTs (right) with different oxidation rate and intensity.

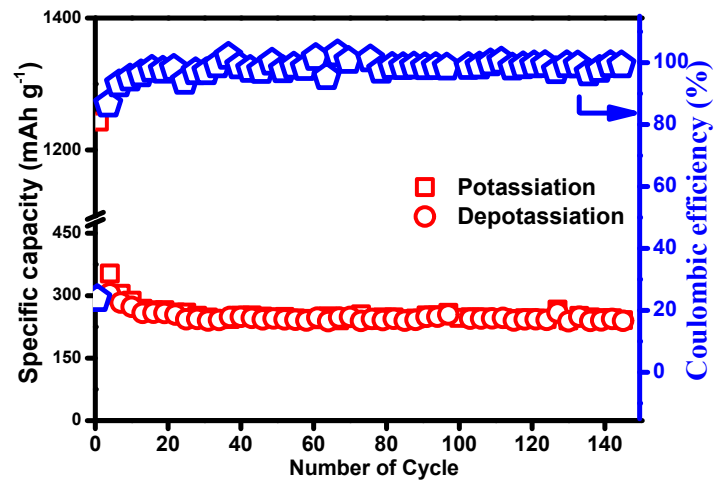


Fig. S6 Charge/discharge performance of WCT-H at a current density of 100 mA g⁻¹.

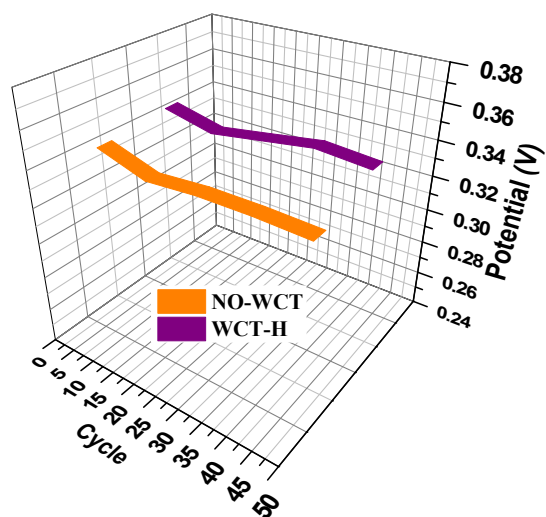


Fig. S7 Anodic peak voltage of NO-WCTs and WCT-H during cycling.

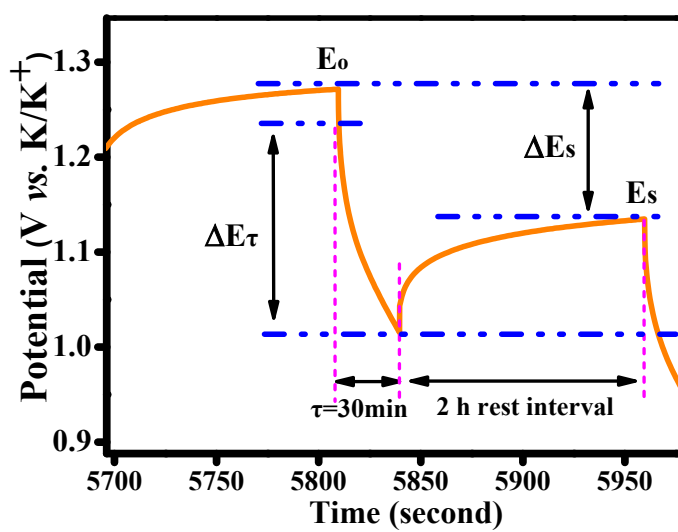


Fig. S8 Current step diagram during galvanostatic intermittent titration technique (GITT) examination.

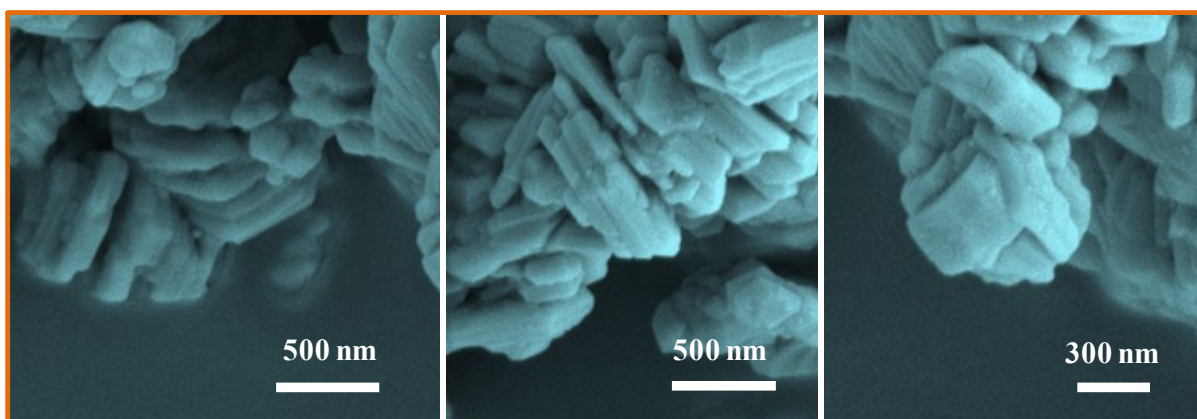


Fig. S9 SEM images of the P3 phase $K_{0.69}CrO_2$ cathode with stacked framework.

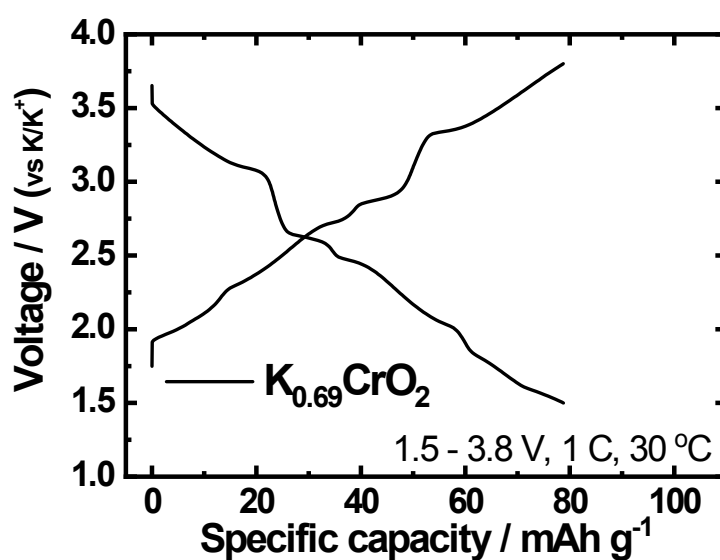


Fig. S10 Initial charge–discharge voltage profiles of the $K_{0.69}CrO_2$ cathode in the voltage range of 1.5–3.8 V at a rate of 1 C.

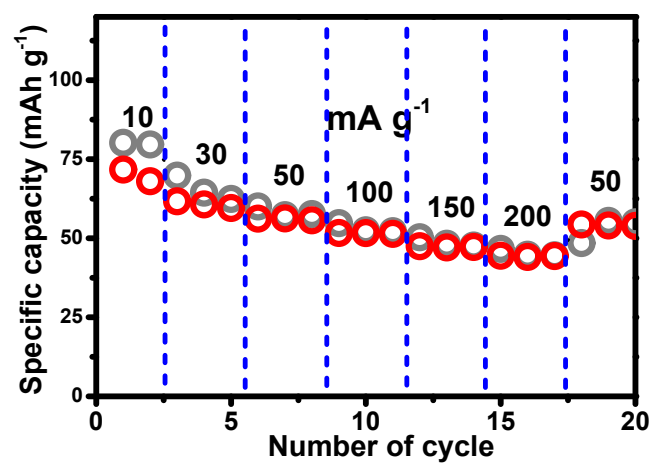


Fig. S11 Rate capability of the as-assembled full cell with NO-WCT and $K_{0.69}CrO_2$ as anode and cathode, respectively