Electronic Supplementary Material (ESI) for RSC Advances.

Cr_2O_3 nanosheet/carbon cloth anode with strong interaction and fast charge transfer for pseudocapacitive energy storage in lithium-ion batteries

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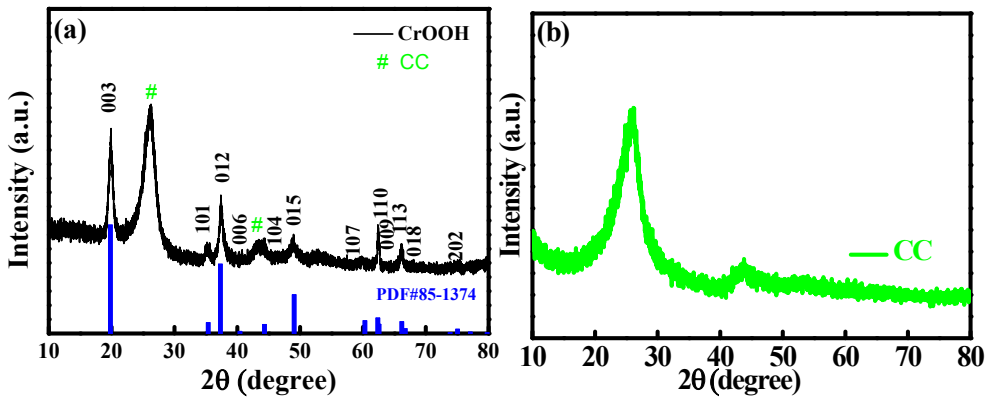

Fig.S1. XRD patterns of (a) CrOOH-CC and (b) CC.

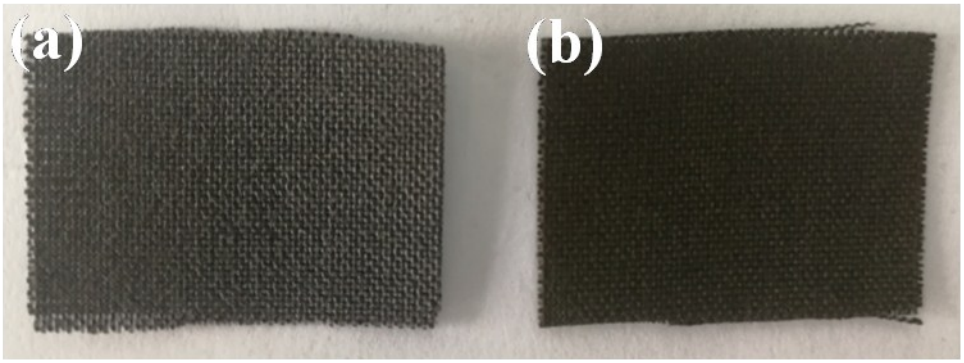

Fig.S2. Digital photographs of (a) Cr_2OOH-CC and (b) Cr_2O_3-CC.

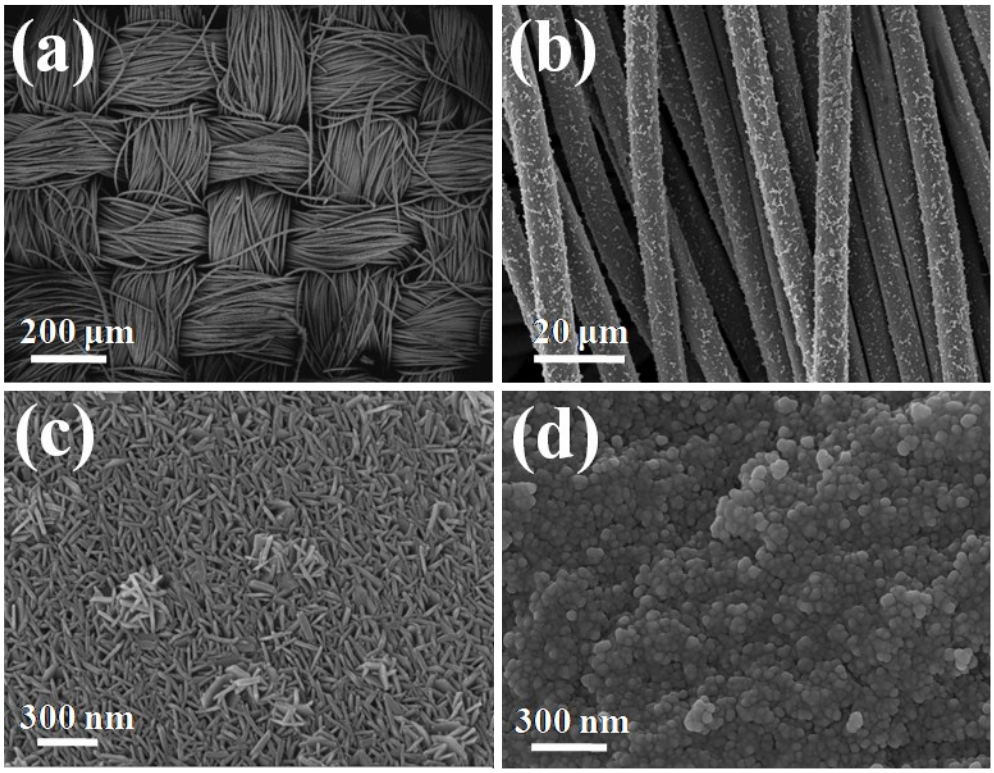

Fig.S3. (a-c) FESEM imagesof CrOOH-CC and (d) Cr_2O_3 NPs.

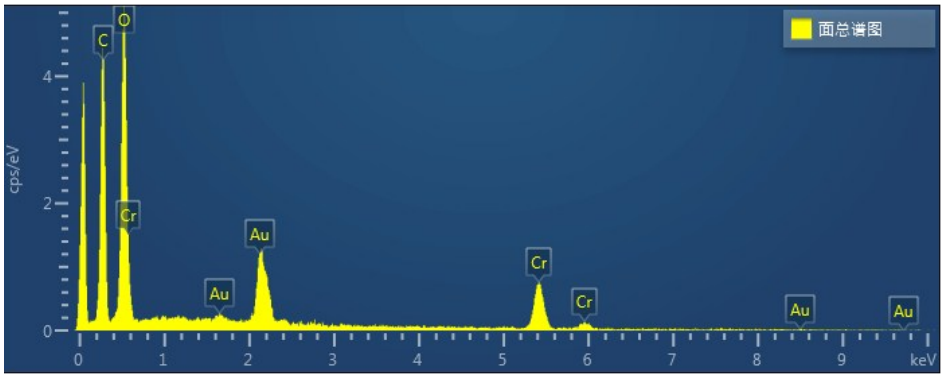

Fig.S4. EDS spectrum of Cr_2O_3-CC.

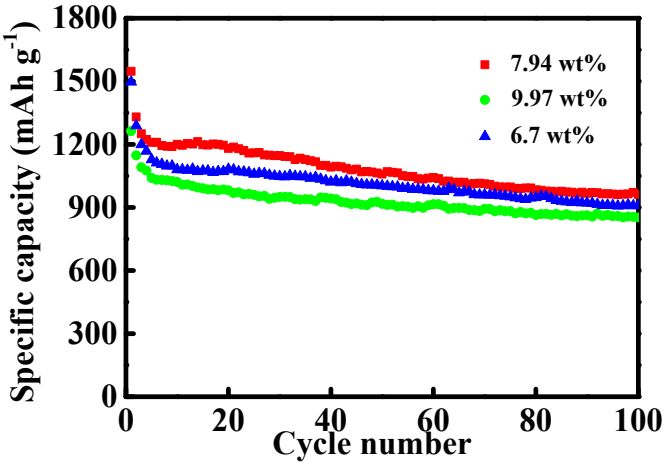

Fig.S5. Cycling performances of Cr_2O_3-CC with different mass loadings of Cr_2O_3 at the current density of 0.1 A g^{-1}.

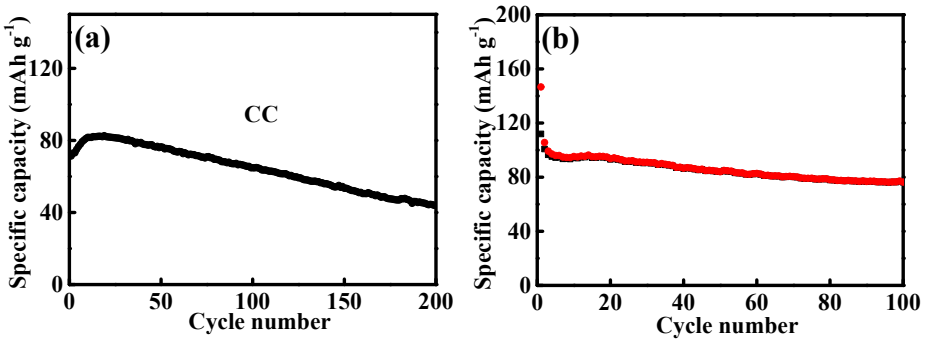

Fig.S6. Cyclic performances of CC (a) and Cr_2O_3-CC (b) based on mass of the whole electrode (Cr_2O_3 and CC) at the current density of 0.1 A g^{-1}.

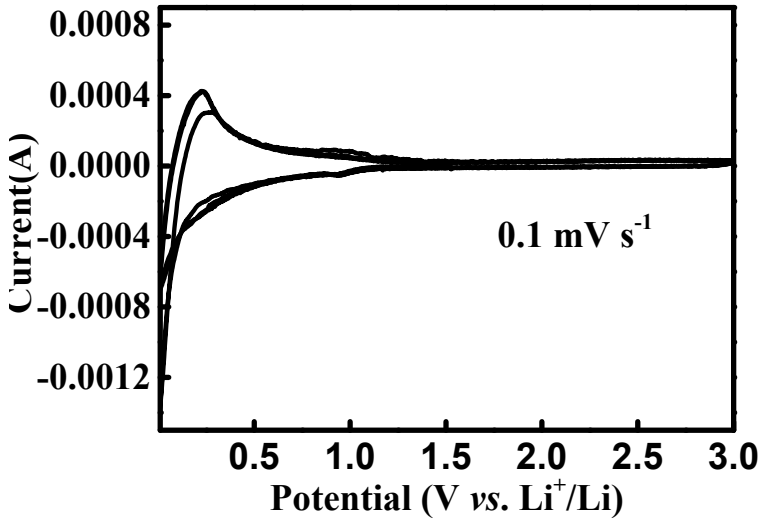

Fig.S7. CV curves of Cr_2O_3-CC for the initial five cycles at 0.1 mV s^{-1}.

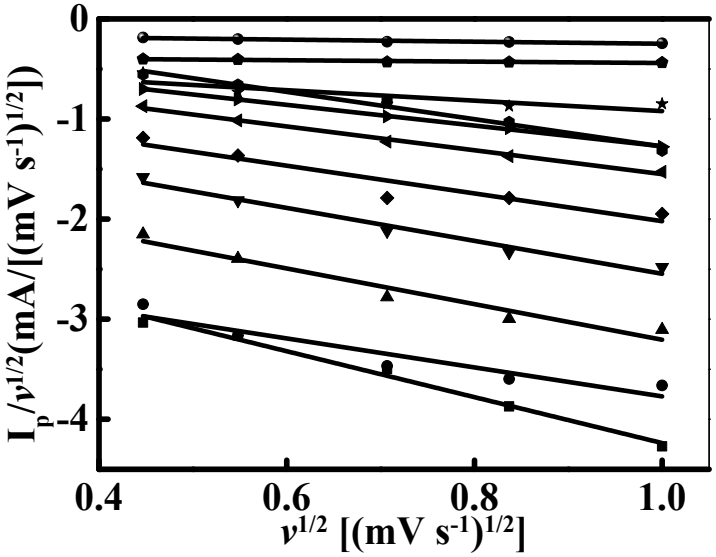

Fig.S8. $I_p/v^{1/2}$ vs $v^{1/2}$ plots of the Cr_2O_3-CC electrode used to obtain the coefficients, k_1 and k_2, according to Equation (2).

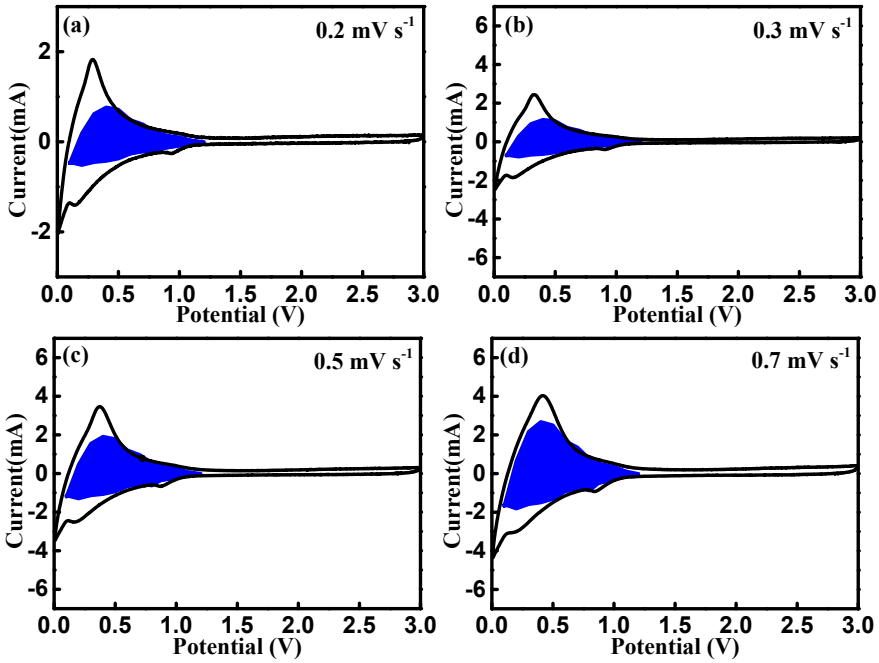

Fig.S9. Pseudocapacitive contributions to charge storage of the Cr_2O_3-CC electrode at different scan rates of (a) 0.2, (b) 0.3, (c) 0.5, (d) 0.7mV s^{-1}.

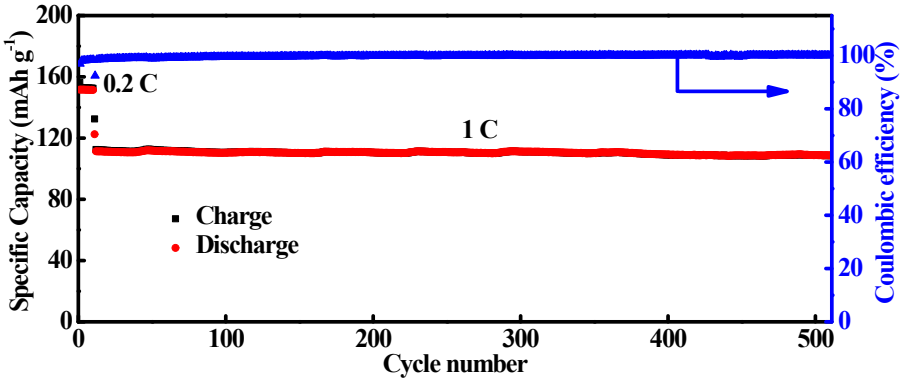

Fig.S10. Long-term cyclic stability and corresponding Coulombic efficiency of Cr_2O_3-CC//LFP@C full cell at 1 C.

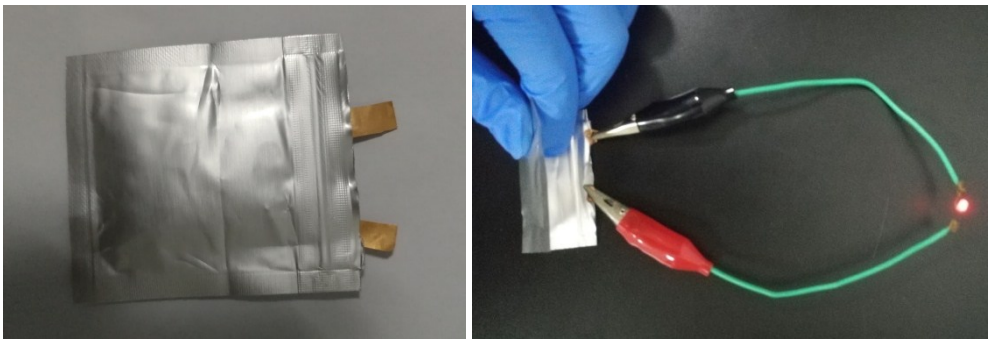

Fig.S11. The digital pictures for the bending lithium-ion full cell that lights a LED.

Table S1. Impedance parameters of Cr_2O_3-CCand Cr_2O_3 NPs fitted with the circuit model of R(QR)(Q(RW))

Samples	R_s (Ω)	R_{ct}(Ω)	Z_w (Ω)	D_{Li+}(cm^2s^{-1})
Cr_2O_3-CC	1.56	140	2.4	6.4×10^{-12}
Cr_2O_3 NPs	6	217	5.4	7.2×10^{-13}