Electronic Supplementary Information (ESI)

Controllable Growth of $NiCo_2O_4$ Nanoarrays on Carbon Fiber Cloth and its Anodic Performance for Lithium-Ion Batteries

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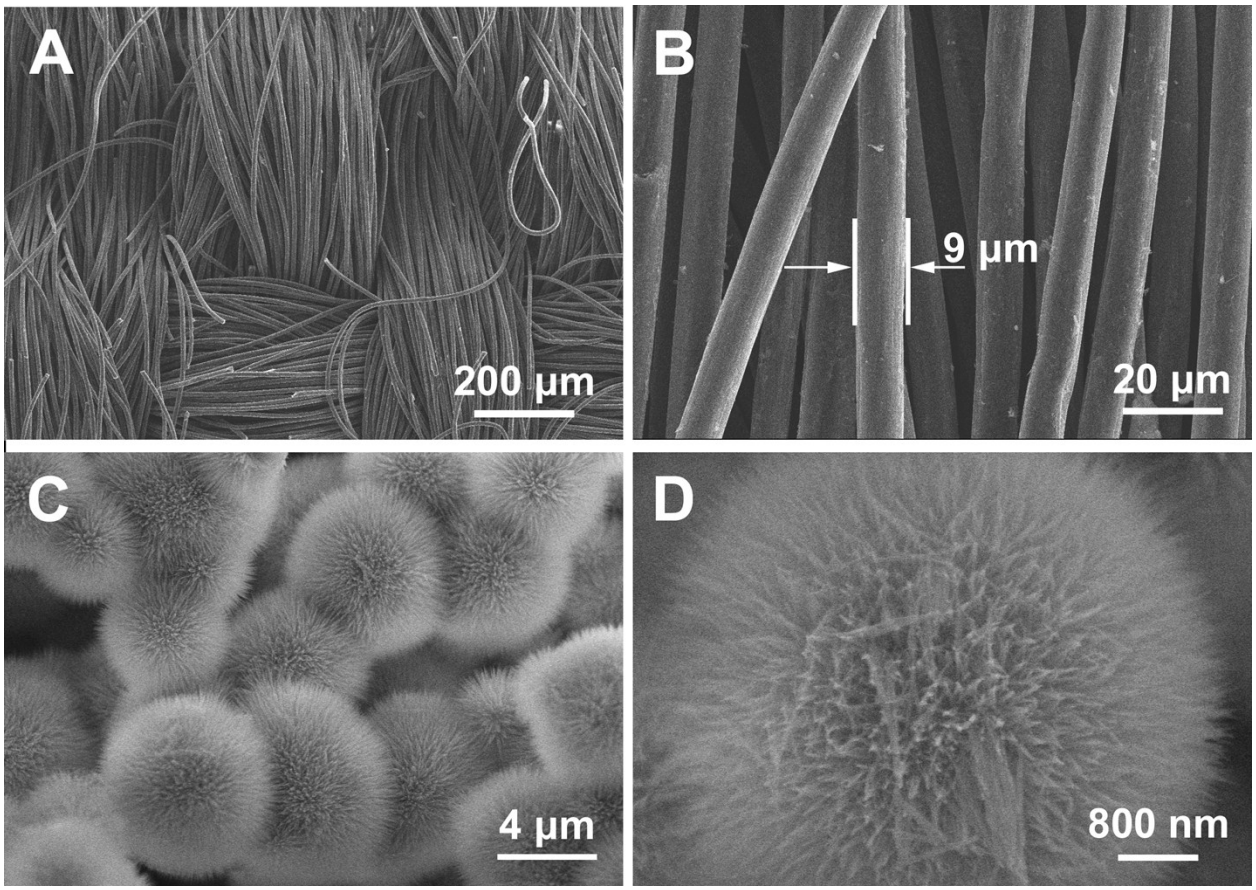

Fig. S1. SEM images of (A, B) carbon fiber cloth and (C, D) $NiCo_2O_4$ NPs at different magnifications.

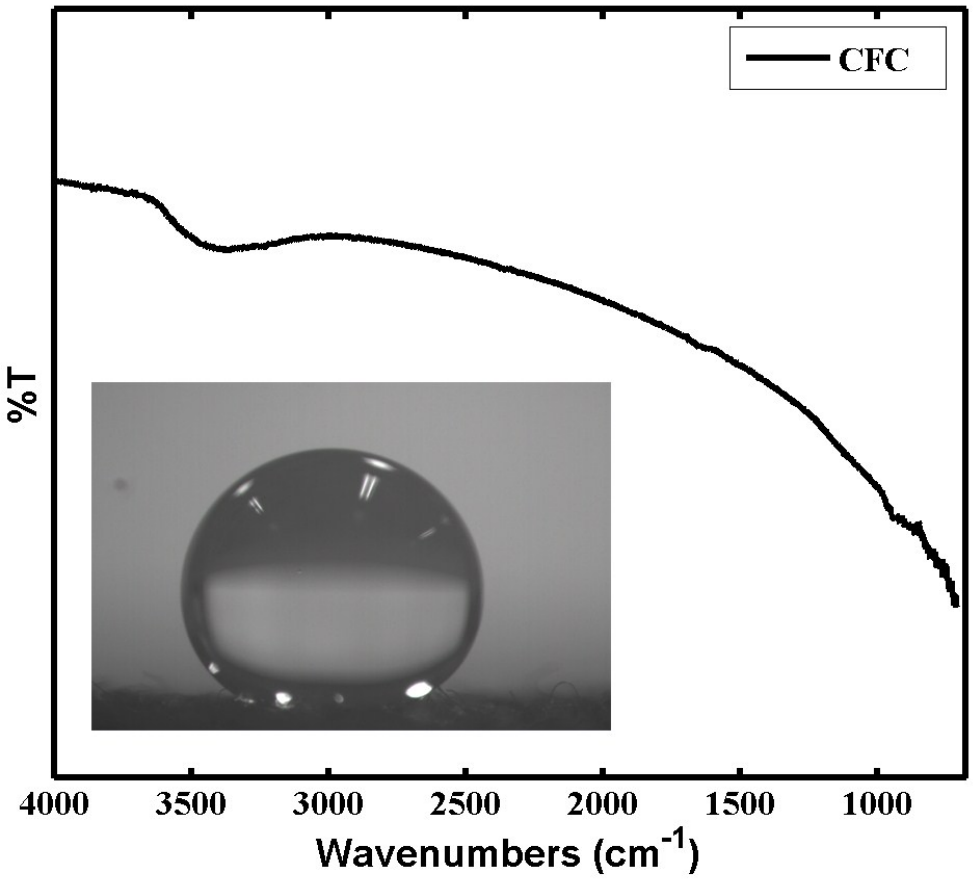

Fig. S2. FTIR spectrum and contact angle measurement (Inset) of CFC.

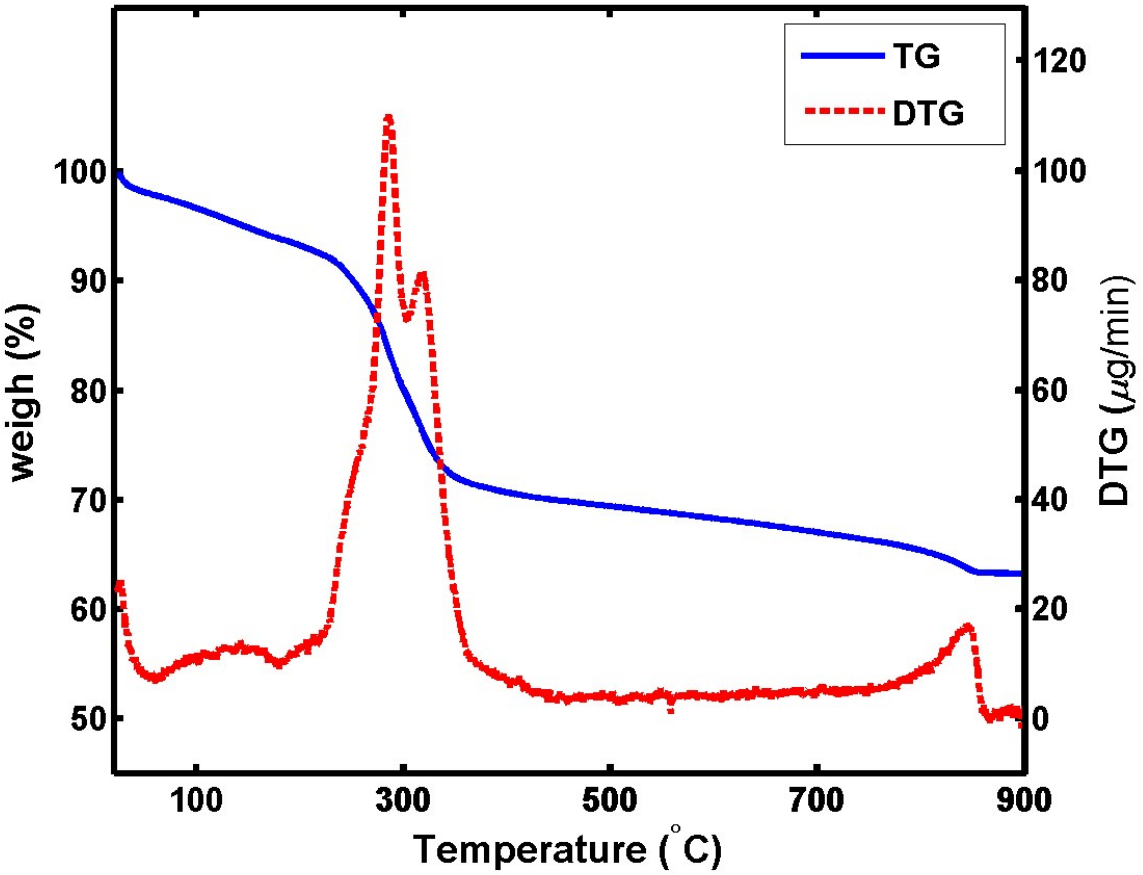

Fig. S3. TG-DTG plot of Ni-Co precursor;

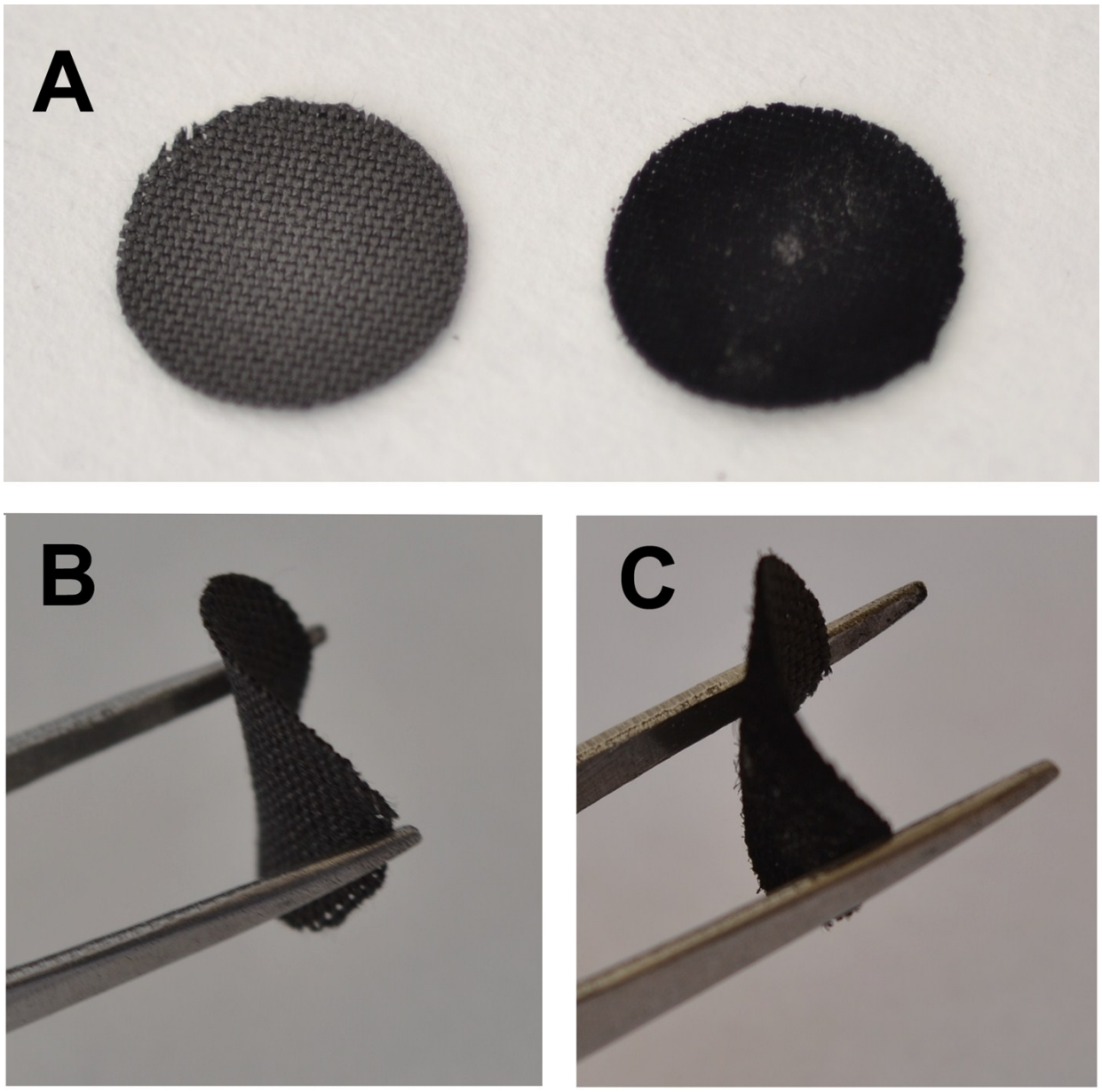

Fig. S4. Optical photos of the electrode. (A) CFC (left) and $NiCo_2O_4$/CFC (right), (B) CFC and (C) $NiCo_2O_4$/CFC.

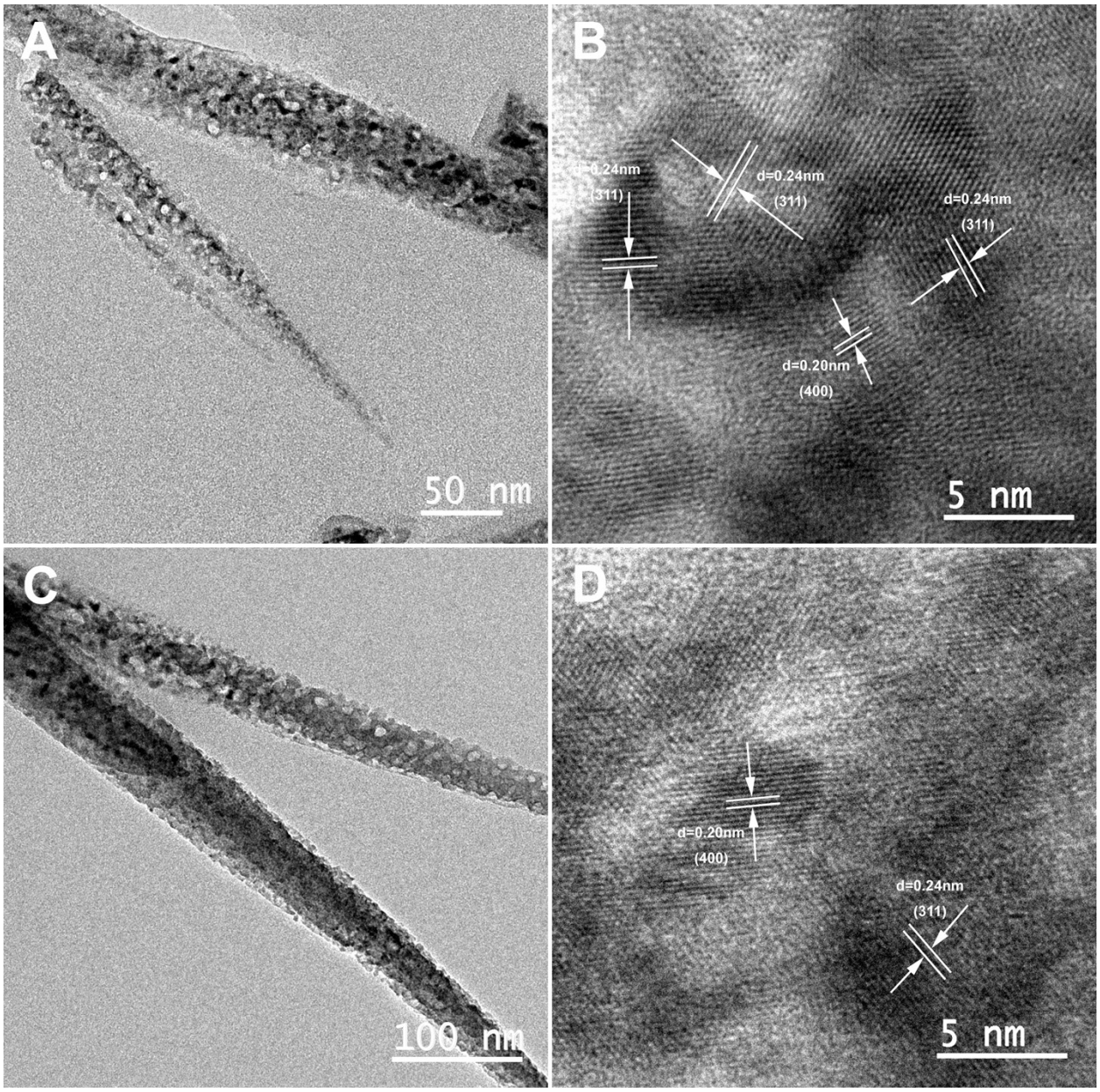

Fig. S5. TEM images of $NiCo_2O_4$ NPs scratched off from (A, B) NCFC_6 and (C, D) NCFC_12.

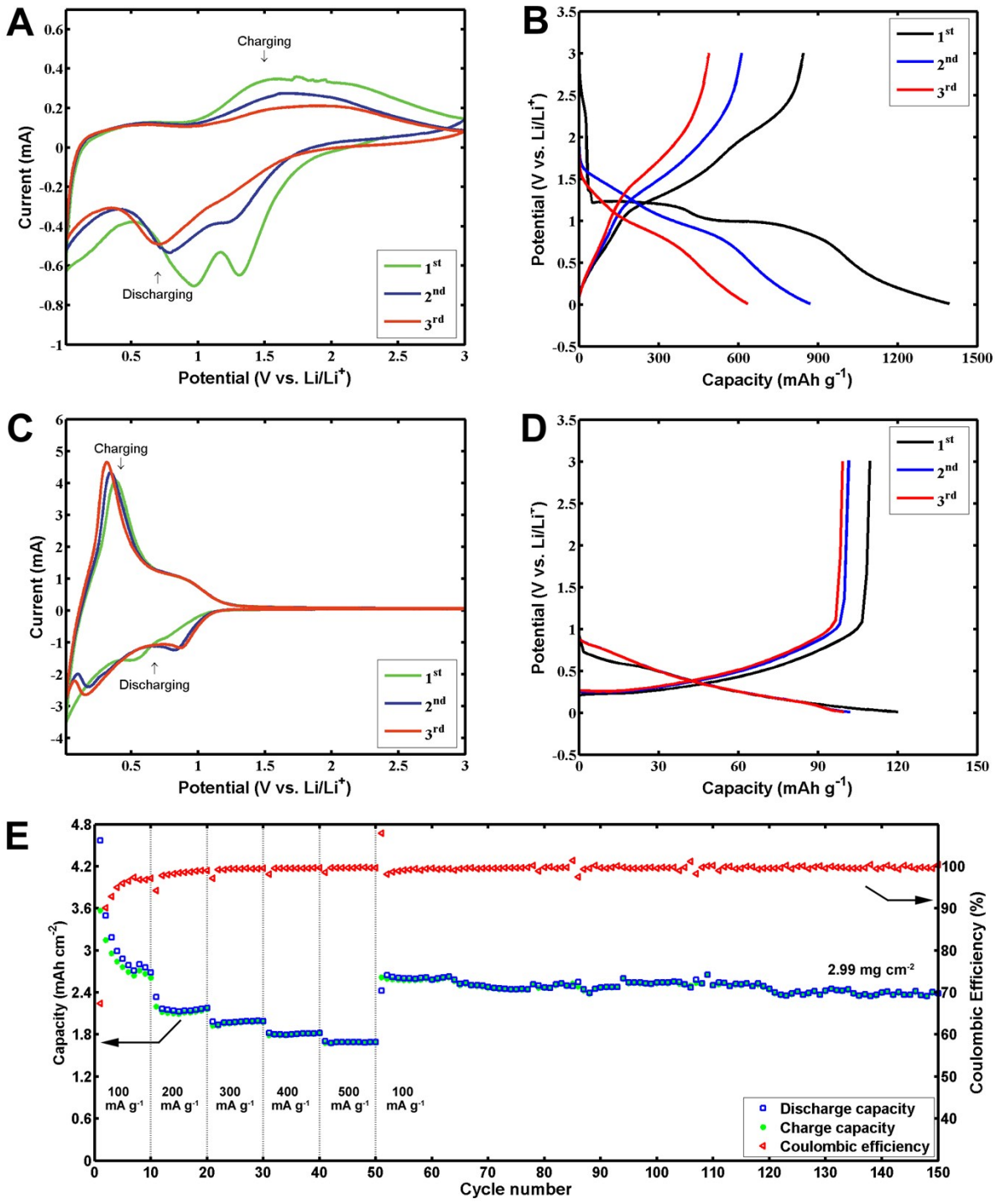

Fig. S6. CV plot at a scan rate of 0.5 mv s^{-1} between 0.01 and 3.00 V *vs* Li/Li^+ for (A) $NiCo_2O_4$ and (C) CFC; Discharge/charge curves of (B) $NiCo_2O_4$ and (D) CFC anodes for the 1st, 2nd and

3rd cycles in the voltage range 0.01~3.00 V at the current rate of 100 mA g^{-1}; (E) Areal capacity of a $NiCo_2O_4$/CFC sample at different current rates of 100, 200, 300, 400, 500 and 100 mA g^{-1}

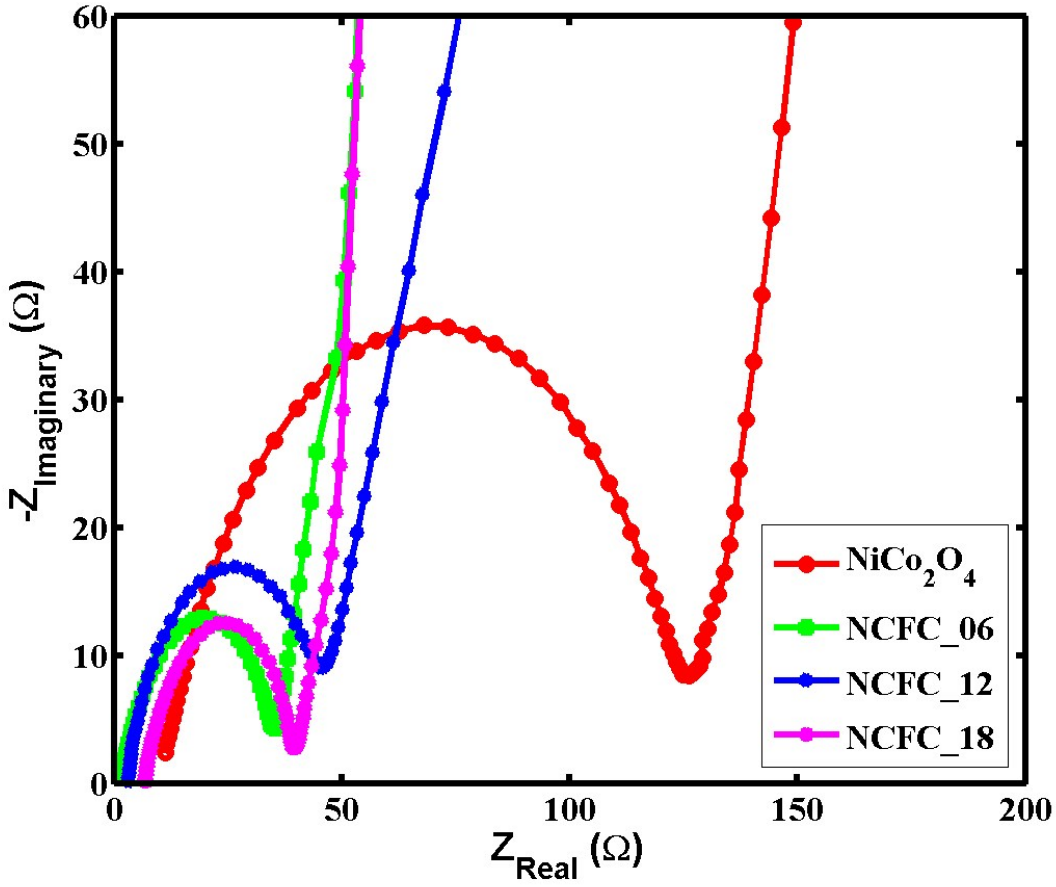

Fig. S7 Impedance spectra for the $NiCo_2O_4$ based electrode before cycling.

Table S1. Fitting results of the impedance spectra for the $NiCo_2O_4$/CFC electrode

electrode	loading mass ($mg\ cm^{-2}$)	R_S (Ω)	C_{SEI} (μF)	Rct (Ω)	W ($m\Omega$)
$NiCo_2O_4$	/	14.53±1.00	1.53±0.14	85.39±4.37	7.031±0.500
NCFC_6	0.98	2.322±0.426	3.338±0.560	19.05±3.27	2.335±0.197
NCFC_12	2.20	3.73±0.35	3.14±0.32	25.48±2.48	3.115±0.105
NCFC_18	3.26	7.665±0.804	3.774±0.728	22.38±2.59	5.478±0.420
NCFC_18A	2.99	4.178±0.490	4.157±0.640	21.52±2.31	5.924±0.464
NCFC_18B	2.99	9.015±0.307	2.38±0.09	80.54±1.71	34.91±2.48

NCFC_18A and NCFC_18B represented a NCFC_18 sample (Fig. S6E) before and after cycling at various current rates, respectively.