Electronic Supplementary Material (ESI) for Dalton Transactions.

Functionalization and Tip-open Carbon Nanotubes for High-Performance Symmetric Supercapacitor

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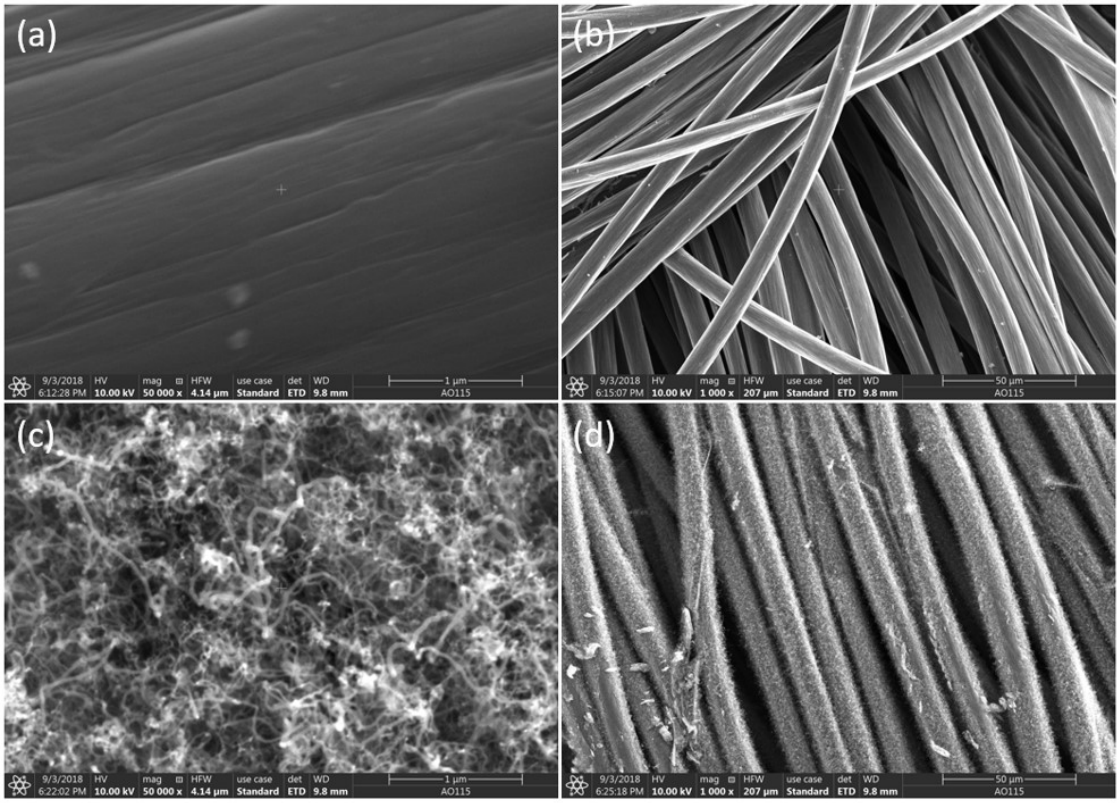

Figure S1. The SEM images of CC at (a) high and (b) low magnification, and The SEM images of CCC at (c) high and (d) low magnification.

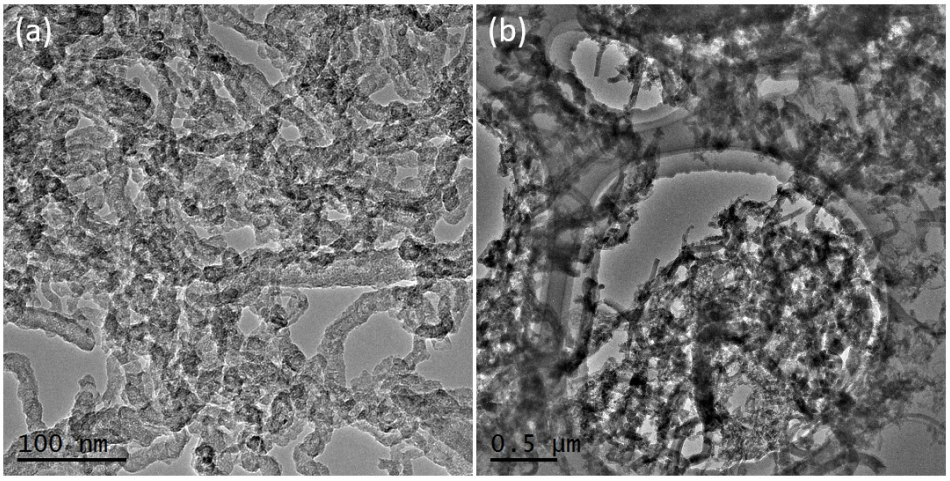

Figure S2. The TEM images of (a) CCC and (b) FTO-CNTs.

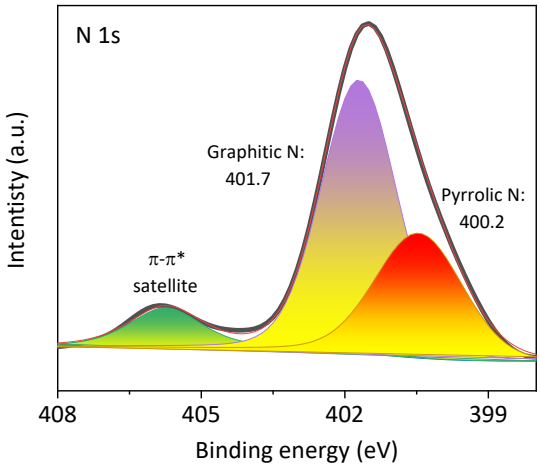

Figure S3. The fine XPS spectra of N 1s.

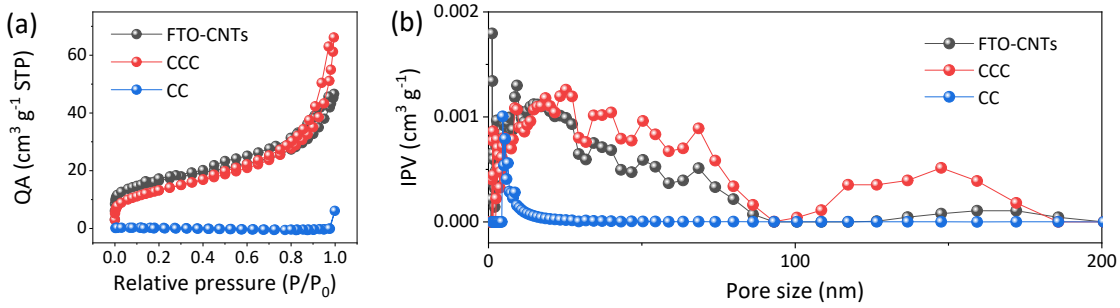

Figure S4. (a) N_2 adsorption and desorption isotherms (QA, Quantity Adsorbed), and (b) the pore size distribution (IPV, Inc. Pore Volume) of CC, CCC and FTO-CNTs.

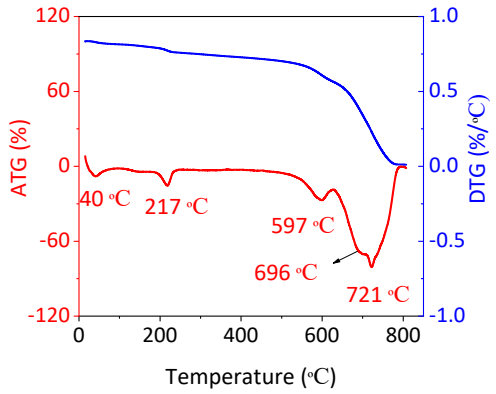

Figure S5. TGA mass loss and its derivative of FTO-CNTs.

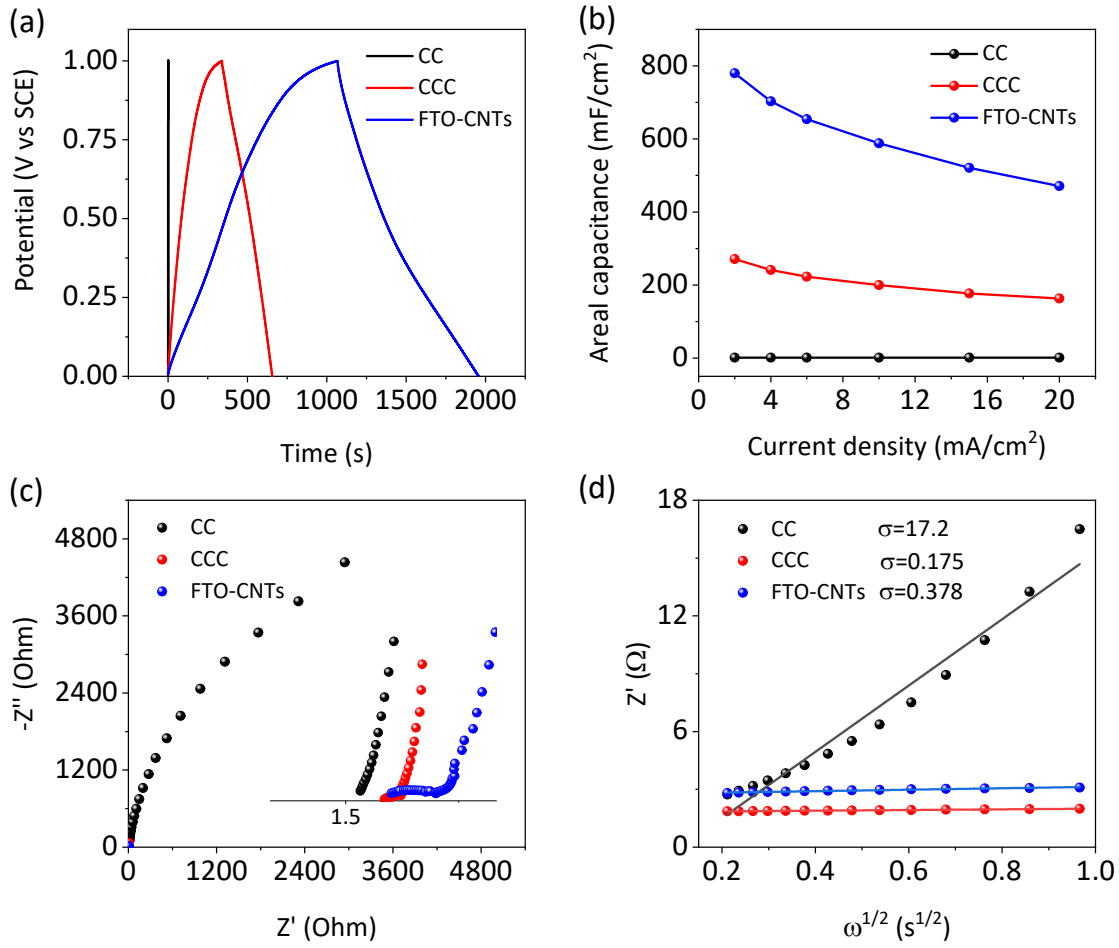

Figure S6. (a) the GCD curves at current density of 1 mA/cm^2, (b) the areal capacitance at different current densities, (c) Nyquist plots (the inset shows the high frequency part), (d) the plots of linear fitted Z' versus $\omega^{-1/2}$ plots at high frequency regime, and the derived Warburg coefficient σ of CC,

CCC and FTO-CNTs in electrolyte of 5 M LiCl.

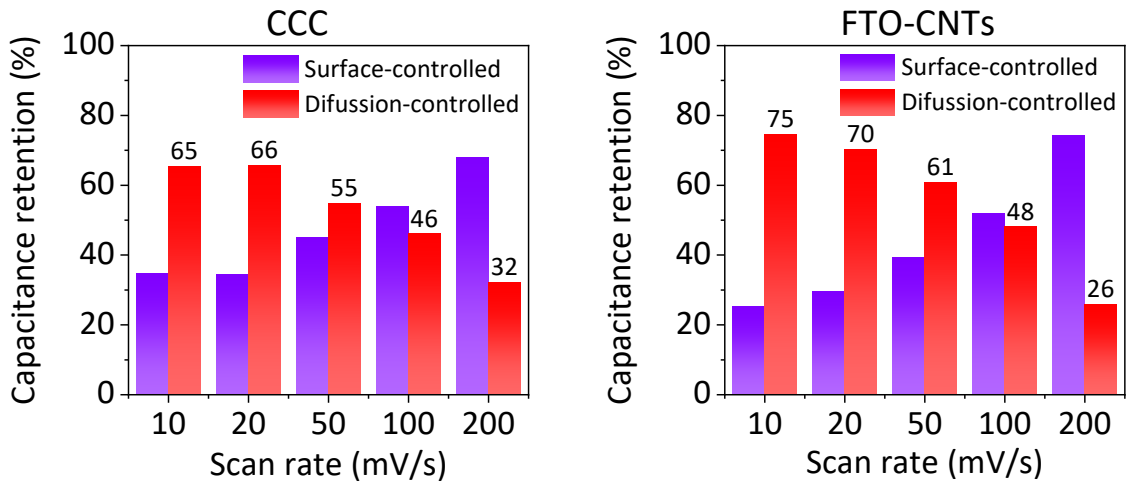

Figure S7. The capacitance contribution at different scan rates of (a) CCC, and (b) FTO-CNTs.

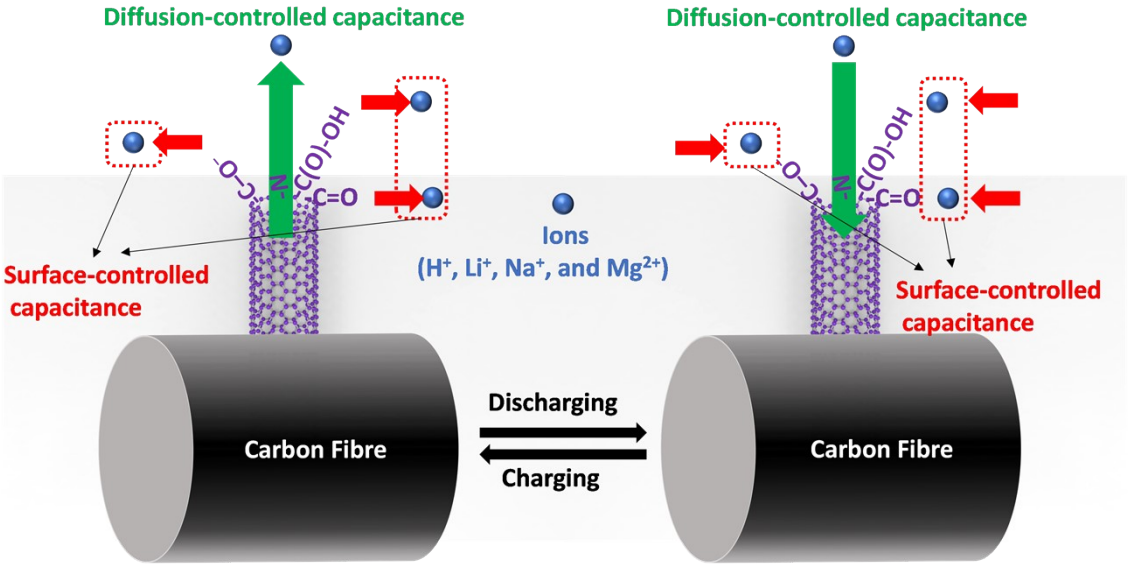

Figure S8. The schematic of the charging/discharging process of the FTO-CNTs.

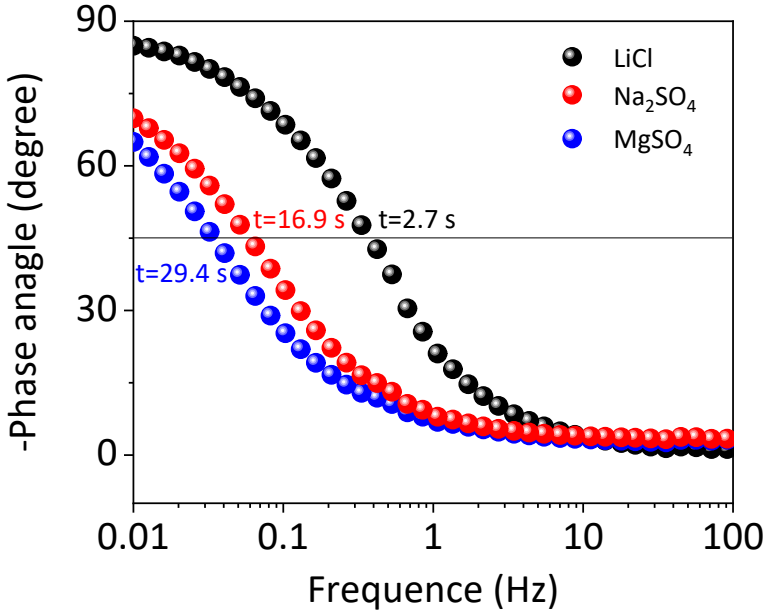

Figure S9. The Bode plot of FTO-CNTs at different electrolyte.

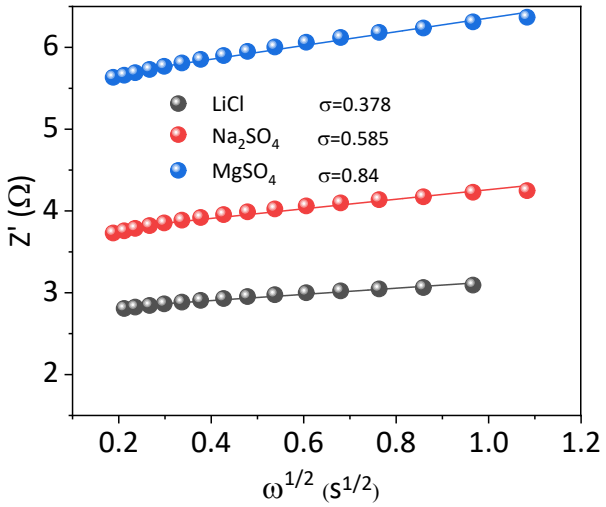

Figure S10. the plots of linear fitted Z' versus $\omega^{-1/2}$ plots at high frequency regime, and the derived Warburg coefficient σ of FTO-CNTs in different electrolytes.

Table S1. Information of alkaline and the alkaline-earth metal cations.

Ion specie	Ion size (Å)	Hydrated ion size (Å)
Li^+	0.69	6

Na^{+}	1.02	4
Mg^{2+}	0.66	8

Table S2. Comparison of the electrochemical performance for FTO-CNTs with the previous reports on similar materials.

Material	Capacitance (mF/cm^2)	Current density (scan rate)	Energy density	Power density	Ref.
rGO/Ni pattern	12.5	5 mV/s	2.25 mWh/cm^3	40 mW/cm^3	[1]
CNT-incorporated tin-oxide	21	10 mV/s	-	-	[2]
dc-pulse nitrogen atmospheric-pressure plasma jet calcined CNT-coated carbon cloth	5.89	2 mV/s	-	-	[3]
CNT-PDMS sponge	13.8	5 mV/s	-	-	[4]
PPy@CNTs@urethane elastic fiber	69	5 mV/s	0.47 mWh/cm^3	10.18 mW/cm^3	[5]
MnO_2//α-Fe_2O_3/C solid-state ASCs	75.3	1 mA/cm^2	0.56 mWh/cm^3	16.8 mW/cm^3	[6]
fCC-PANI array-rGO	197	0.1 mA/cm^2	0.22 mWh/cm^3	171.22 mW/cm^3	[7]
Cotton/graphene/polyaniline	246	5 mV/s	9.74 $\mu Wh/cm^2$	1146.3 $\mu W/cm^2$	[8]
N-doped porous carbon cloth	130	1 mA/cm^2	2.03 mWh/cm^3	2.03 mW/cm^3	[9]
CNT/polypyrrole	132.4	5 mV/s	32 $\mu Wh/cm^2$	0.25 mW/cm^2	[10]
FTO-CNTs	284	1 mA/cm^2	1.3 mWh/cm^3 39 $\mu Wh/cm^2$	309.1 mW/cm^3 10.2 mW/cm^2	Our works

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