Electronic Supplementary Material (ESI) for Materials Advances.

SUPPORTING INFORMATIONS

Polyacrylonitrile-grafted lignin copolymer derived carbon nanofibers as flexible electrodes for high performance capacitive energy storage

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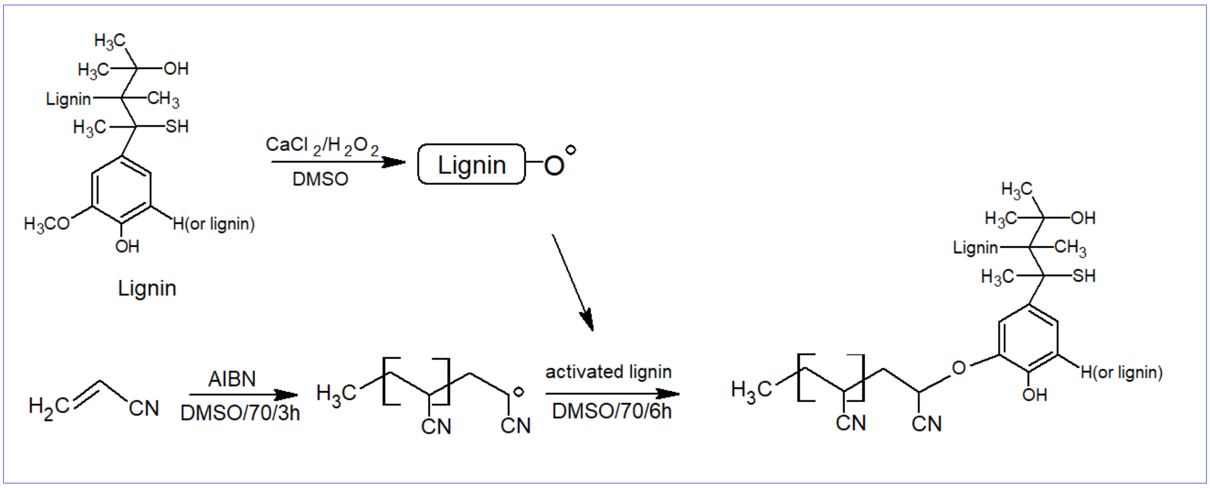

Fig. S1 Schematic illustration for the formation mechanism of PAN-g-lignin.

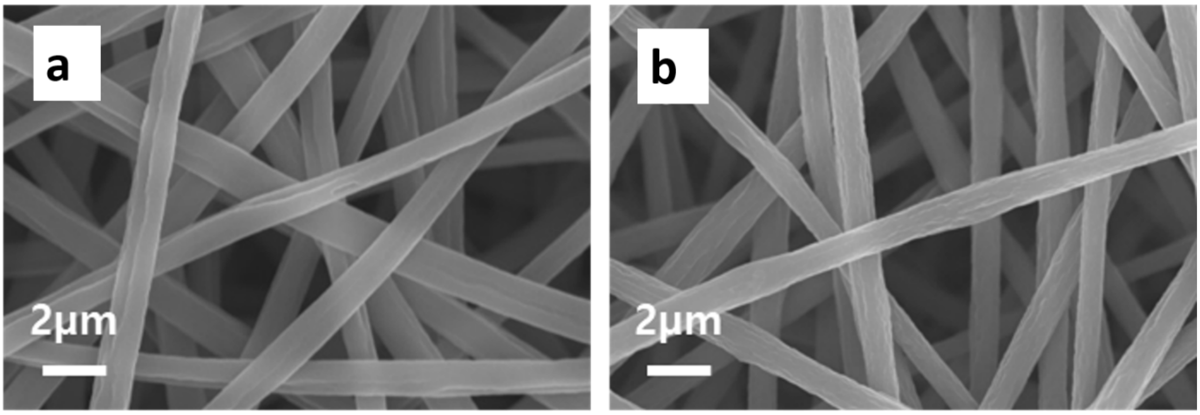

Fig. S2 FE-SEM images of carbonized PAN-g-lignin nanofibers at 800 ℃ (a) and 1200 ℃ (b).

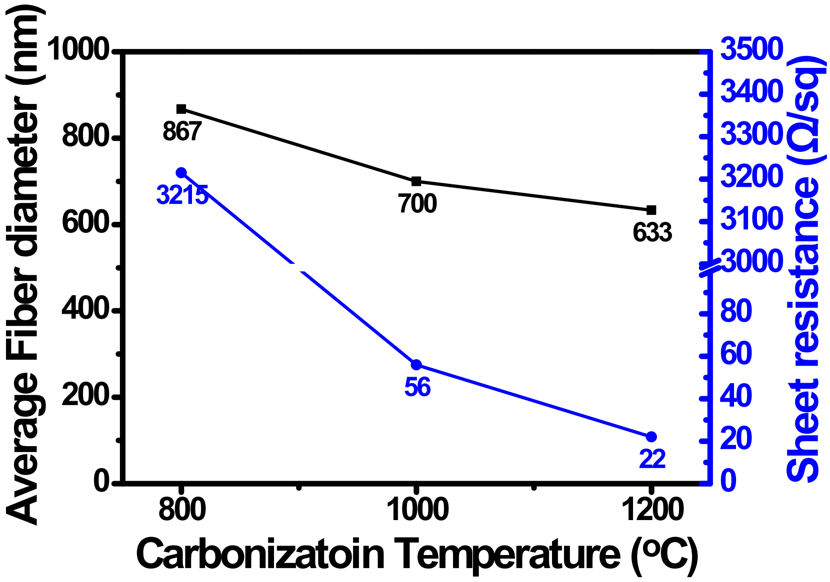

Fig. S3 Plot of Fiber diameter and Sheet resistance against carbonization temperature.

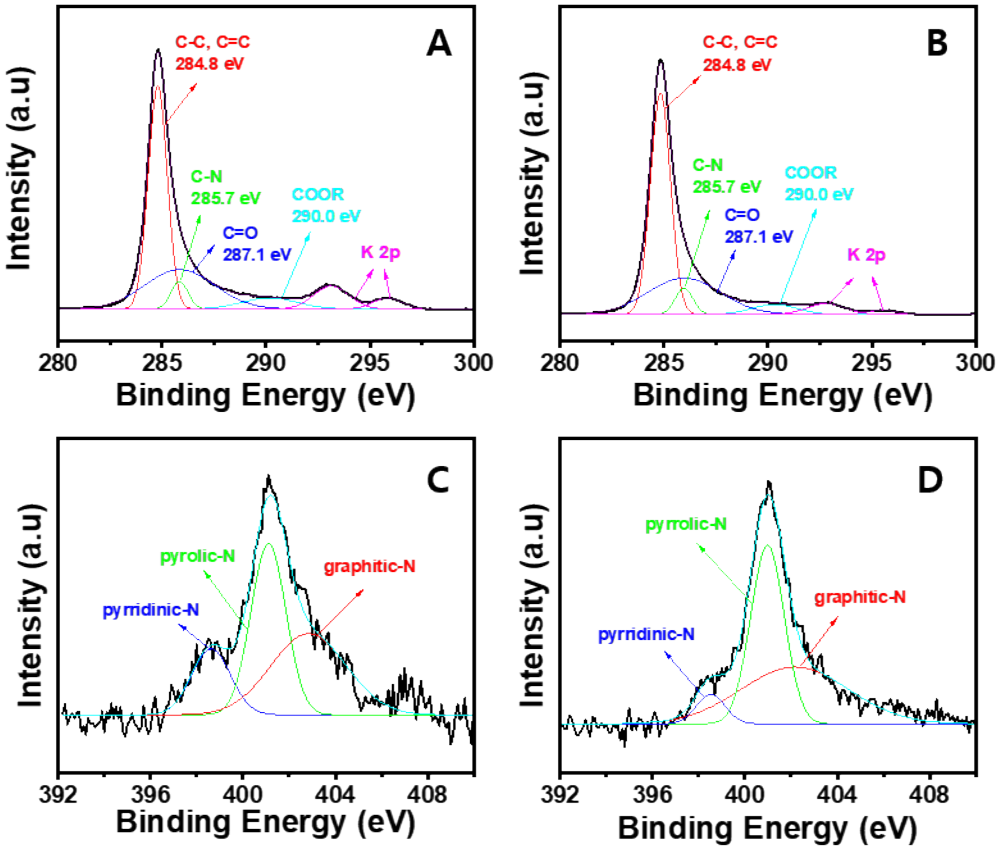

Fig. S4 High-resolution XPS spectra of C 1s and N 1s for C-800 (A & C) and C-1200 (B & D), respectively.

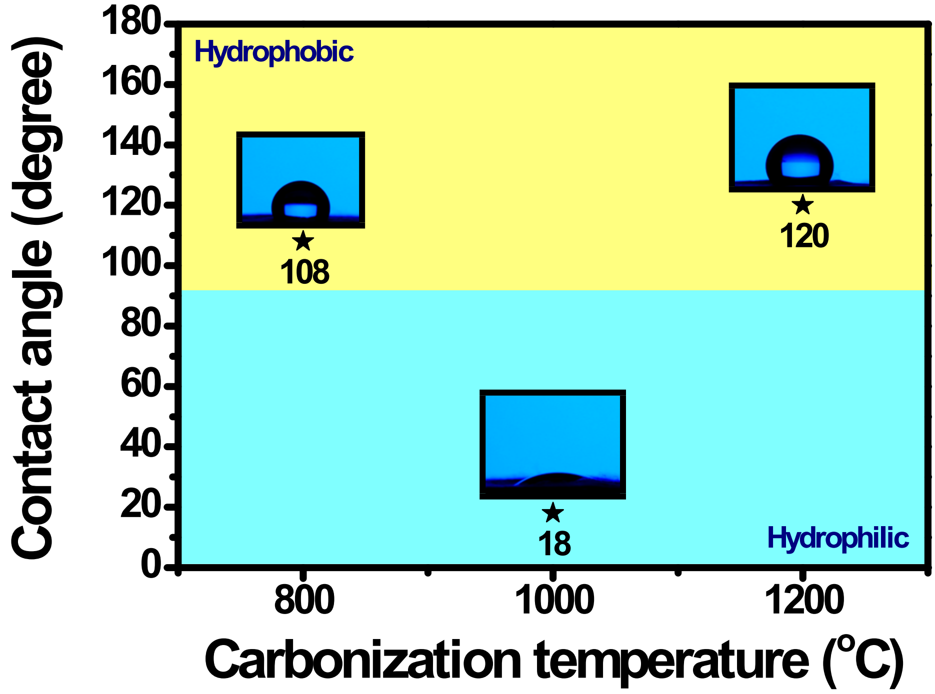

Fig. S5 Water contact angle of CNFs derived at different carbonization temperature.

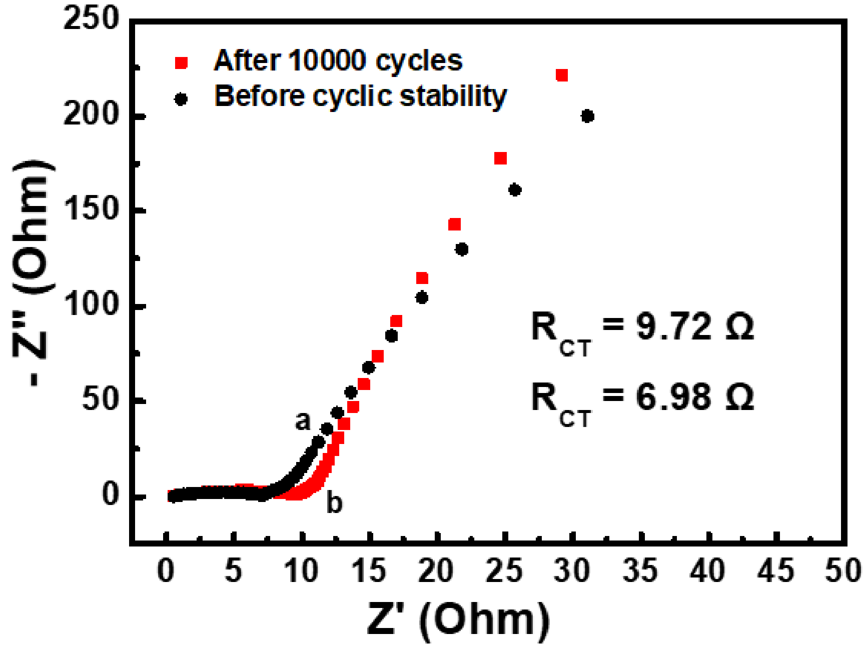

Fig. S6 EIS spectra of CNFs (C-1000) electrode before and after cyclic stability measurements

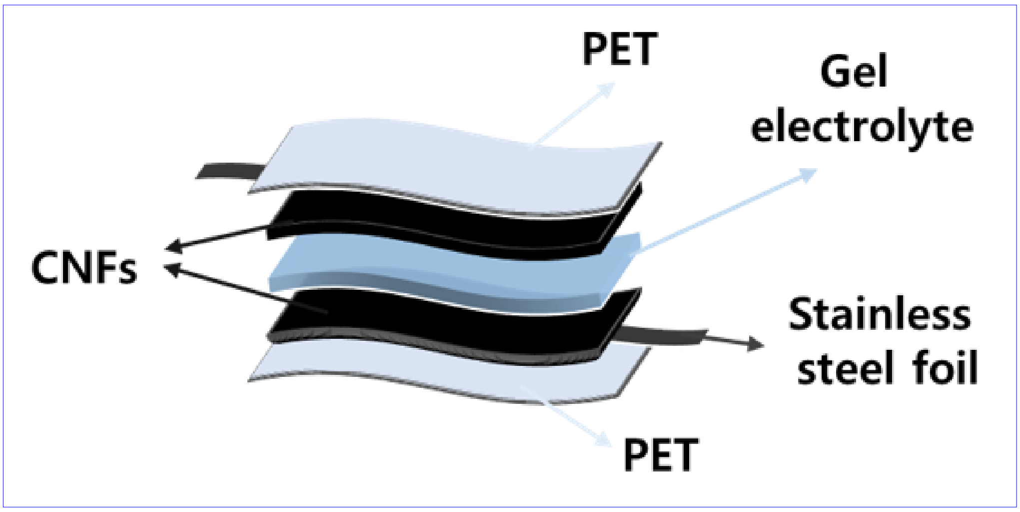

Fig. S7 Schematic illustration for the fabrication of solid-state symmetric supercapacitor (SSC) device

Table S1 Supercapacitor performance comparison with literature reports.

Electrode Materials	Specific capacitance	Energy density (Wh/kg)	Power density (W/kg)	Electrolyte	Ref.
Porous carbon nanofiber	256 F g^{-1}	35.6	128	H_2SO_4	[1]
Cotton stalk	111 F g^{-1}	12.5	900	KOH	[2]
NiO/Carbon microfibers	284 F g^{-1}	154 mWh/cm^2	2801 mW/cm^2	KOH	[3]
CNT//CNT/MoO_3	3.0 F cm^{-3}	1.5 mWh cm^{-3}	4.2 W cm^{-3}	H_2SO_4	[4]
Carbon nanofibers	210	27.2	508	KOH	[5]
Carbon nanofibers	204 F g^{-1}	--	--	H_2SO_4	[6]
Activated-carbon nanofibers	192 F g^{-1}	--	--	KOH	[7]
Carbon nanofiber aerogel	1066 F g^{-1}	30	501	Na_2SO_4	[8]
N-doped carbon nanofibers	644 F g^{-1}	33	800	PVA-KOH	[9]
ZnO-Carbon nanofibers	216 F g^{-1}	29.7	30	KOH	[10]
MnO	545 F g^{-1}	27	176	KOH	[11]
N-doped carbon	250 F g^{-1}	22.3	100	KOH	[12]
Carbon nanofibers	137 F g^{-1}	33	800	PVA-H_2SO_4	This work

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