Electronic Supplementary Information

N, S dual doping strategy via electrospinning to prepare hierarchically porous carbon polyhedra embedded carbon nanofibers for flexible supercapacitors

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lkpan@phy.ecnu.edu.cn (Likun Pan); huanghao3310774@163.com (Hailong Huang)
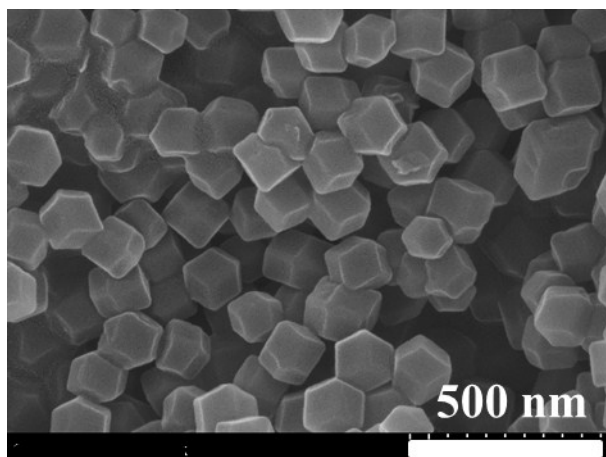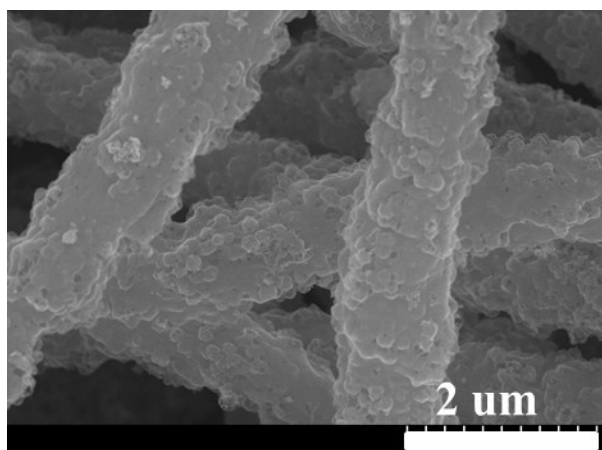
Fig. S1 FESEM image of ZIF-67.

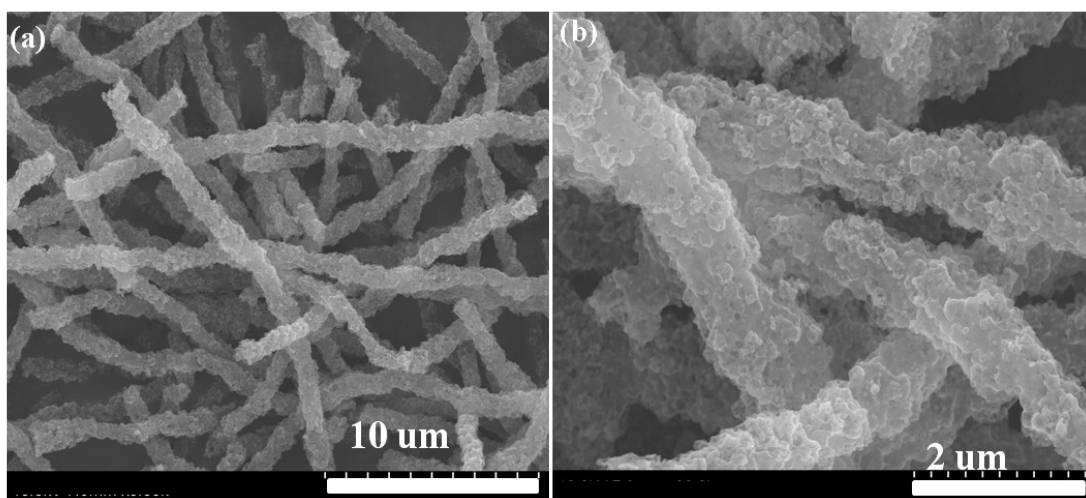**Fig. S2** FESEM image of CPCNF precursor after electrospinning.

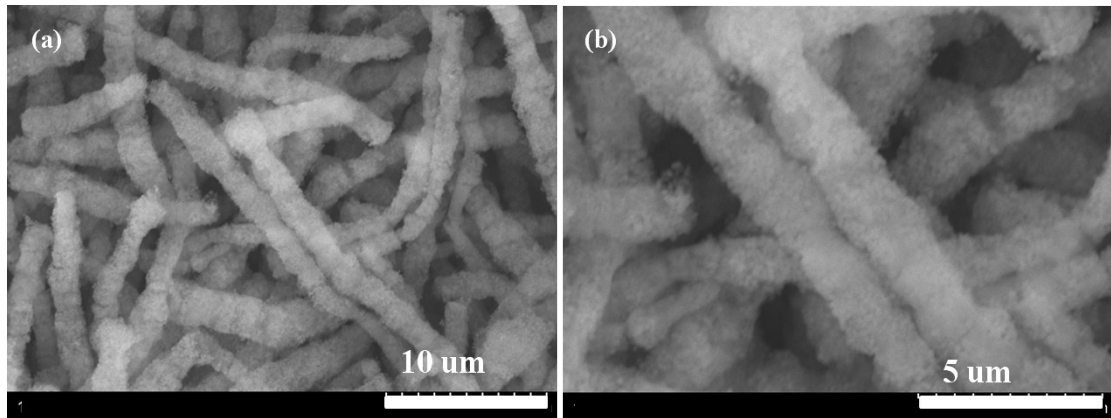**Fig. S3** FESEM images of Co-CPCNF at (a) low- and (b) high-magnification.

Fig. S4 FESEM images of NSCPCNF precursor after electrospinning at (a) low- and (b) high-magnification.
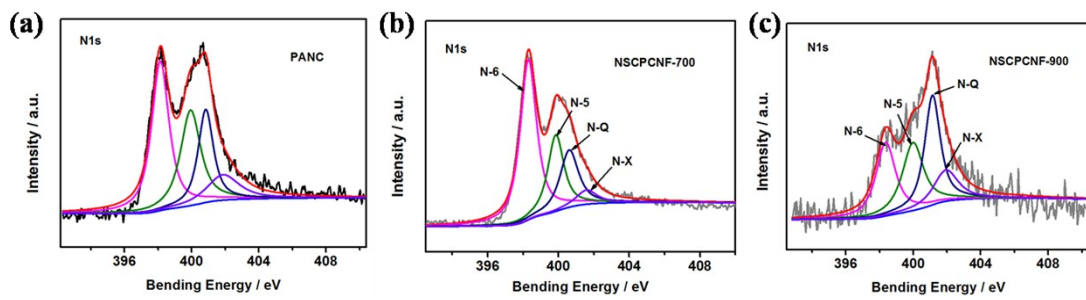

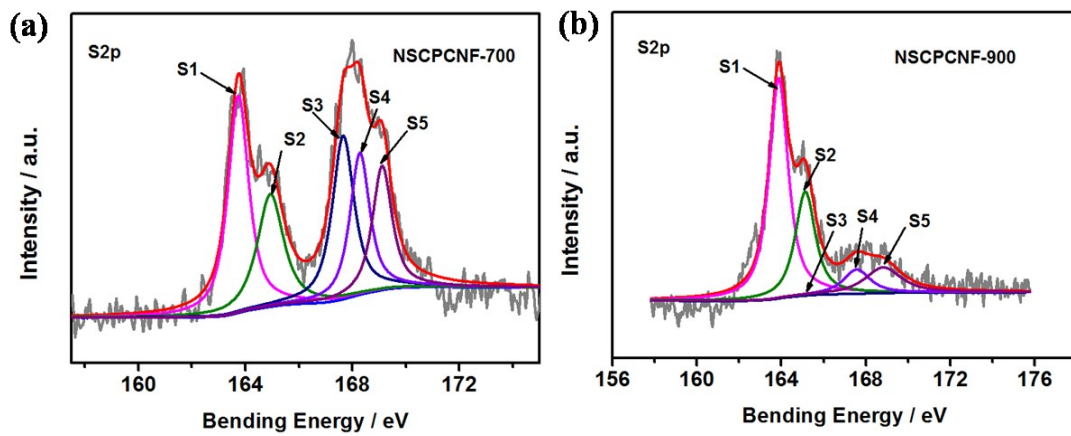**Fig. S5** High resolution N1s spectra of PANC (a), NSCPCNF-700 (b) and NSCPCNF-900 (c).

Fig. S6 High resolution S2p spectra of NSCPCNF-700 (a) and NSCPCNF-900 (b).
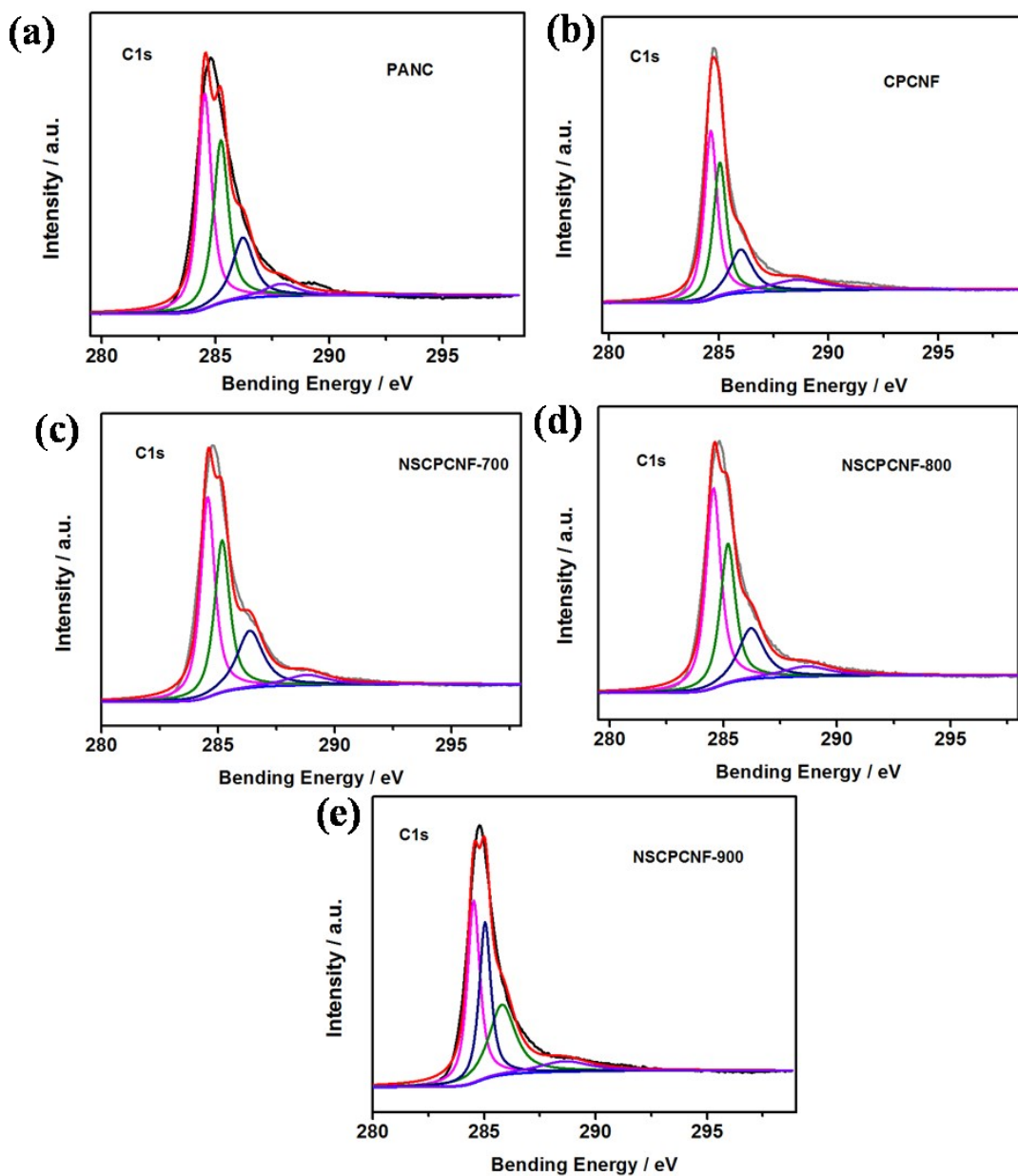
Fig. S7 High resolution C1s spectra of PANC (a), CPCNF (b), NSCPCNF-700 (c), NSCPCNF-800 (d),
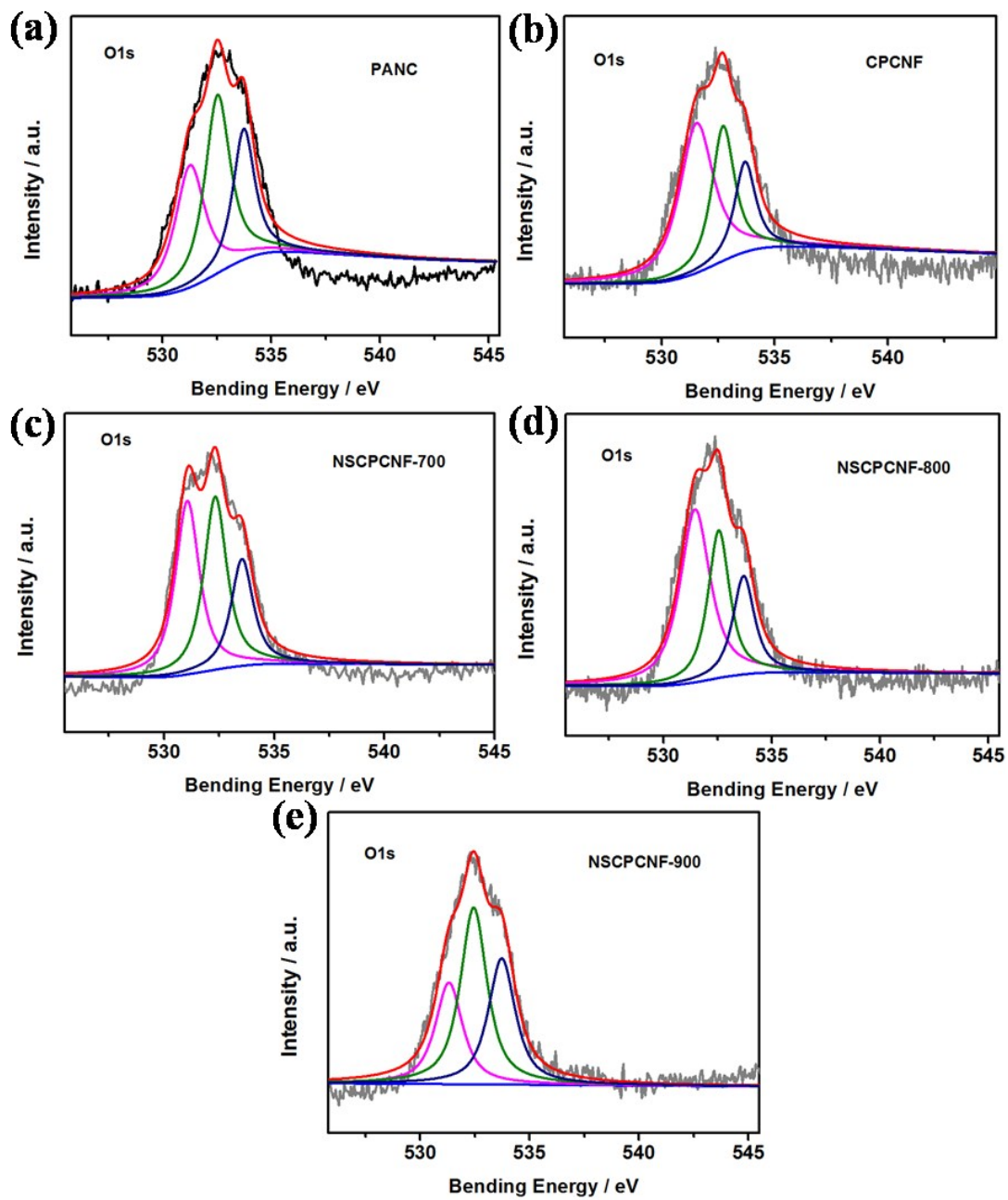
NSCPCNF-900 (e).

Fig. S8 High resolution O1s spectra of PANC (a), CPCNF (b), NSCPCNF-700 (c), NSCPCNF-800 (d),

NSCPCNF-900 (e).
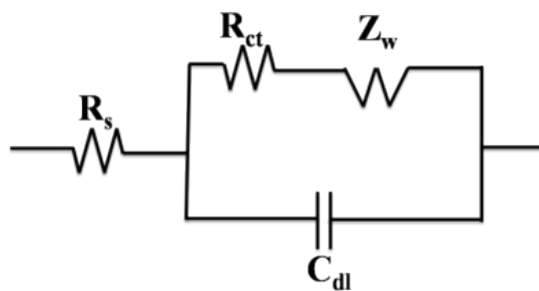
Fig. S9 Equivalent circuit model for Nyquist plots of PANC, CPCNF and NSCPCNF.

Fig. S10 CV curves of PANC (a), CPCNF (b), NSCPCNF-700 (c), NSCPCNF-800 (d), NSCPCNF-900 (e).

Specific capacitances of PANC, CPCNF and NSCPCNF at different scan rates (f).

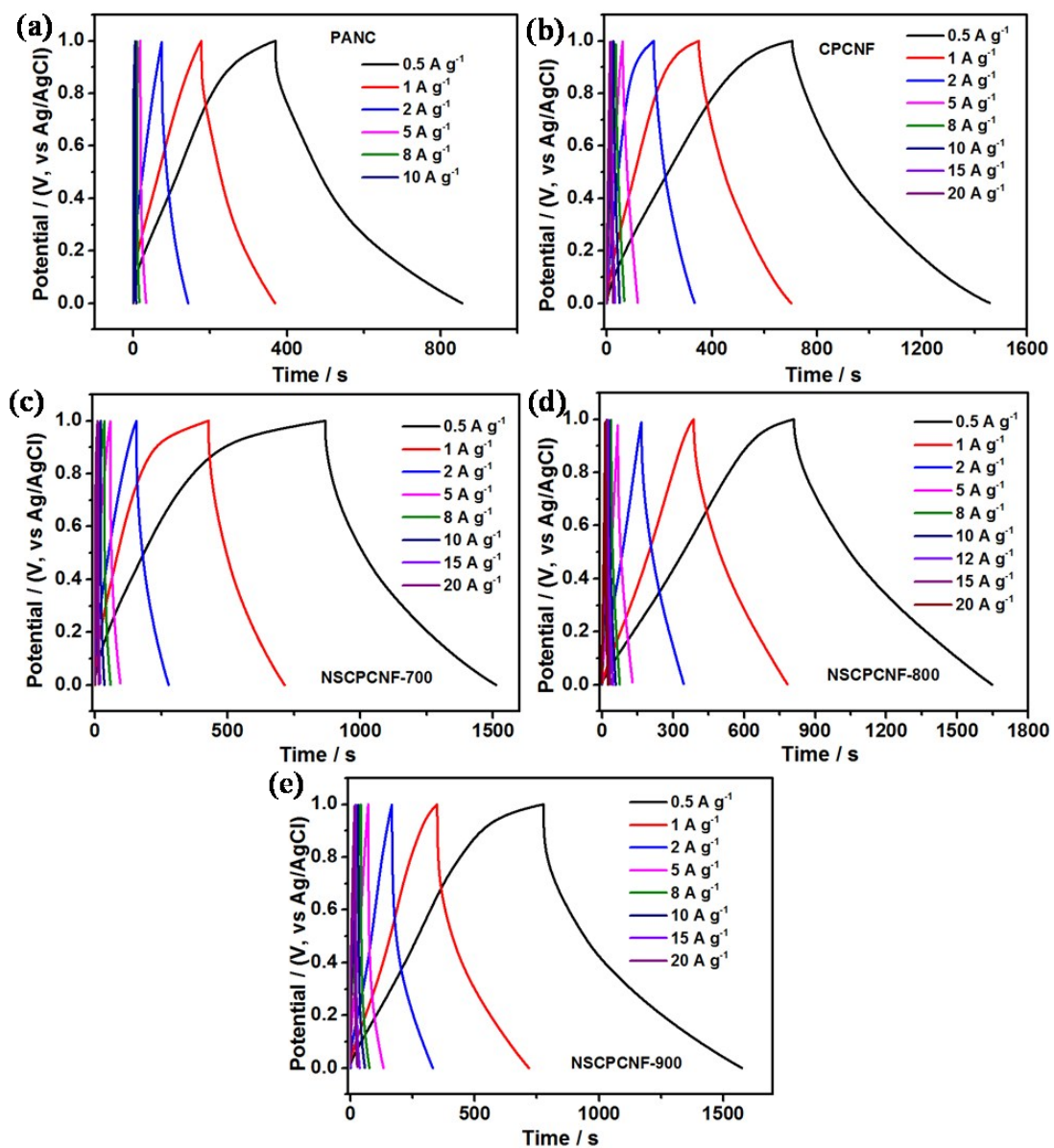**Fig. S11** GCD curves of PANC (a), CPCNF (b), NSCPCNF-700 (c), NSCPCNF-800 (d), NSCPCNF-900 (e) at

different current densities.

Fig. S12 CV curves of CPCNF//CPCNF at different scan rates.

Fig. S13 Specific capacitances of CPCNF//CPCNF and NSCPCNF-800//NSCPCNF-800 at different scan rates.

Fig. S14 FESEM image of NSCPCNF-800 after 3000 charge-discharge cycles.

Fig. S15 Nyquist plots (a) and magnified plots in high frequency region (b) of NSCPCNF-800//NSCPCNF-800 before and after 3000 charge-discharge cycles.

Fig. S16 CV curves of CPCNF//CPCNF in the 20th, 1000th, 2000th and 3000th cycles.

Fig. S17 CV curves of CPCNF//CPCNF at 0°, 60°, 120° and 180° bending angles.

Table S1 Comparison of electrochemical performances of CPCNF and NSCPCNF-800 with the ECNFs

reported in the literatures for supercapacitors.

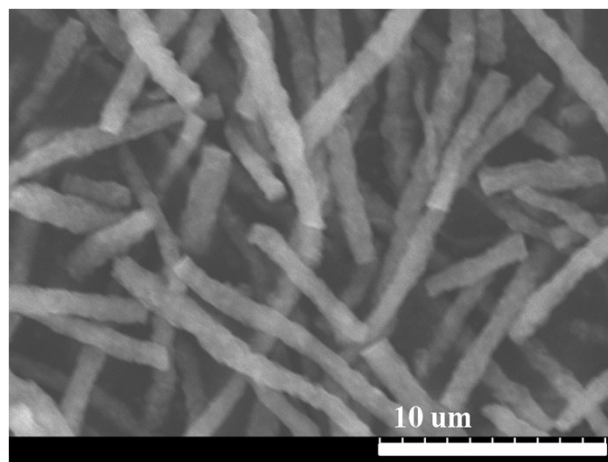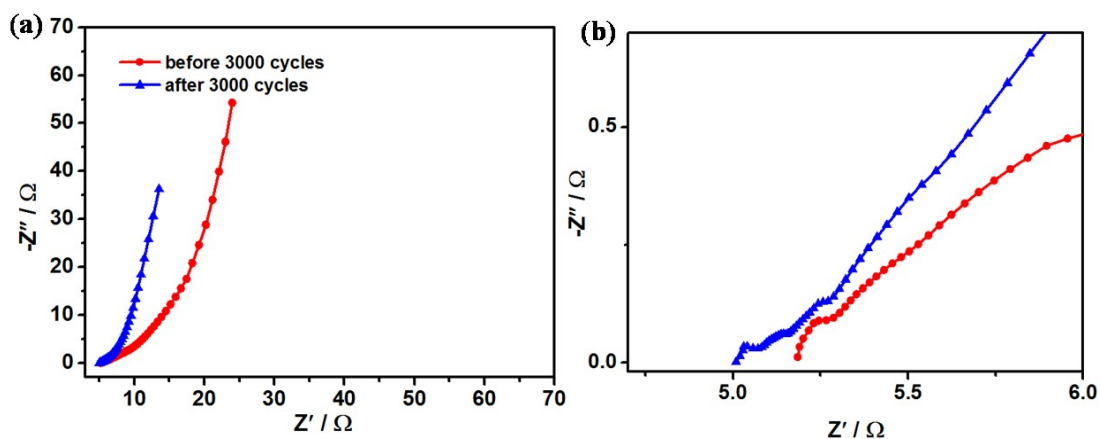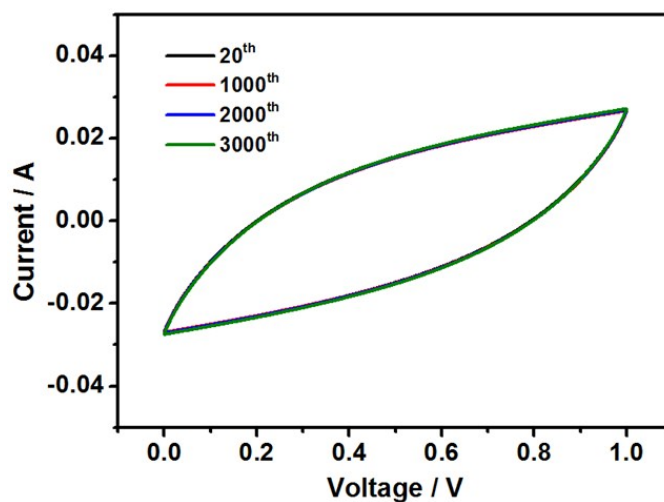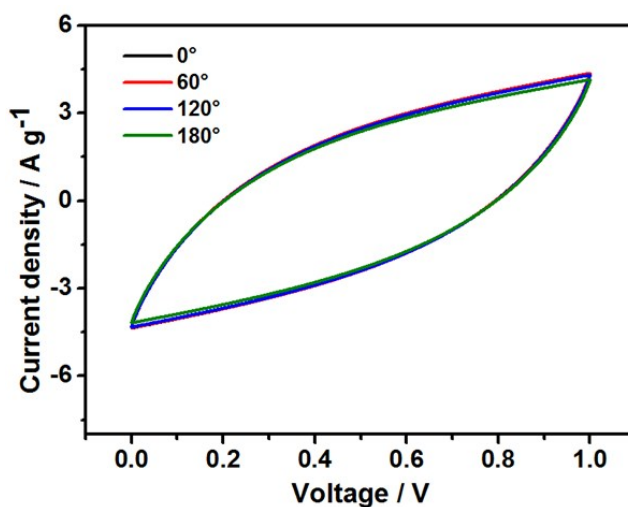| Electrode material	Current density / A g^{-1}	Electrolyte	Specific capacitance / F g^{-1}	Ref.
Hollow particle-based N-doped ECNFs	1	1 mol L^{-1} H$_2$SO$_4$	307.2	1
N-doped graphitic hierarchically porous ECNFs	0.5	6 mol L^{-1} KOH	326	2
N rich hierarchically porous ECNFs	0.5	6 mol L^{-1} KOH	302	3
1D hollow ECNFs	1	1 mol L^{-1} H$_2$SO$_4$	332	4
Micro-/mesoporous ECNFs	1	1 mol L^{-1} H$_2$SO$_4$	272	5
Mutichannel ECNFs	0.5	6 mol L^{-1} KOH	270	6
N rich ECNFs/graphene	0.1	6 mol L^{-1} KOH	381	7
N-enriched mesoporous ECNFs	0.2	2 mol L^{-1} Li$_2$SO$_4$	220	8
Microporous CNFs	0.2	6 mol L^{-1} KOH	~ 220	9
Porous ECNFs paper	0.2	6 mol L^{-1} KOH	~ 310	10
ECNFs paper	0.05	1 mol L^{-1} H$_2$SO$_4$	~235	11
Alkali lignin added ECNFs	0.4	6 mol L^{-1} KOH	64	12
N, O-doped ECNFs	0.2	6 mol L^{-1} KOH	233.1	13

N-doped ECNFs	0.5	1 mol L^{-1} H$_2$SO$_4$	223.8	14
CPCNF	0.5	1 mol L^{-1} H$_2$SO$_4$	379	
	1		352	This
NSCPCNF-800	0.5	1 mol L^{-1} H$_2$SO$_4$	421	work
	1		396	

Table S2 Specific capacitance retentions of NSCPCNF-800//NSCPCNF-800 and CPCNF//CPCNF at different

bending angles.

	Bending angle	0°	60°	120°	180°
Specific	NSCPCNF-800//NSCPCNF-800	100%	99.1%	98.8%	97.3%
capacitance					
	CPCNF//CPCNF	100%	99.3%	98.4%	97.6%
retention					

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