Electronic Supplementary Information

Molecular Engineering of Supercapacitor Electrodes with Monodispersed N-Doped Carbon Nanoporous Spheres

Xinhua Huanga,*, Nuoya Wanga, Fei Lia, Xingxing Zhua, Kin Liaob, Vincent Chanc and Lidong Zhangd,*

[a]School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, P. R. China. E-mail: xhhuang@aust.edu.cn

[b]Department of Aerospace Engineering/Mechanical Engineering, Khalifa University, Abu Dhabi, UAE

[c]Department of Biomedical Engineering, Khalifa University, Abu Dhabi, UAE

[d]School of Chemistry and Molecular Engineering, East China Normal University, Shanghai, 200241, P. R. China E-mail: ldzhang@chem.ecnu.edu.cn

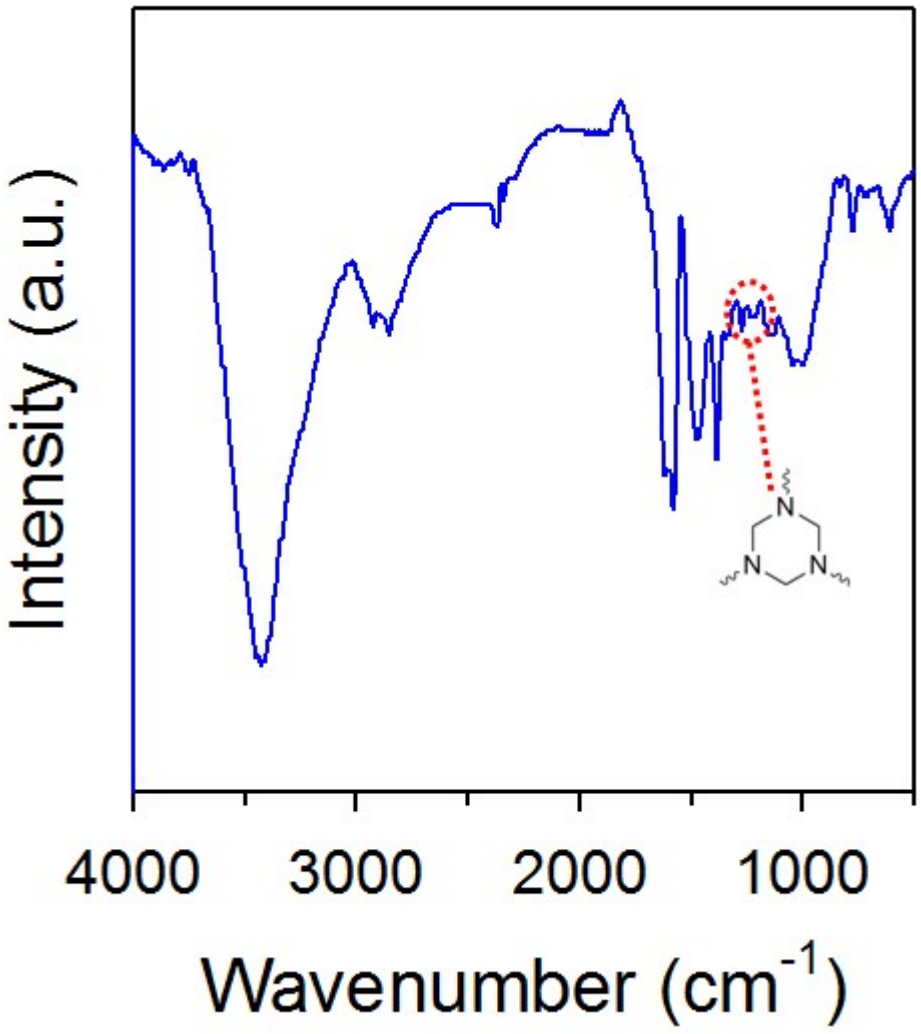

Figure S1 FT-IR spectra of the polytriazinane.

Table S1 The polymerization of PF in different conditions

Entry	2,6-Diamino pyridine/g	Formalde hyde/g	H_2O/ mL	Temp[a] ./℃	Time /h	Ratio[c]	Additive/g
1	1	8.9	18.4	180	6	12	0
2	2	8.9	18.4	180	6	6	0
3	0.5	6.7	13.8	180	6	18	0
4	1	8.9	18.4	120	6	12	0
5	2	8.9	18.4	120	6	6	0
6	0.5	6.7	18.4	120	6	18	0
7	0.05	0.074	100	60	12	2	0.0068[d]
8	0.05	0.074	100	60	12	2	0
9	0.05	0.074	100	rt[b]	18	2	0.25[d]
10	0.05	0.074	100	rt[b]	18	2	0

[a]Reaction temperature in autoclave; [b]Polymerization without autoclave at room temperature; [c]Molar ratio of 2,6-diaminopyridine to formaldehyde; [d]The mass of ethylenediamine as catalyst.

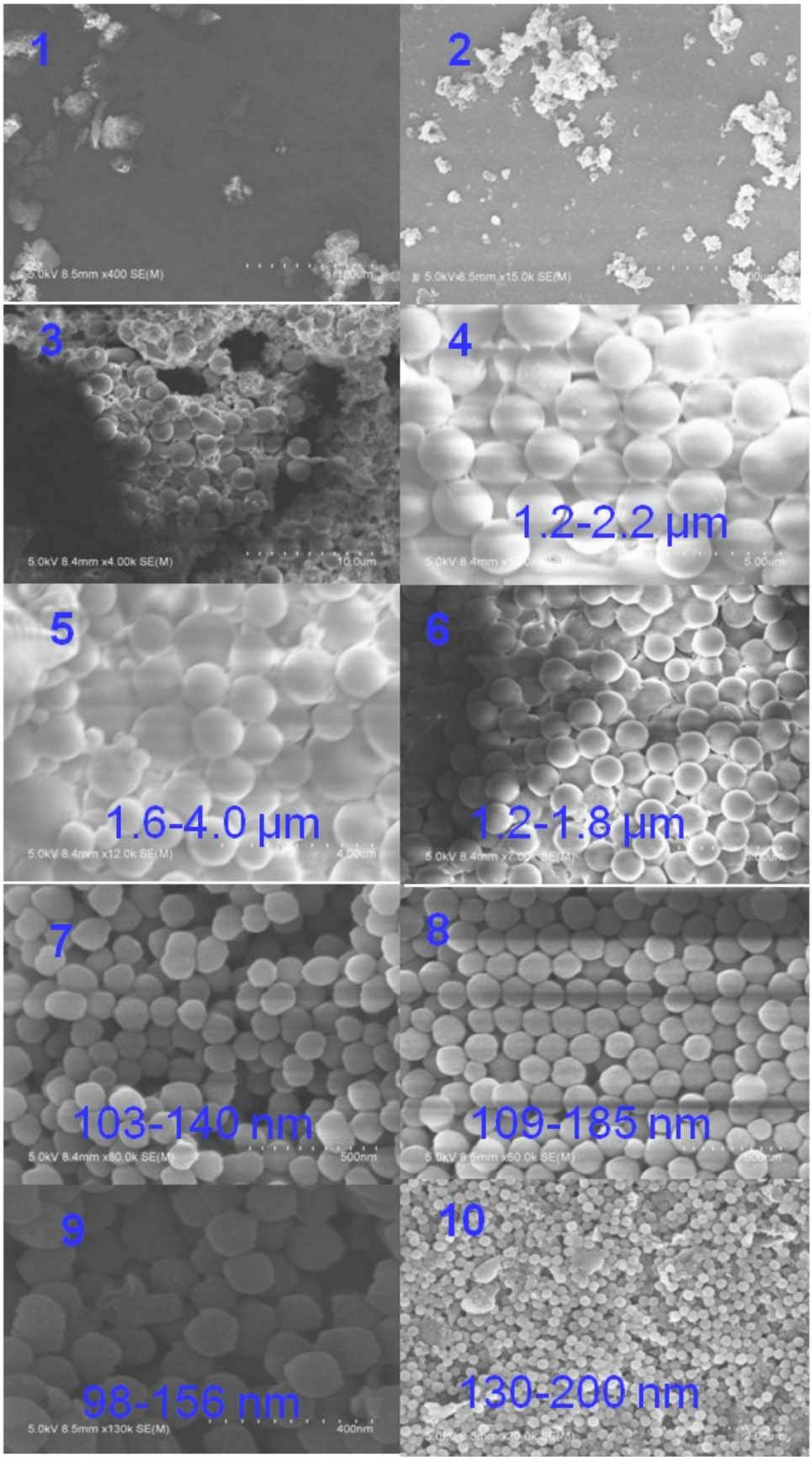

Figure S2 The SEM images of the PF spheres under different synthesis conditions and their distribution of diameter.

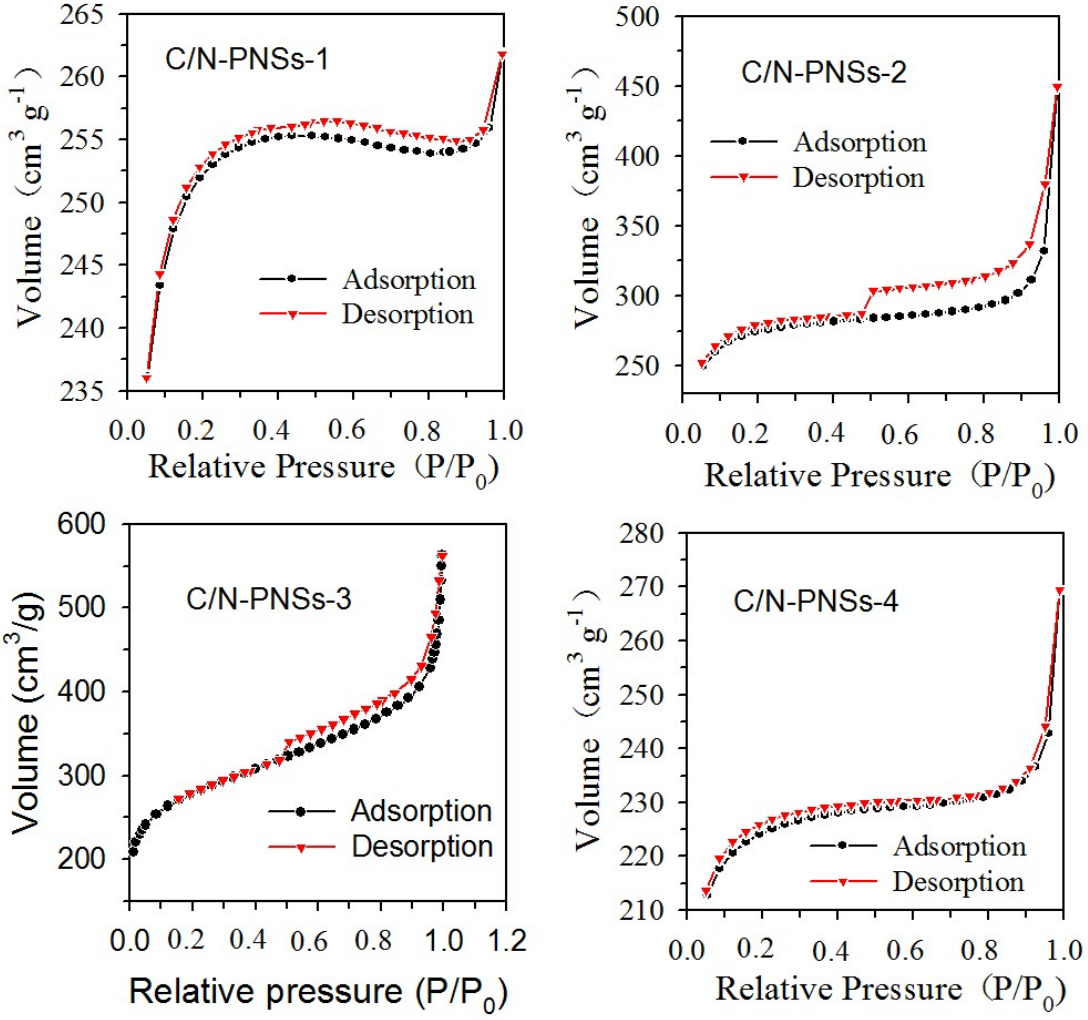

Figure S3 The N_2 uptake isotherms of all the four carbon samples.

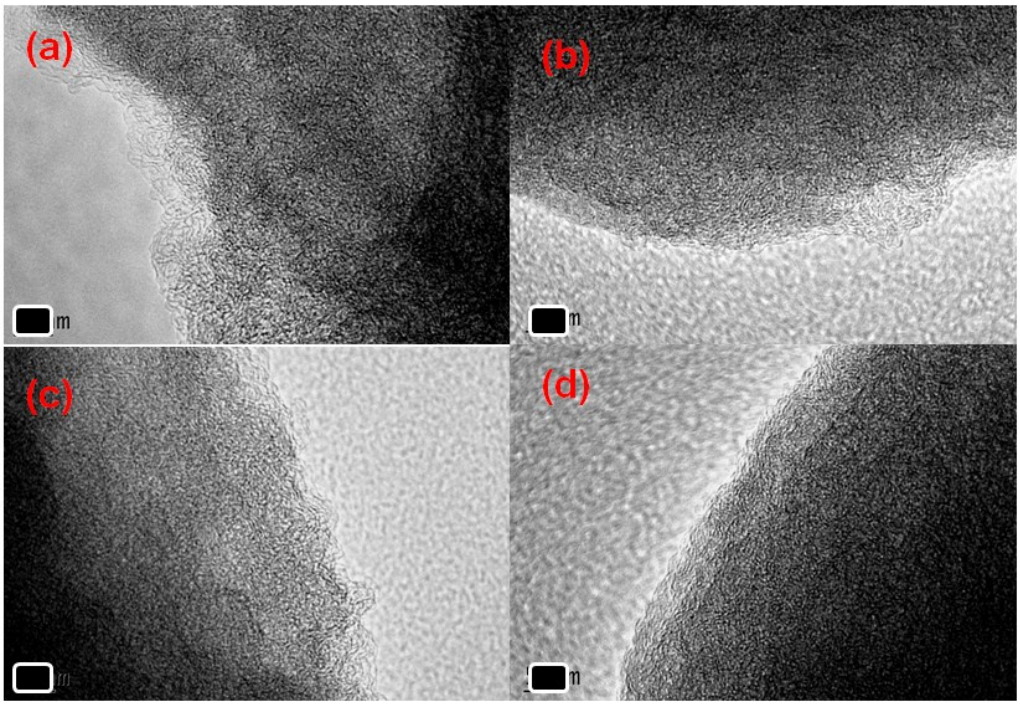

Figure S4 The HR-TEM of the carbon spheres edge (a) C/N-PNSs-1, (b) C/N-PNSs-2; (3) C/N-PNSs-3; (4) C/N-PNSs-4.

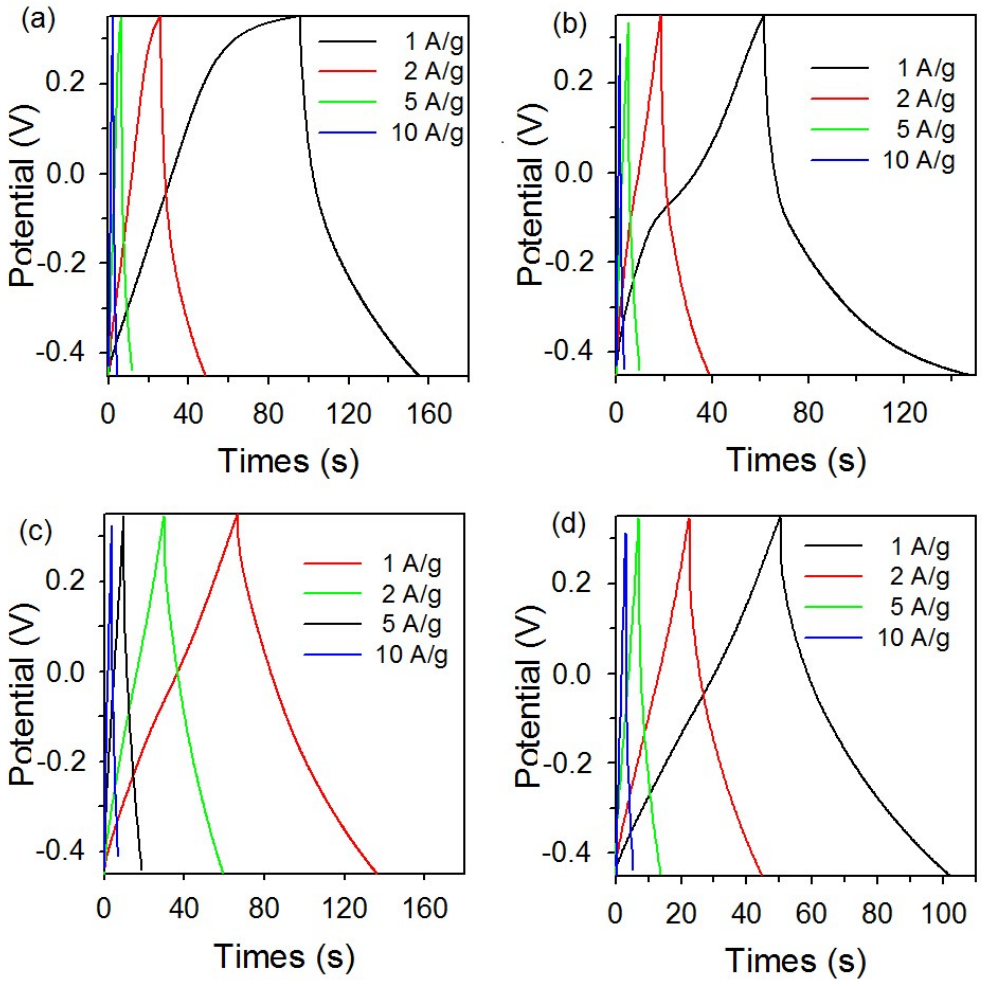

Figure S5 The charge-discharge curves of (a) C/N-PNSs-1; (2) C/N-PNSs-2; (c) C/N-PNSs-3; (4) C/N-PNSs-4 at different current density in 6 M KOH as electrolyte at 25 ^{o}C.

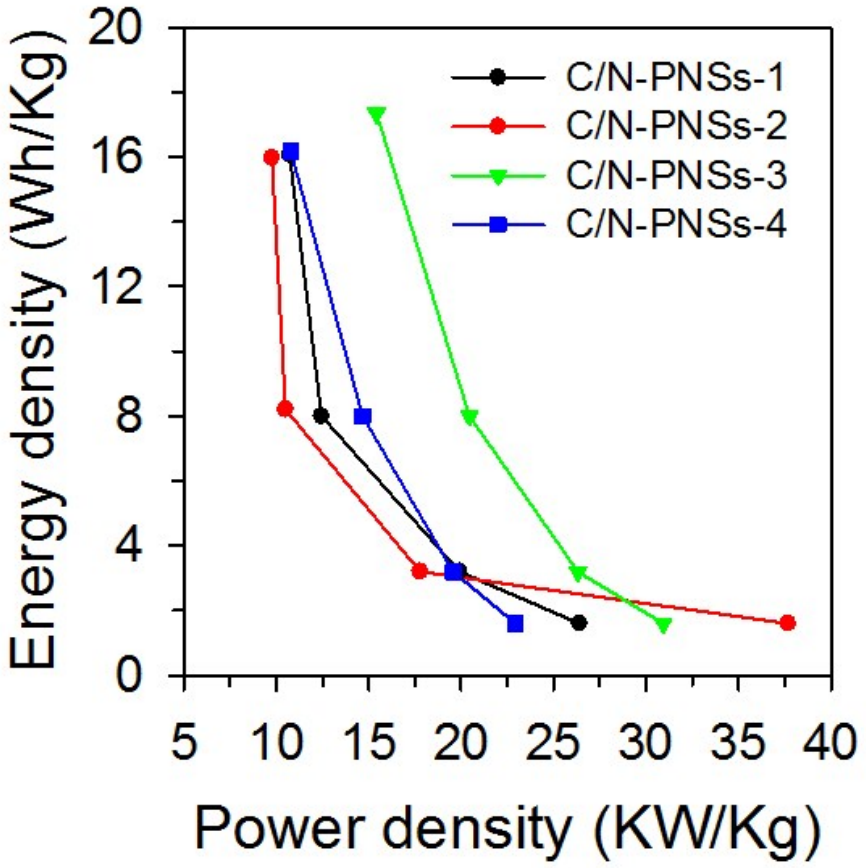

Figure S6. Ragon plot (energy density *vs*. power density) of C/N-PNSs.

Table S2 Comparison of the preparation of N-doped porous carbon materials.

Sample	N[a] (wt %)	S_{BET}[b] (m^2/g)	Pore structure	Electrolyte	Capacitance (F/g)	Ref.
C/N-PNSs -1	10.4	704.6	hierarchical	6 M KOH	297 at 1A/g	This work
C/N-PNSs -2	8.8	778.1	hierarchical		424 at 1A/g	
C/N-PNSs -3	9.1	627.8	micro		347 at 1A/g	
C/N-PNSs -4	8.7	924.4	micro		257 at 1A/g	
3CPC	_	3326	hierarchical	1 M H_2SO_4	755 at 1A/g	S1
P(ANI-*co*-PPDA)	6.43	1512	meso	6 M KOH	316 at 1A/g	S2
NC	7.1±1.8	536-2358	hierarchical	EMIM-BF_4	173 at 10 mV/s	S3
HPNDC	6.75	2905.4	micro	6 M KOH	301.9 at 1A/g	S4
N-MCSs	7.14	1478	micro	11 wt.% KOH	292 at 1 A/g	S5
TCNQ-CTFs	> 8	3600	micro	EMiMBF_4	383 at 0.2 A/g	S6
ACOF	1.6	1596	micro	6 M KOH	234at 1 A/g	S7

[a]The mass content of nitrogen; [b]Specific surface area.

References:

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