Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.
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Supplementary Figures

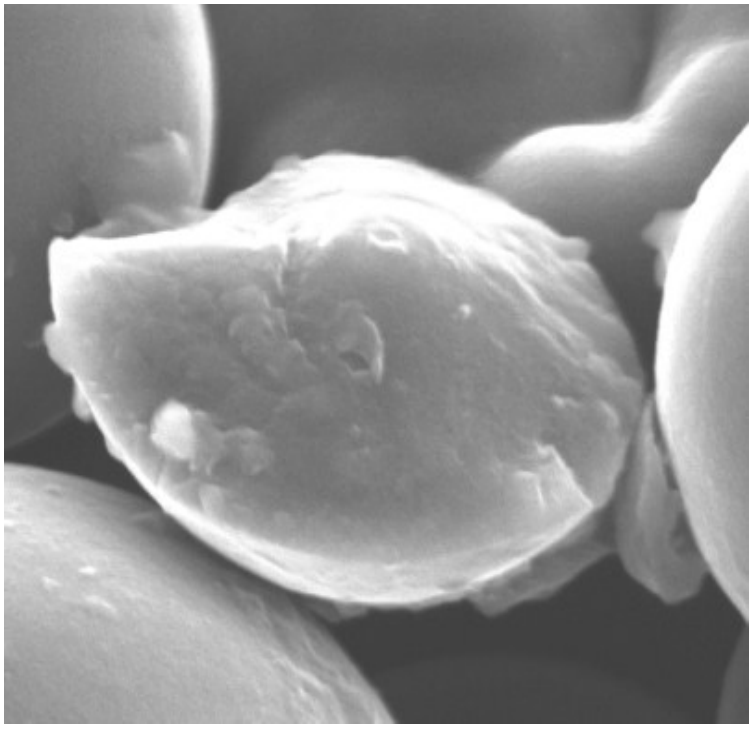

Figure S1. A high-magnification SEM image of a fractured nitrogen doped carbon precursors.

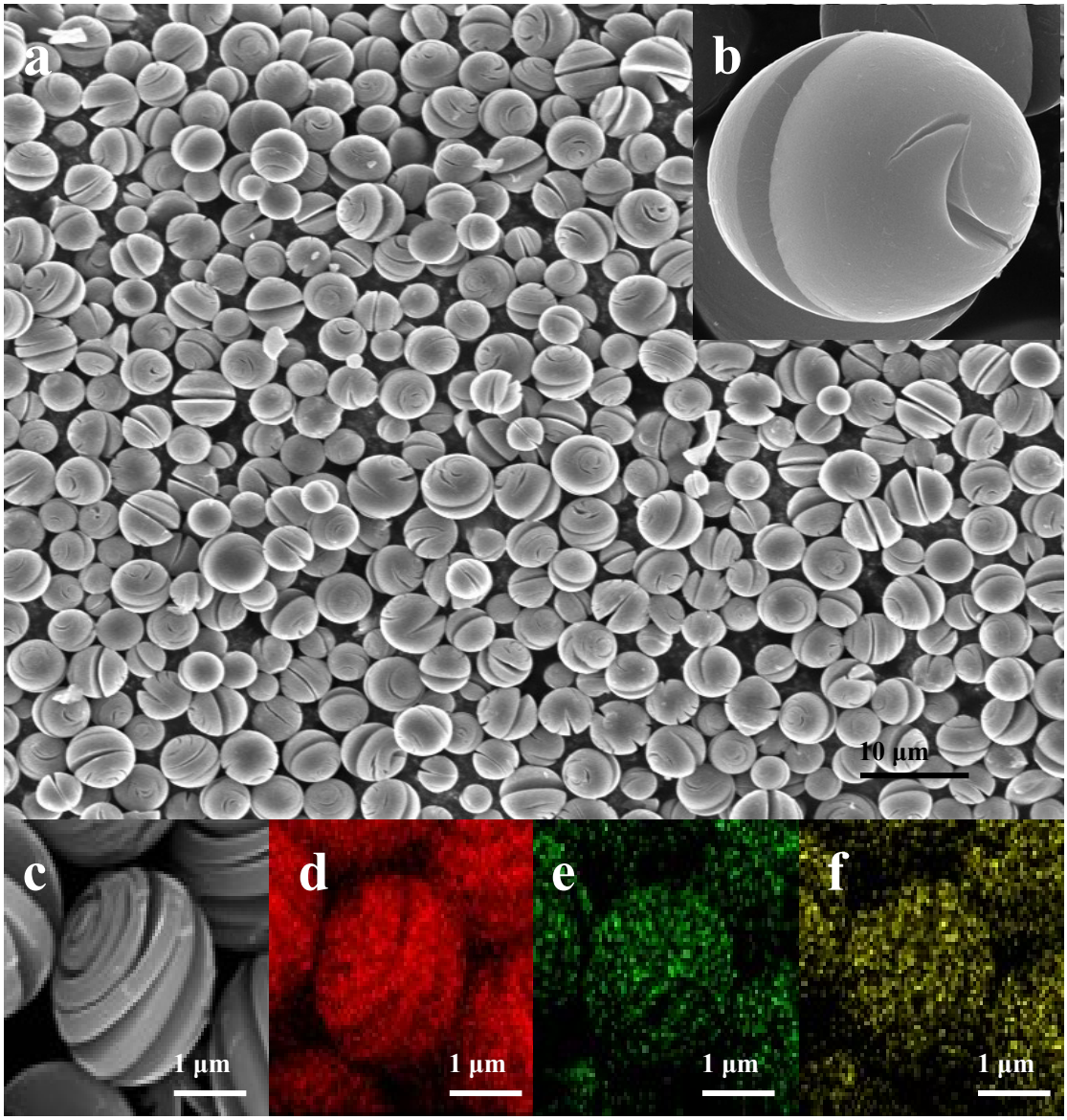

Figure S2. Morphology and elemental distribution of the MAC-$N_{0.5}$ electrode: (**a**) a low-magnification SEM image of the MAC-$N_{0.5}$; (**b**) a high-magnification SEM image showing a spherical morphology of the MAC-$N_{0.5}$; (**c**) a SEM image of the MAC-$N_{0.5}$ and the corresponding EDS elemental mappings of (**d**) carbon (red), (**e**) nitrogen (green), and (**f**) oxygen (yellow).

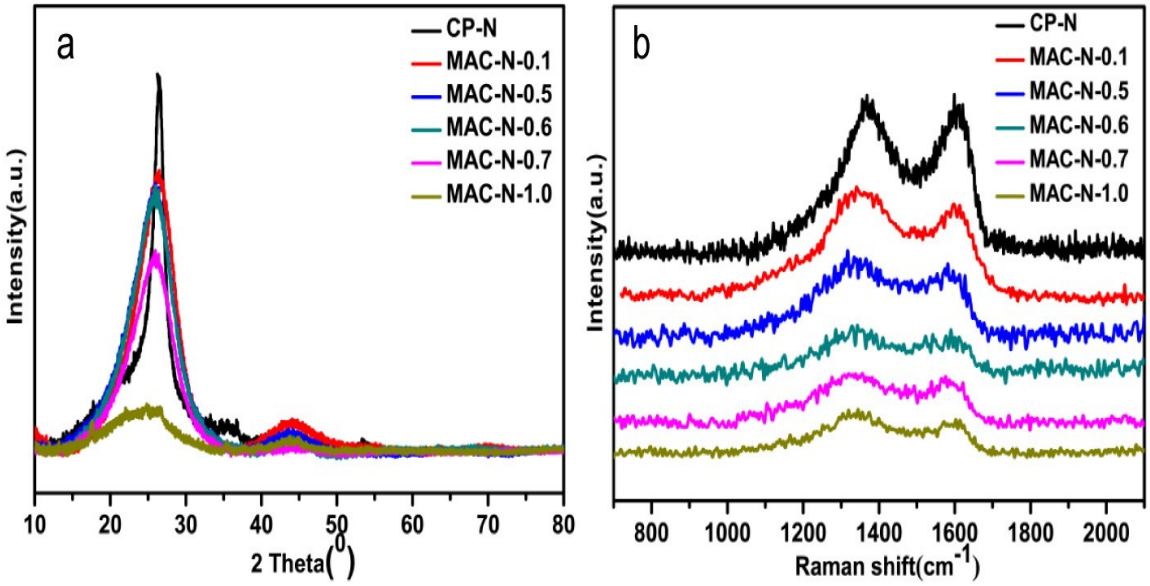

Figure S3. Structural characterization of the CP-N and MAC-N_x (x=0.1, 0.5, 0.6, 0.7, 1.0): (a) XRD patterns and (b) Raman spectra.

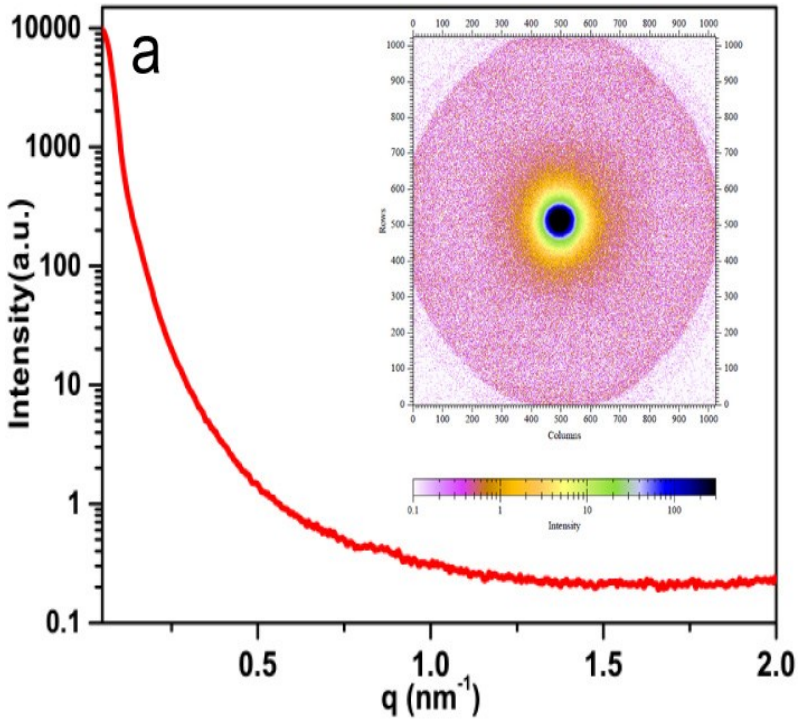

Figure S4. Small-angle x-ray scattering (SAXS) patterns of the nitrogen doped carbon precursors

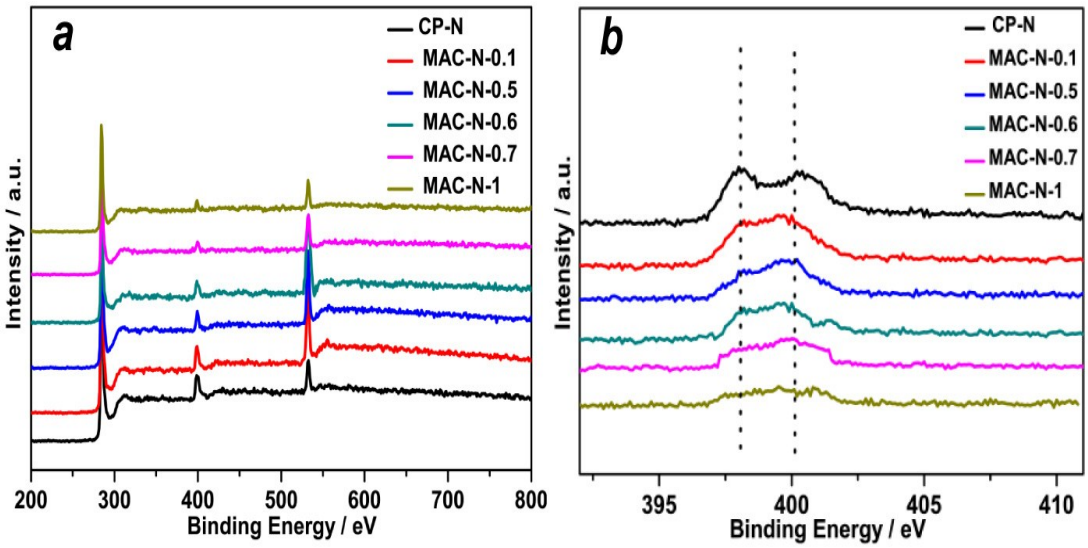

Figure S5. Chemical analysis of the CP-N and MAC-N_x (x=0.1,0.5,0.6,0.7,1.0): (**a**) XPS survey spectra; and (**b**) High-resolution XPS spectra of N 1s, respectively.

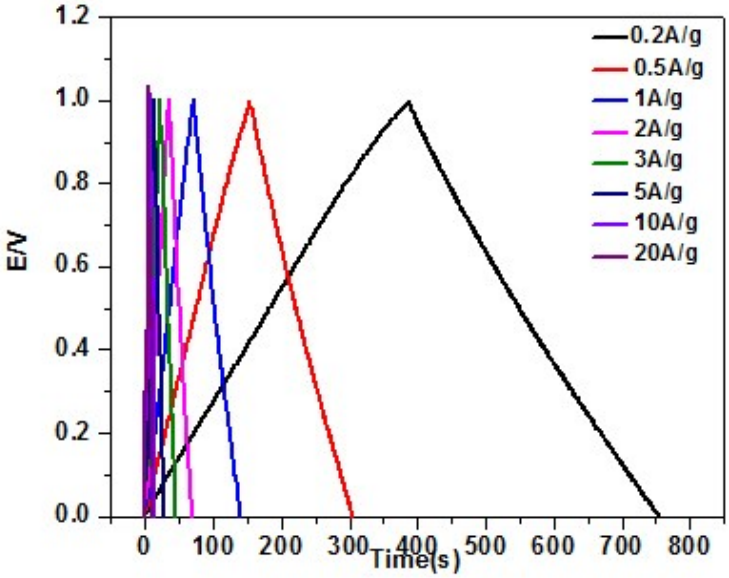

Figure S6. Galvanostatic charge/discharge curves of the MAC-$N_{0.5}$ sample in a 6 M KOH solution with different current densities using two electrodes;

Supplementary Tables

Table S1: The carbon yield of the nitrogen doped carbon precursors and MAC-N-x (x = 0.1, 0.5, 0.6, 0.7, 1.0)

Samlpe	Yield
CP-N	28.1%
MAC-N-0.1	25.8%
MAC-N-0.5	24.7%
MAC-N-0.6	23%
MAC-N-0.7	21.9%
MAC-N-1	19.1%

Table S2: N content of carbons obtained from XPS

Sample	pyridinic N	pyrrolic N	graphitic N
CP-N	**39%**	**46%**	**15%**
MAC-$N_{0.1}$	**33%**	**50%**	**17%**
MAC-$N_{0.5}$	**31%**	**50%**	**19%**
MAC-$N_{0.6}$	**34%**	**45%**	**21%**
MAC-$N_{0.7}$	**38%**	**39%**	**23%**
MAC-$N_{1.0}$	**44.5%**	**27%**	**28.5%**

Table S3: Performance of selected porous carbon materials for ECs

Item	density g cm^{-3}	mass density/ mg cm^{-2}	BET/ m^{-2} g	electrolyte/mol	C_g/Fg^{-1} (I/A g^{-1})	C_{vol}/ F cm^{-3}	rate capability （A g^{-1}）	C_a F cm^{-2}	Ref
Densely PGC	0.96	3	1103	KOH（6 mol）	374（0.5）	360	75 % 0.5 to 20	1.12	1
CMG	0.5	2	705	KOH 5.5mol	135 (1.33)	67.5	40 % 0.1 to 2.5	0.96	2
High porous grapheme macroform	1.58	No data	367	KOH（6 mol）	238 (0.1)	376	69 % 0.1 to 15	No data	3
Commercial activated carbon	0.5~0.7	1-3	2000	KOH（6 mol）	160~200	80~110	No data	No data	4
vertically aligned reduced GO	1.18	3.5	123	KOH（6 mol）	145 (0.5)	171	72 % 0.5 to 20	1.83	5
N/F doped CM	1.93	2.1	1.4	KOH（6 mol）	189 （0.1）	365	64 % 0.1 to 5	2.43	6
N-doped SGC	0.44	No data	2927	KOH（6 mol）	481 (0.5)	212	65.1 % 0.5 to 20	No data	7
3D porous carbon	0.37	3	2870	KOH（6 mol）	318 (0.5)	118	59.4% 0.5 to 20	No data	8
NS-rGO	0.21	3	1435	KOH（6 mol）	237 (1)	51.4	72.3 % 1 to 30	0.71	9
FGN-300	1.03	2.9	285	KOH（6 mol）	456 (0.5)	470	44 % 0.5 to 20	1.41	10
OMFLC-N	0.65	0.5	1580	H_2SO_4（0.5mol）	855 (1)	560	71.9 % 1 to 40	No data	11
Holey graphene	0.71	1	1560	KOH（6 mol）	310 (1)	221	65 % 1 to 100	2.62	12
MAC-N-0.5	1.49	1.7	327	KOH（6 mol）	385 (0.2)	573	86.3 % 0.2 to 20	3.42	This work

Supplementary reference

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