Electronic Supplementary Information (ESI)

From covalent organic framework to hierarchically porous B-doped carbons: A molten-salt approach

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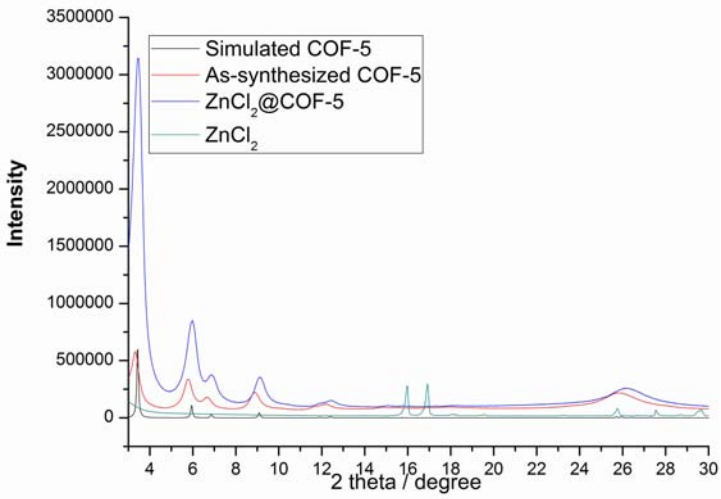

Fig. S1 PXRD patterns of simulated COF-5 (black), as-synthesized COF-5 (red), $ZnCl_2$@COF-5 (blue) and $ZnCl_2$ (green).

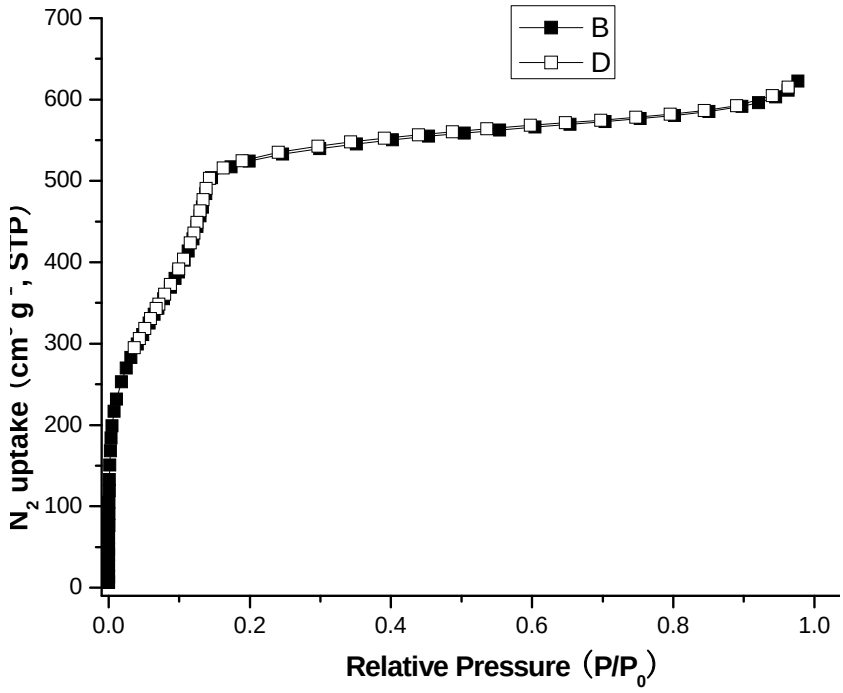

Fig. S2 N_2 sorption isotherms of as-synthesized COF-5.

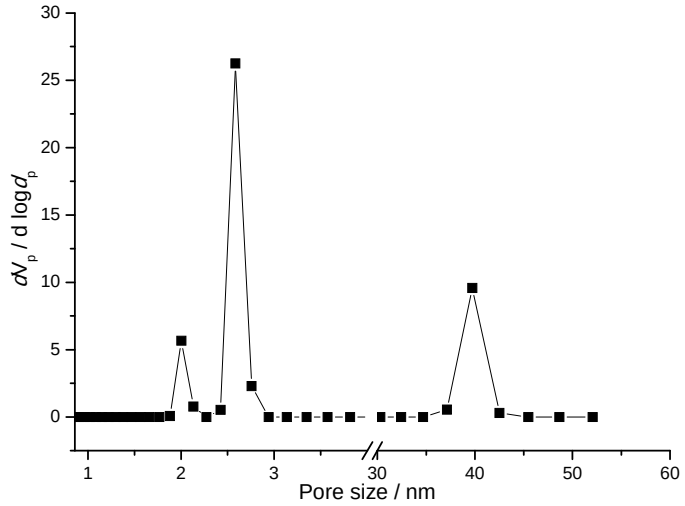

Fig. S3 Pore size distribution of as-synthesized COF-5 by NLDFT method.

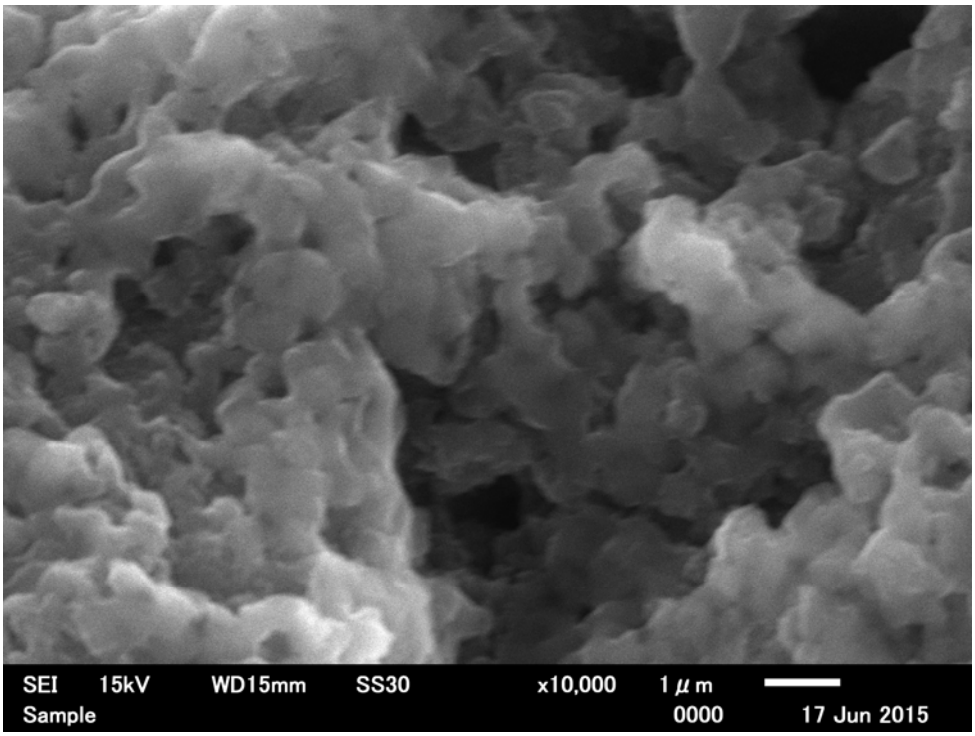

Fig. S4 SEM image of the as-synthesized COF-5.

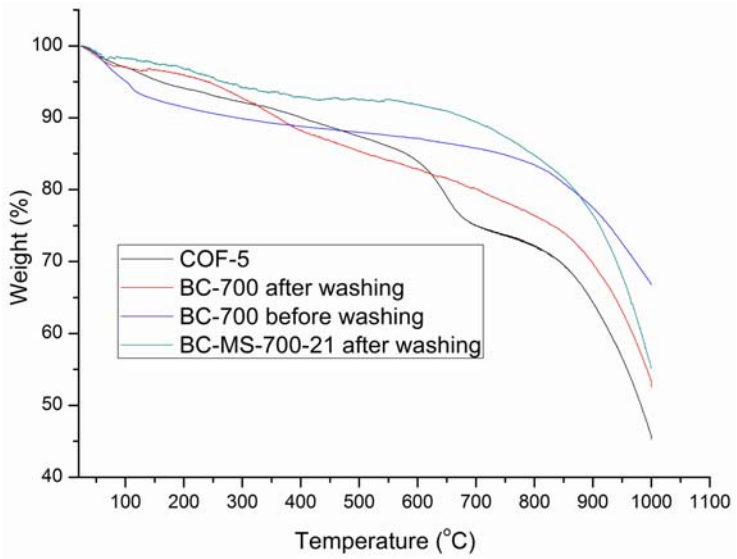

Fig. S5 TGA curves of COF-5, BC-700 before and after washing, BC-MS-700-21 after washing.

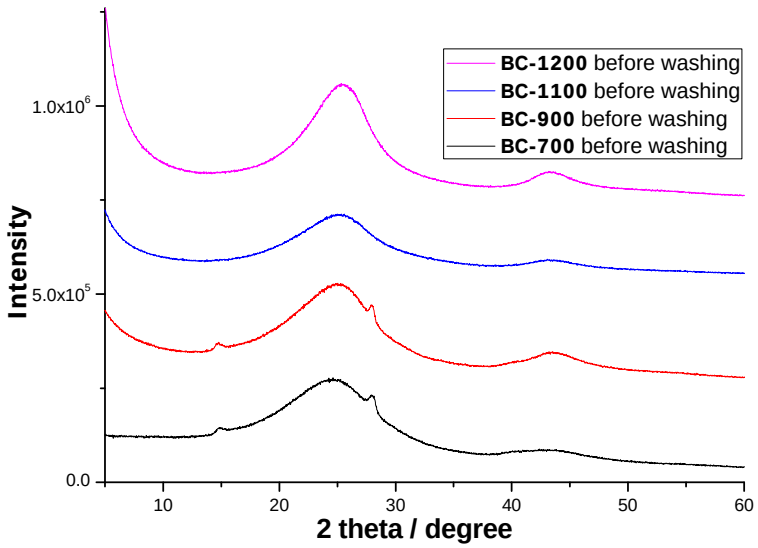

Fig. S6 PXRD of the as-prepared BC-700, BC-900, BC-1100, BC-1200 before washing with water.

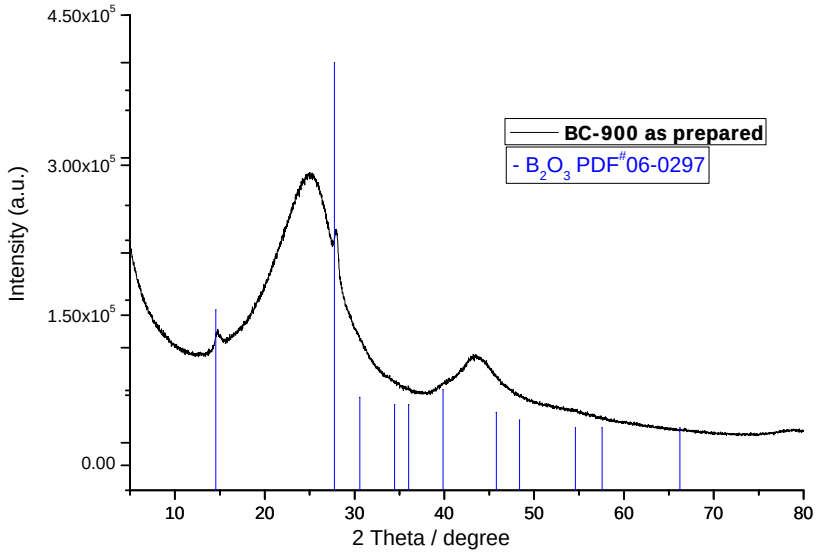

Fig. S7 PXRD of the as-prepared BC-900 before washing, and B_2O_3 (PDF#06-0297, blue).

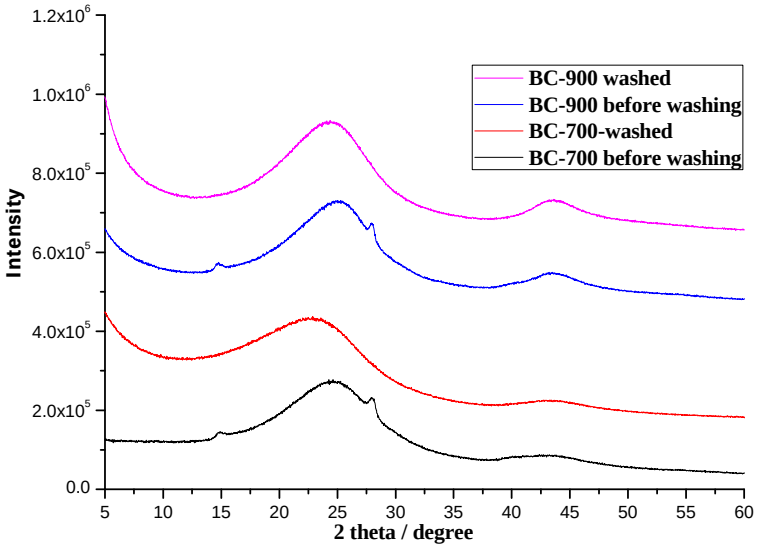

Fig. S8 PXRD of BC-700 and BC-900 before and after washing with hot water.

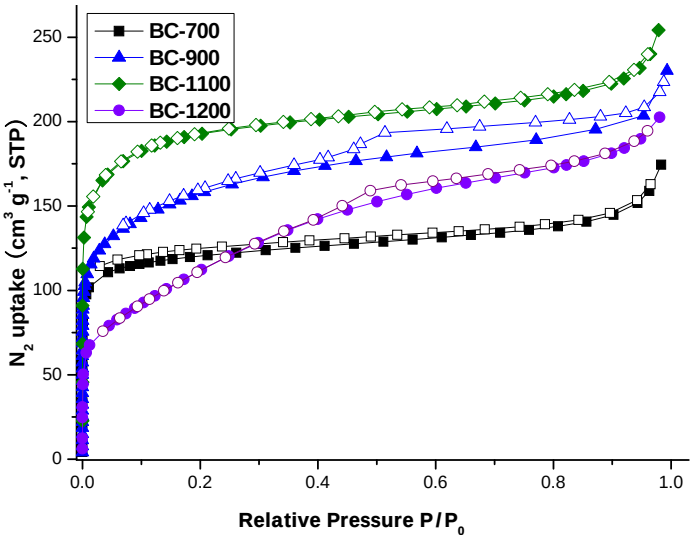

Fig. S9 N_2 sorption isotherms of BC-700, BC-900, BC-1100 and BC-1200 (closed symbols, adsorption; open symbols, desorption).

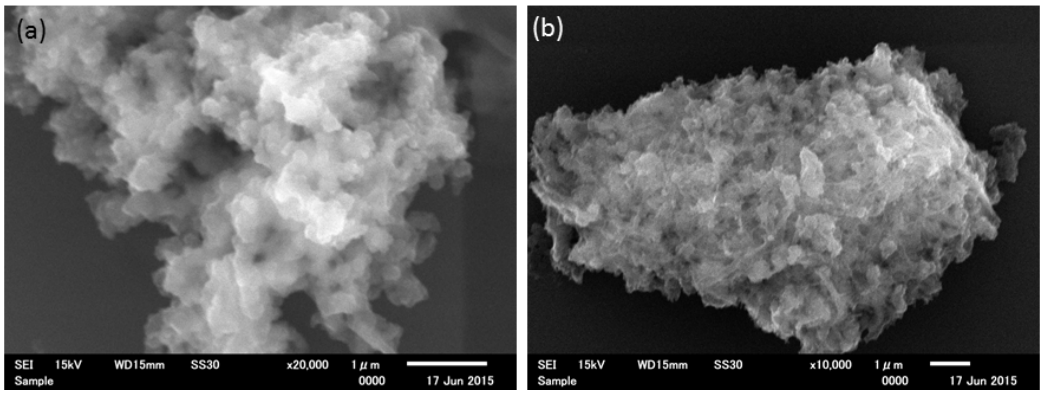

Fig. S10 SEM images of (a) BC-700 and (b) BC-MS-700-14

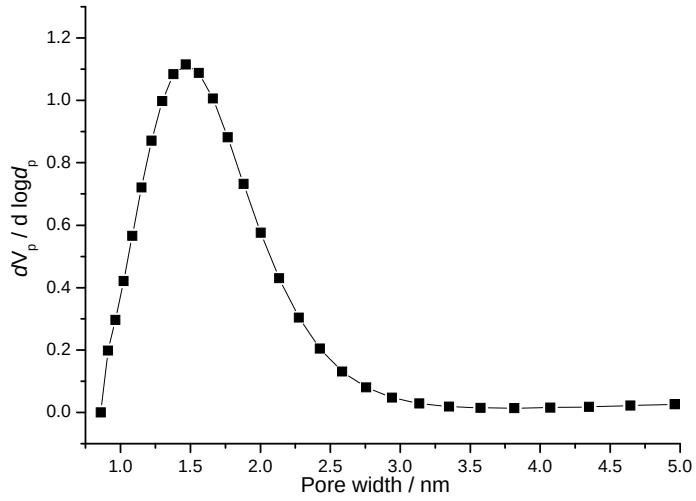

Fig. S11 Pore size distribution of BC-700 by NLDFT method.

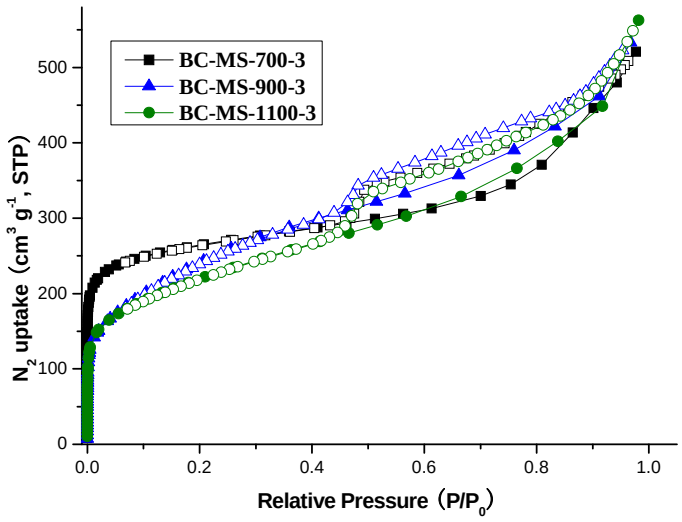

Fig. S12 N_2 sorption isotherms of BC-MS-700-3, BC-MS-900-3, and BC-MS-1100-3 (closed symbols, adsorption; open symbols, desorption).

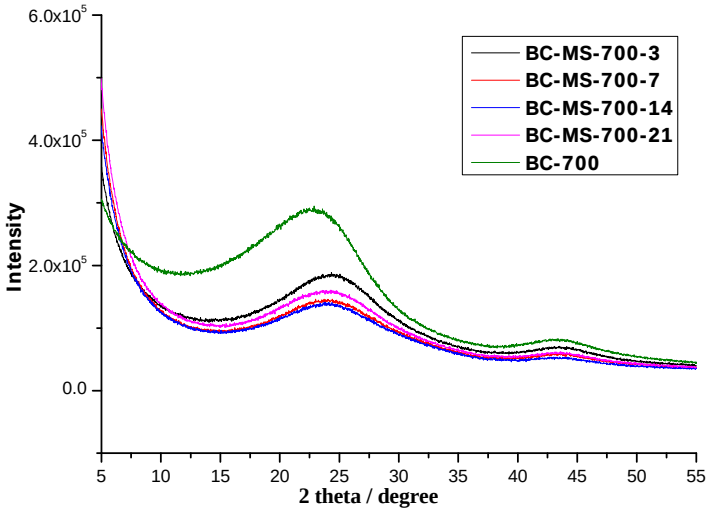

Fig. S13 PXRD of the carbons BC-700, BC-MS-700-3, BC-MS-700-7, BC-MS-700-14 and BC-MS-700-21 after washing.

Table S1. Summary of the surface areas and pore volume distributions for the carbons

Sample	BET Specific surface area[a] ($m^2\ g^{-1}$)	Total pore volume[b] ($cm^3\ g^{-1}$)	Meso-Macropore volume[c] ($cm^3\ g^{-1}$)	Micropore volume[d] ($cm^3\ g^{-1}$)
COF-5	1828	0.963	0.1366	0.8264
BC-700	449	0.2626	0.0835	0.1791
BC-MS-700-3	965	0.8057	0.5240	0.2817
BC-MS-700-7	1293	1.5318	1.2540	0.2778
BC-MS-700-14	1460	1.7678	1.3398	0.4280
BC-MS-700-21	1329	1.8598	1.6067	0.2531

[a] Calculated from the BET surface area analysis.

[b] Calculated by a single point method at $P/P^0 = 0.99$.

[c] Calculated by subtracting the total pore volume with the micropore volumes.

[d] Calculated using a t-plot method.

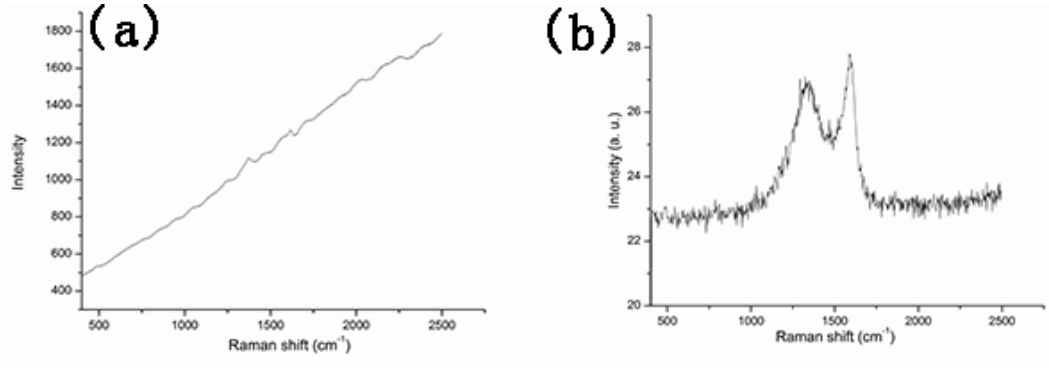

Fig. S14 Raman spectra of (a) COF-5 and (b) BC-MS-700-14.

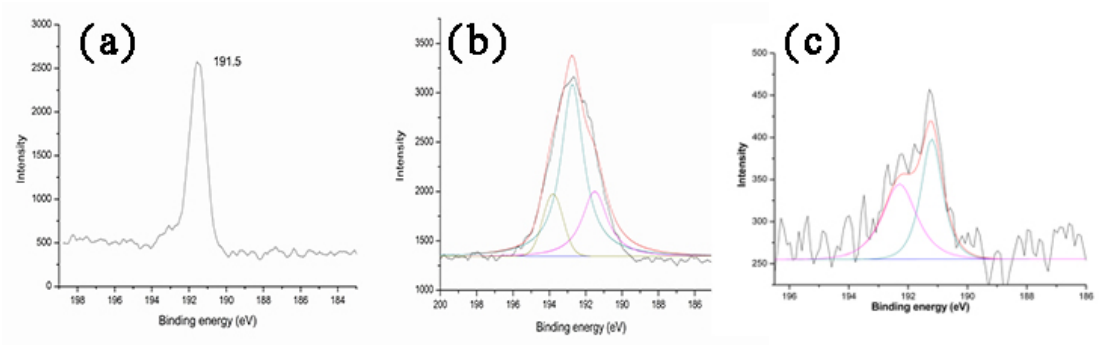

Fig. S15 XPS spectra of B1s for: (a) COF-5, BC-700 (b) before and (c) after washing.

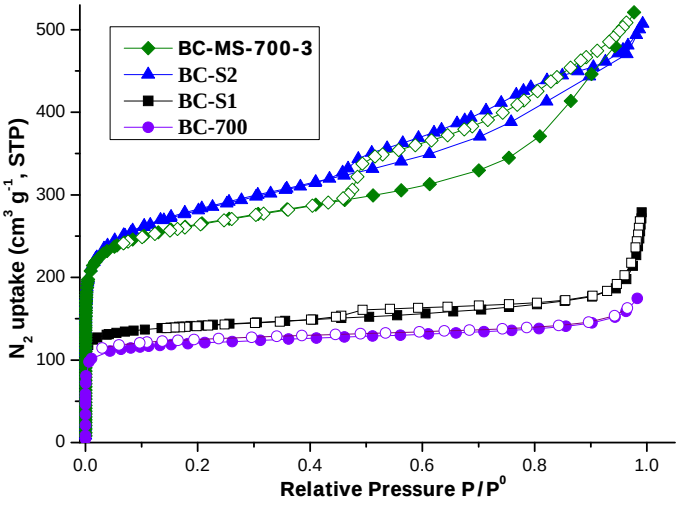

Fig. S16 N_2 sorption isotherms of the carbons BC-700, BC-S1, BC-S2 and BC-MS-700-3 at 77 K.

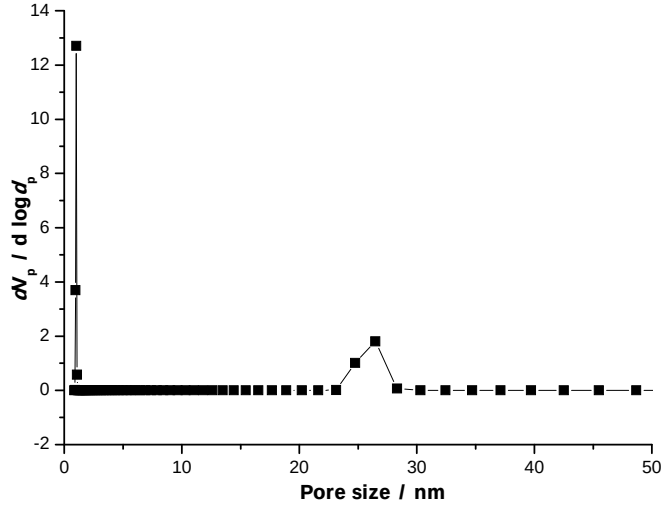

Fig. S17 The NLDFT pore size distribution of BC-S1.

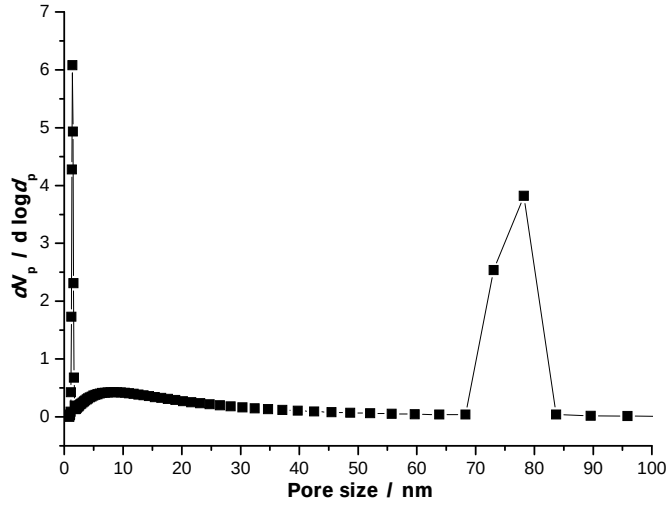

Fig. S18 The NLDFT pore size distribution of BC-S2.

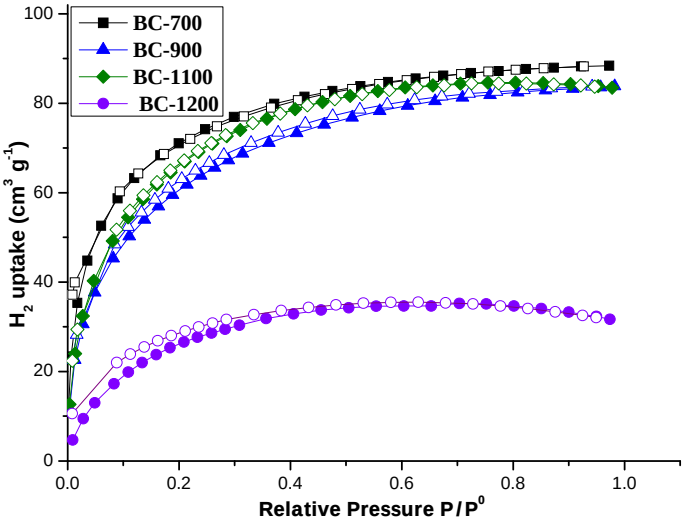

Fig. S19 H_2 adsorption uptakes of the carbons BC-700, BC-900, BC-1100 and BC-1200 at 77 K

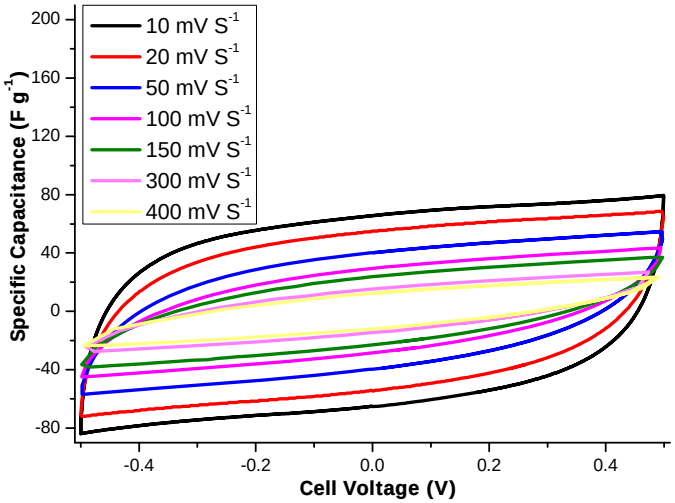

Fig. S20 Cyclic voltammograms of BC-700 at different sweep rates.

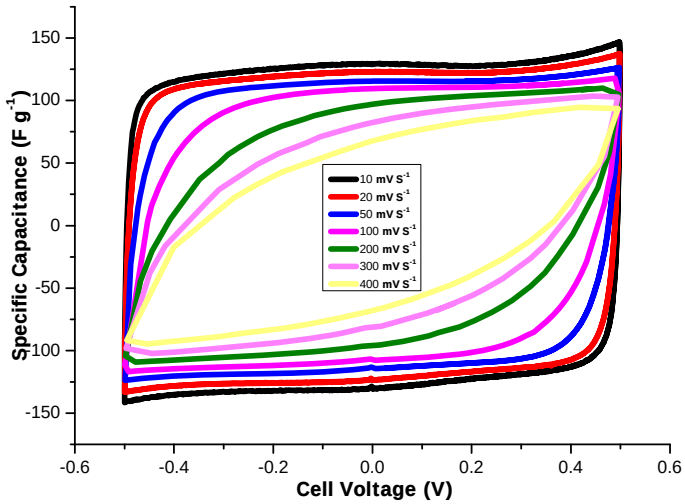

Fig. S21 Cyclic voltammograms of BC-MS-700-3 at different sweep rates.

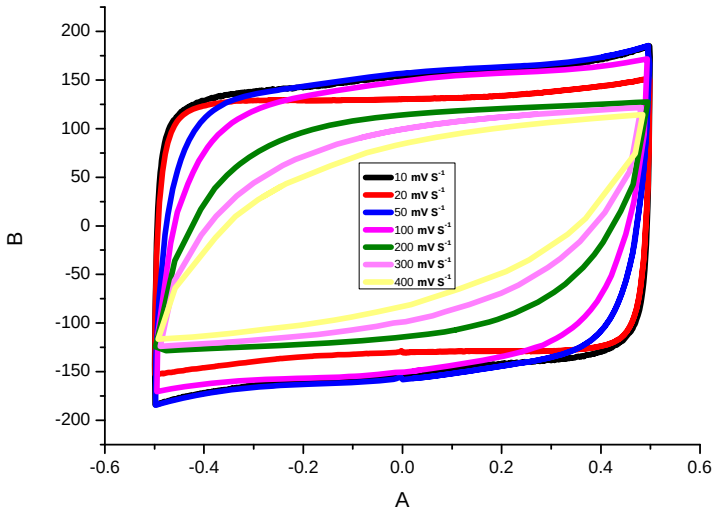

Fig. S22 Cyclic voltammograms of BC-MS-700-7 at different sweep rates.

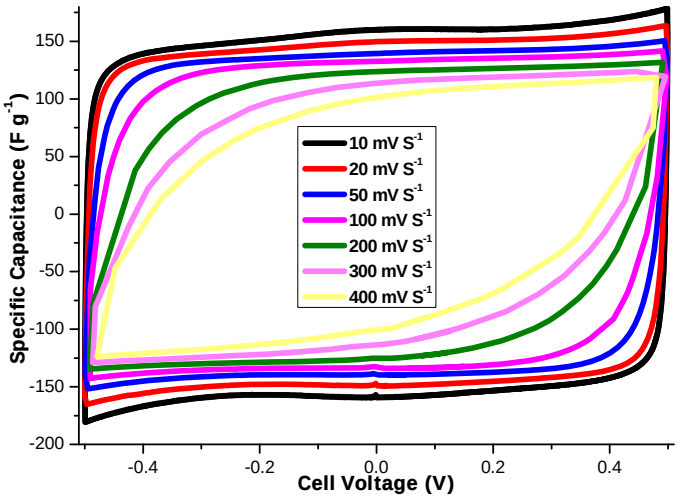

Fig. S23 Cyclic voltammograms of BC-MS-700-14 at different sweep rates.

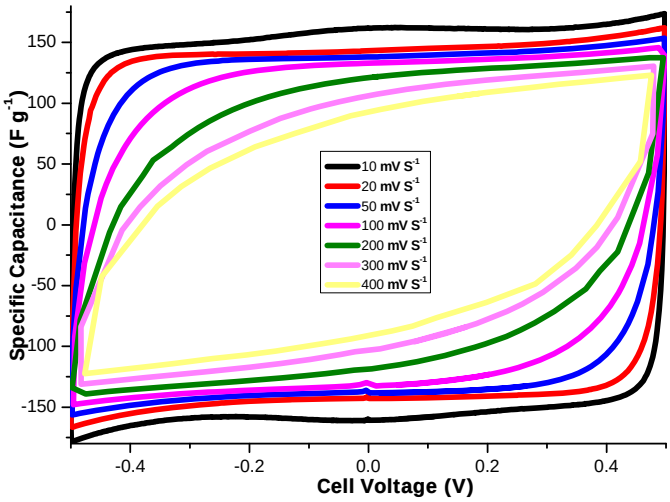

Fig. S24 Cyclic voltammograms of BC-MS-700-21 at different sweep rates.

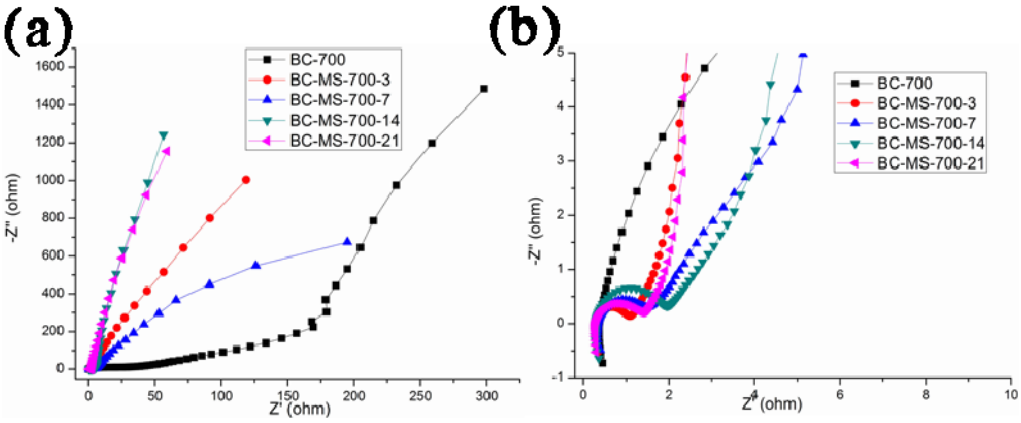

Fig. S25 Nyquist plots of the carbons BC-700, BC-MS-700-3, BC-MS-700-7, BC-MS-700-14 and BC-MS-700-21 in a frequency range of 10^{-3} to 10^{6} Hz.