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

Functionalized, hierarchical and ordered mesoporous carbons for high-performance supercapacitors

À. Sánchez-Sánchez,[a] V. Fierro,[a] M.T. Izquierdo[b] and A. Celzard[a]

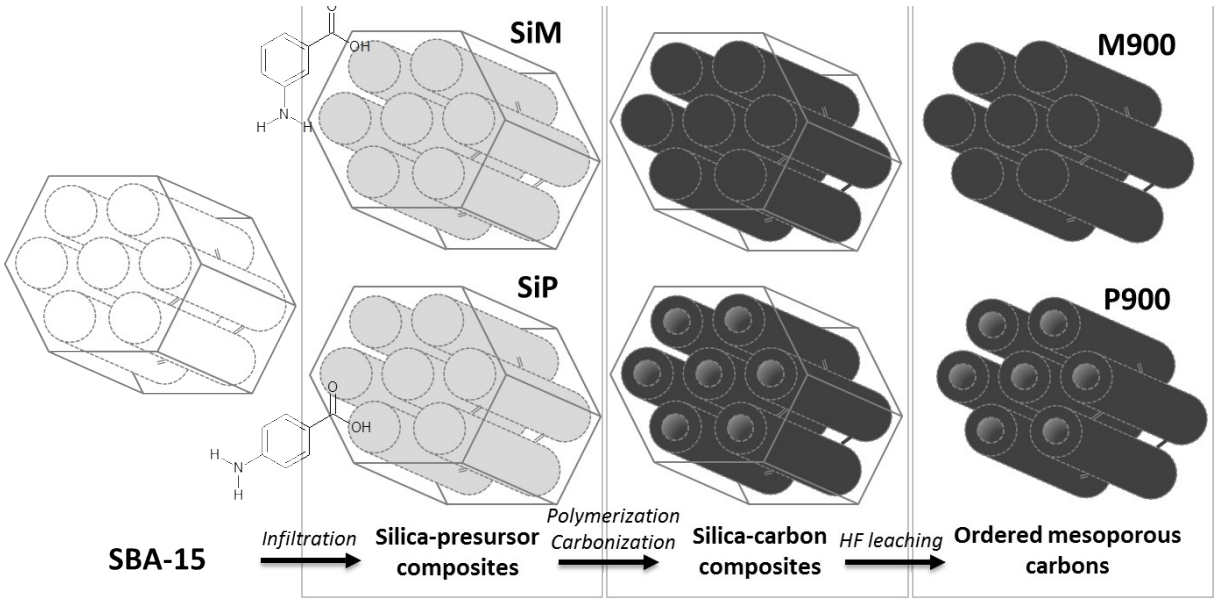

Figure S-1. Schematic procedure of the N-doped OMCs synthesis.

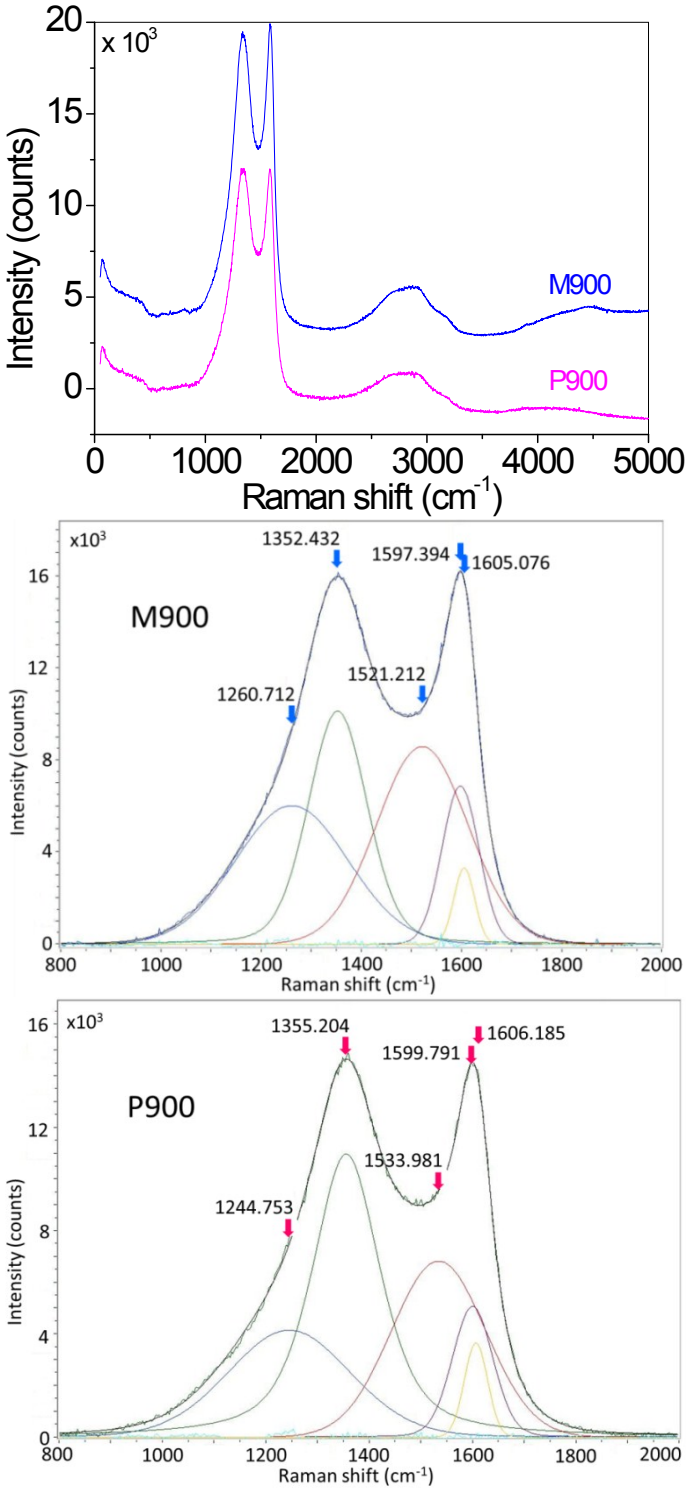

Figure S-2. Full raw Raman spectra (a) and deconvolution of D and G bands of the Raman spectra into 5 contributions for M900 and P900 (b and c).

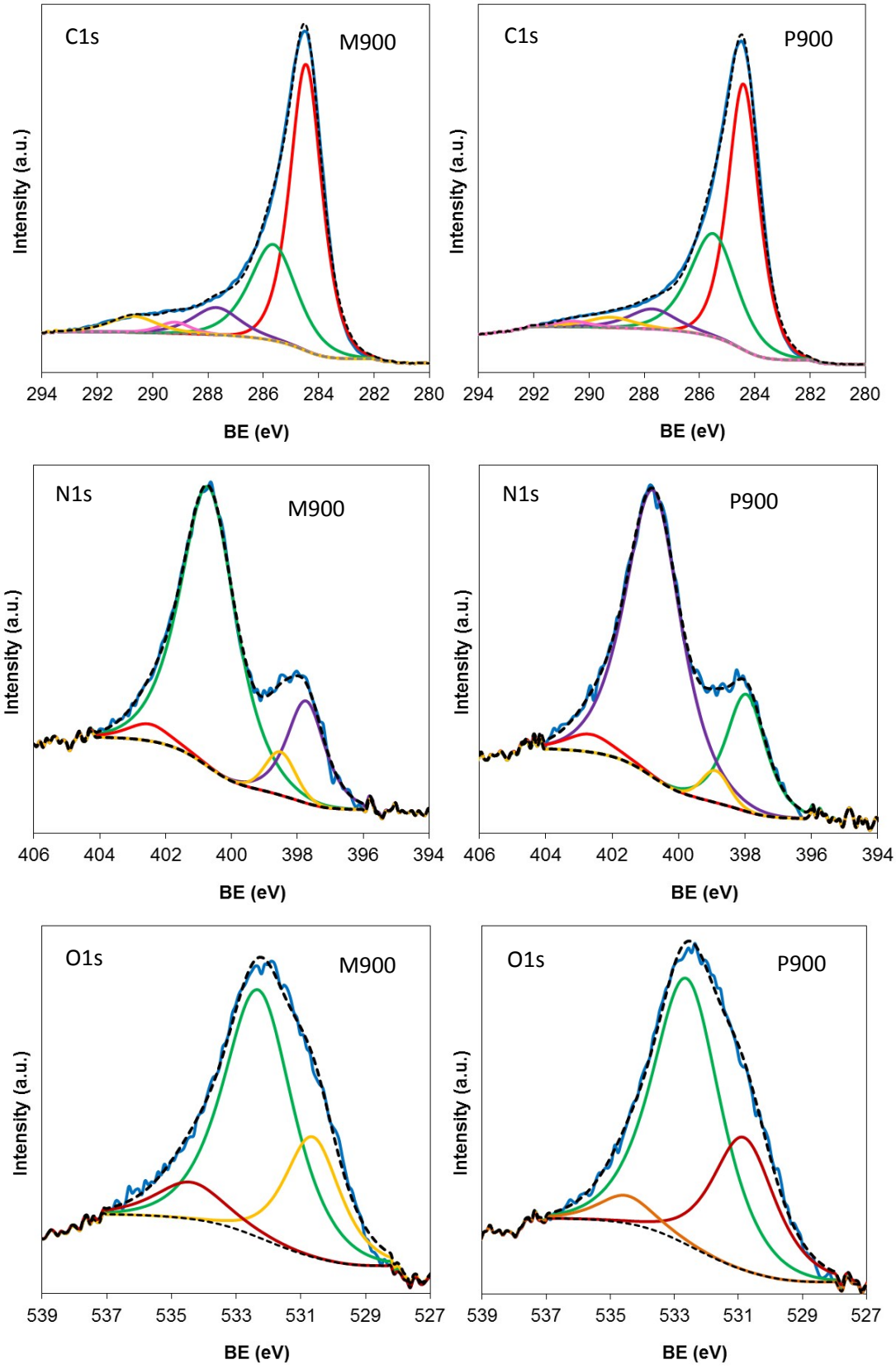

Figure S-3. C1s, N1s and O1s high-resolution XPS spectra of samples and corresponding deconvolution peaks.

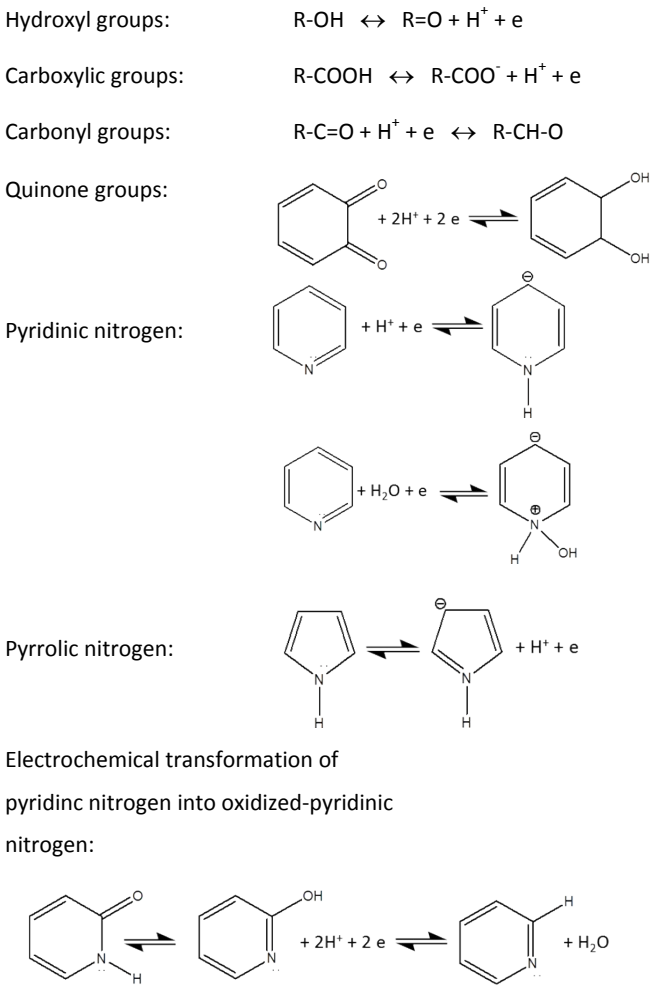

Figure S-4. Possible redox reactions of oxygen and nitrogen functionalities in acidic medium.

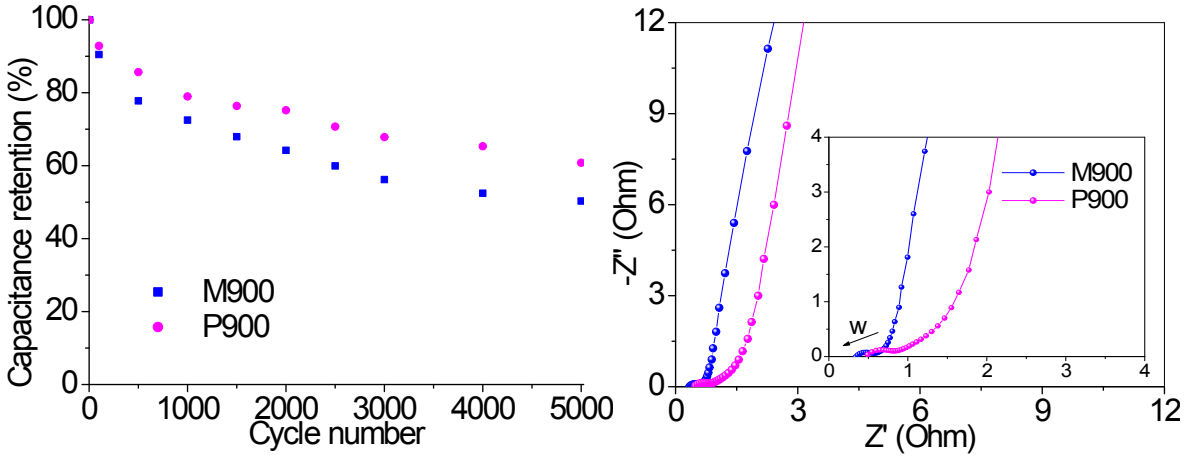

Figure S-5. Left) Cycling stability of the carbon electrodes after 5000 charge-discharge cycles at 0.5 A/g. Right) Nyquist plots obtained from EIS in the frequency range 100 kHz–1 mHz with a 10 mV AC amplitude. The inset is a zoom of the bottom left corner of the plots.

Table S-1. Experimental conditions and electrochemical data reported in previous works**.**

Precursor	***SSA*** (m^2/g)	V_{mes} (cm^3/g)	***Heteroatom concentration***	***Electrochemical measurements***	***Electrochemical Performance:*** ***C (F/g)*** ***E (Wh/Kg), P (W/Kg)***	***Reference***
Non-doped OMCs: sucrose/SBA-15 pitch/ SBA-15 propylene CVD/ SBA-15	 1470 923 713	*	*	Two-electrode 1M H_2SO_4	 167 F/g 87 F/g 66 F/g	32
Non-doped OMCs: sucrose/SBA-15 propylene CVD/ SBA-15	 1470 713	*	*	Two-electrode 1M H_2SO_4	 162 F/g (2 mV/s) 62 F/g (2 mV/s)	33
Non-doped OMCs: sucrose/SBA-15, CO_2 activation	2749	1.13	-	Three electrode 6M KOH	223 F/g (2 mV/s)	34
Non-doped OMCs: furfuryl alcohol/SBA-15 Commercial activated carbon (Maxsorb)	1703 3310	*	-	Three electrode 30 wt.% KOH	206.2 F/g (5 mV/s); 4 – 6 Wh/Kg, 800 – 1050 W/Kg 333.9 F/g (5 mV/s); 9.4 - 2.1 Wh/Kg, 190 - 410 W/Kg	35
N,O,S – OMCs, pyrrole and KIT-6 silica template	693	0.69	10.1 at.% N 4.4 at.% O 0.9 at.% S	Three electrode 2M KOH	320 F/g (1 A/g)	36
Ethylendiamine, resorcinol, formaldehyde/ CO_2 activation	1184	*	3.6 wt.% N	Three electrode 1M H_2SO_4	388 F/g (1 A/g)	37
Non-doped and doped-OMCs: Glucose/SBA-15 Glucosamine/SBA-15 Sucrose/SBA-15	 1270 1100 1070	 0.63 0.72 0.69	 - 4.1 wt.% -	 *	 *	38
Potassium gluconate, melamine	950	0.03	5.9 wt.% N 11.6 wt.% O	Two electrode 1M H_2SO_4	186 F/g (0.1 A/g) 10.2 Wh/Kg; 5.7 KW/Kg	41
Coconut shells/ H_2O_2 and $ZnCl_2$ pretreatments/ CO_2 activation	2440	**	*	Three electrode 1M H_2SO_4	246 F/g (0.25 A/g) 7.6 Wh/Kg, 4.5 W/Kg	42

*Data not shown in publication; **Mesopore surface area of 1100 m^2/g