

Supplementary Information

Boron/nitrogen co-doped carbon synthesized from waterborne polyurethane and graphene oxide composite for supercapacitors

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Table S1 Relative contents of carbon, nitrogen, boron and oxygen bonds obtained from the C1s N1s, B1s and O1s peaks analyses

Samples		WPU-GO	WPU-GO-Fe	WPU-GO-B	WPU-GO-Fe-B
C (at.%)	C-B	0	0	9.98	8.45
	C=C	32.16	29.98	28.04	36.01
	C-N	42.83	36.54	40.95	29.59
	C-O	15.48	18.36	11.98	15.33
	C=O	9.53	15.12	9.05	10.63
N (at.%)	N-B	0	0	10.56	0
	N-1	32.19	20.51	37.11	54.55
	N-2	53.47	51.23	42.98	33.83
	N-3	11.20	16.75	6.87	7.30
	N-4	53.47	11.50	2.48	4.32
B (at.%)	B-C	0	0	28.76	57.36
	B-N	0	0	36.34	0
	B-O	0	0	34.91	42.64
O (at.%)	O-B	0	0	23.27	25.77
	O-1	25.11	25.40	19.72	19.69
	O-2	49.84	53.86	44.62	43.47
	O-3	25.05	20.74	12.40	11.07

Table S2 Fitting values of the equivalent circuit elements of the WPU-GO, WPU-GO-Fe, WPU-GO-B and WPU-GO-Fe-B samples

Equivalent circuit	Samples			
elements	WPU-GO	WPU-GO-Fe	WPU-GO-B	WPU-GO-Fe-B
$R_s(\Omega)$	0.99126	0.90588	0.92701	0.77856
CPE_T	0.0056007	0.0005518	0.0099433	0.0030265
CPE_P	0.74822	0.94759	0.65231	0.75989
$R_{ct}(\Omega)$	0.80819	0.76731	0.79823	0.65682
W_R	380.5	1043	3.423	1.19
W_T	20.3	112.4	3.182	1.084
W_P	0.74988	0.6311	0.46837	0.47049

CPE_T is the capacitance when $CPE_P=1$;

CPE_P is the constant phase element exponent;

W_R is the diffusion resistance (Warburg diffusion resistance);

W_T is the diffusion time constant;

W_P is a fractional exponent between 0 and 1.