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-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-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-C     | 0       | 0         | 28.76    | 57.36       |
| B-N     | 0       | 0         | 36.34    | 0           |
| B-O     | 0       | 0         | 34.91    | 42.64       |
| 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 elements | Samples            |          |          |          |
|-----------------------------|--------------------|----------|----------|----------|
|                             | 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.