

Supporting Information

Secondary High-Temperature Treatment of Porous Carbons for High-Performance Supercapacitors

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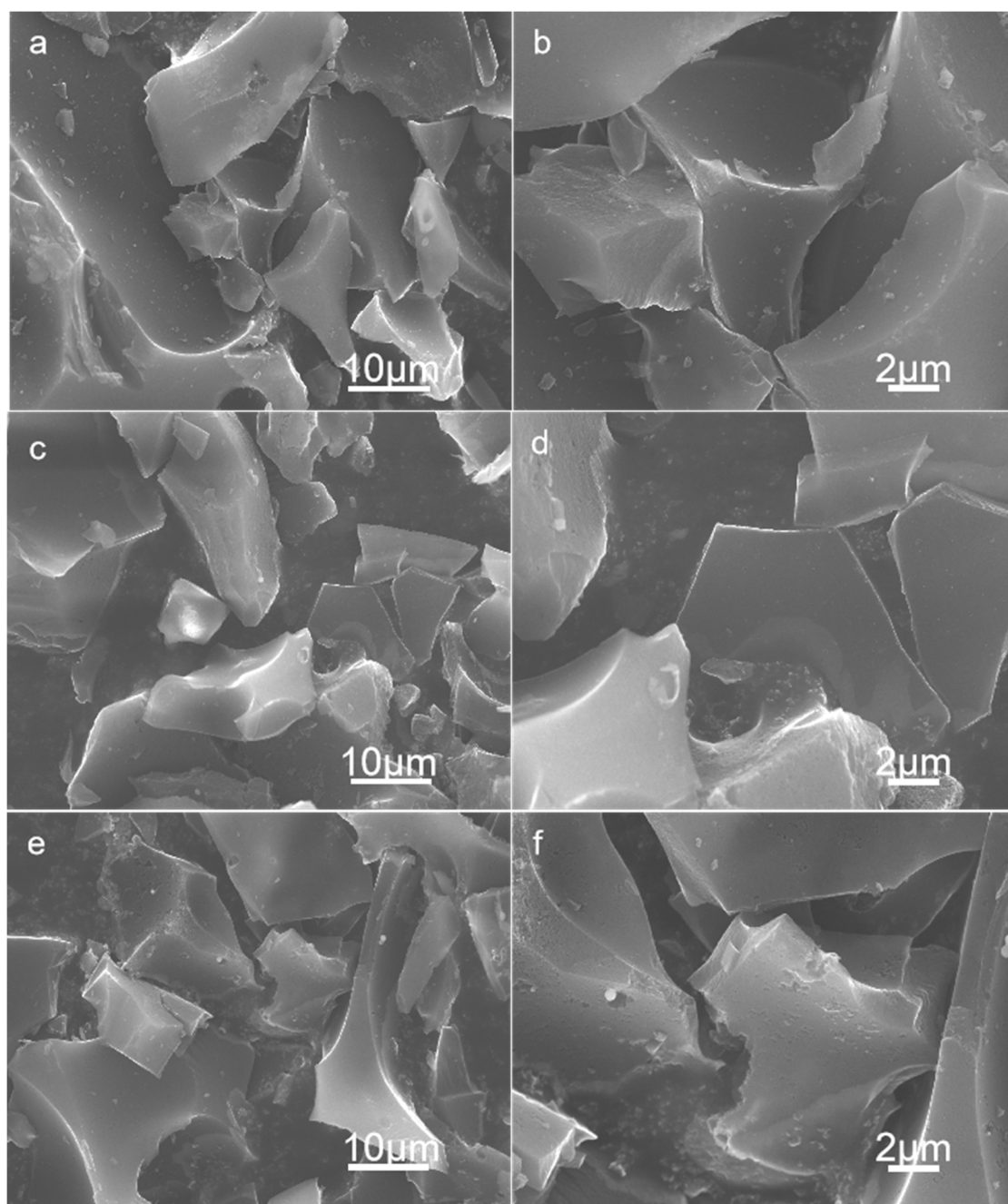


Figure S1. SEM images of (a-b) HTC-0, (c-d) HTC-1000, (e-f) HTC-1100.

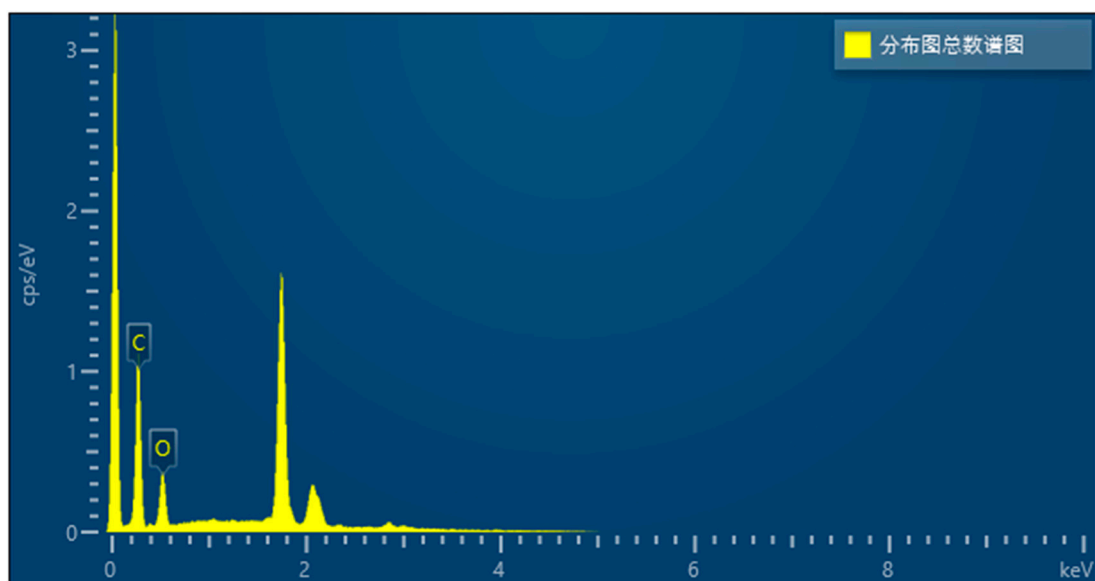


Figure S2. The EDS spectrum of HTC-1000. (分布图总数谱图: Total number of distribution plots Spectrum)

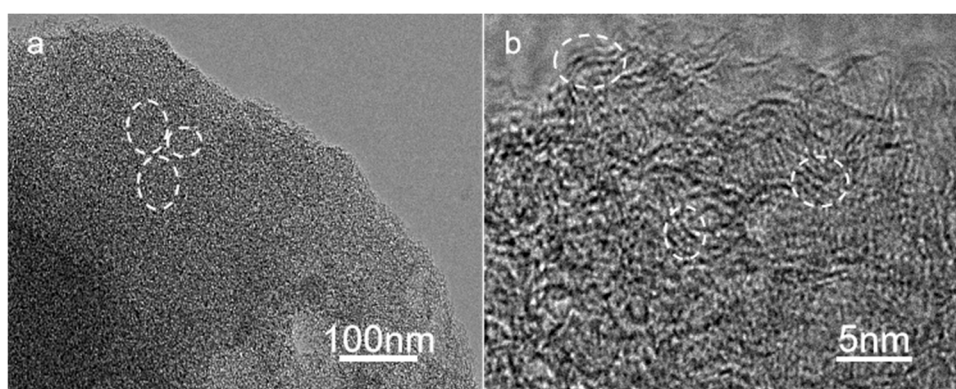


Figure S3. (a) TEM images of HTC-1000 and (b) HRTEM images of HTC-1000.

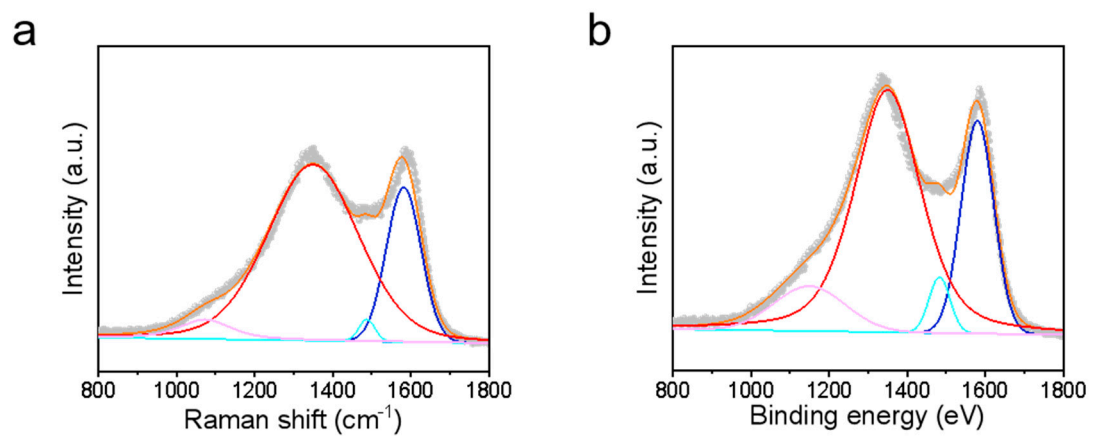


Figure S4. Raman spectra of (a) HTC-0 and (b) HTC-1100.

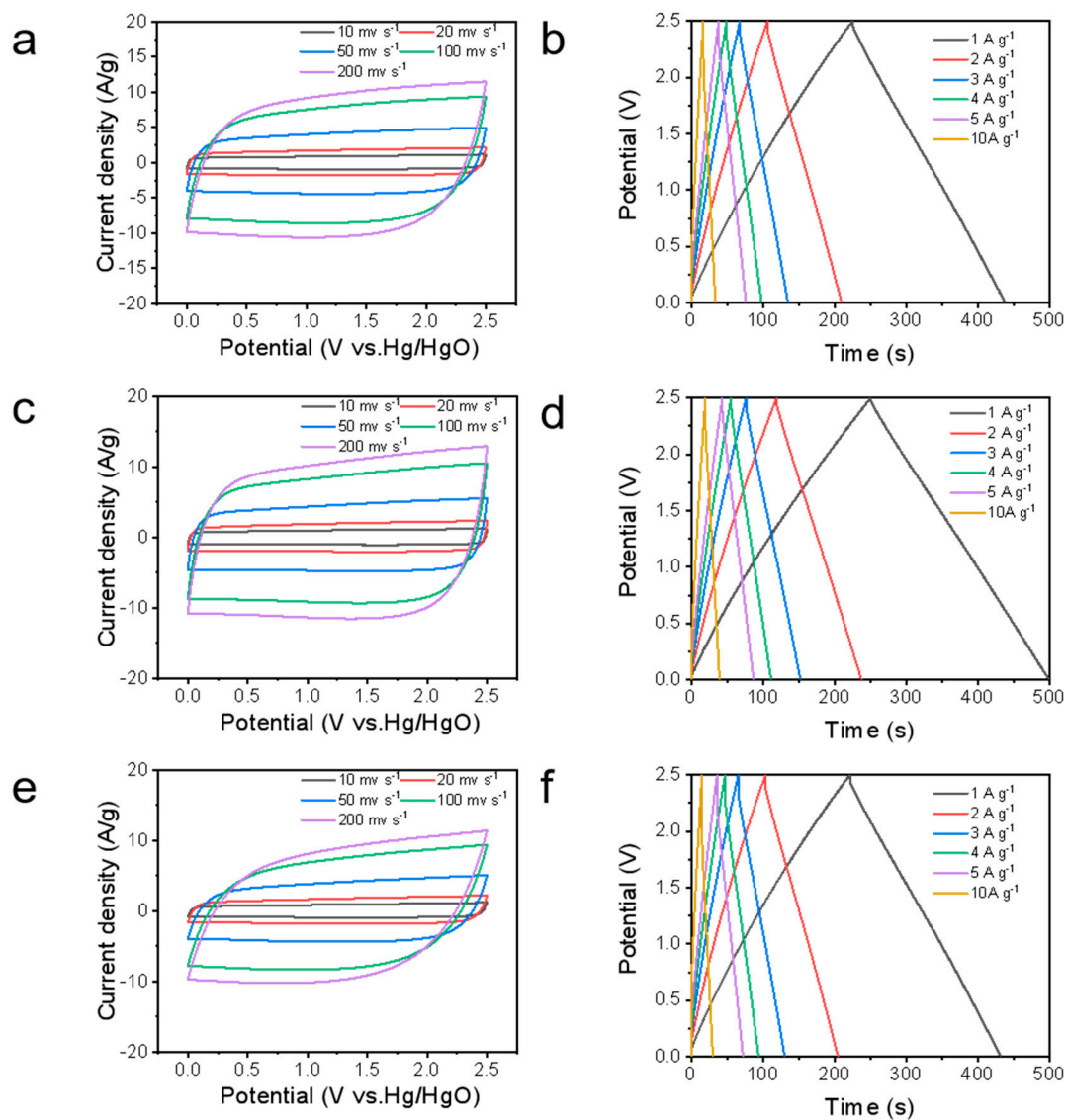


Figure S5. CV curves at different scan rates and galvanostatic charge–discharge curves at different current densities of (a-b) HTC-0, (c-d) HTC-1000, (e-f) HTC-1100.

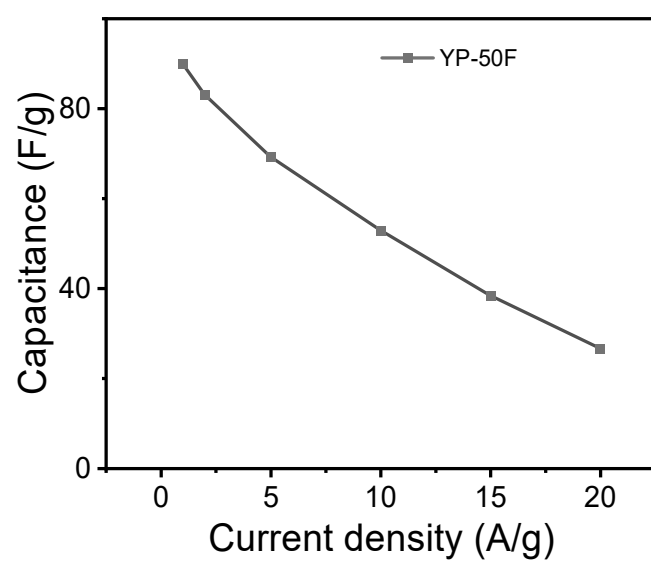


Figure S6. Gravimetric capacitance of YP-50F.

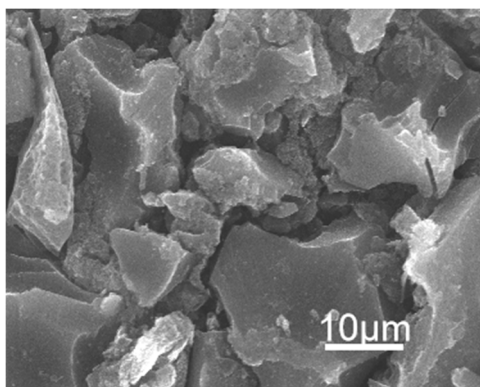


Figure S7. SEM images of HTC-1000 after cycling.

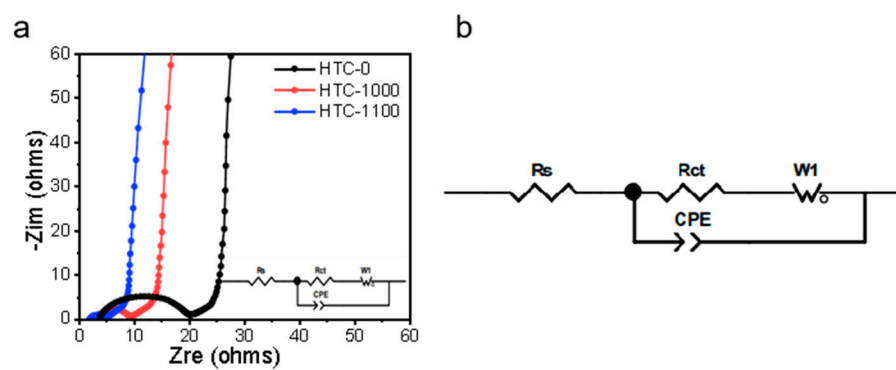


Figure S8. (a) Nyquist plots of HTC-0, HTC-1000, and HTC-1100. (b) The equivalent electrical circuit.

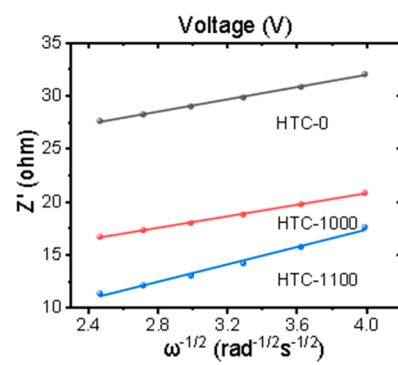


Figure S9. Line plots between Z' and $\omega^{-1/2}$.

Table S1. Texture properties of HTC_s measured by N₂ adsorption–desorption isotherms.

Sample name	S _{BET} (m ² g ⁻¹)	V _{total} (cm ³ g ⁻¹)	V _{micro} (cm ³ g ⁻¹)	V _{meso} (cm ³ g ⁻¹)
HTC-0	3156	2.02	1.27	0.75
HTC-1000	3333	2.59	1.24	1.35
HTC-1100	2467	1.69	0.95	0.74

Table S2. Peaks attribution in FTIR spectra of porous carbons.

Wave numbers (σ/cm^{-1})	Corresponding groups
3700	-OH
2850~2950	-CH ₂ connected to aromatic rings
1600	C=C of aromatic rings
700	-CH of aromatic rings
1200、1700~1750	C=O in aldehyde, ketone, ester, and carboxyl
1500	-CH ₃ of aromatic rings

Table S3. Specific capacitance of HTC-0, HTC-1000, HTC-1100, and YP-50F.

Sample	Current density						
		1 A g ⁻¹	2 A g ⁻¹	5 A g ⁻¹	10 A g ⁻¹	15 A g ⁻¹	20 A g ⁻¹
HTC-0		170	165	152	135	120	107
HTC-1000		199	189	173	158	146	136
HTC-1100		168	161	143	120	99	80
YP-50F		90	83	69	53	38	26

Table S4. Fitting experimental resistances of HTC electrodes.

Sample	R_s (Ω)	R_{ct} (Ω)
HTC-0	3.6	16.2
HTC-1000	3.3	5.7
HTC-1100	2.1	2.5

Table S5. Electrochemical performance comparison between the HTC-1000//
HTC-1000 symmetric device and other devices.

Ref.	Energy density	Power density
This work	41 Wh kg ⁻¹	1250 kW kg ⁻¹
This work	11 Wh kg ⁻¹	43750 kW kg ⁻¹
[46]	6 Wh kg ⁻¹	4000 kW kg ⁻¹
[49]	31 Wh kg ⁻¹	300 kW kg ⁻¹
[50]	2 Wh kg ⁻¹	10000 kW kg ⁻¹
[51]	14 Wh kg ⁻¹	500 kW kg ⁻¹
[52]	19 Wh kg ⁻¹	300 kW kg ⁻¹
[53]	10 Wh kg ⁻¹	12000 kW kg ⁻¹
[54]	18 Wh kg ⁻¹	700 kW kg ⁻¹
[55]	11 Wh kg ⁻¹	35000 kW kg ⁻¹
[56]	6 Wh kg ⁻¹	26000 kW kg ⁻¹
[57]	8 Wh kg ⁻¹	250 kW kg ⁻¹
[58]	7 Wh kg ⁻¹	265 kW kg ⁻¹