

Supporting Information

Hydrothermal Pre-Carbonization Triggers Structural Reforming Enabling Pore-Tunable Hierarchical Porous Carbon for High- Performance Supercapacitors

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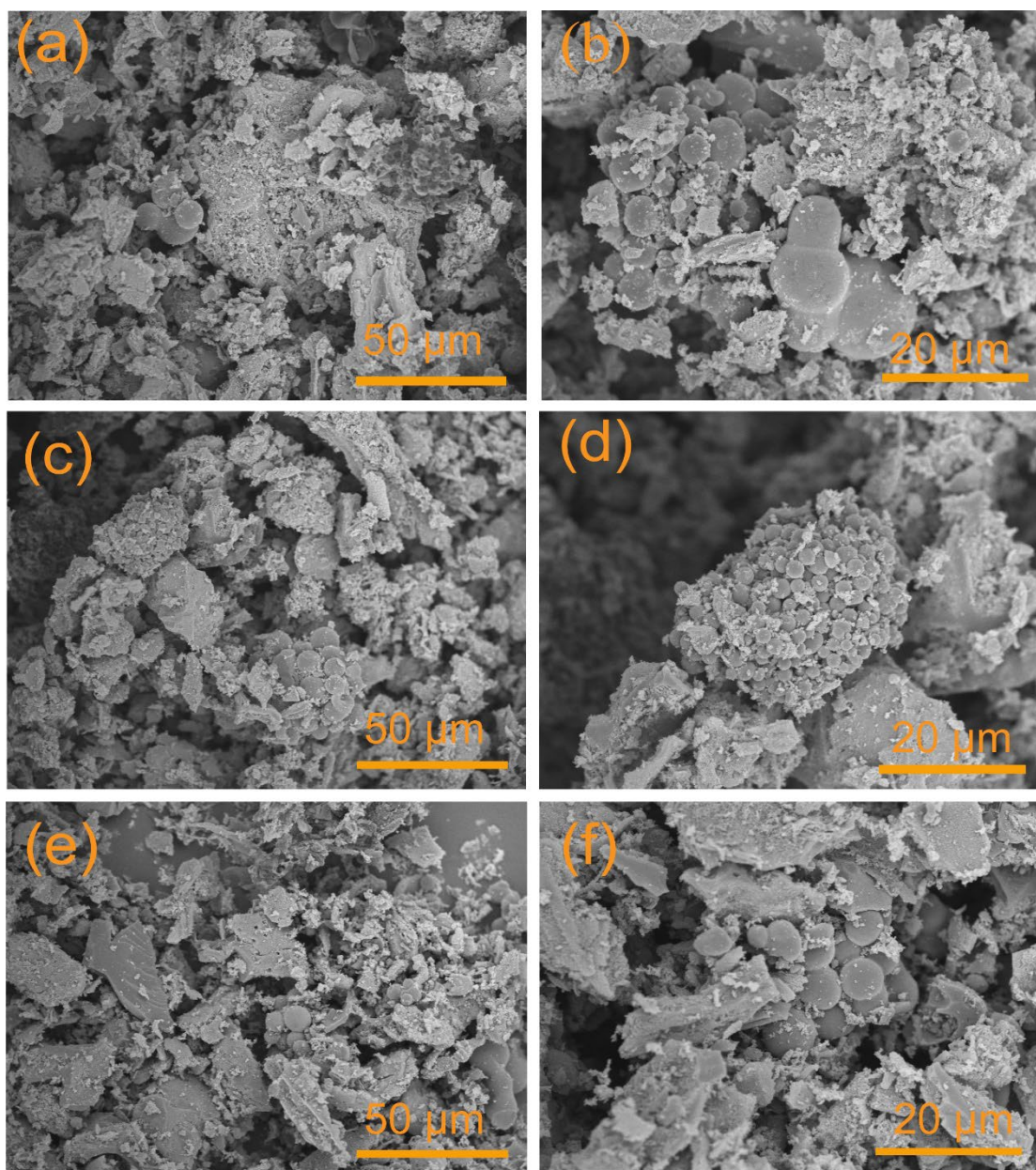


Figure S1. (a,b) SEM images of HJPC-2, (c,d) SEM images of HJPC-3, (e,f) SEM images of HJPC-5.

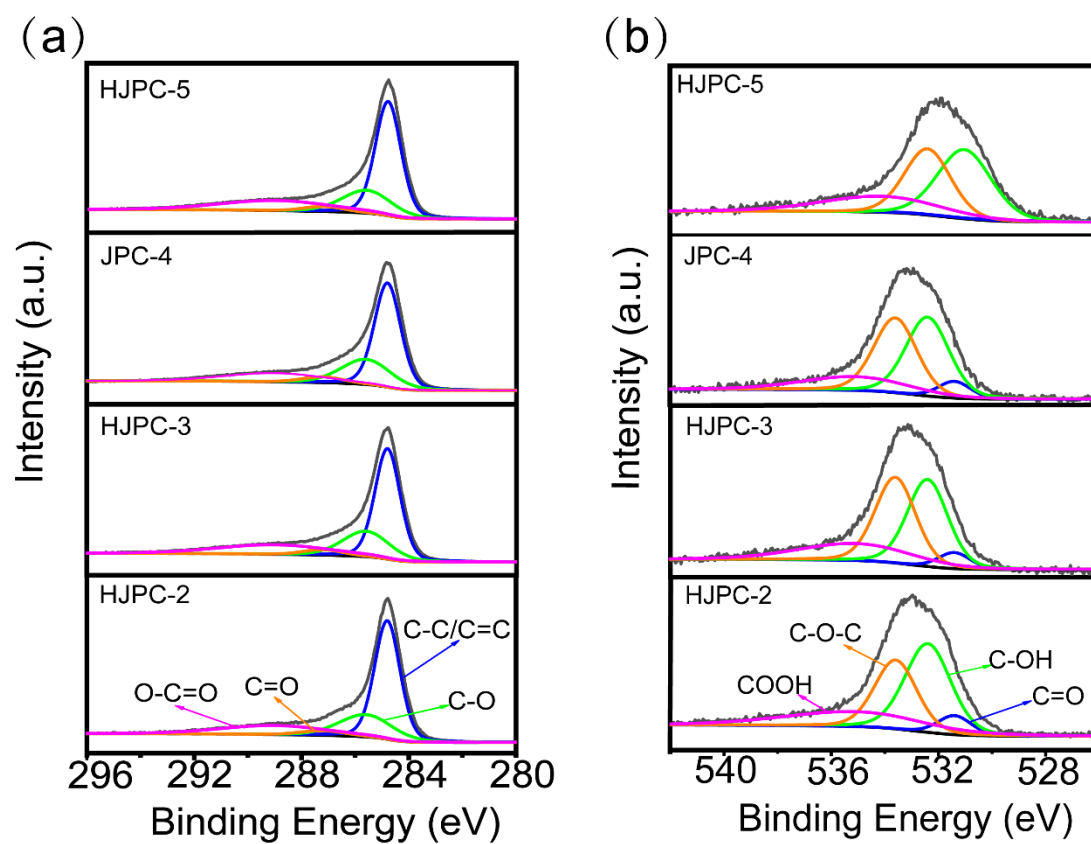


Figure S2. (a) XPS spectrum of C1s, (b) XPS spectrum of O1s.

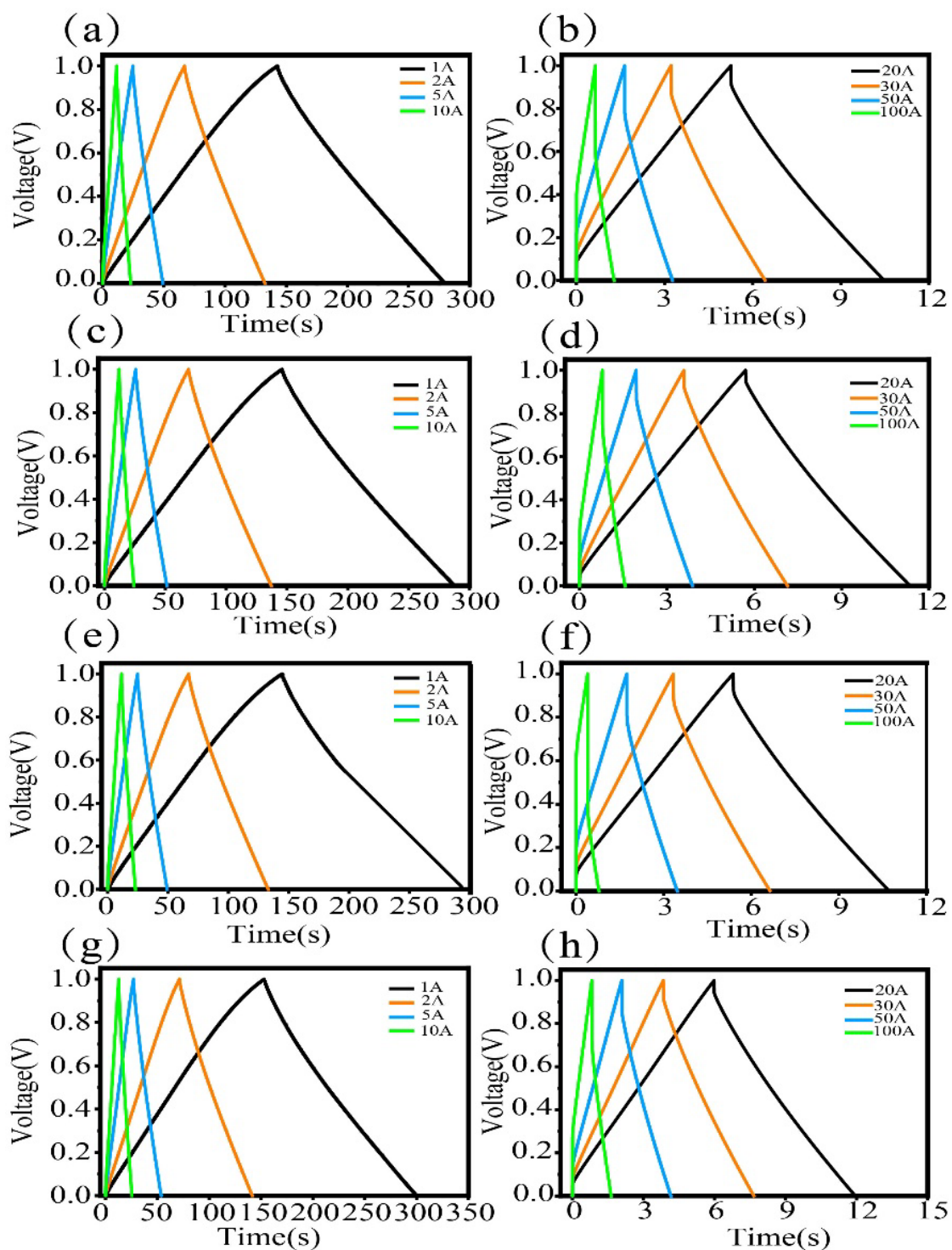


Figure S3. Electrochemical performance in the symmetrical supercapacitors using 6M KOH as electrolyte. (a,b) GCD curves of HJPC-2, (c,d) GCD curves of HJPC-3, (e,f) GCD curves of JPC-4, (g,h) GCD curves of HJPC-5.

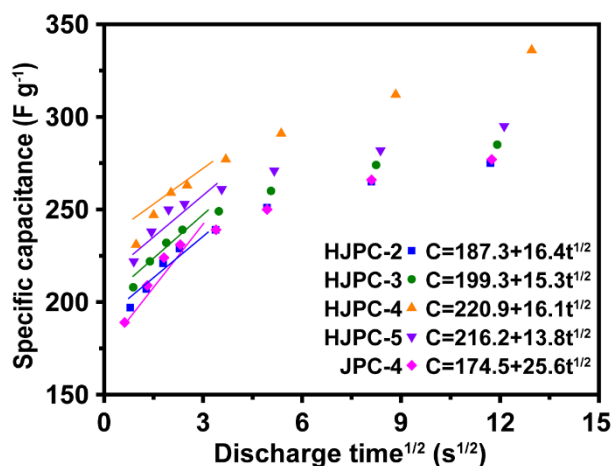


Figure S4. Plots of the specific capacitance (calculated from GCD curves) versus the square root of discharge time.

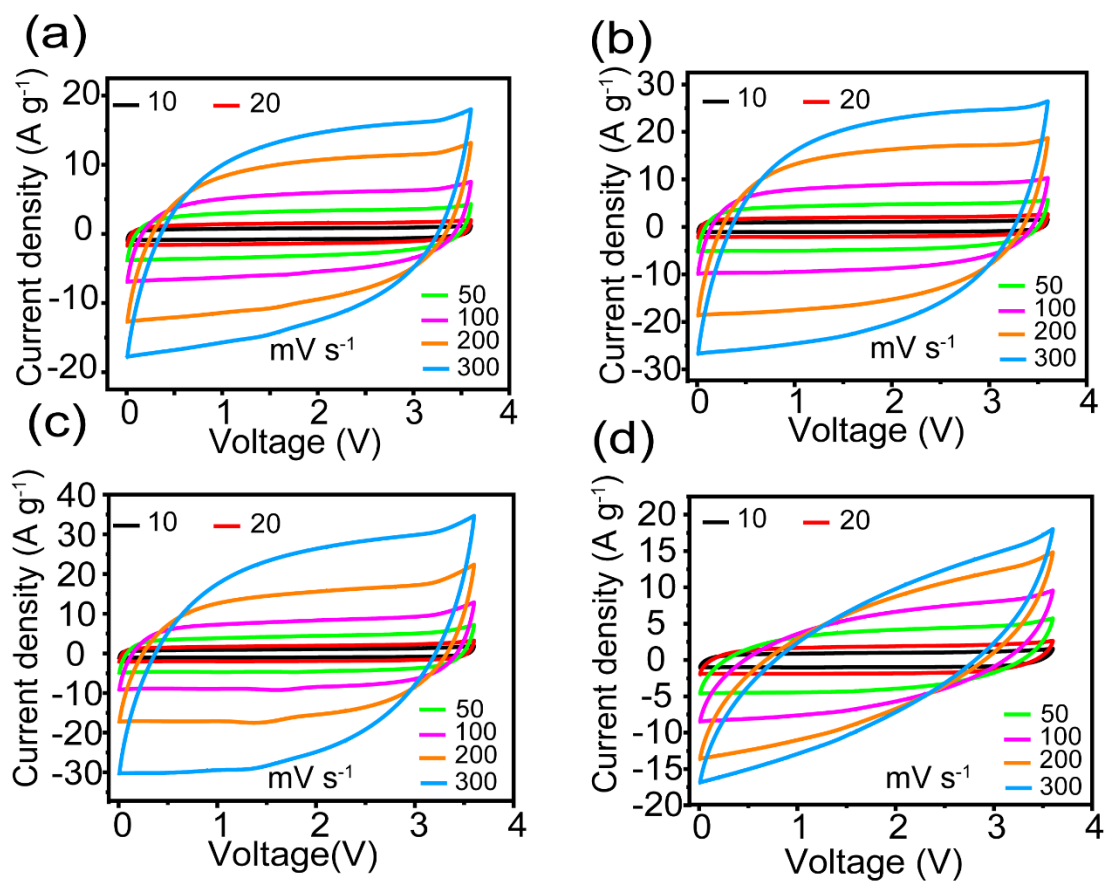


Figure S5. Electrochemical performance in the symmetrical supercapacitors using EMIMBF₄ as electrolyte. (a) CV curves of HJPC-2 at different scan rates, (b) CV curves of HJPC-3 at different scan rates, (c) CV curves of HJPC-5 at different scan rates, (d) CV curves of JPC-4 at different scan rates.

Table S1. Pore structure parameters of HJPC-X and JPC-4.

Sample	^a S _{BET} (m ² g ⁻¹)	^b V _{<0.5nm} (cm ³ g ⁻¹)	^c V _{0.5-0.76nm} (cm ³ g ⁻¹)	^d V _{0.76-3nm} (cm ³ g ⁻¹)	^e V _{>3nm} (cm ³ g ⁻¹)	^f V _{DFT} (cm ³ g ⁻¹)
HJPC-2	2001	0	0.053	0.505	0.445	1.003
HJPC-3	1955.3	0.2	0.062	0.6	0.263	1.125
HJPC-4	2771.4	0.138	0.042	1.025	0.29	1.495
JPC-4	2594.5	0.134	0.076	0.856	0	1.066
HJPC-5	2471.4	0.078	0.12	0.872	0.27	1.342

a: BET specific surface area; b: Pore volume of pores with $d < 0.5$ nm based on DFT theory; c: Pore volume of pores with $0.5\text{nm} < d < 0.76\text{nm}$ based on DFT theory; d: Pore volume of pores with $0.76\text{nm} < d < 3\text{nm}$ based on DFT theory; e: Pore volume of pores with $d > 3\text{nm}$ based on DFT theory; f: Total pore volume based on DFT theory.

Table S2. Surface element composition evaluated from XPS.

Sample	C (at%)	O (at%)
HJPC-2	90.48	9.52
HJPC-3	92.1	7.9
HJPC-4	93.47	6.53
JPC-4	92.47	7.53
HJPC-5	93.6	6.4