

Hierarchical porous carbon spheres constructed from coal as electrode materials for high performance supercapacitors

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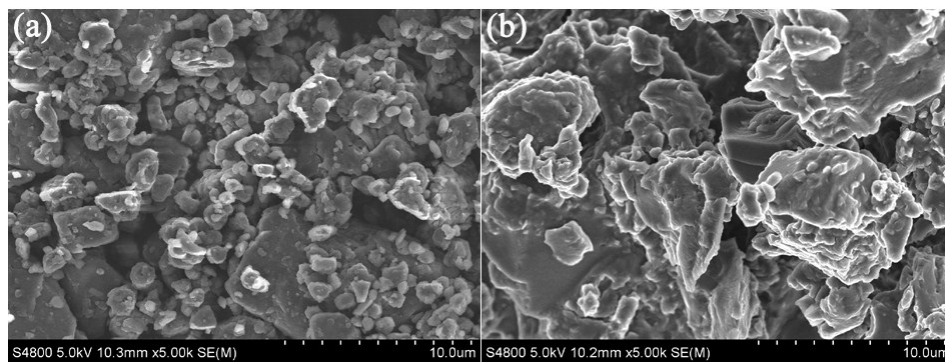


Fig. S1 SEM of (a) the raw coal and (b) oxidized coal.

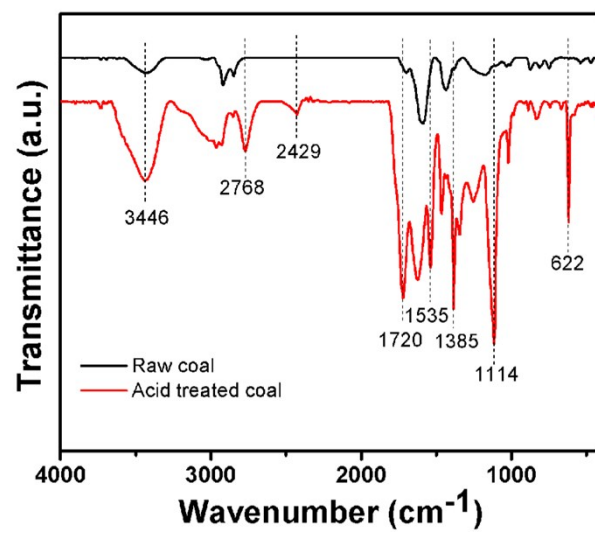


Fig. S2 FT-IR spectra of raw coal and acid treated coal.

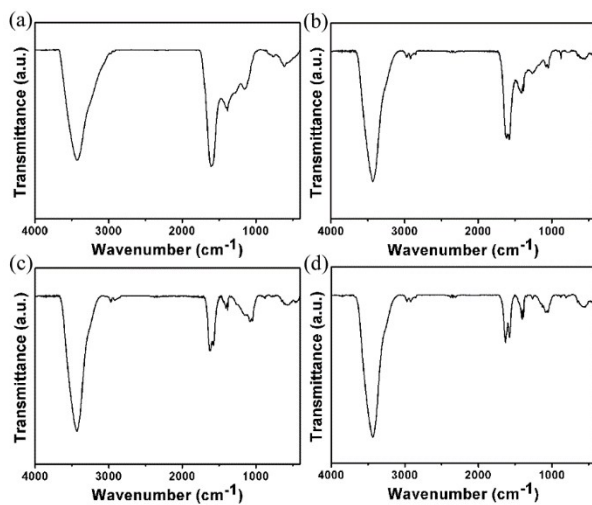


Fig. S3 FT-IR spectra of PCS with different pyrolysis temperature (a) PCS-7, (b) PCS-8, (c) PCS-9, (d) PCS-10.

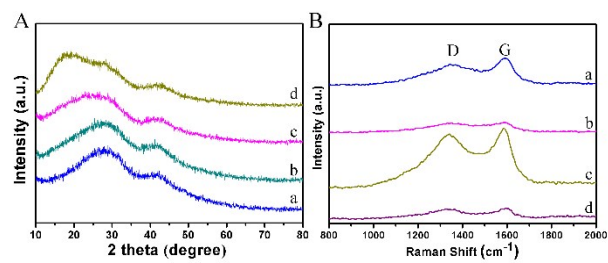


Fig. S4 (A) XRD patterns and (B) Raman spectra of PCS with different pyrolysis temperature (a) PCS-7, (b) PCS-8, (c) PCS-9, (d) PCS-10.

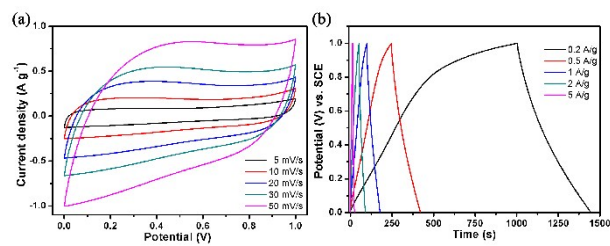


Fig. S5 Electrochemical performance of PCS-8 measured in 6 M KOH electrolyte in two-electrode system. (a) CV profiles. (b) Galvanostatic charge-discharge profiles.

Table S1 Comparison of specific capacitances of PCS and other reported porous carbon materials.

Materials	C (F g ⁻¹)	Cell	Ref.
Coal derived porous carbon fibers	170 (1 A g ⁻¹)	3E	¹
Coal derived porous carbon fibers	79 (1 A g ⁻¹)	2E	¹
Pitch based active carbon	170 (0.5 A g ⁻¹)	3E	²
Pitch-based carbon fibers	146 (1 A g ⁻¹)	2E	³
Hierarchical porous nitrogen-doped carbon nanoparticles	132 (0.2 A g ⁻¹)	3E	⁴
PCS-8	227 (1 A g ⁻¹)	3E	this work
PCS-8	162 (1 A g ⁻¹)	2E	this work

References

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