

Supporting Information

**KOH activation of coal-derived microporous carbons for oxygen
reduction and supercapacitors**

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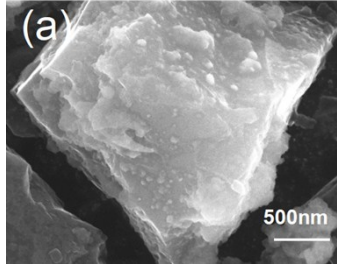


Fig. S1 SEM of pure coal without KOH activation.

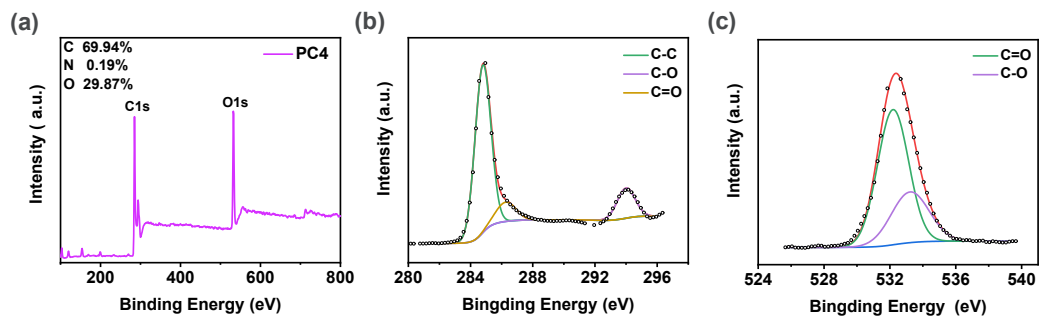


Fig. S2 (a) XPS survey spectra of PC4; C1s (b) and O1s (c) XPS spectra of PC4.

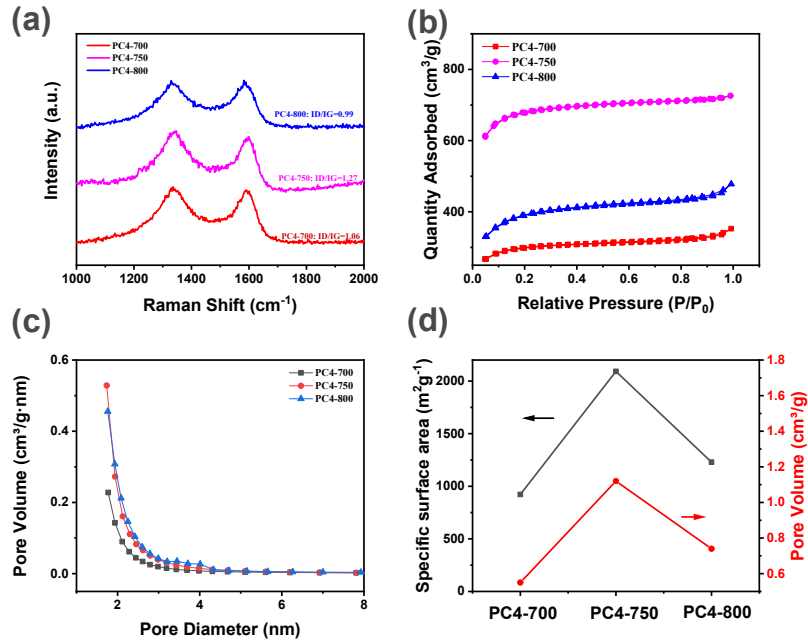


Fig. S3 PCs of different temperature (a) Raman spectra; (b) nitrogen adsorption-desorption isotherms; (c) pore size distribution curves; (d) trend of specific surface area and pore volume.

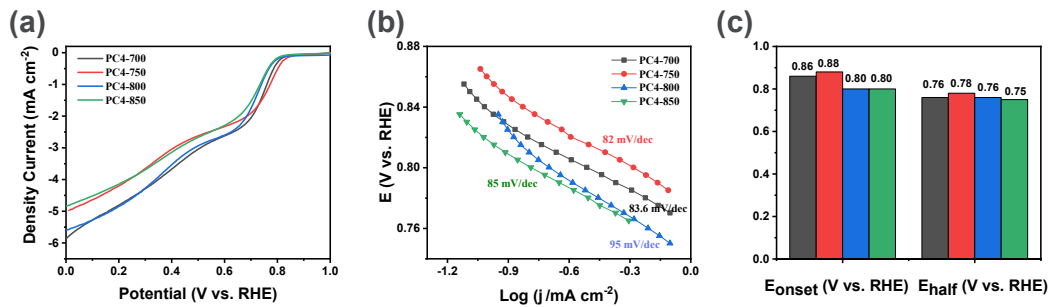


Fig. S4 PCs of different temperature (a) LSV curves at 1600 rpm; (b) the corresponding Tafel plots; (c) Bar graph of E_{Onset} and E_{Half-Wave}.

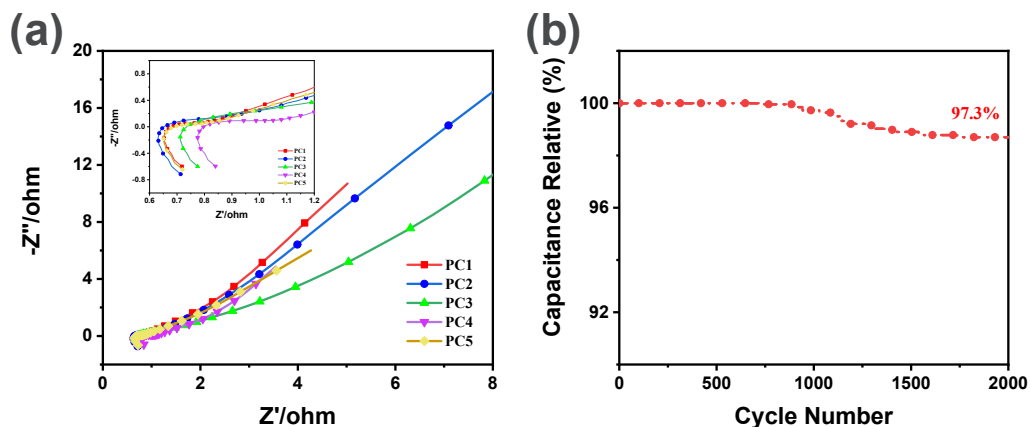


Fig. S5 (a) Nyquist plots (the inset: the enlarged part) and (b) GCD cyclic measurement for PC4 at 10 A g^{-1} .

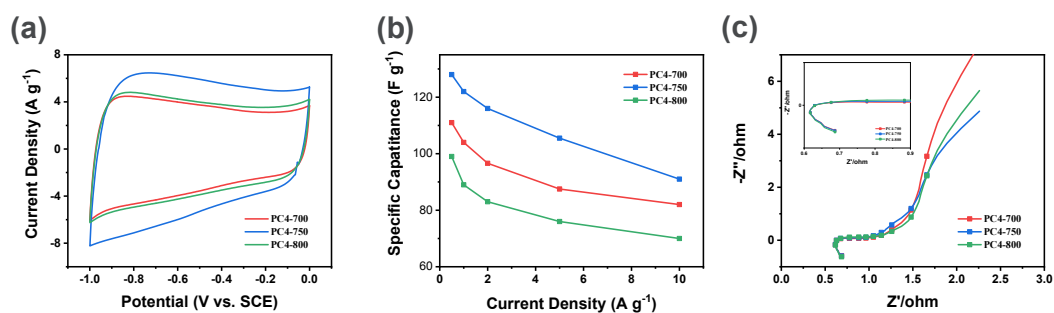


Fig. S6 Samples at different temperatures (a) CV curves at 50 mV s^{-1} ; (b) specific capacitance at different current densities; (c) Nyquist plots (d) the enlarged part.

Table S1. Compare with other literature materials.

Materials	BET surface area (m²/g)	Half-wave potential V (vs. RHE)	Capacitance F g⁻¹	Reference
PC4	2092.2	0.78	128	This work
NPC-1000	140	0.82	140	1
NPC-800	1109.2	0.79		2
LEJC-600	1268		212	3
S-800	2105.9	0.80	208	4
THPC	2870		224	5
NCA _s	1626	0.79	354	6

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