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SUPPORTING INFORMATION

Superior high-voltage aqueous carbon/carbon supercapacitors operate with in-situ electrodeposited polyvinyl alcohol borate gel polymer electrolytes

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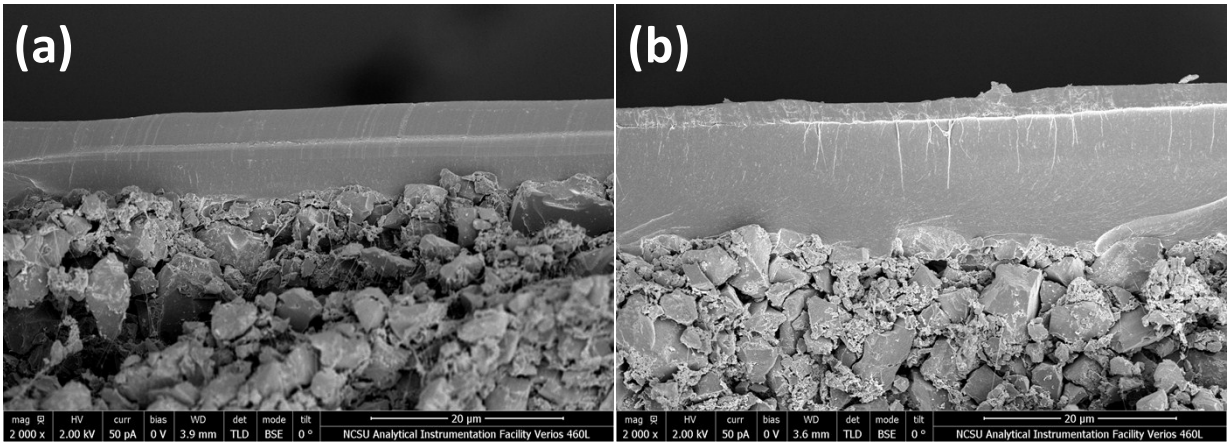

Fig. S1. Cross-sectional SEM images of activated carbon electrodes electrodeposited with PVASB gel (a) and PVALB gel (b), respectively.

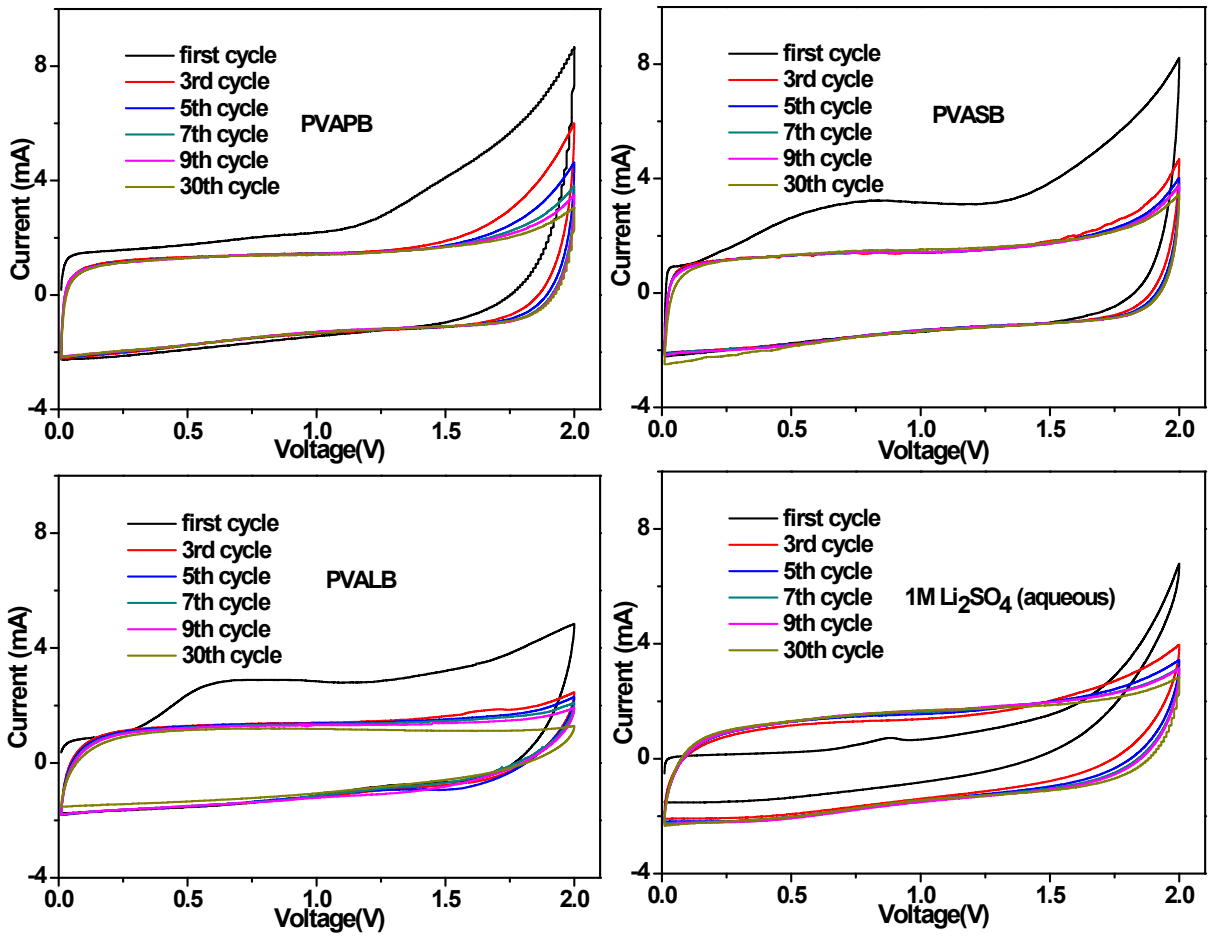

Fig. S2. The CV curves of supercapacitors using PVAB GPEs and 1M Li_2SO_4 aqueous electrolyte at 1st, 3rd, 5th, 7th, 9th and 30th cycles with a scanning rate of 1 mV S^{-1}.

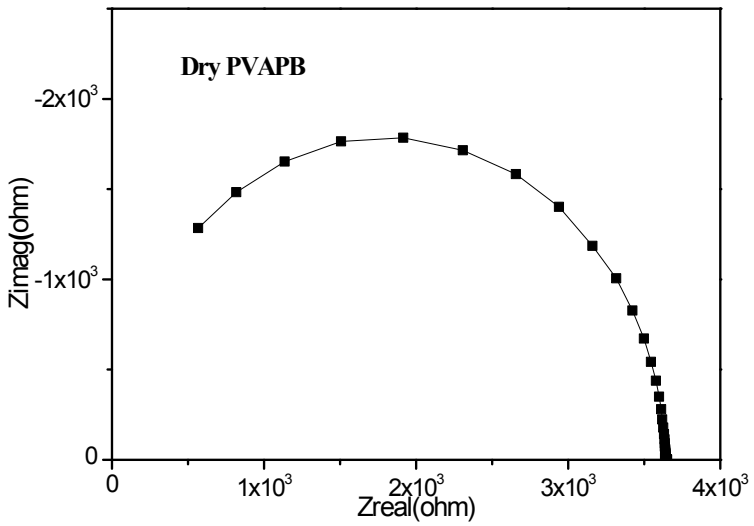

Fig. S3. Nyquist plot of carbon supercapacitor using dried PVAPB GPE.

Table S1. Electrochemical performances of reported aqueous carbon supercapacitors

Ref.	Electrode	Electrolyte	Operation voltage(V)	Specific capacitance ($F\ g^{-1}$) / Test current density ($A\ g^{-1}$)	Capacitance retention (%) / Cycle numbers	Energy density($Wh\ kg^{-1}$)/ Test current density ($A\ g^{-1}$)
4.	activated carbon	2M Li_2SO_4	1.9	130/1	83/10000	16.3/1
5.	Carbon	1M Li_2SO_4	2.2	140/1	85.7/15000	23.5/1
27.	activated carbon	0.5M Na_2SO_4	1.6	135/0.2	93/2000	10.0/1
28.	ball-Milled graphite	1M Na_2SO_4	1.6	81/0.2	87/8000	7.2/0.2
29.	seaweed carbon	0.5M Na_2SO_4	1.6	125/0.2	92/10000	10.7/0.2
Our work	activated carbon	PVAPB GPE	2	91.8/0.2	85.8/5000	9.2/1