Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Supporting Information

Crab shell-derived honeycomb-like graphitized hierarchically porous carbons for satisfactory rate performance in all-solid-state supercapacitors

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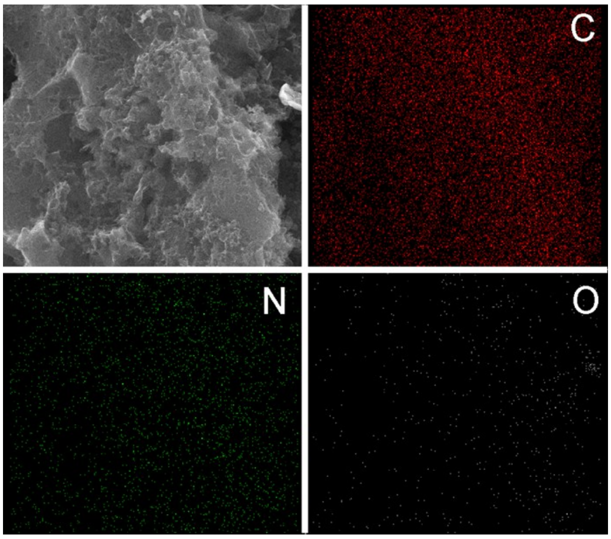

Fig. S1 The elemental mapping of pre-carbonized crab shell precursor at 400 ^{o}C after immersed by HCl

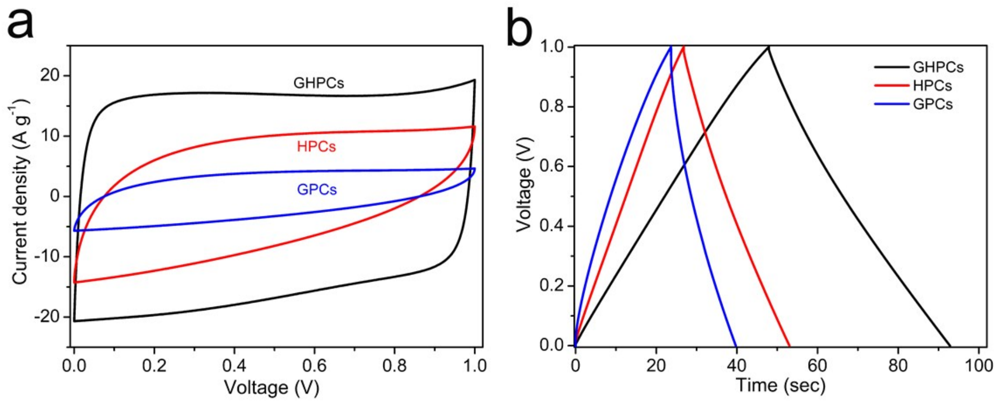

Fig. S2 The CV curves at 200 mV s^{-1} (a) and GCD curves at 2 A g^{-1} (b) of GHPCs, HPCs and GPCs materials

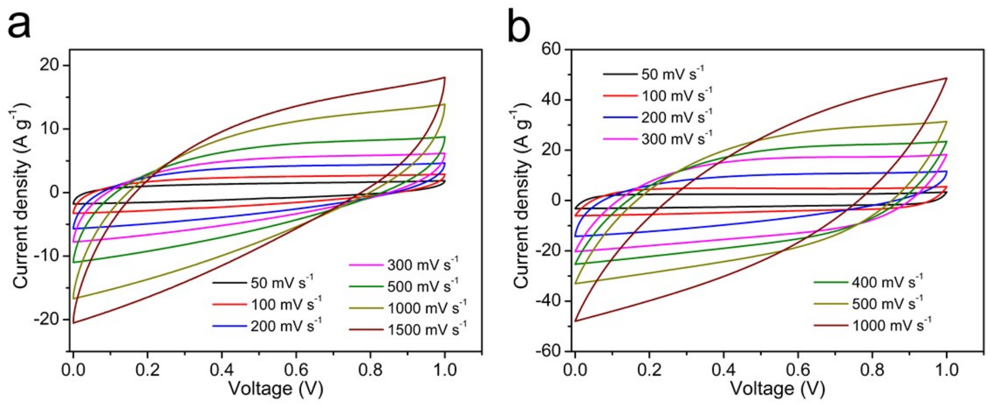

Fig. S3 The CV curves of GPCs (a) and HPCs (b) samples at different scan rates

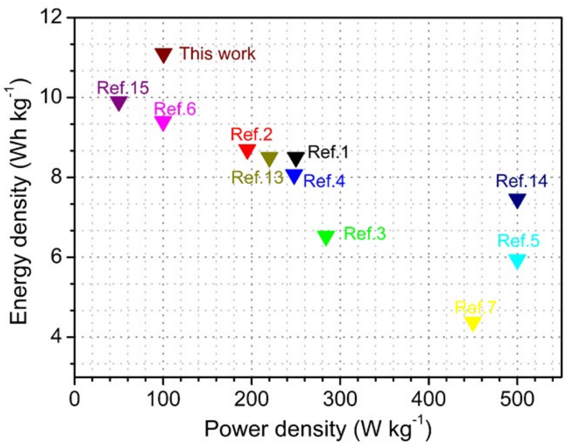

Fig. S4 Ragone plot of our all-solid-state supercapacitor device compared with other data

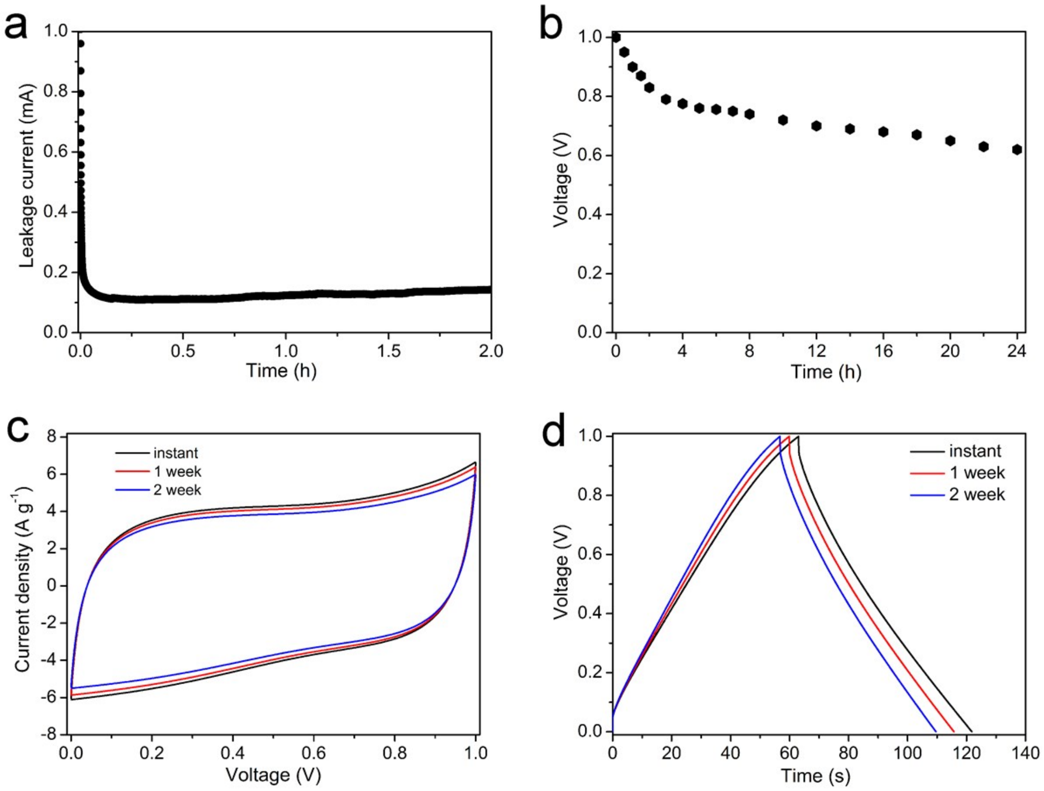

Fig. S5 (a) Leakage current curves of the solid-state device charged at 2 mA to 1.0 V and kept at 1.0 V for 2 h. (b) Self-discharge curve of the device after charging at 1.0 V for 15 min. (c) CV curves at 50 mV/s and (d) galvanostatic charge/discharge curves at 1 A/g of the solid-state supercapacitor taken at different time durations

Table S1 The comparison of supercapacitive behavior of GHPCs with reported carbon-based electrode materials

Materials	C_s (F g^{-1})	Current density (A g^{-1})	Electrolyte	E (Wh kg^{-1})	P (W kg^{-1})	Electrolyte	Current density (A g^{-1})	Ref.
N-doped porous carbon nanofibers/porous silver	244.5/222	1/100	6 M KOH	8.5	250	6 M KOH	1	1
3D hierarchical porous N-doped carbon nanotubes	389/290	1/50	6 M KOH	8.7	195	1 M Na_2SO_4	1	2
N-rich porous graphene-like carbon sheets	261/189	1/100	6 M KOH	6.53	28400	6 M KOH	1	3
N, F-doped mesoporous carbon nanofibers	52.2/43.4	1/10	PVA/H_2SO_4	8.07	248	PVA/H_2SO_4	1	4
ultramicroporous@microporous carbon nanospheres	411/170	1/100	6 M KOH	5.94	50000	6 M KOH	1	5
Pomelo peel derived 3D honeycomb-like porous carbon	342/212	0.2/20	6 M KOH	9.4	100	6 M KOH	0.2	6
Cucumber-derived 2D ultrathin graphene-like porous carbon nanosheeets	143/42	0.2/3	6 M KOH	4.38	450	6 M KOH	0.2	7
Corn cobs-derived hierarchical porous carbon	385/222	1/50	6 M KOH	—	—	—	—	8
Onion-derived hierarchical porous carbon	179.5/132	0.5/20	6 M KOH	—	—	—	—	9
Gelatin-derived hierarchical porous carbon	312/238	1/20	6 M KOH	—	—	—	—	10
Starch-derived hierarchical porous carbon	229/211	1/10	6 M KOH	—	—	—	—	11
Carrot-derived N, O-enriched hierarchically porous carbons	270/250	0.2/10	6 M KOH	13.9	120	1 M Na_2SO_4	0.2	12
Coconut shell-derived mesoporous activated carbons	246/221	0.25/5	0.5 M H_2SO_4	8.5	220	0.5 M H_2SO_4	0.25	13
Nano-micro carbon spheres@rice straw-derived porous carbon	268/215	1/10	6 M KOH	7.46	500	6 M KOH	1	14
N-doped hierarchical porous carbon	284/227	0.1/10	6 M KOH	9.9	50	6 M KOH	0.1	15
Crab shell-derived graphitized hierarchically porous carbons	367/282	1/100	6M KOH	11.1	100.5	PVA/KOH gel	1	This work

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