Electronic Supplementary Material (ESI) for Nanoscale Advances.
This journal is © The Royal Society of Chemistry 2019

Supporting Information

Predicting the Capacitance of Carbon-based Electric Double Layer Capacitors by Machine Learning

Haiping Su[#a], Sen Lin[#b], Shengwei Deng, Cheng Lian[*a], Yazhuo Shang[a], Honglai Liu[*a]

[a.] State Key Laboratory of Chemical Engineering, and School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China

[b.] National Engineering Research Center for Integrated Utilization of Salt Lake Resources, East China University of Science and Technology, Shanghai 200237, China.

[c.] College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, China.

[*] Email: hlliu@ecust.edu.cn ; liancheng@ecust.edu.cn.

[#] These authors made equal contribution to this work.

Table S1 118 sets of collected input data from previous publication.

No.	PW (V)	SSA (m^2/mg)	PV (cm^3/g)	PS (nm)	I_D/I_G	N% (at.%)	O% (at.%)	Capacitance (F/g)	Ref.
1	0.8	0.68	0.72	4	1.62	0	10.75	100	1. 10.1021/am4028235
2	0.8	1.38	1.2	1	1.3	0	9	160	
3	1	0.38	0.51	5.40	1.15	1.53	3.1	227	2. 10.1039/c3ta15245f
4	1	2.01	1.6	0.55	1.12	0.1	6.27	319	
5	1	0.34	1.6	0.62	1.38	0	1.54	7.86	3. 10.1039/c4ta00936c
6	1	0.30	1.5	0.62	1.25	0	3.67	19.9	
7	1	0.34	1.59	0.62	1.22	0.54	1.8	22.2	
8	1	0.34	1.34	0.62	1.03	1.02	2.85	29.7	
9	1	0.34	1.6	0.62	1.38	0	1.54	2.59	
10	1	0.30	1.5	0.62	1.25	0	3.67	34.6	
11	1	0.34	1.59	0.62	1.22	0.54	1.8	10.6	
12	1	0.34	1.34	0.62	1.03	1.02	2.85	29.6	
13	1	0.52	0.38	2.92	1	7.3	10.7	273	4. 10.1039/c3ee43979h
14	1	1.22	0.46	1.51	1	6.3	15.2	556	
15	1	1.41	0.73	2.08	1	4.2	13.6	420	
16	1	1.84	1.17	2.54	1	0	4.5	180	
17	1	0.52	0.38	2.92	1	7.3	10.7	227	
18	1	1.22	0.46	1.51	1	6.3	15.2	525	
19	1	1.41	0.73	2.08	1	4.2	13.6	409	
20	1	1.84	1.17	2.54	1	0	4.5	182	
21	1	0.12	1.1	35.34	0.81	0	10.1	112	5. 10.1039/c4ra08519a
22	1	0.43	2.8	26.21	1.12	0	8.19	143	
23	1	1.22	5.3	17.39	1.73	0	3.95	291	
24	0.9	0.31	0.26	3.33	0.78	1.2	5.6	125	6. 10.1039/c4ta01465k
25	0.9	1.59	1.01	2.54	0.84	5.3	9.3	240.4	
26	0.9	2.67	1.46	2.19	0.81	1.1	10.9	279.1	
27	0.9	2.86	1.25	1.75	0.83	2.2	11.1	386.2	
28	0.9	3.25	1.72	2.11	0.86	0.9	7.1	365.9	
29	1.2	0.01	0.0018	0.91	0.68	0.6	1.9	2.1	7. 10.1039/c4ta06110a
30	1.2	0.54	0.25	1.84	0.89	1.2	8.5	221.3	
31	0.8	4.07	2.26	2.22	1.12	0.55	17.88	225	8. 10.1021/acscentsci.5b00149
32	1	0.0014	0.015	0.55	0.88	8.76	4.24	189	9. 10.1038/ncomms9503
33	1	0.0014	0.015	0.55	0.88	8.76	4.24	270	
34	0.9	1.59	0.7	1.9	0.93	5.27	21	419	10. 10.1039/c6ta06337c
35	0.9	3.05	1.6	2.3	0.94	2.28	10	352	
36	0.9	3.07	2	2.8	0.98	1.67	7	312	
37	0.8	1.59	0.7	1.9	0.93	5.27	21	350	
38	0.8	3.05	1.6	2.3	0.94	2.28	10	330	
39	0.8	3.07	2	2.8	0.98	1.67	7	255	
40	0.9	1.13	0.58	1.9	0.85	0.89	9.25	198.2	11. 10.1002/cjoc.201600320

41	0.9	1.36	0.74	2.8	0.87	0.08	8.11	217.2	
42	0.9	1.83	1.05	2.5	0.84	0.37	6.34	238.2	
43	1	0.15	0.09	2.4	1.16	1.49	7.33	12	12. 10.1021/acssuschemeng.5b00926
44	1	0.76	0.51	2.68	1.22	3.9	9.48	150	
45	1	0.58	1.07	7.31	1.25	0.92	7.38	148	
46	1	0.95	1.39	5.89	1.34	5.59	6.91	260	
47	1	0.81	0.68	3.38	1.51	8.34	9.24	323	
48	1	1.26	0.56	0.8	1.01	9.2	15.5	236	13. 10.1039/c7ra07984b
49	1	1.80	0.8	1.1	0.98	6.5	15.8	285	
50	1	2.69	1.2	1.1	1.02	3.4	17.5	263	
51	1	1.44	0.82	0.9	0.91	0.6	11.9	248	
52	1	1.29	0.59	1.83	0.88	0.6	3.3	289	14. 10.1039/c7gc00506g
53	1	1.36	0.62	1.83	0.9	0.7	4.4	354	
54	1	1.66	0.78	1.88	0.94	0.7	4.7	420	
55	1	1.01	0.52	2	0.96	7.18	6.57	277	15. 10.1021/acsami.7b09801
56	1	1.24	0.67	2.1	1.02	5.72	6.05	292	
57	1	1.64	0.89	2.2	1.45	4.36	5.29	302	
58	0.9	0.28	1.28	18.15	1.1	0	0	81.5	16. 10.1039/c6nr08987a
59	0.9	1.00	0.79	3.17	1.72	10.19	4.34	157.1	
60	0.9	0.64	0.53	2.22	1.53	10.97	4.74	198.6	
61	0.9	0.88	0.57	2.57	1.53	10.08	3.52	229	
62	0.9	0.93	0.64	2.74	1.53	10.45	2.49	302.2	
63	1	1.32	0.88	1.33	1.02	1.17	8.1	159	17. 10.1002/ chem.201702544
64	1	1.42	1.56	2.22	1.01	1.99	10.13	190	
65	1	1.68	1.57	1.86	1.01	1.15	4.43	224	
66	1	2.39	1.36	3.53	0.8	0	8.3	294	18. 10.1039/c6ra26141h
67	1	2.80	1.58	3.39	0.84	0.95	7.1	360	
68	1	3.00	1.62	2.56	0.86	1.7	5.79	390	
69	1	0.85	0.44	5.18	0.92	1.45	25.07	220	19. 10.1039/c7nj01127j
70	1	0.89	0.61	4.02	0.8	0.96	18.74	272	
71	1	0.88	0.54	3.98	0.78	1.02	15.88	250	
72	1	1.78	0.99	4.44	0.92	2.65	16.34	306.5	
73	0.8	2.91	4.34	0.62	0.94	1.95	8.6	374.7	20. 10.1021/acs.nanolett.7b00533
74	1	0.36	0.25	2.74	1.1	15.9	1.6	449	21. 10.1002/smll.201700834
75	1	0.39	0.25	2.57	1.1	16.8	2.3	476	
76	1	0.45	0.28	2.54	1.04	8	6.4	385	
77	1	1.35	0.9	2.6	0.91	9	8.5	190	22. 10.1039/c5nr05151g
78	1	2.50	1.7	2.7	0.94	6.3	9.2	341	
79	1	2.36	1.3	2.2	0.88	8.5	8	260	
80	1	0.19	0.88	4.01	1	3.2	11.3	290	23. 10.1038/srep31555
81	1	0.17	0.68	3.95	0.5	2.9	6.4	270	
82	1	1.41	1.4	3.96	0.88	3.47	12.7	289	24. 10.1002/chem.201602922
83	1	0.65	0.49	4.38	0.67	5.89	8.63	243	

84	1	0.77	0.68	0.5	2.95	0	3.6	142	25. 10.1039/c6nr02155g
85	1	1.77	1.45	0.5	2.5	0	3.6	220	
86	0.9	2.34	1.32	2.6	1	1.1	11	315	26. 10.1039/c6ra13689c
87	1	2.03	0.98	2	0.99	0.8	5.6	374	27. 10.1021/acsami.6b10893
88	1	2.31	1.2	2.15	0.98	1.4	4.5	355	
89	1	1.74	0.79	1.81	0.88	1	6.3	266	
90	0.9	1.01	0.62	0.6	0.85	0	7.3	147.2	28. 10.1039/c5ra07807e
91	0.9	1.55	0.81	0.6	0.86	0	8.5	175.2	
92	0.9	0.94	0.44	1.9	1.15	2.06	23.32	232	29. 10.1039/c5ra05688h
93	0.9	1.18	0.55	1.89	1.27	1.88	21.89	267	
94	0.9	1.73	0.86	1.97	1.38	1.64	18.98	304	
95	0.9	1.84	1.05	2.25	1.78	1.39	17.14	187	
96	0.9	1.55	0.94	2.36	2.35	1.09	15.24	204	
97	1.0	0.44	1.60	4.00	0.93	12.05	6.06	345	30. 10.1039/c7ee00488e
98	1.0	0.42	0.68	4.00	1.03	7.85	5.35	307	
99	1.0	0.38	1.97	4.00	1.18	3.63	4.94	250	
100	1.0	1.57	2.59	11.5	1.04	20.55	4.30	275	31. 10.1016/j.jpowsour.2016.10.086
101	1.0	1.51	2.49	11.5	1.05	16.44	4.55	290	
102	1.0	1.56	2.56	11.5	0.97	14.51	5.51	432	
103	1.0	1.76	0.91	0.48	1.25	1.5	15.83	311	32. 10.1002/slct.201600133
104	1.0	1.57	0.87	2.22	1.0	8.2	20.5	287	33. 10.1016/j.jpowsour.2015.08.025
105	1.0	2.00	0.94	2.00	0.92	3.06	12.33	312	34. 10.1016/j.jpowsour.2016.04.069
106	0.9	0.65	0.31	0.77	0.79	2.51	13.28	340	35. 10.1016/j.electacta.2015.03.048
107	0.9	0.95	0.55	0.81	0.82	1.39	9.95	309	
108	0.9	1.59	0.78	1.06	0.84	0.95	5.55	253	
109	1.0	0.44	0.33	0.76	0.95	5.31	5.33	288	36. 10.1016/j.carbon.2017.10.084
110	1.0	2.00	1.96	4.50	0.94	8.77	5.98	322	37. 10.1039/C6TA02828D
111	1.0	0.45	0.94	4.10	0.93	7.84	6.25	225	
112	1.0	0.31	1.7	2.50	2.8	3.4	7.6	335	38. 10.1007/s12274-017-1486-6
113	1.0	0.32	1.6	2.00	2.5	3.8	7.1	374	
114	1.0	0.30	2.4	3.00	4.0	1.1	8.6	475	
115	1.0	0.30	1.6	1.50	3.2	1.0	12.1	451	
116	1.0	1.05	0.61	2.33	1.03	17.0	6.2	255	39. 10.1016/j.biortech.2015.07.100
117	1.0	1.61	1.51	1.50	1.02	4.8	6.8	347	40. 10.1039/c6ta02570f
118	1.0	0.71	0.73	0.67	0.78	3.7	8.5	271.5	41. 10.1016/j.electacta.2014.11.075
119	1.0	1.25	1.02	0.67	0.82	1.6	8.5	211.6	
120	1.0	1.54	1.19	1.30	0.83	0.7	9.3	242.2	
121	1.0	1.85	1.44	1.30	0.85	0.2	4.6	260.3	