

Supporting Information

Sulfurized Polyacrylonitrile for High-Performance Lithium Sulfur Batteries: Advances and Prospects

Xiaohui Zhao,^{a,b,*} Chonglong Wang,^c Ziwei Li,^{a,b} Xuechun Hu,^{a,b} Amir Abdul Razzaq^{a,b} and Zhao Deng^{a,b,*}

^aSoochow Institute for Energy and Materials Innovations, College of Energy, Soochow University, Suzhou 215006, PR China

^bKey Laboratory of Advanced Carbon Materials and Wearable Energy Technologies of Jiangsu Province, Soochow University, Suzhou 215006, PR China

^cSchool of Biology and Basic Medical Sciences, Soochow University, Suzhou, 215123, PR China

*Corresponding authors.

E-mail address: zhaoxh@suda.edu.cn (X. Zhao); zdeng@suda.edu.cn (Z. Deng)

Table S1 Meta data from previous reports.

Material	Temp. & Timespan	Electrode	Voltage / V	Electrolyte	S wt%	loading mgcm ⁻²	1st Discharge	Low C-rate	Lifespan	Reference number
fibrous SPAN	550°C, 3h	Casting, Al	1-3	3M LiTFSI FEC/DOL 1:1	43.6	0.672	1675 mAh g ⁻¹ , 0.1 C	1000 mAh g ⁻¹ , 1000th, 0.5 C	600 mAh g ⁻¹ , 1350th, 5 C	1
SPAN/MWCNTs	300°C, 4h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC 1:1	35.1	4	734.7 mAh g ⁻¹ , 0.1 C	491.5 mAh g ⁻¹ , 100th, 0.1 C	450 mAh g ⁻¹ , 100th, 0.5 C	2
S/DPAN/rGO	300°C, 3h	Casting, C-Al	1-3	1M LiPF ₆ EC/DMC 3:7	47	N/A	2000 mAh g ⁻¹ , 0.2 C	1370 mAh g ⁻¹ , 100th, 0.2 C	700 mAh g ⁻¹ , 1, 4th, 2 C	3
pPAN-S@MWCNT	300°C, 3h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC 1:1	48	N/A	697 mAh g ⁻¹ , 0.1 C	592 mAh g ⁻¹ , 50th, 0.1 C	450 mAh g ⁻¹ , 10th, 4 C	4
S/PAN/Mg0.6Ni0.4O	350°C, 3h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	38.5	1.2	1545 mAh g ⁻¹ , 0.1 C	1223 mAh g ⁻¹ , 100th, 0.1 C	400 mAh g ⁻¹ , 2nd, 1 C	5
SPAN/C-F-0.5	450°C, 3h	Casting, Al	1-3.5	1M LiPF ₆ EC/DMC/E MC 1:1:1	43	N/A	1658 mAh g ⁻¹ , 0.2 C	1194 mAh g ⁻¹ , 100th, 0.2 C	1000 mAh g ⁻¹ , 5th, 2 C	6
S / MCPs-PAN-52	300°C, 4,8h	Casting, Al	1-3	1M LiPF ₆ PC/EC/DE C 1:4:5	52	1	1900 mAh g ⁻¹ , 0.1 C	1281 mAh g ⁻¹ , 200th, 0.1 C	711 mAh g ⁻¹ , 4 C	7
SPAN/RGO	320°C, 5h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC/D C 1:1:1	44	2.1-2.8	1827 mAh g ⁻¹ , 0.1 C	1100 mAh g ⁻¹ , 200th, 0.1 C	828 mAh g ⁻¹ , 10th, 2 C	8
S/DPAN-2.5	300°C, 0.5-4h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	54	5.4-6.6	1480 mAh g ⁻¹ , 0.2 C	1000 mAh g ⁻¹ , 5th, 0.2 C	N/A	9
S/DPAN-m	300°C, 3h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	48	2.7	1780 mAh g ⁻¹ , 0.2 C	1050 mAh g ⁻¹ , 80th, 0.2 C	770 mAh g ⁻¹ , 5th, 1 C	10
SPAN	330°C, 6h	Casting, Al	1.3-2.6	1M LiPF ₆ EC/DMC/D EC 2:1:1	42	N/A	1800 mAh g ⁻¹ , 0.1 C	1267 mAh g ⁻¹ , 40th, 0.2 C	N/A	11
S@pPAN	300°C	Casting, Al	1-3	1M LiODFB EC/DMC/F EC 4.5:4.5:1	44.1	1.5-2	1800 mAh g ⁻¹ , 1 C	1246 mAh g ⁻¹ , 600th, 1 C	1200 mAh g ⁻¹ , 1000th, 2 C	12

SPAN_1 5:1	550°C	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 2:1:1	45	1.5	1818 mAh g-1, 0.1 C	1429 mAh g-1, 40th, 0.1 C	N/A	13
pPAN- S/mGO- S	300°C, 7h	Casting, Al	1-3	1M LiTFSI DOL/DME 1:1	65	0.7-1.3	1400 mAh g-1, 0.1 C	1000 mAh g-1, 50th, 0.1 C	N/A	14
Se/PAN	500°C, 6h	Casting, Al	0.8-3	1M LiPF ₆ EC/DMC 1:1	51	1-1.5	530 mAh g- 1, 0.05 mA cm-2	420 mAh g- 1, 200th, 0.05 mA cm-2	350 mAh g- 1, 1000th, 0.5 mA cm- 2	15
S/PAN/G raphene	350°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1 0.2M	47.3	1.7	1520 mAh g-1, 0.1 C	1010 mAh g-1, 100th, 0.1 C	600 mAh g- 1, 100th, 2 C	16
S/cPAN/ A-CCB	350°C, 5h	Casting, Al	1.5-3	LiNO ₃ + 3M LiTFSI DOL/DME 1:1	51	N/A	1743 mAh g-1, 100 mA g-1	880 mAh g- 1, 50th, 100 mA g-1	N/A	17
SPAN	300°C, 6h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DEC 1:1	40	N/A	960 mAh g- 1, 0.1 C	760 mAh g- 1, 30th, 0.1 C	N/A	18
SPAN	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC+ PMMA	41.8	N/A	1199.5 mAh g-1, 0.1 C	975.3 mAh g-1, 50th, 0.1 C	N/A	19
cathode S@pPAN	350°C, 5h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	46.6	0.47	1821 mAh g-1, 100 mA g-1	1322 mAh g-1, 100th, 100 mA g-1	1066 mAh g-1, 10th, 1 A g-1	20
SPAN	80°C, 24h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	41	1.52	1951 mAh g-1, 60 mA g-1	1276 mAh g-1, 50th, 60 mA g-1	1488 mAh g-1, 10th, 0.6 A g-1	21
pPAN- S/GNS-4	300°C, 1- 10h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC 1:1	47	N/A	1800 mAh g-1, 0.1 C	1200 mAh g-1, 100th, 0.1 C	800 mAh g- 1, 5th, 6 C	22
SPAN	300°C, 6h	Casting, Ni Foam	1-3	1M LiPF ₆ PC/EC/DE C 1:4:5	53.41	3.5	1592 mAh g-1, 0.3 mA cm-2	1120 mAh g-1, 50th, 0.3 mA cm- 2	N/A	23
SPAN	300°C, 6h	Casting, C-Al	1-3	1M LiPF ₆ EC/DMC 1:1	45	3	1542 mAh g-1, 0.2 C	1456 mAh g-1, 50th, 0.2 C	N/A	24
SPAN	300°C, 6h	Casting, Ni Foam	1-3	1M LiPF ₆ EC/DMC 1:1	45.3	N/A	1780 mAh g-1, 0.5 mA cm-2	1480 mAh g-1, 40th, 0.5 mA cm- 2	1340 mAh g-1, 2 mA cm-2	25

SPAN	300°C, 6h	Casting, C-Al	1-3	1M LiPF ₆ EC/DEC 1:1	42	N/A	792 mAh g- 1, 55.6 mA g-1	N/A	604 mAh g- 1, 667 mA g-1	26
SPAN	300°C, 3.5h	Casting, C-Al	1-3	1M LiPF ₆ EC/EMC 1:1+DMMP	50	0.5-2	1740 mAh g-1, 0.1 C	1320 mAh g-1, 50th, 0.1 C	934 mAh g- 1, 10th, 3 C	27
SPPY	350°C, 10h	Casting, Ni	1-3	1M LiPF ₆ EC/DMC/E MC 1:1:1	41	N/A	2121 mAh g-1, 20 mA g-1	1707 mAh g-1, 100th, 20 mA g-1	N/A	28
CSM-500	250- 800°C, 8h	Casting, Ni	1-3	1M LiPF ₆ EC/DMC 1:1	N/A	N/A	630 mAh g- 1, 0.2 mA cm-2	470 mAh g- 1, 380th, 0.2 mA cm-2	N/A	29
SPAN- 350	350°C, 5h	Casting, Ni	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	42	N/A	984 mAh g- 1, 100 mA g-1	795.4 mAh g-1, 50th, 100 mA g-1	N/A	30
SPAN	300°C, 6h	Casting, Ni	1-3	1M LiPF ₆ EC/DMC 1:1	53.41	N/A	850 mAh g- 1, 0.2 mA cm-2	600 mAh g- 1, 50th, 0.2 mA cm-2	N/A	31
CMK - 3/S@PA NS@TPS	300°C, 3h	Casting, Al	1-3	1 M LiTFSI DOL/DME 1:1+2 wt%TPP	68	2.1	1246 mAh g-1, 0.25 C	1040 mAh g-1, 100th, 0.25 C	915 mAh g- 1, 10th, 2 C	32
S/DPAN/ MWCNT	300°C, 3h	Freestandi ng cathode	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	40	3	1450 mAh g-1, 0.2 C	1250 mAh g-1, 260th, 0.2 C	930 mAh g- 1, 5th, 2 C	33
SPAN	450°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	45.6	0.39	1843 mAh g-1, 0.4 C	1000 mAh g-1, 1000th, 0.4 C	1050 mAh g-1, 10th, 1.6 C	34
NiS2- SPAN	350°C, 5h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	46	1.15	2104 mAh g-1, 0.2 A g- 1	1533 mAh g-1, 100th, 0.2 A g-1	1180 mAh g-1, 10th, 2 A g-1	35
pPAN- KB/S	400°C, 8h	Casting, Al	1.5-3	1 M LiTFSI+Li NO3 DOL/DME 1:1	72	1.7	1600 mAh g-1, 0.1 C	866 mAh g- 1, 100th, 0.5 C	431 mAh g- 1, 10th, 5 C	36
S/C/PAN	280°C, 3h	Casting, Al	1-3	1M LiPF ₆ PC/EC/DE C 1:4:5 1 M	80	N/A	2069 mAh g-1, 200 mA g-1	730 mAh g- 1, 400th, 200 mA g-1	616 mAh g- 1, 10th, 4 A g-1	37
SPAN- CNT-12	350°C, 3h	Freestandi ng, fiber	1-3	LiTFSI+Li NO3 DOL/DME 1:1	41	2	1884 mAh g-1, 200 mA g-1	1400 mAh g-1, 200th, 200 mA g-1	885 mAh g- 1, 100th, 1.6 A g-1	38

S-C(PAN)	350°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	44.7	0.45	1822 mAh g ⁻¹ , 0.1 C	1378 mAh g ⁻¹ , 50th, 0.1 C	807 mAh g ⁻¹ , 400th, 1 C	39
SPAN	300°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/PC/DEC 1:1:3+ Li ₂ SiO ₃	41.8	1	2310 mAh g ⁻¹ , 0.5 C	1120 mAh g ⁻¹ , 100th, 0.5 C	N/A	40
S@pPAN /Se0.05S 0.95@pPAN	300°C, 3h	Casting, Al	1-3	Li ₁₀ GeP ₂ S ₁₂	45.99	1	840 mAh g ⁻¹ , 0.1 C	650 mAh g ⁻¹ , 150th, 0.1 C	434.6 mAh g ⁻¹ , 5th, 1 C	41
SPAN	280°C, 6h	Casting, Al	1-3	1 M LiBOB EC/DMC/EMC 1:1:1+1 wt% LiNO ₃	47	0.7	1778 mAh g ⁻¹ , 0.25 C	1106 mAh g ⁻¹ , 100th, 0.25 C	N/A	42
SPAN	500°C	Casting, C-Al	0.3-2.6	1M LiPF ₆ EC/EMC 1:1	N/A	0.5	730 mAh g ⁻¹ , 200 mA g ⁻¹	420 mAh g ⁻¹ , 200th, 200 mA g ⁻¹	390 mAh g ⁻¹ , 1 A g ⁻¹	43
SPAN	300°C, 6h	Casting, Al	1.8-2.6	1M LiTFSI DOL/DME 1:1 +LiNO ₃	51.2	3.2	1692 mAh g ⁻¹ , 0.1 C	871 mAh g ⁻¹ , 200th, 1 C	657 mAh g ⁻¹ , 2 C	44
SPAN	330°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	39.79	0.6	2050 mAh g ⁻¹ , 0.5 A g ⁻¹	1410 mAh g ⁻¹ , 2000th, 0.5 A g ⁻¹	1100 mAh g ⁻¹ , 5 A g ⁻¹	45
C@S/PAN	450°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	N/A	2.5	1416 mAh g ⁻¹ , 0.1 C	1260 mAh g ⁻¹ , 200th, 0.1 C	746 mAh g ⁻¹ , 5th, 1 C	46
S@ PAN	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/EMC MC+25 vol% FEC+0.1 M KNO ₃	40	5-6	1625 mAh g ⁻¹ , 0.1 A g ⁻¹	1479 mAh g ⁻¹ , 100th, 0.1A g ⁻¹	1500 mAh g ⁻¹ , 100th, 1 A g ⁻¹	47
SVF	155°C, 3h, 350°C, 2h, 500°C, 1h	Freestanding, fiber	1-3	1M LiPF ₆ EC/DEC 1:1	37.78	2.4	1800 mAh g ⁻¹ , 0.1 C	903 mAh g ⁻¹ , 150th, 1 C	600 mAh g ⁻¹ , 300th, 2 C	48
S@ pPAN	300°C, 6h	Casting, Ni	1-3	1M LiPF ₆ FEC/DMC 1:1	44.6	0.45	1950 mAh g ⁻¹ , 1 C	1248 mAh g ⁻¹ , 2000th, 1 C	1261.2 mAh g ⁻¹ , 4000th, 6 C	49

S @ pPAN	300°C, 6h	Casting, C-Al	0.6-2.8	1M LiPF ₆ EC/DMC/F EC 4.5/4.5/1	44	2, 7	1985 mAh g ⁻¹ , 1 C	1450 mAh g ⁻¹ , 800th, 1 C	N/A	50
SeSPAN	300°C, 500°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/DEC/D ME 1:1:1 +FEC	63	1	1040 mAh g ⁻¹ , 0.2 A g- 1	700 mAh g- 1, 500th, 1 A g-1	600 mAh g- 1, 500th, 2 A g-1	51
Se0.06SP AN	300°C, 2.5h	Casting, Al	1-3	1M LiTFSI+Li NO ₃ DOL/DME 1:1	47	2	1680 mAh g ⁻¹ , 0.2A/g	881 mAh g- 1, 800th, 0.4 A g-1	900 mAh g- 1, 5th, 10 A g-1	52
pPAN@S	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1 +10 wt% TTFP	43	0.8	2000 mAh g ⁻¹ , 0.1 C	1300 mAh g ⁻¹ , 150th, 0.1 C	800 mAh g- 1, 5th, 10 C	53
CPAN / Se	600°C, 5h	Casting, Al	0.8-3	1M LiPF ₆ EC/DEC 1:1	34.48	N/A	560 mAh g- 1, 0.3 C	600 mAh g- 1, 500th, 0.3 C	290 mAh g- 1, 3 C	54
Se/CNFs- CNT	600°C, 6h	Freestand ing, fiber	1-3	1M LiPF ₆ EC/DMC 1:1	35	N/A	1180 mAh g ⁻¹ , 0.05 A g-1	517 mAh g- 1, 500th, 0.5 A g-1	485 mAh g- 1, 1 A g-1	55
pPAN/Se S2	300°C, 4h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	63	2	1450 mAh g ⁻¹ , 0.5 A g- 1	910 mAh g- 1, 100th, 0.5 A g-1	600 mAh g- 1, 2000th, 4 A g-1	56
SPAN	300°C, 6h	Casting, Ni	1-3	1M LiPF ₆ EC/DEC 1:1	42	2.1	895.6 mAh g ⁻¹ , 0.25 mA cm ⁻²	700 mAh g- 1, 80th, 110 mA g-1	N/A	57
S @PAN- DG	280°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	51.52	2.6	1020 mAh g ⁻¹ , 0.1 C	810 mAh g- 1, 100th, 0.25 C	700 mAh g- 1, 200th, 1 C	58
S@pPAN	350°C, 10h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	37.64	2.5	2207 mAh g ⁻¹ , 0.2 A g- 1	1702 mAh g ⁻¹ , 100th, 0.2 A g-1	N/A	59
S/PAN	350°C, 3h	Casting, Al	2.5	Li ₃ .25Ge ₀ . 25P ₀ .75S ₄ (LGPS)/PE O	44.7	N/A	1772 mAh g ⁻¹ , 0.1 C	1183 mAh g ⁻¹ , 50th, 0.2 C	719 mAh g- 1, 0.5 C	60
SPAN	350°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	48.14	0.4	1801 mAh g ⁻¹ , 0.1 C	1350 mAh g ⁻¹ , 100th, 0.1 C	952 mAh g- 1, 1 C	61
SPAN-4	550°C, 5h	Casting, C-Al	1-3	1M LiTFSI EC/DMC 1:1	40	0.5	1601 mAh g ⁻¹ , 0.25 C	925 mAh g- 1, 200th, 1 C	420 mAh g- 1, 8 C	62

S-CPAN	350°C, 6h	Casting, C-Al	1-3	1M LiPF ₆ EC/DEC 1:1 +FEC	45	3	1530 mAh g ⁻¹ , 0.5 C	1478 mAh g ⁻¹ , 100th, 0.5 C	850 mAh g ⁻¹ , 5th, 3 C	63
MSPAN	155°C, 3h, 330°C, 4h, 550°C, 2 h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	45.8	2.4	1775 mAh g ⁻¹ , 0.1 C	1120 mAh g ⁻¹ , 30th, 0.1 C	610 mAh g ⁻¹ , 900th, 2 C	64
CoS ₂ – SPAN– CNT	300°C, 6h	Freestandi ng, fiber	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	43.2	5.9	1810 mAh g ⁻¹ , 0.2 C	1230 mAh g ⁻¹ , 100th, 0.2 C	880 mAh g ⁻¹ , 400th, 1 C	65
BP- SPAN	300°C, 10h	Casting, C-Al	1-3	1M LiTFSI+Li NO ₃ DOL/DME 1:1	43.2	1	2036 mAh g ⁻¹ , 0.1 C	1266 mAh g ⁻¹ , 100th, 0.1 C	845 mAh g ⁻¹ , 200th, 2 C	66
FeS @SPAN	600°C, 6h	Casting, Al	1-3	1M LiTFSI DOL/DME 1:1	45	1	1332 mAh g ⁻¹ , 0.2 A g ⁻¹	716 mAh g ⁻¹ , 100th, 0.2 A g ⁻¹	883 mAh g ⁻¹ , 500th, 1 A g ⁻¹	67
SPAN- RP	400°C, 2h	Casting, Cu	0.01-2	1M LiPF ₆ EC/DEC 1:1	N/A	0.4-0.5	1214 mAh g ⁻¹ , 0.2 C	820 mAh g ⁻¹ , 200th, 0.2 C	580 mAh g ⁻¹ , 5th, 2 C	68
SPAN	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	N/A	1, 6.5	755 mAh g ⁻¹ , 0.1 C	660 mAh g ⁻¹ , 0.2 C	400 mAh g ⁻¹ , 50th, 10 C	69
SFPAN	300°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	45.6	N/A	1690 mAh g ⁻¹ , 0.3 A g ⁻¹	1200 mAh g ⁻¹ , 400th, 0.3 A g ⁻¹	850 mAh g ⁻¹ , 5th, 12.5 A g ⁻¹	70
HSPAN	390°C, 8h	Freestandi ng, fiber	1-3	1M LiTFSI+Li NO ₃ DOL/DME 1:1	41.19	0.91	1782.4 mAh g ⁻¹ , 0.1 C	1250 mAh g ⁻¹ , 300th, 0.1 C	500 mAh g ⁻¹ , 10th, 1 C	71
S/DPAN/ KB	300°C, 1h	Freestandi ng	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	54	1.5	1900 mAh g ⁻¹ , 0.1 C	900 mAh g ⁻¹ , 150th, 0.1 C	310 mAh g ⁻¹ , 8th, 1 C	72
SPAN- EL3	300°C, 6h	Casting, Al	1-3	1 M LiTFSI FEC/DME/ DOL, 3:3.5:3.5+0. 2M LiNO ₃	42	6	800 mAh g ⁻¹ , 0.2 C	670 mAh g ⁻¹ , 300th, 0.2 C	620 mAh g ⁻¹ , 500th, 1 C	73
Te _{0.04} S _{0.96} @pPAN	300°C, 3h	Casting, Al	1-3	1M LiTFSI DOL/DME 1:1	49.6	3.1	1507 mAh g ⁻¹ , 0.3 C	1250 mAh g ⁻¹ , 200th, 0.3 C	861 mAh g ⁻¹ , 10 A g ⁻¹	74

S/pPAN	350°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	40.9	2	1510 mAh g-1, 0.1 C	1177 mAh g-1, 100th, 0.5 C	981 mAh g- 1, 100th, 1 C	75
pPAN	300°C, 6h	Casting, Al	1-3	1 M LiBOB TEP/FEC 7:3	44.5	1.0	2200 mAh g-1, 1 C	N/A	1084.1 mAh g-1, 100th, 1 C	76
polyacryl onitrile/g raphene	320°C, 5h	Casting, Al	1-3	1M LiPF ₆ EC/DC/DM C 1:1:1	40	N/A	1793 mAh g-1, 0.1 C	784 mAh g- 1, 120th, 0.1 C	362.3 mAh g-1, 5th, 1 C	77
SeSPAN	300°C, 2h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	60	1	1044 mAh g-1, 0.06 C	670 mAh g- 1, 250th, 0.06 C	600 mAh g- 1, 5th, 1.2 C	78
SPAN	300°C, 6h	Casting, Nickel foam	1-3	1M LiPF ₆ EC/DMC 1:1+10% FEC	42.5	8	1300 mAh g-1, 0.2 C	1300 mAh g-1, 150th, 0.1 C	1250 mAh g-1, 500th, 1 C	79
S/PAN/G O	450°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	40	2.5	1776 mAh g-1, 0.2 C	1205 mAh g-1, 100th, 0.2 C	685 mAh g- 1, 10th, 2 C	80
SPAN	300°C, 3h	Casting, Al	1-3	1 M LiTFSI EC/DMC/D EC 4:2:4	45	N/A	1627 mAh g-1, 0.1 C	900 mAh g- 1, 150th, 0.1 C	N/A	81
SPAN	450°C, 5h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	38	1.0	2105 mAh g-1, 0.15 C	1052 mAh g-1, 100th, 0.15 C	1122.7 mAh g-1, 500th, 0.3 C	82
SPAN	300- 700°C, 3h	Freestandi ng	1-3	1M LiTFSI DOL/DME 1:1+0.2 M LiNO ₃	41	N/A	1814 mAh g-1, 400 mA g-1	1280 mAh g-1, 200th, 400 mA g-1	1044 mAh g-1, 500th, 1 A g-1	83
SPAN/Si O ₂	450°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/ DMC/DEC 1:1:1	45	2.5	1700 mAh g-1, 0.2 C	1106 mAh g-1, 100th, 0.2 C	600 mAh g- 1, 10th, 2 C	84
PAN/S nanofiber s	300°C, 4h	Freestandi ng	1-3	1M LiPF ₆ PC/EC/DE C 1:4:5	48	N/A	1692 mAh g-1, 0.2 C	1144 mAh g-1, 100th, 0.2 C	794 mAh g- 1, 500th, 2 C	85
Cox- SPAN- CNT	400°C, 6h	Freestandi ng	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	41.9	2.5	1856 mAh g-1, 0.2 C	1399 mAh g-1, 100th, 0.2 C	1020 mAh g-1, 1500th, 1 C	86
SPAN- CNT20	400°C, 6h	Freestandi ng	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1.	40.3	1	1600 mAh g-1, 0.2 C	1400 mAh g-1, 200th, 0.2 C	1200 mAh g-1, 500th, 1 C	87
Se0.05S0 .95PAN	450°C, 6h	Casting, Al	1-3	1.8M LiTSI DME/TTE 1.2:4	40.99	10.1, 14.4, 20-35	1200 mAh g-1, 1 mA cm-2	840 mAh g- 1, 100th, 1 mA cm-2	N/A	88

S@PAN/ S7Se	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1+5% FEC	68	5	1455 mAh g ⁻¹ , 1 A g ⁻¹	993 mAh g ⁻¹ , 100th, 1 A g ⁻¹	648 mAh g ⁻¹ , 500th, 1 mA cm ⁻²	89
S@pPAN -5	330°C, 5h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1.	45.5	1.9	1821 mAh g ⁻¹ , 200 mA g ⁻¹	1357 mAh g ⁻¹ , 100th, 200 mA g ⁻¹	N/A	90
SPAN	350°C, 12h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	32	1	2000 mAh g ⁻¹ , 0.45 C	1300 mAh g ⁻¹ , 10th, 0.45 C	938 mAh g ⁻¹ , 500 th, 0.9 C	91
SPAN	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	45	2.7	N/A	N/A	910 mAh g ⁻¹ , 300th, 1 C	92
Se _{0.38} S _{0.62} @pPAN N-450°C	350- 650°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/DMC/D EC 1:1:1	54.8	4.53	1112 mAh g ⁻¹ , 4 A g ⁻¹	806 mAh g ⁻¹ , 200th, 4 A g ⁻¹	574.5 mAh g ⁻¹ , 600th, 1 A g ⁻¹	93
PLMO	350°C, 3h	Casting, Al	1-3.2	1M LiPF ₆ EC/DEC 1:1	N/A	N/A	1200 mAh g ⁻¹ , 0.4 C	N/A	N/A	94
S@pPAN	300°C, 6h	Casting, Al	1-3.2	1M LiPF ₆ EC/DMC 1:1+10% FEC	48	9-15	1562 mAh g ⁻¹ , 0.1 C	1447 mAh g ⁻¹ , 100th, 0.1 C	625 mAh g ⁻¹ , 250th, 0.5 C	95
S@pPAN 555k	300°C, 10h	Casting, Al	1-3	1M LiPF ₆ EC/DMC 1:1	55	1-2	1088 mAh g ⁻¹ , 0.1 C	800 mAh g ⁻¹ , 100th, 0.2 C	N/A	96
S@pPAN	300°C, 6h	Casting, Al	1-3	1M LiTFSI DOL/DME 1:1	44	8	N/A	N/A	1200 mAh g ⁻¹ , 600 th, 1 C	97
3DHG/P S	300°C, 6h	Freestandi ng	1-2.8	1M LiTFSI DOL/DME 1:1+1wt% LiNO ₃	40.2	15.2	1500 mAh g ⁻¹ , 0.1 C	900 mAh g ⁻¹ , 50th, 0.1 C	581.6 mAh g ⁻¹ , 1500 th, 2 C	98
GF/SPAN N-8	450°C, 6h	Casting, Al	1-3	1M LiTFSI EC/DME/D OL 2:1:1	34.79	26.5	1480 mAh g ⁻¹ , 0.1 C	940 mAh g ⁻¹ , 150th, 0.1 C	800 mAh g ⁻¹ , 500th, 1 C	99
Te _{0.05} S _{0.95} @pPAN N@Li ₇ P 3S11	250°C, 5h	Press on SSE	1-3	Li ₁₀ GeP ₂ S 12	40.5	1.3	1703.5 mAh g ⁻¹ , 0.2 C	932.9 mAh g ⁻¹ , 100th, 0.2 C	665.3 mAh g ⁻¹ , 500th, 0.3 C	100
SPAN- nano- SiO ₂ @P PC	300°C, 6h	Casting, Al	1-3	1M LiTFSI DOL/DME 1:1	40	3.15	1884 mAh g ⁻¹ , 0.06 C	1465.6 mAh g ⁻¹ , 200th, 0.06 C	1049 mAh g ⁻¹ , 200th, 0.6 C	101

SPAN	450°C, 6h	Casting, Al	1-3	4M LiTFSI DOL/DME 1:1+0.5M LiNO ₃	40	1.5	2050 mAh g-1, 0.12 C	1375 mAh g-1, 100th, 0.12 C	N/A	102
G-PPC- CPE	300°C, 5h	Casting, C-foam	1-3	1M LiTFSI DOL/DME 1:1+1 wt% LiNO ₃	42	1	1672 mAh g-1, 0.12 C	1422.1 mAh g-1, 500th, 0.12 C	1243 mAh g-1, 200th, 0.43 C	103
SPAN/G- PET	300°C, 6h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	42	5	114 mAh, 5 mA	110 mAh, 30th, 5 mA	N/A	104
I- S@pPAN	300°C, 10h	Casting, Al	1-3	1M LiPF ₆ DMC/EC 7:3+5% FEC	42.49	2.3	2139 mAh g-1, 0.2 C	1485 mAh g-1, 100th, 0.2 C	1243 mAh g-1, 200th, 2 C	105
SPAN	350°C, 3h	Casting, Al	1-3	1M LiPF ₆ EC/DEC 1:1	45.4	1.5	2200 mAh g-1, 0.5 C	1258 mAh g-1, 15th, 0.5 C	1089 mAh g-1, 100th, 1 C	106

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