

Figure S1. Impedance spectra with different temperature from 25 to 70 °C for (a) PEO/LiTFSI/SN (b) PEO/LiTFSI/SN@(B.N-CNF), with (c) activation energy E_a , and (d) TGA curves for the samples of PEO/LiTFSI/SN@(B.N-CNF), PEO/LiTFSI/SN, and PEO/LiTFSI.

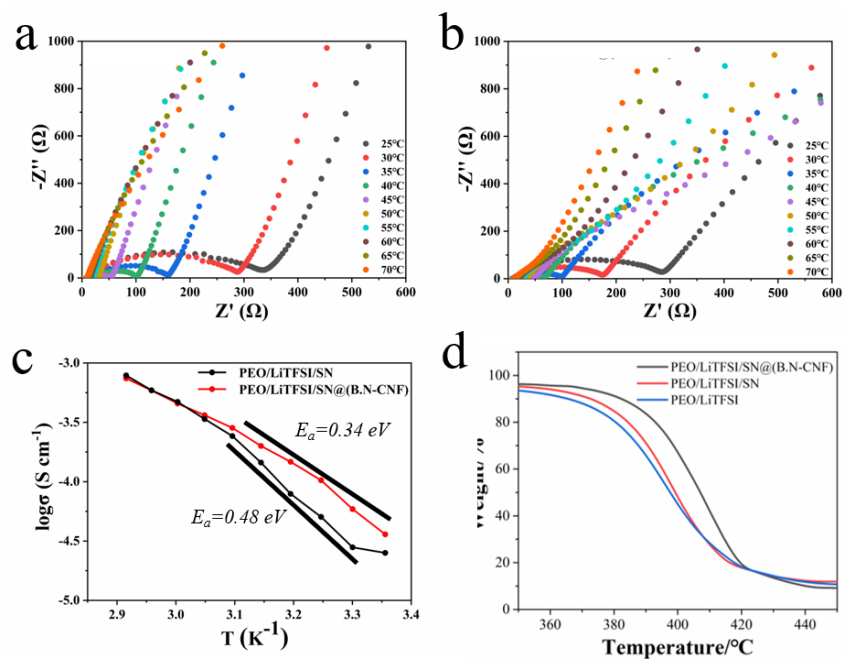


Figure S2. DC test for (a) PEO/LiTFSI and (b) PEO/LiTFSI/SN.

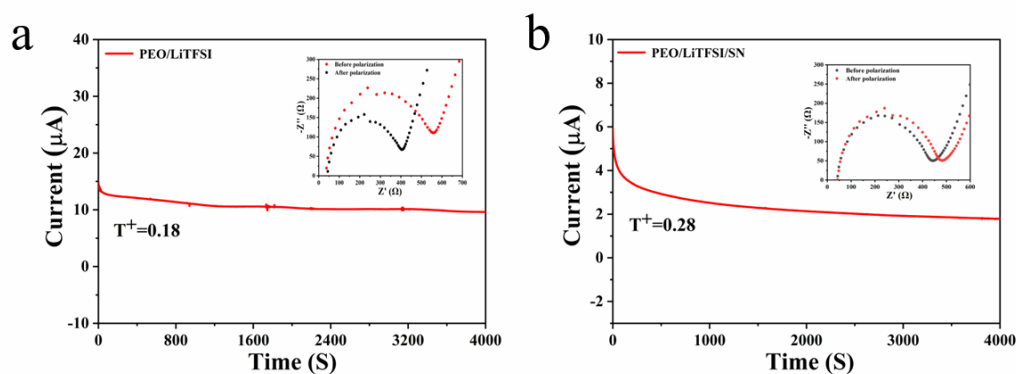
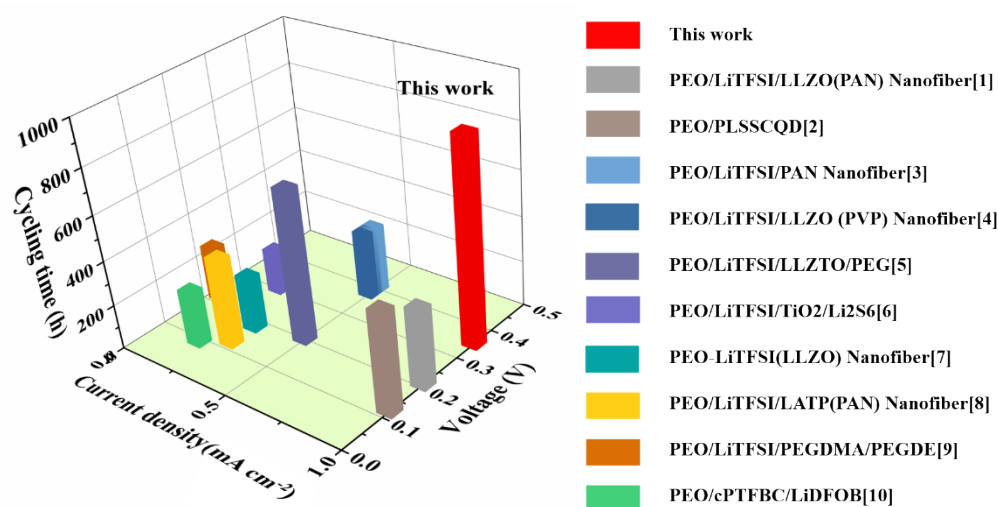


Figure S3 Bar chart comparing the galvanostatic cycling performance based on PEO with the reported literatures.



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Table S1 Comparing the performance of ASSBs with PEO-based SSEs versus the reported literatures.

SSEs	Rate performance (60 °C)					Cycling performance (60 °C)				
	0.1C	0.2C	0.5C	1C	2C	Rate	1st	Cycles	Retention	Refs
PEO/LiTFSI/ Ca-CeO ₂	165	158	145	121	98	1C	126	100	74%	1
PEO@GF	158	154	106	46	7	0.2C	142	100	91.5%	2
PEO/LiTFSI/LATP/PA N	---	144	130	119	90	0.2C	144	100	---	3
PEO/LiTFSI/PAN	155.9	154.3	145.3	98.7	41.5	0.5C	165.3	100	84.2%	4
PEO/PLSSCQD	168	158	140	133	124	0.2C	155.9	100	94.3%	5
PEO/LiTFSI/PA6	---	162	150	138	127	1C	130	100	91.5%	6
PEO/LiTFSI/LATP	150	146	130	108	---	0.1C	148	100	91.8%	7
PEO/ LiTFSI/LLZTO/PEG	150	149	137	125	107	0.2C	150	100	92%	8
This work	159.1	156.4	148.2	138	120	0.2C	150.3	100	96.9%	

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