Supporting Information

A High Performance Polysiloxane-Based Single Ion Conducting Polymeric Electrolyte Membrane for Applications in Lithium Ion Batteries

Rupesh Rohan,[a], Kapil Pareek,[a] Zhongxin Chen,[a] Weiwei Cai,[a,b] Yunfeng Zhang, [a,b] Guodong Xu,[a] Zhiqiang Gao, [a]Hansong Cheng[a,b]*

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Table S1: Deviation in the calculated and found values of Si content in commercially available materials

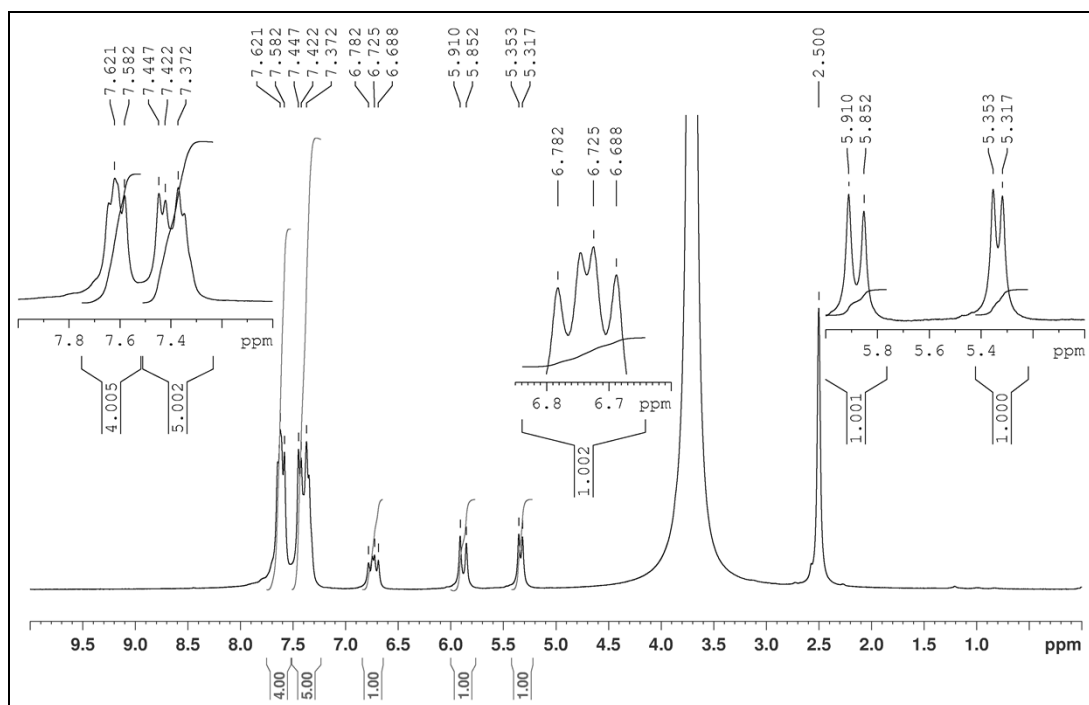| Element	Poly(methylhydrogensiloxane) (CH_4OSi)		Poly(methylphenylsiloxane) (C_7H_8OSi)	
	Calculated (%)	Found (%)	Calculated (%)	Found (%)
Carbon (C)	19.98	20.27	61.72	59.73
Hydrogen (H)	6.71	6.38	5.92	5.62
Silicon (Si)	46.71	< 0.5%	20.62	2.62

Figure S1: The ¹HNMR spectra of SPSIK in DMSO-d₆. The broad peak at 3.70 ppm corresponds to absorbed moisture)
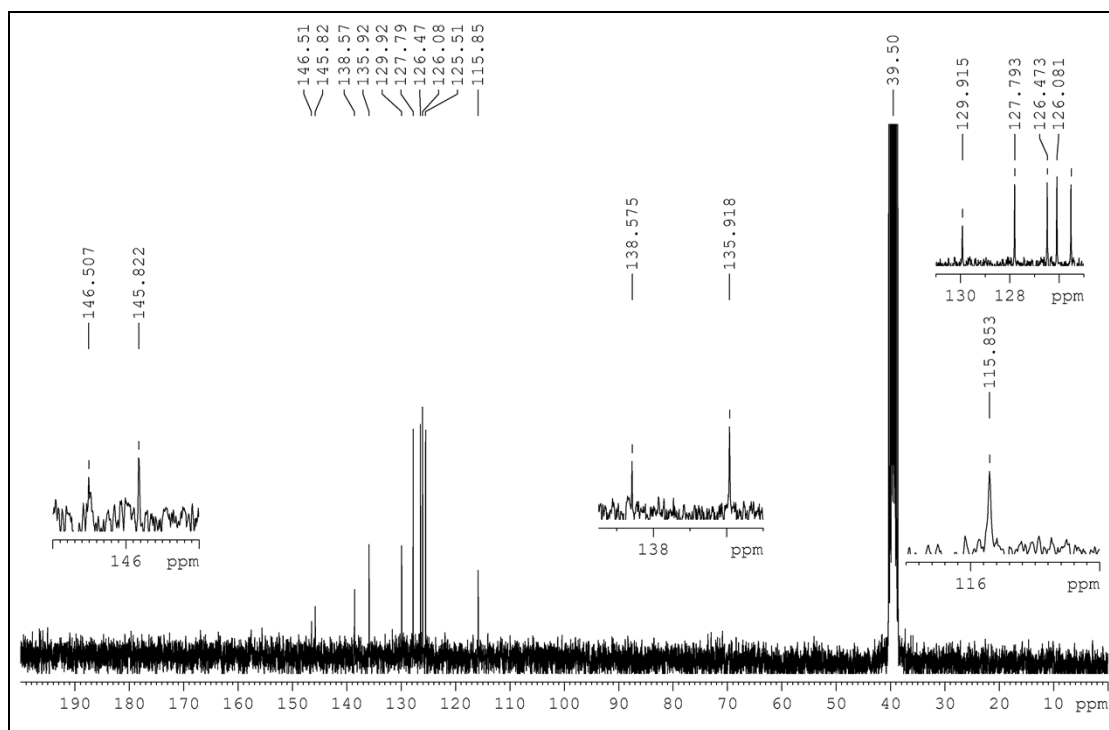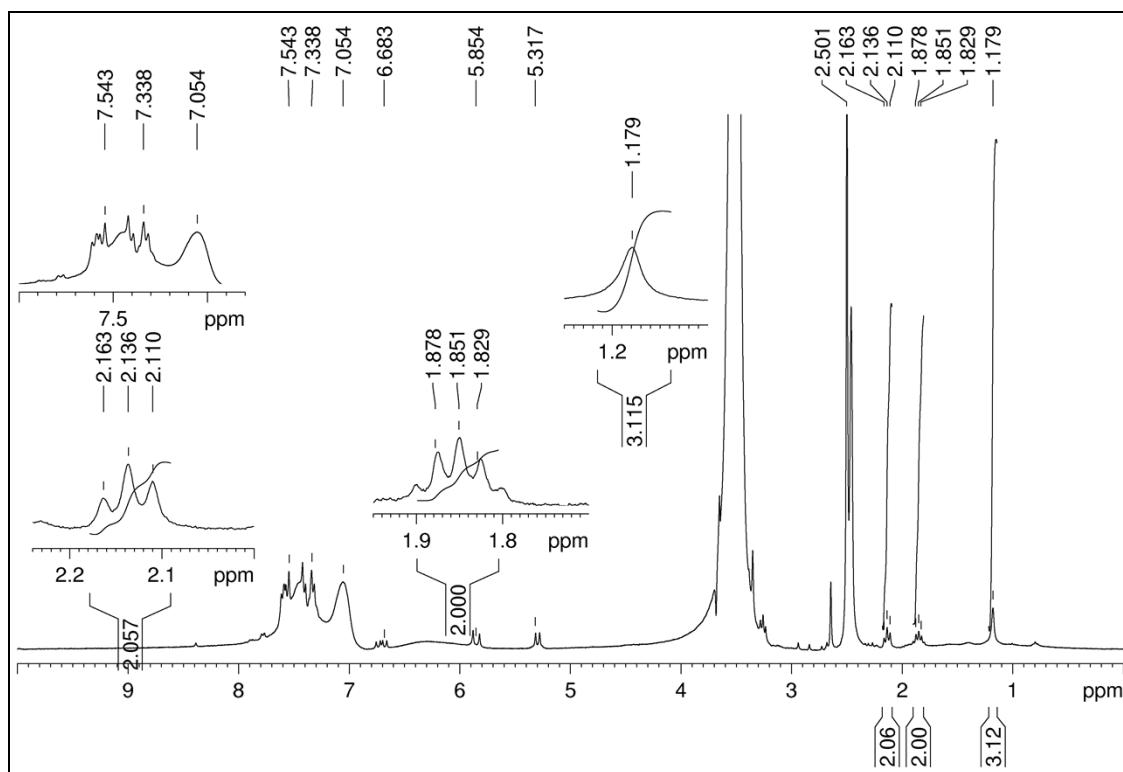
Figure S2: The ^{13}CNMR spectra of SPSIK in DMSO-d$_6$.

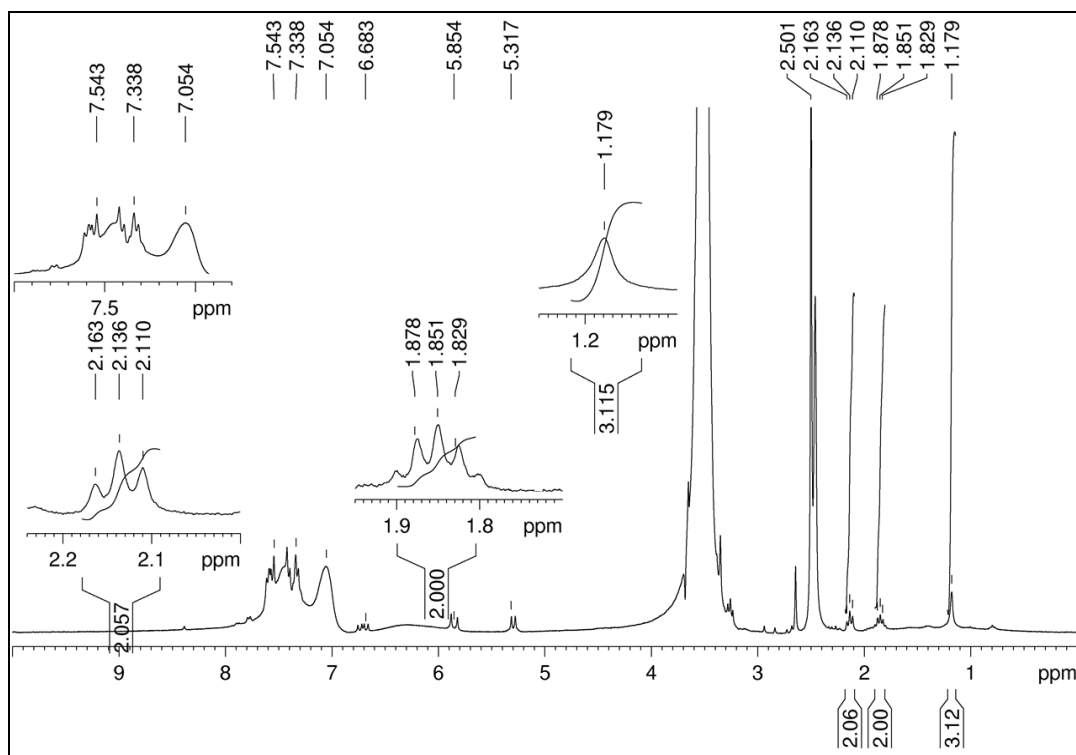**Figure S3: The ¹HNMR spectra of SG in DMSO-d$_6$. The peak at 3.25 ppm corresponds to absorbed moisture.**

Figure S4: The ^{13}CNMR spectra of SG in DMSO-d$_6$.
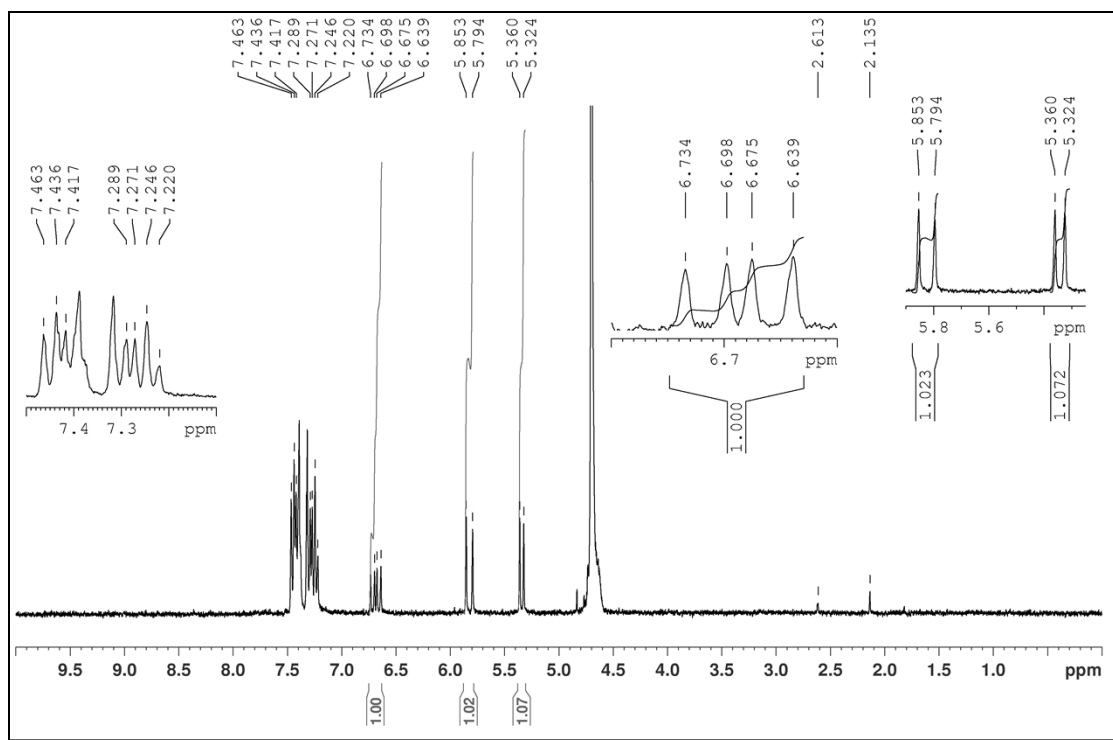
Figure S5: The ^{1}HNMR spectra of 4-styrenesulfonic acid, sodium salt in D$_2$O.
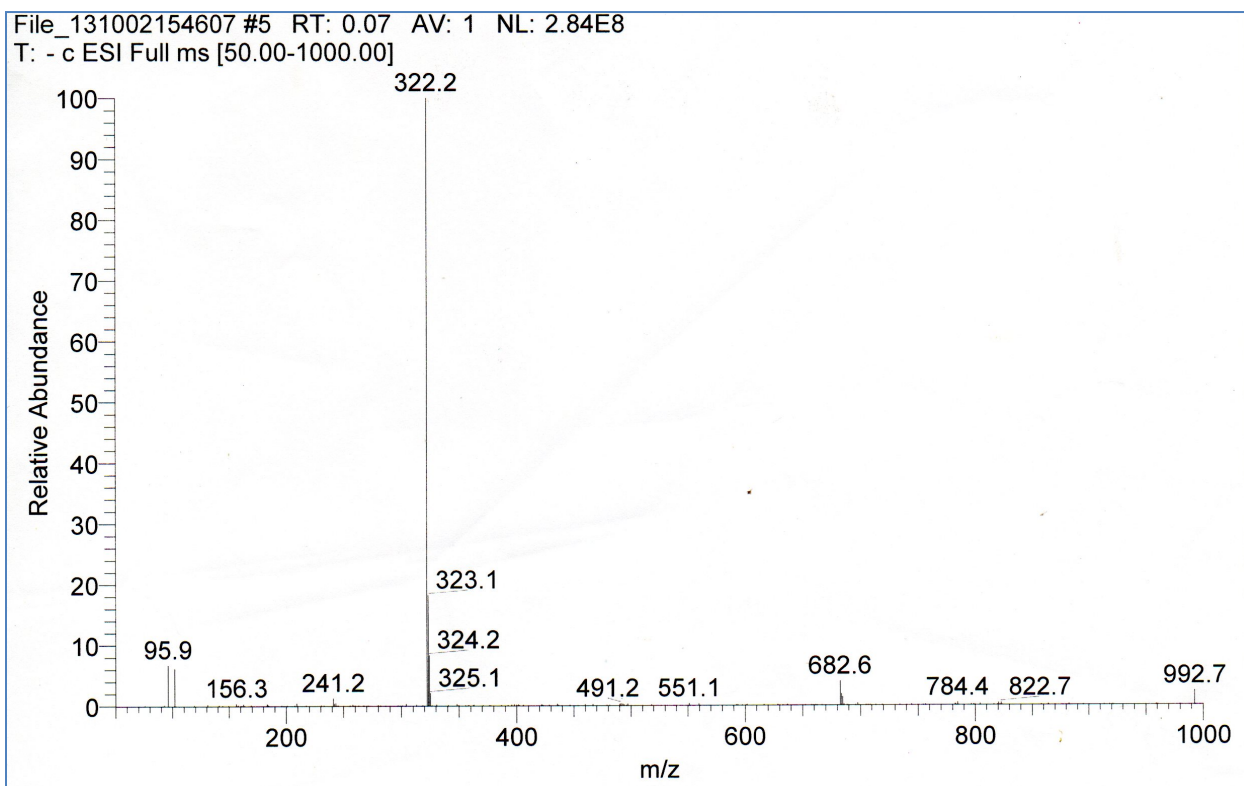
Figure S6: The negative mode of ESI-HRMS (mass spectroscopy) spectra of SG.