Supplementary Information

Investigating Electrochemical Reaction and Surface Chemistry for Performance Enhancement of Si Composite Anode Using bis(fluorosulfonyl)imide Based Ionic Liquid
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Fig. 1S Charge/discharge profile of Si anode at 2nd, 50th and 100th cycle with (a) LiPF$_6$/EC/DEC, (b) LiPF$_6$/EC/DEC/FEC and (c) LiFSI/EMIFSI

Fig. 2S Ionic conductivity measurement of the electrolytes in LiPF$_6$/EC/DEC, LiPF$_6$/EC/DEC/FEC and LiFSI/EMIFSI
Fig. 3S  (a) C 1s spectra, (b) F 1s and (c) Li 1s spectra of the Si composite anode after 100 cycles with LiPF$_6$/EC/DEC, LiPF$_6$/EC/DEC/FEC and LiFSI/EMI-FSI respectively.