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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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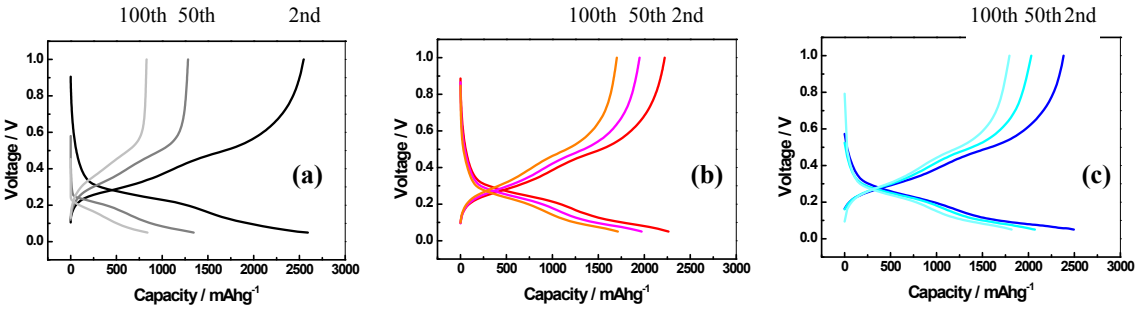

Fig. 1S Charge/discharge profile of Si anode at 2nd, 50th and 100th cycle with (a) $LiPF_6$/EC/DEC, (b) $LiPF_6$/EC/DEC/FEC and (c) LiFSI/EMIFSI

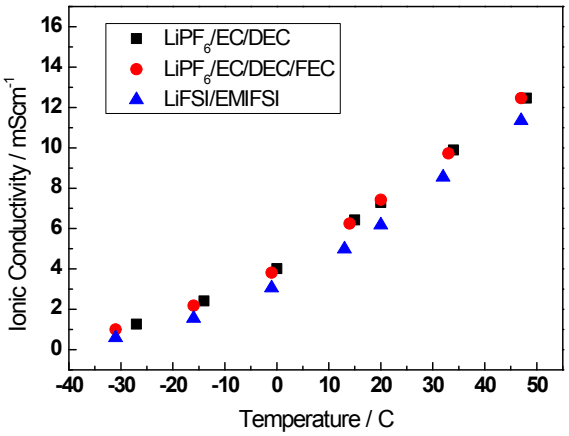

Fig. 2S Ionic conductivity measurement of the electrolytes in $LiPF_6$/EC/DEC, $LiPF_6$/EC/DEC/FEC and LiFSI/EMIFSI

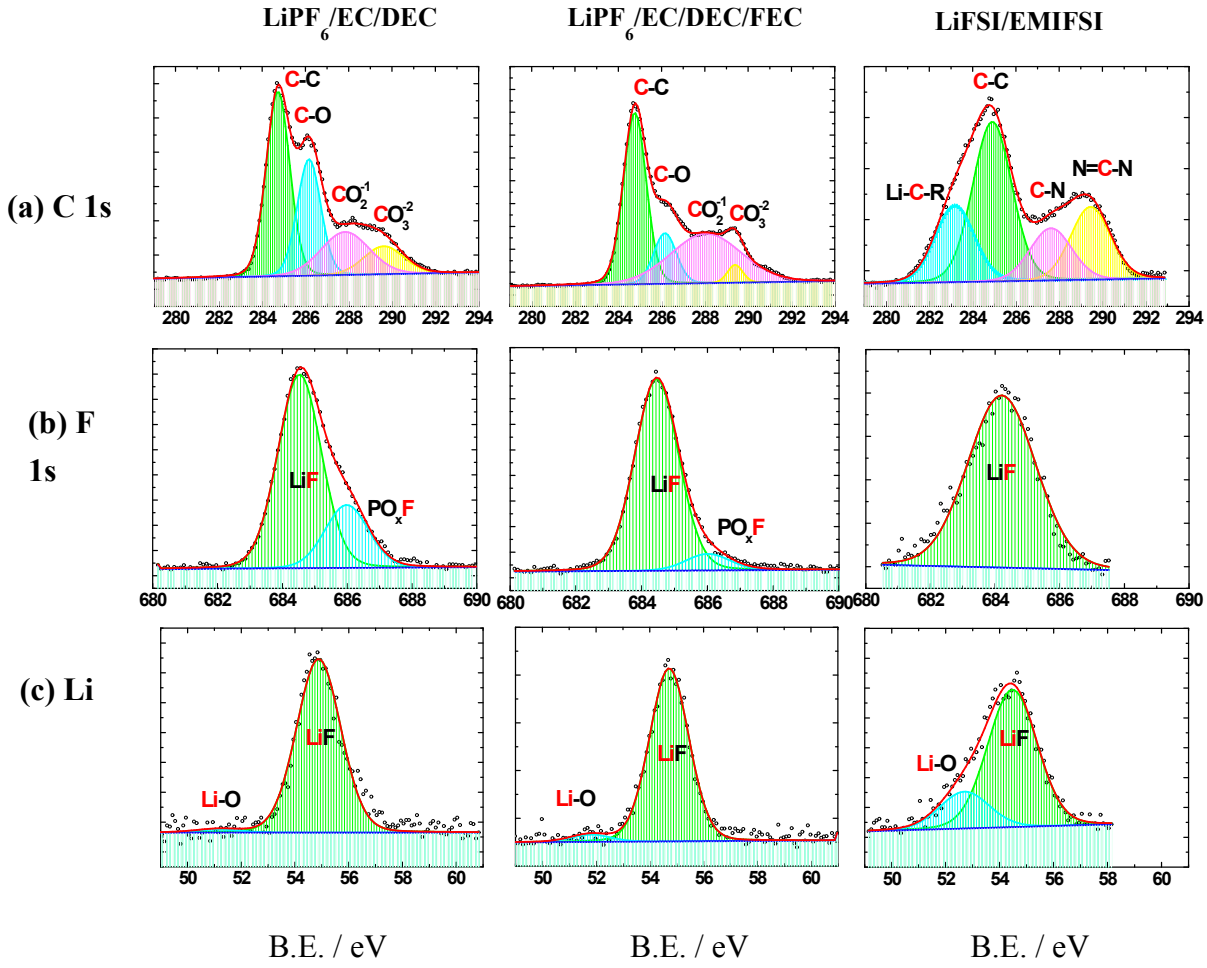

Fig. 3S (a) C 1s spectra, (b) F 1s and (c) Li 1s spectra of the Si composite anode after 100 cycles with $LiPF_6$/EC/DEC, $LiPF_6$/EC/DEC/FEC and LiFSI/EMIFSI respectively.