

Supporting Figures.

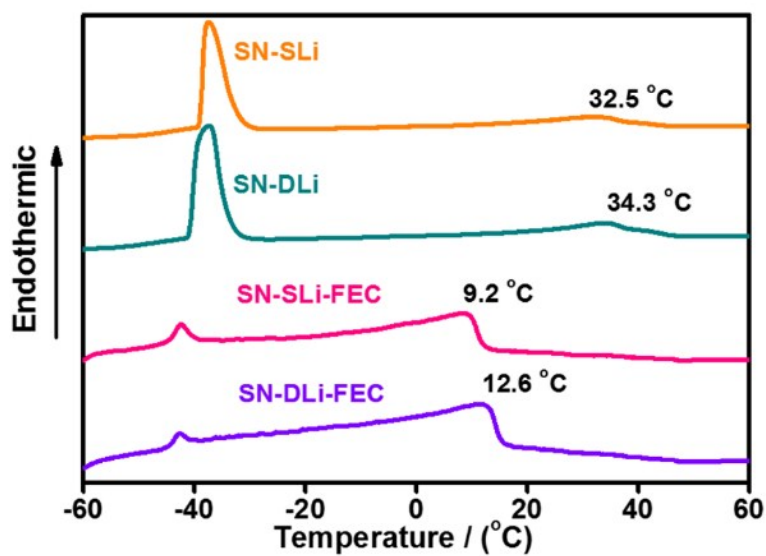


Fig. S1 DSC profiles of SN-based electrolytes.

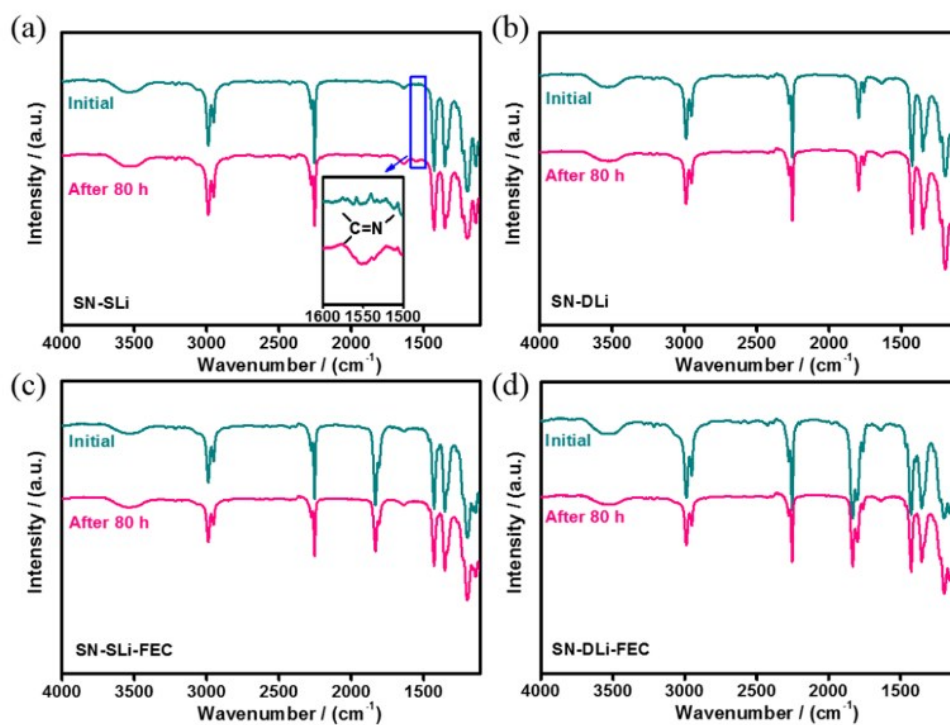


Fig. S2 FT-IR curves of (a) SN-SLi, (b) SN-DLi, (c) SN-SLi-FEC and (d) SN-DLi-FEC electrolyte solutions before and after reacting with Li-metal for 80 h at 60 °C.

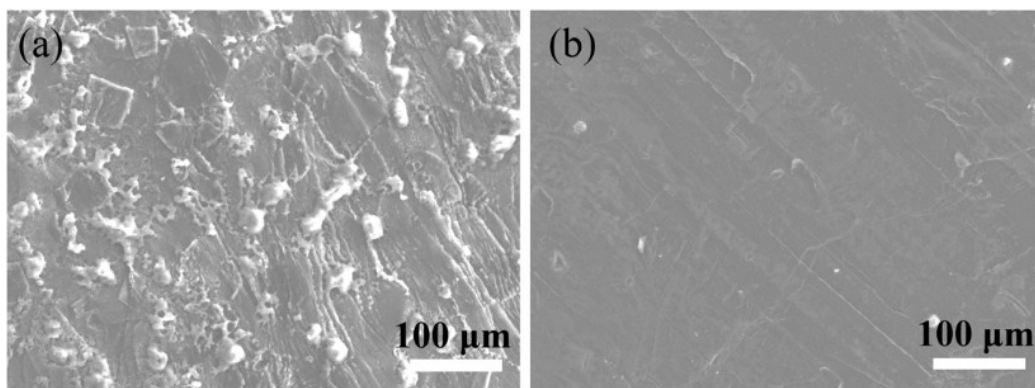


Fig. S3 SEM images of Li-metal obtained after soaking in different single-salt SN-based electrolytes for 80 h at 60 °C: (a) SN-SLi and (b) SN-SLi-FEC.

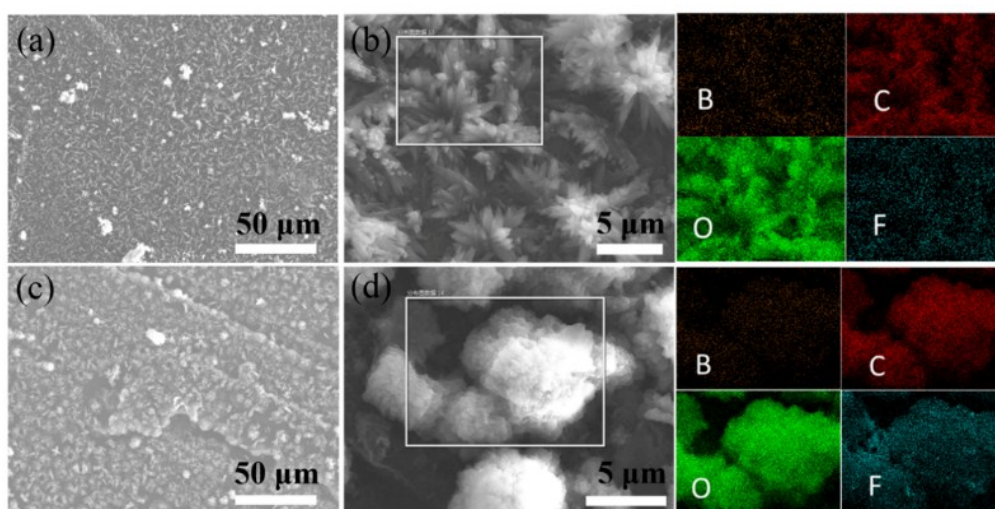


Fig. S4 SEM and EDS maps of Li-metal obtained after soaking in SN-DLi (a, b) and SN-DLi-FEC (c, d) for 80 h at 60 °C



Fig. S5 Photographs of SN-DLi 19:1 electrolyte with Li-metal for different times at 60 °C.

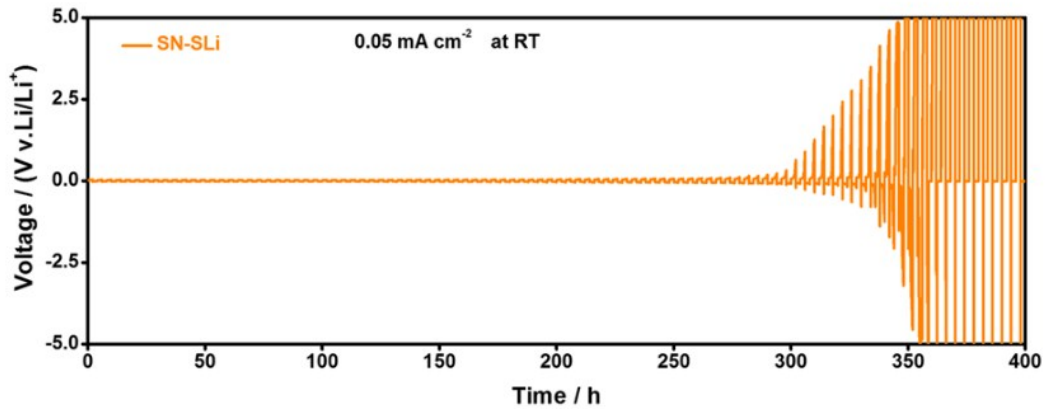


Fig. S6 $V-t$ curve of Li/SN-SLi/Li symmetric battery.

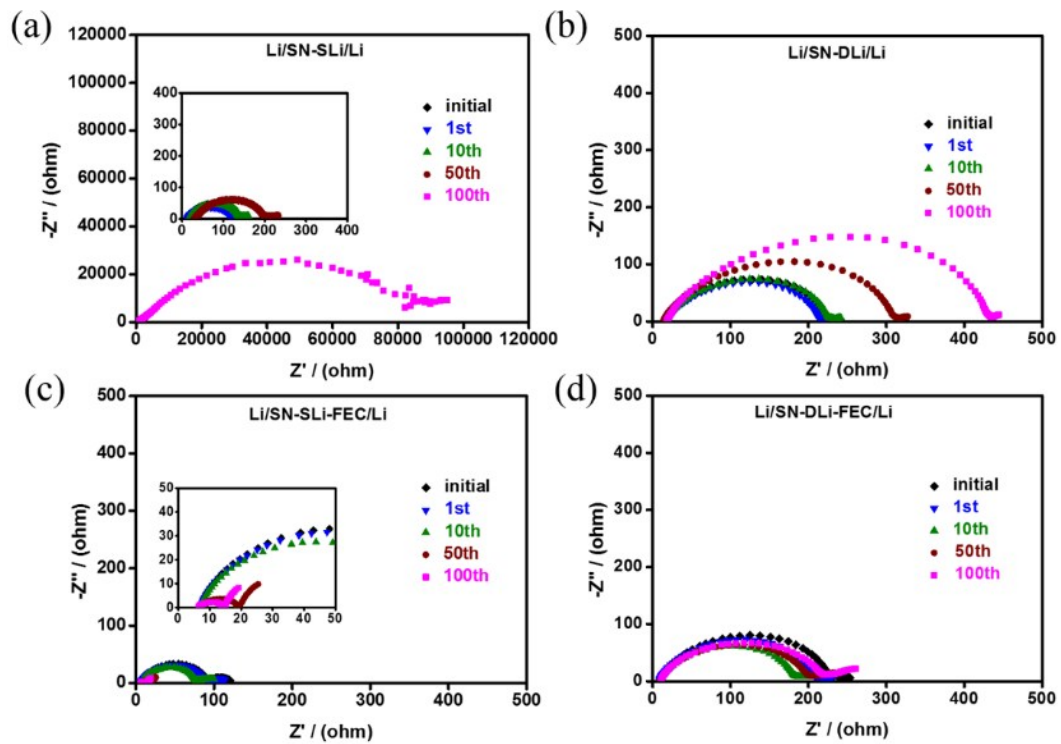


Fig. S7 AC impedance spectra of Li/Li symmetric battery with different SN-based electrolytes during cycling. (a) SN-SLi, (b) SN-DLi, (c) SN-SLi-FEC and (d) SN-DLi-FEC.

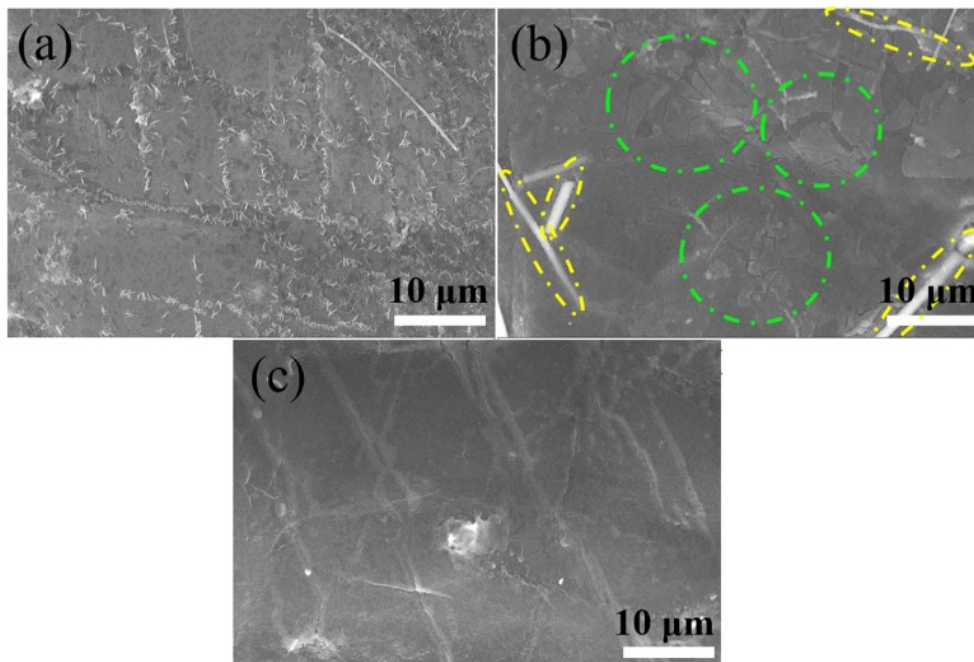


Fig. S8 SEM images of Li-metal obtained after 100 cycles in Li/Li symmetric battery with different SN-based electrolytes. (a) SN-DLi, (b) SN-SLi-FEC and (c) SN-DLi-FEC.

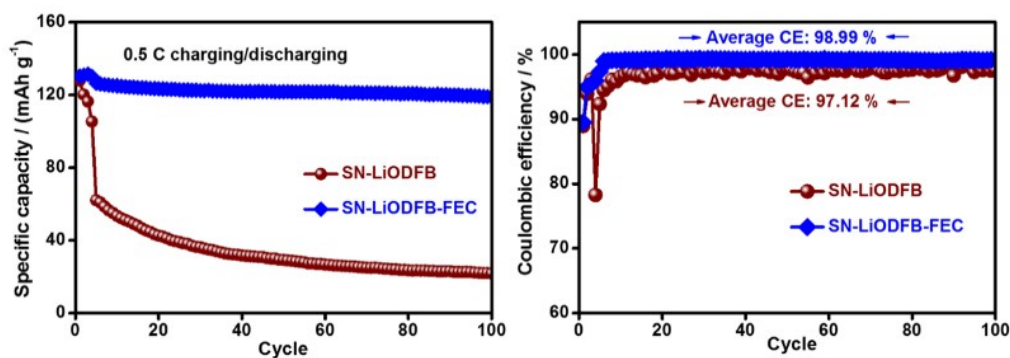


Fig. S9 Cyclic performance and corresponding coulombic efficiency of LCO/Li batteries equipped with SN-LiODFB and SN-LiODFB-FEC.

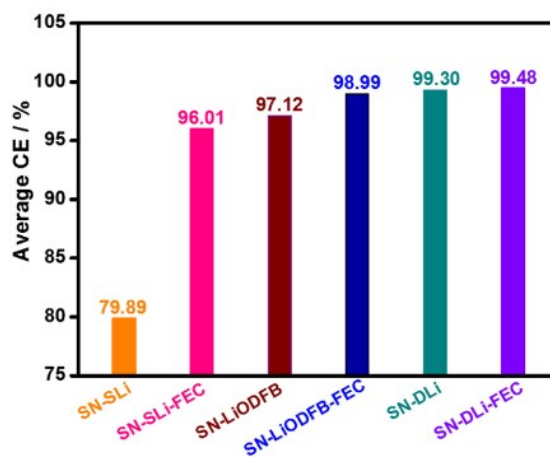


Fig. S10 Average coulombic efficiency of LCO/Li batteries equipped with different SN-based electrolytes from 1st to 100th cycle at 0.5 C.

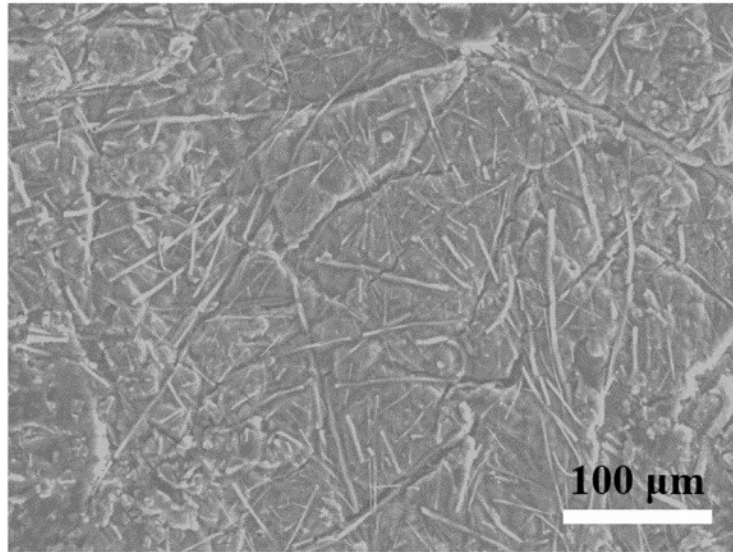


Fig. S11 SEM image of Li-metal obtained after 100 cycles in LCO/SN-SLi-FEC/Li battery at the voltage range of 3.0-4.2 V.

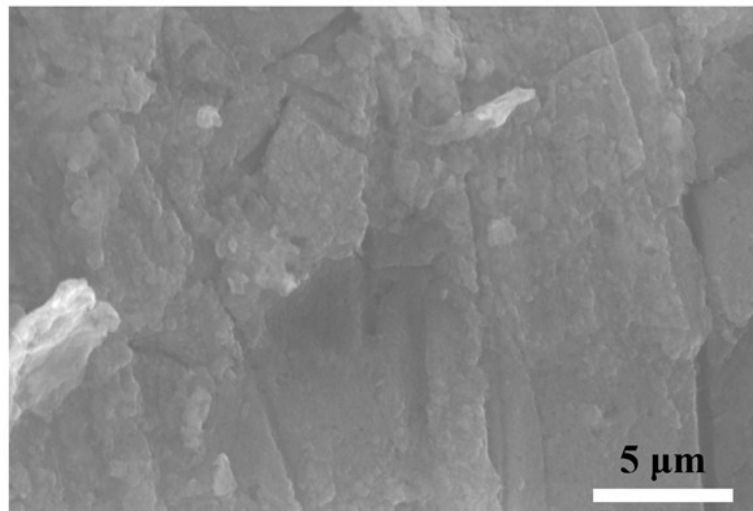


Fig. S12 SEM image of Li-metal obtained after 100 cycles in LCO/SN-DLi-FEC/Li battery at the voltage range of 3.0-4.4 V.