

Supporting Information

Self-healing composite polymer electrolyte formed via supramolecular networks for high-performance lithium-ion batteries

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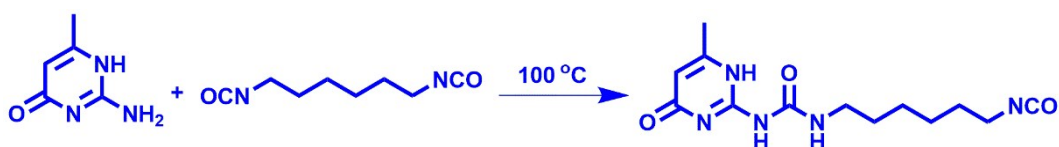


Fig. S1 Schematic representation of the synthesis route of UPy-NCO.

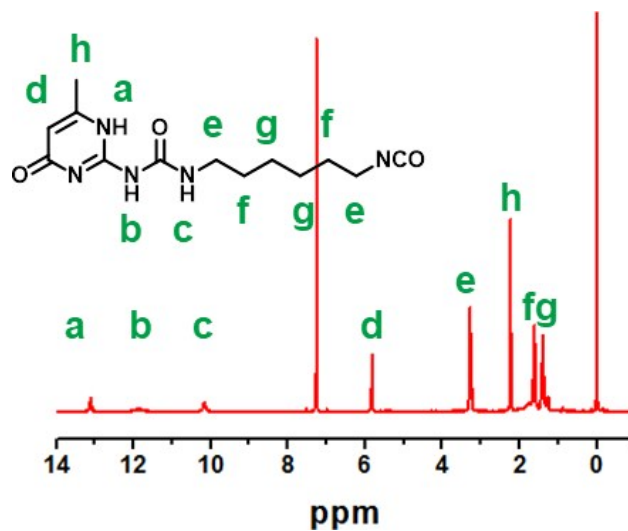


Fig. S2 The ¹H NMR spectra of UPy-NCO.

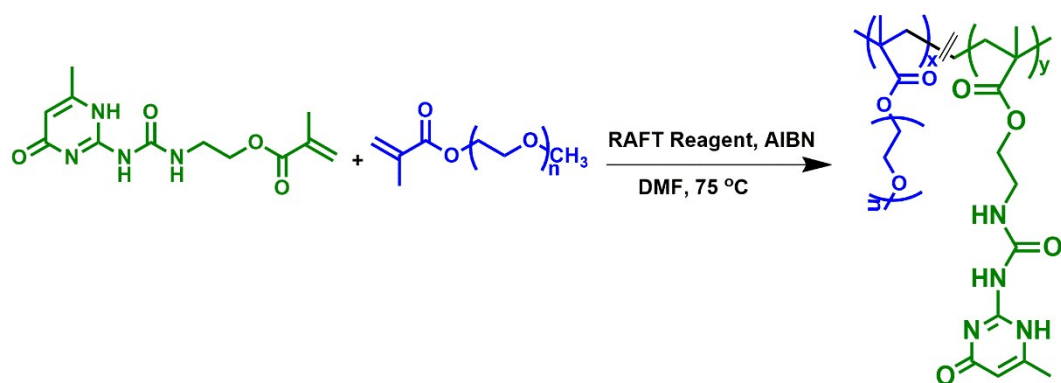


Fig. S3 Synthesis of copolymer of PEG-UPy using the monomers of UPyMA and PEGMA.

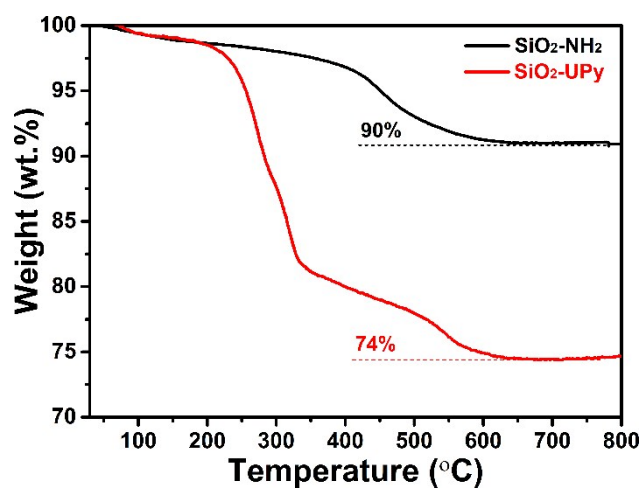


Fig. S4 TGA thermograms of SiO₂-NH₂ and SiO₂-UPy.

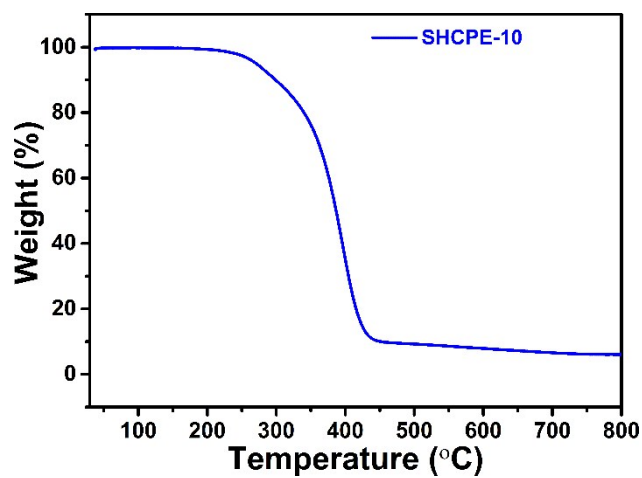


Fig. S5 TGA curves of composite polymer electrolyte with supramolecular networks.

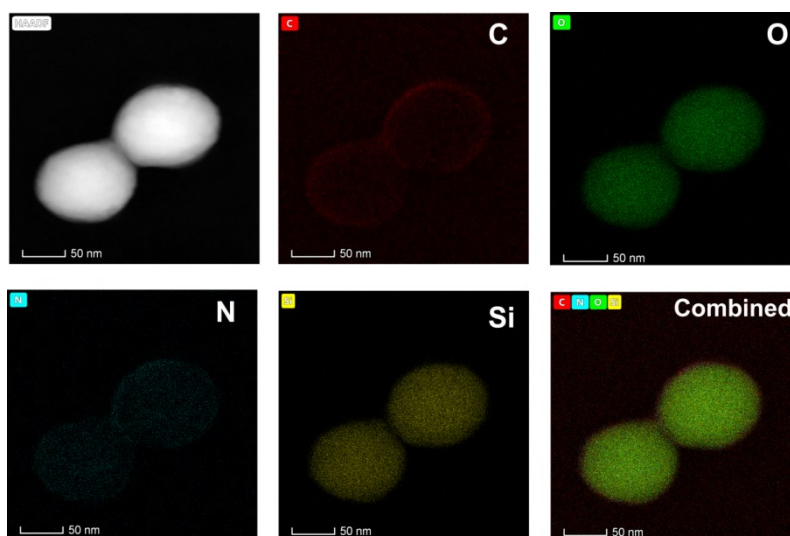


Fig. S6 Elemental mapping images of C, O, N and Si in the modified silica.

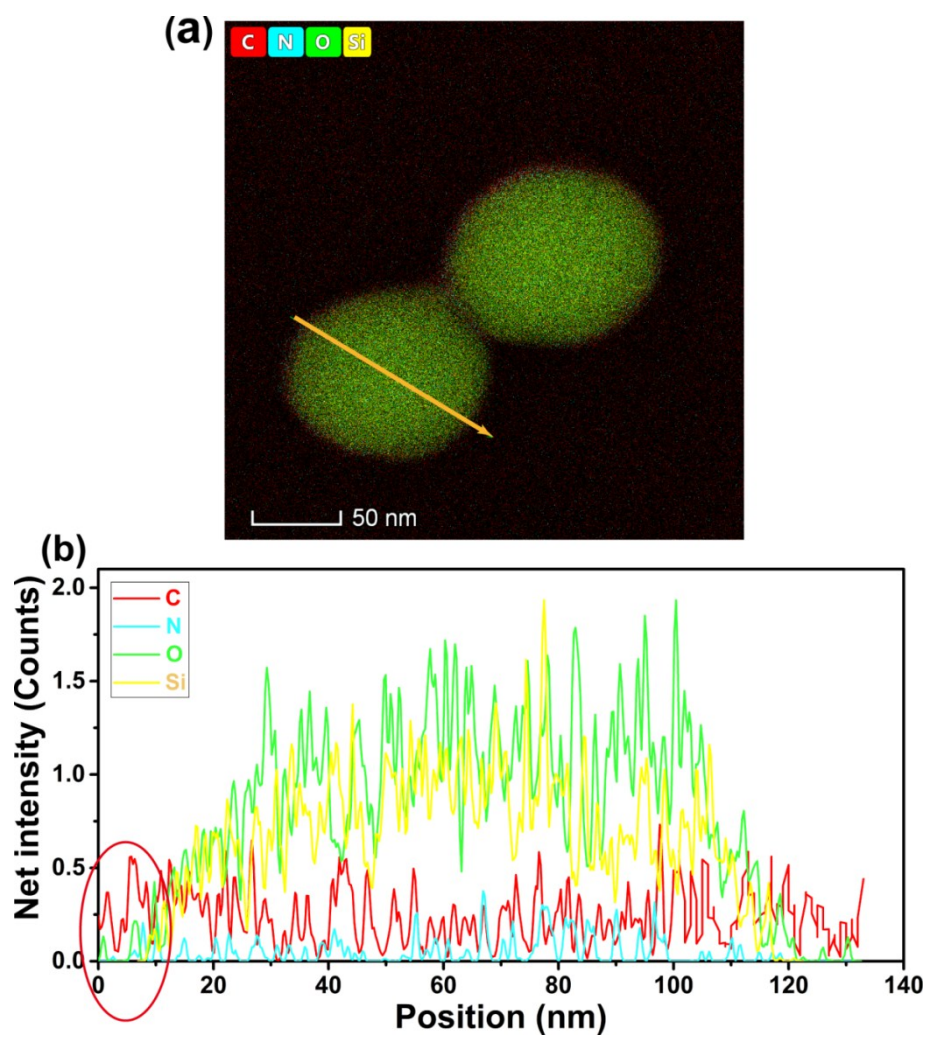


Fig. S7 EDS line-scan elemental distribution of modified silica nanoparticle.

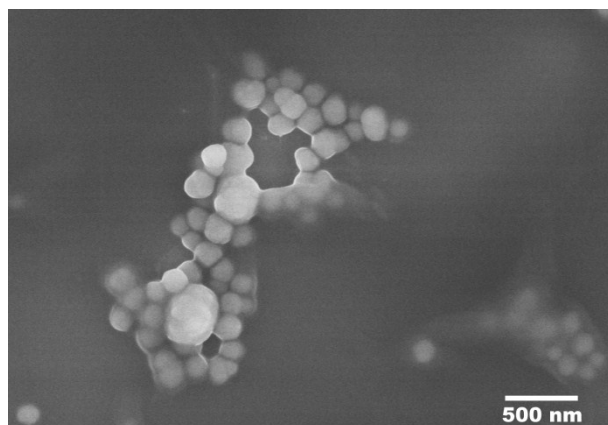


Fig. S8 Morphologies of SiO₂ in composite polymer electrolyte.

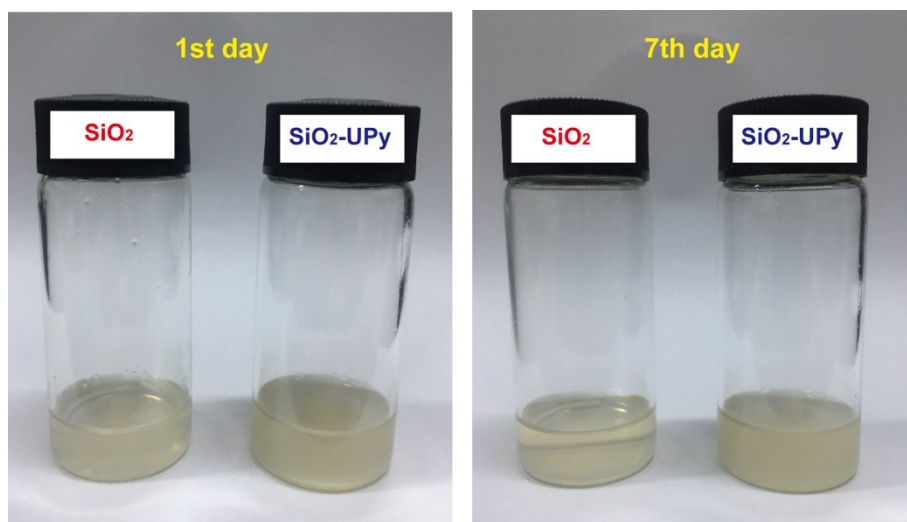


Fig. S9 Photograph of the dispersion of SiO₂ and SiO₂-UPy in the THF solution of PEG-UPy, a) the first day and; b) the seventh day.

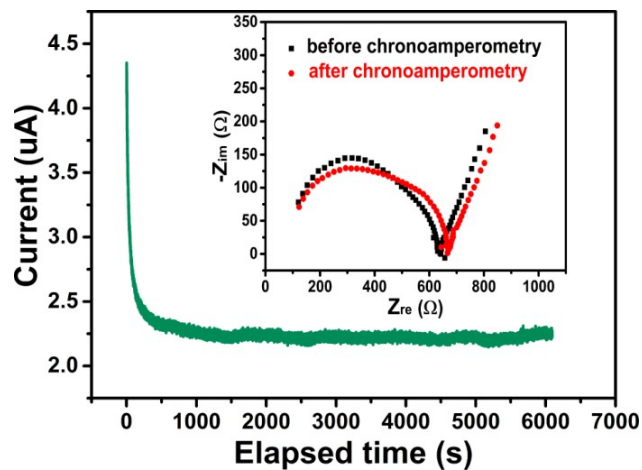


Fig. S10 Chronoamperometry profile of Li/CPE-3/Li cell at 60 °C. The inset displays the impedance spectra before and after chronoamperometry.

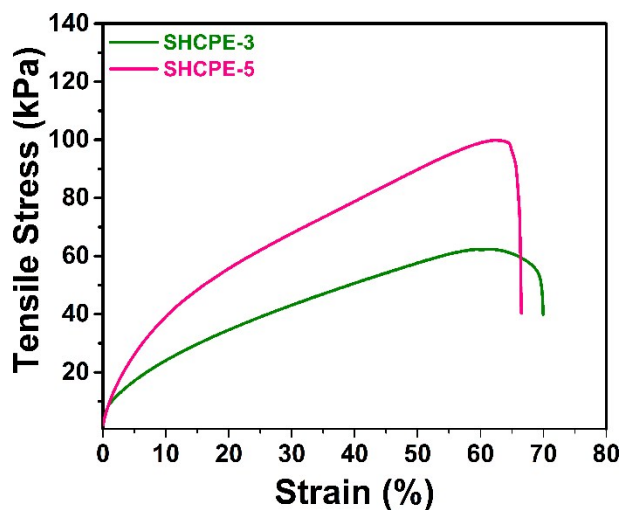


Fig. S11 Mechanical properties of the CPE-3 and SHCPE-5 samples.

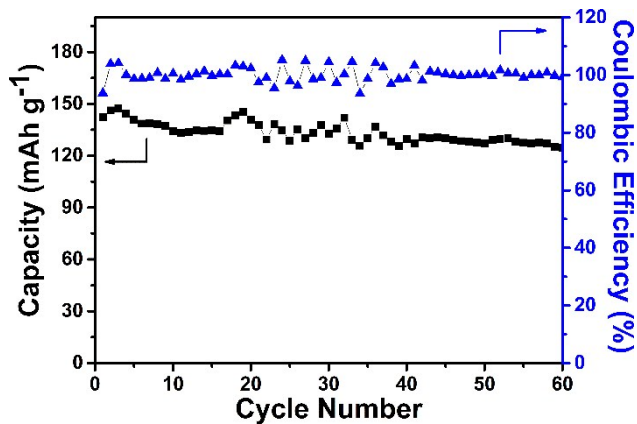


Fig. S12 The cycling performance of Li|CPE-10|LFP cell.