Supporting Information

Solid polymer electrolyte based on ionic bond or covalent bond functionalized silica nanoparticles


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Fig. S1 Digital photographs of CPEs prepared in the study.
Fig. S2 XRD patterns with FWHM values of the diffraction peak between $2\theta = 12^\circ$ and $25^\circ$ shown in inset for (a) SPE-PEO-LiClO$_4$, (b) CPE-SiO$_2$130-LiClO$_4$, (c) CPE-CBN20(80)-LiClO$_4$, (d) CPE-IBN200(68)-LiClO$_4$ and (e) CPE-IBN20(79)-LiClO$_4$. 
Fig. S3 (a) SEM image of CPE-IBN200(68)-LiClO$_4$, (b) EDX map for the Si atom in CPE-IBN200(68)-LiClO$_4$, (c) SEM image of CPE-SiO$_2130$-LiClO$_4$ and (d) EDX map for the Si atom in CPE-SiO$_2130$-LiClO$_4$.
Fig. S4 Line Scans Voltammetry of CPEs (Li|CPE|SS) with a scan rate of 10 mV s$^{-1}$ at 50 °C.
Fig. S5 Measurement of the lithium ion transference number of CPE-IBN20(79)-LiTFSI. (a) Typical Nyquist plot of the AC impedance of a Li|CPE-IBN20(79)-LiTFSI|Li cell at 60 °C; (b) Current variation with time during polarization of the symmetrical lithium cell.