Electronic Supplementary Material (ESI) for Materials Advances.

Composite lithium conducting solid electrolytes based on zwitterionic plastic crystals and polymer nanoparticles

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Table S1- Phase transition temperatures (taken from the onset, ±1 °C) and enthalpy change (±10%)

	First heating scan					Second heating scan			
Sample vol% ZI	ΔH (J/g $_{ZI}$) Phase II-I	T_{II-I} (˚C)	ΔH (J/g $_{ZI}$) I-melt	T_{I-m} (˚C)		ΔH (J/g $_{ZI}$) Phase II-I	T_{II-I} (˚C)	ΔH (J/g $_{ZI}$) I-melt	T_{I-m} (˚C)
100	25.3	54	63.5	98		24		62	
90	22.7	54	56	97		9	46	56	97
50	16.4	56	51	96		-			95

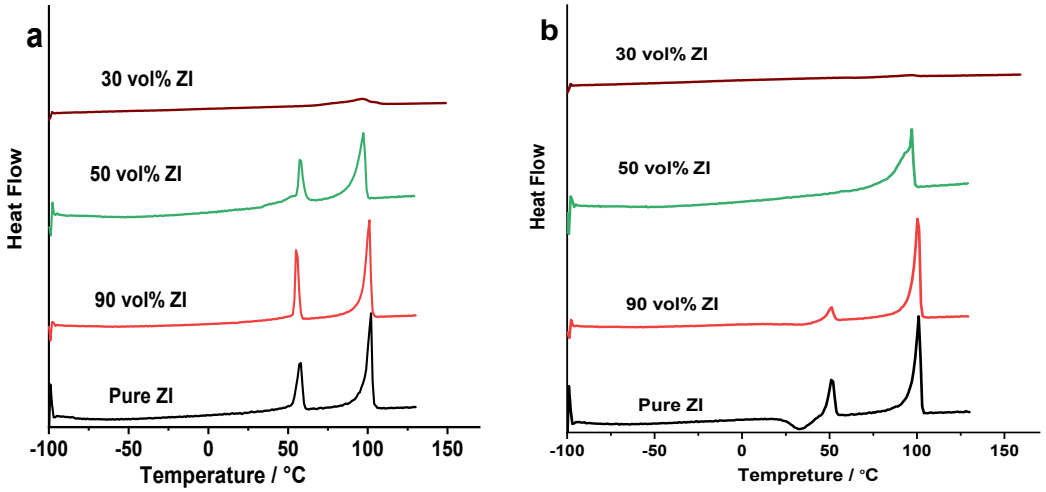

Figure S1. The DSC traces of pure ZI and its composite with different concentrations of lithium-functionalised nano particles, a) First heating scan b) second heating scan

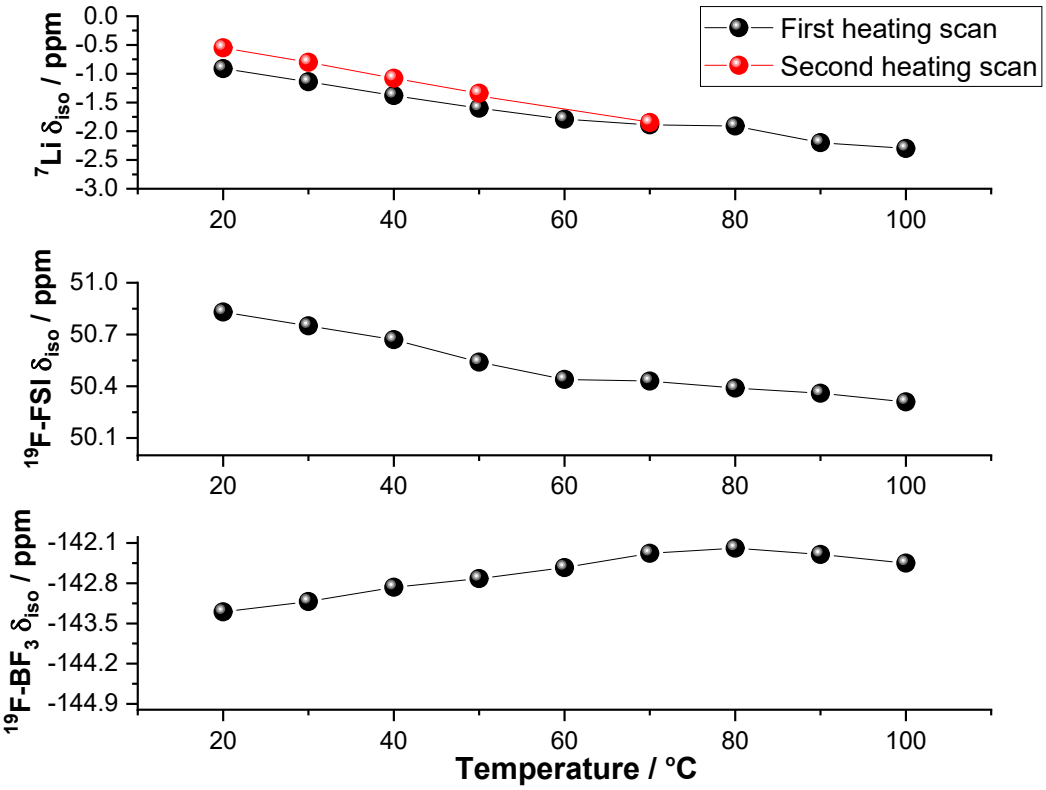

Figure S2. ^{7}Li, ^{19}F chemical shifts δ_{iso} of 90 vol% A / 10 vol% NPs at different temperatures

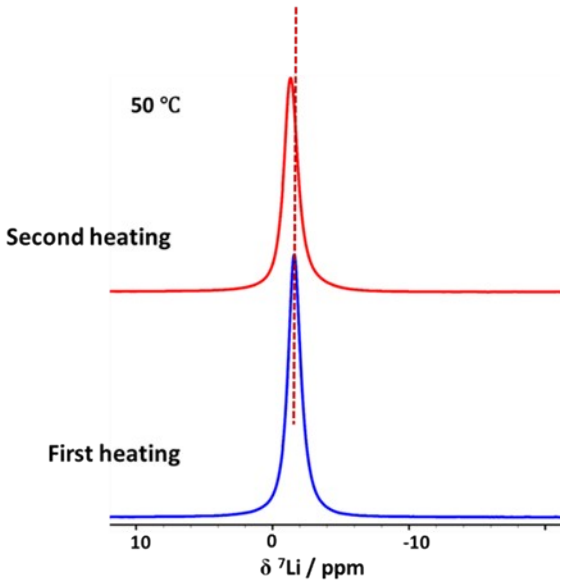

Figure S3. ^{7}Li NMR spectra of 90 vol% A / 10 vol% NPs First and second heating scan at 50°C.