

## Electronic Supplementary Information for

# At the polymer electrolyte interfaces: the role of the polymer host for interphase layer formation in Li-batteries

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### Supplementary Figures and Tables

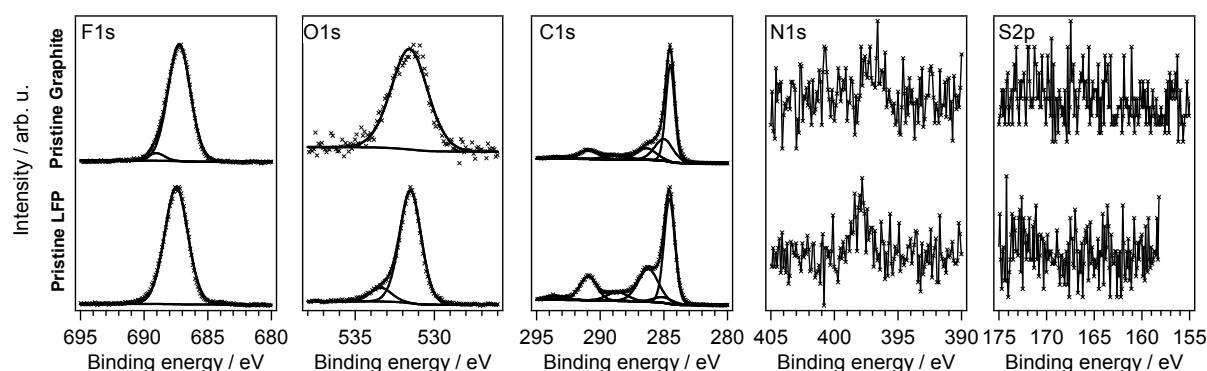


Figure S1. XPS spectra showing elemental fittings from pristine electrodes and pristine SPE.

Table S1. Relative concentrations of F, O, N, C, S and Li in the LiFePO<sub>4</sub> and graphite half cells using different SPEs.

Cell specification		F	O	N	C	S	Li
PTMC-based LFP cells (1 <sup>st</sup> cycle and long-term cycling)	Pristine PTMC	16.0	53.6	0.5	18.8	3.2	7.9
	LFP	46.2	15.4	0.3	36.2	0.8	1.0
	PTMC(LFP)						
	LFP (long-term)	13.5	50.1	0.7	29.4	2.3	2.8
	PTMC(LFP) (long-term)	11.1	53.5	0.5	31.7	2.6	0.4
PEO-based LFP cell (1 <sup>st</sup> cycle)	Pristine PEO <sup>2</sup>	12.9	30.4	1.6	47.7	3.3	4.0
	LFP	39.0	20.3	1.2	36.1	1.7	1.7
	PEO(LFP)	38.9	30.8	1.6	25.8	2.5	0.4

PTMC-based graphite cell (1 <sup>st</sup> cycle)	Graphite	15.9	41.2	0.0	41.4	0.3	1.3
	PTMC(Graphite )	16.1	44.6	0.0	38.2	0.0	1.1