

Supporting Information

Facile synthesis of NASICON-type $\text{Li}_{1.3}\text{Al}_{0.3}\text{Ti}_{1.7}(\text{PO}_4)_3$ solid electrolyte and its application for enhanced cyclic performance in lithium ion batteries through the introduction of an artificial Li_3PO_4 SEI layer

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Table S1 The density of LATP pellets with different content of molten $\text{CO}(\text{NH}_2)_2$

D	1/0	1/1	1/2	1/3
Density(g cm^{-3})	2.75	2.74	2.84	2.79
Relative density (%)	94.2	93.8	97.3	95.5

Table S2 The density of LATP pellets for the LATP powders calcined at different temperatures

Temperature(°C)	600	700	800	900
Density(g cm ⁻³)	2.72	2.84	2.68	2.54
Relative density (%)	93.1	97.3	91.8	87.0

Table S3 The density of LATP pellets for the LATP pellets sintered at various temperatures

Temperature(°C)	750	800	850	900
Density(g cm ⁻³)	2.56	2.84	2.71	2.60
Relative density (%)	87.7	97.3	92.8	89.0

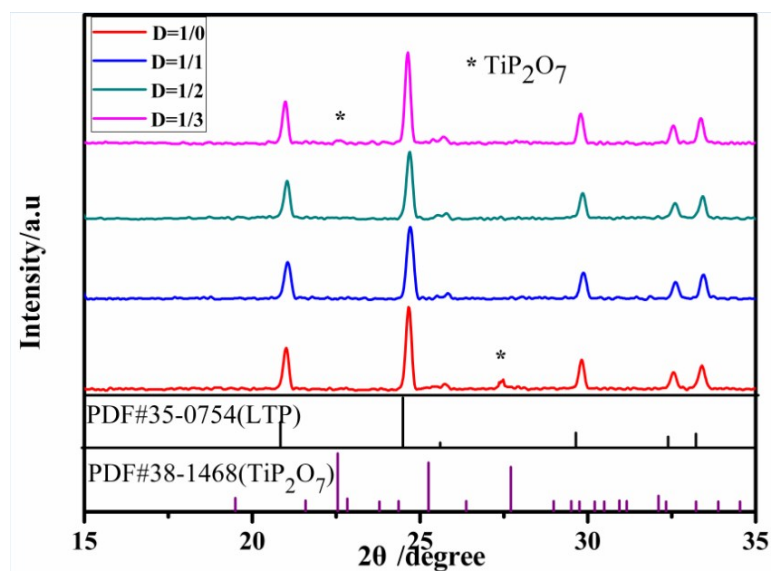


Fig. S1 XRD patterns of the LTP powders with different content of molten $\text{CO}(\text{NH}_2)_2$

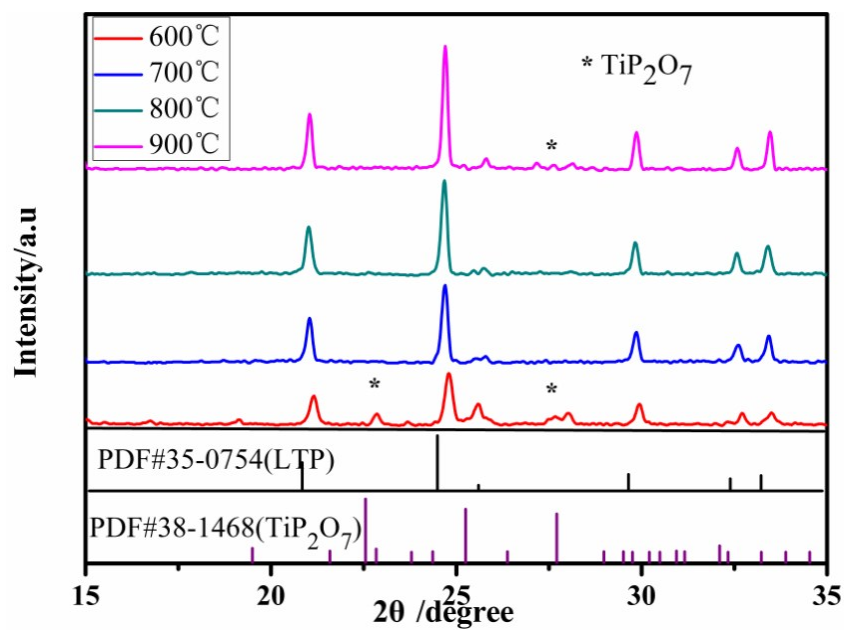


Fig. S2 XRD patterns for the LATP powders calcined at different temperatures

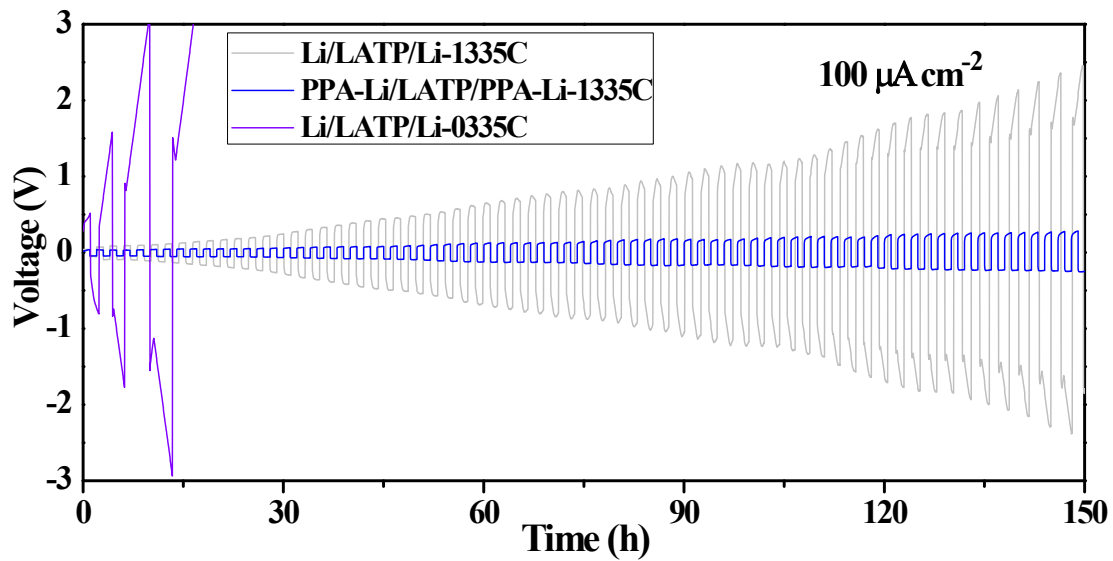


Fig. S3 cyclability of the symmetric cells for 150 h with a current of $100 \mu\text{A cm}^{-2}$ at room temperature

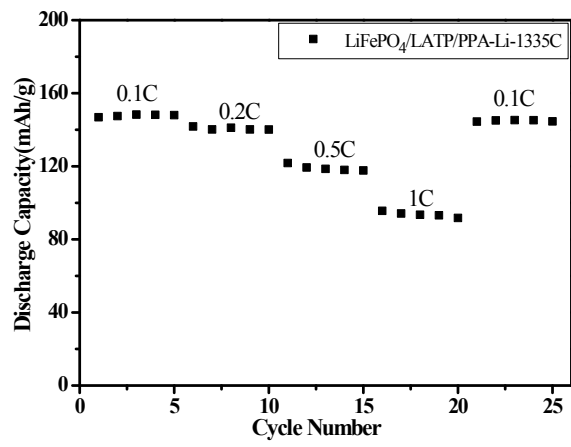


Fig. S4 Rate performance of $\text{LiFePO}_4/\text{LATP}/\text{PPA-Li-1335C}$ cell at room temperature