

Supporting Information

Analysis of carbon content in the LMFP

A certain amount of the obtained LMFP (m_1 g) was dissolved by hydrochloric acid (HCl, 0.5 mol L⁻¹). The residual carbon was filtered, and washed several time by pure water to remove the Cl⁻. After dried at 100 °C, the residual carbon was weighted to be m_2 g. And the carbon content in the LMFP was calculated to be:

$$C\% = \frac{m_2}{m_1} \times 100\%$$

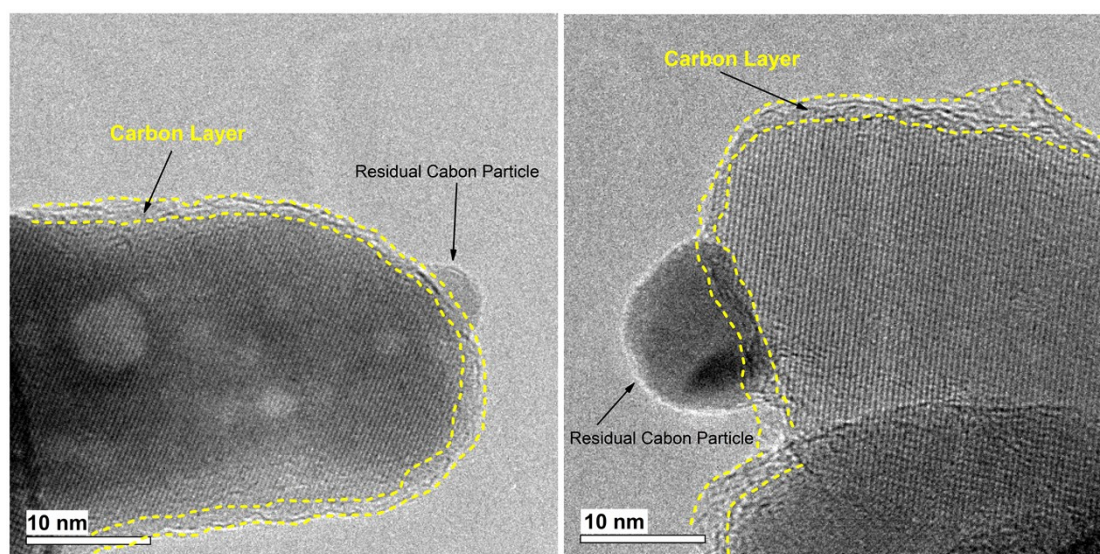


Fig. S1 The HR-TEM of typical primary particles in the LMFP microspheres.

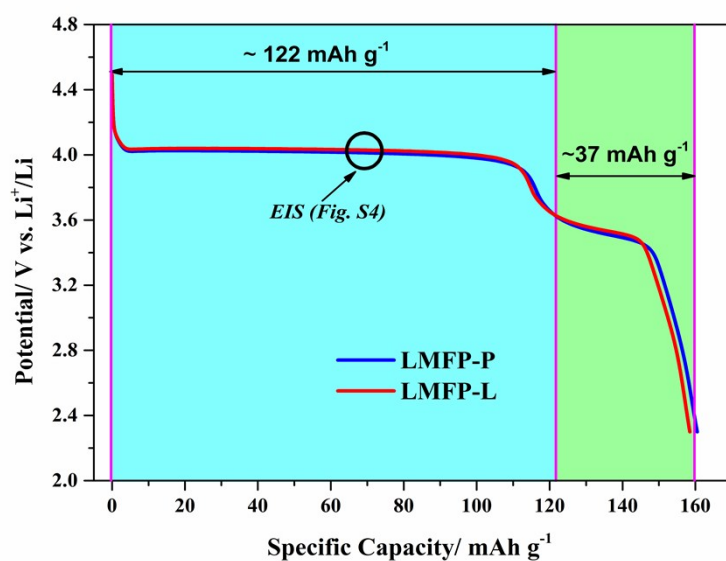


Fig. S2 Discharge curves of LMFP-P and LMFP-L electrodes at 0.1 C at room temperature.

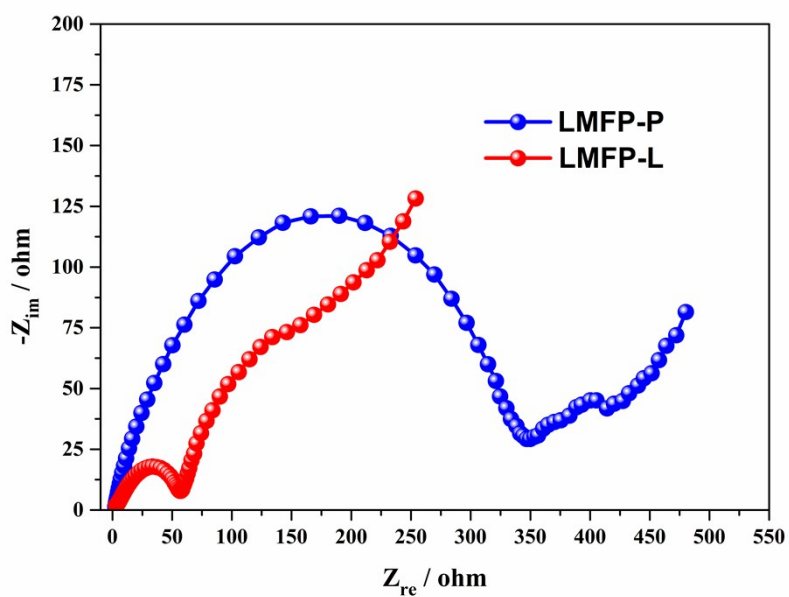


Fig. S3 The Nyquist plots of LMFP-P and LMFP-L electrodes at a charged state of 50 % from 100 kHz to 0.01 Hz after the cells were activated.

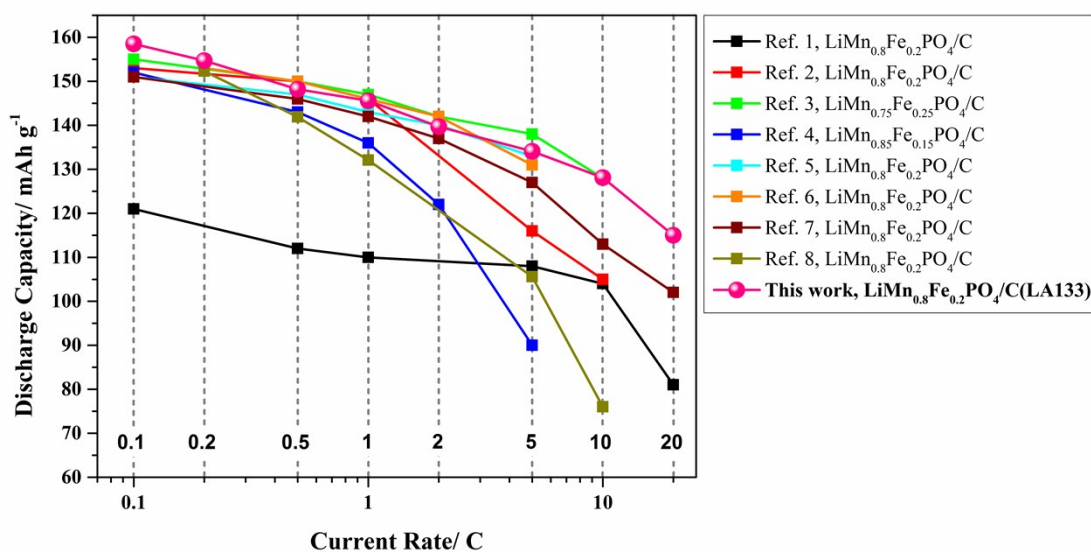


Fig. S4 Comparison of the rate performance with other research groups in recent years.

References

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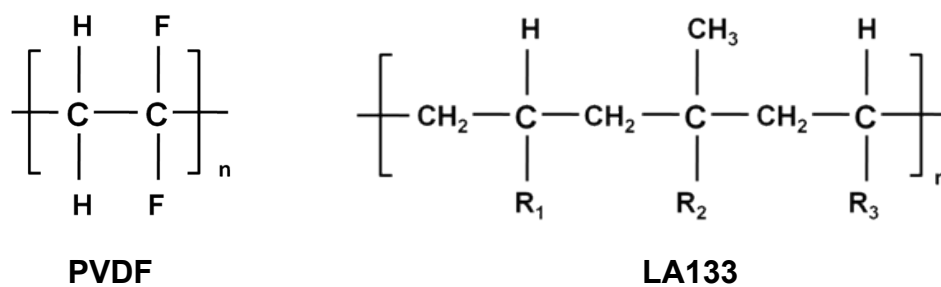


Fig. S5 Chemical structures of PVDF and LA133 (R_1 -Acrylamide, R_2 -Carboxylic acid lithium, R_3 -Cyano)

Table S1 The fitted kinetic parameters of LMFP composites with PVDF and LA133

Electrode	R_s / ohm	R_{ct} / ohm	$D(\text{Li}^+) / \text{cm}^2 \text{ s}^{-1}$
LMFP-P	1.32	273.5	2.06×10^{-15}
LMFP-L	1.84	128.5	1.90×10^{-15}

Table S2 The capacity percentage from the constant-voltage charging of the total charged capacity for LMFP-P and LMFP-L electrodes at various rates

Rate	LMFP-P / %	LMFP-L / %
0.1 C	5.40	3.03
0.2C	7.64	7.74
0.5C	12.3	7.83
1C	28.6	14.9
2C	68.3	20.1
5C	84.6	29.8
10C	99.1	43.0
20C	/	61.3