

Electronic Supplementary Information

Insights into the multi-functional lithium difluoro(oxalate)borate additive in boosting Li-ion reaction kinetics for Li_3VO_4 anodes

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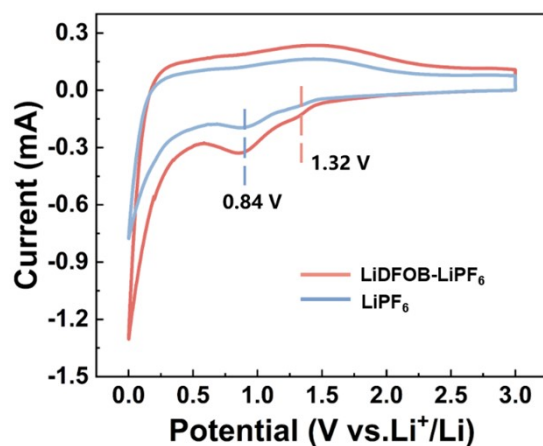


Figure S1 Cyclic voltammety curve of LVO/NC NFs after the first cycle in LiDFOB-LiPF₆ double salt and LiPF₆ electrolyte.

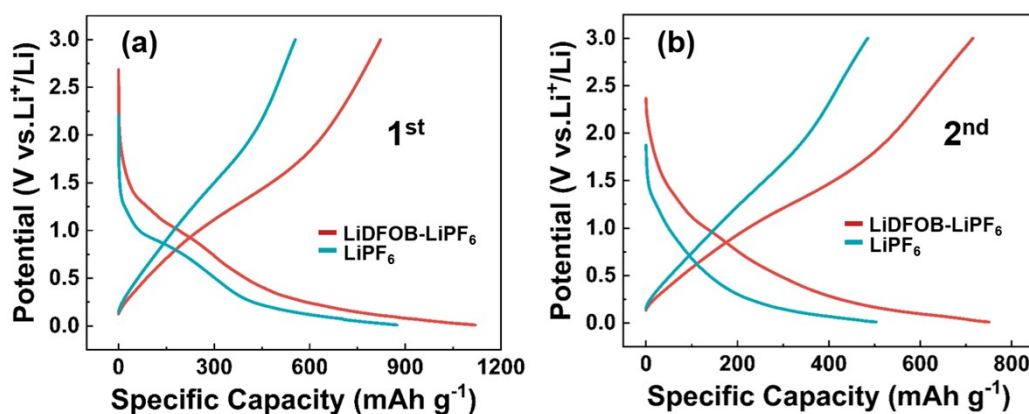


Figure S2 Charge and discharge curves of LVO/NC NFs in LiDFOB-LiPF₆ double salt electrolyte and single LiPF₆ different electrolytes (a) the first circle (b) the second circle.

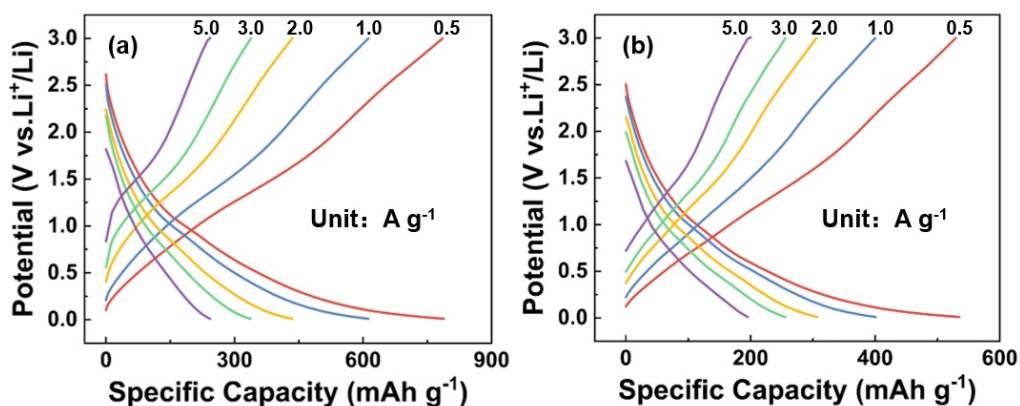


Figure S3 Charge and discharge curves of LVO/NC NFs in different electrolytes (a) LiDFOB-LiPF₆ and (b) LiPF₆ with different current densities (0.5/1.0/2.0/3.0/5.0 A g⁻¹)

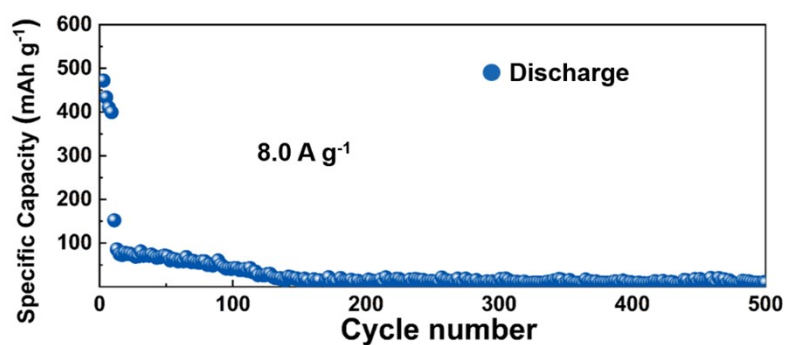


Figure S4 Cycling performance of LVO/NC NFs in LiPF_6 electrolyte at A high current density of 8.0 A g^{-1} .

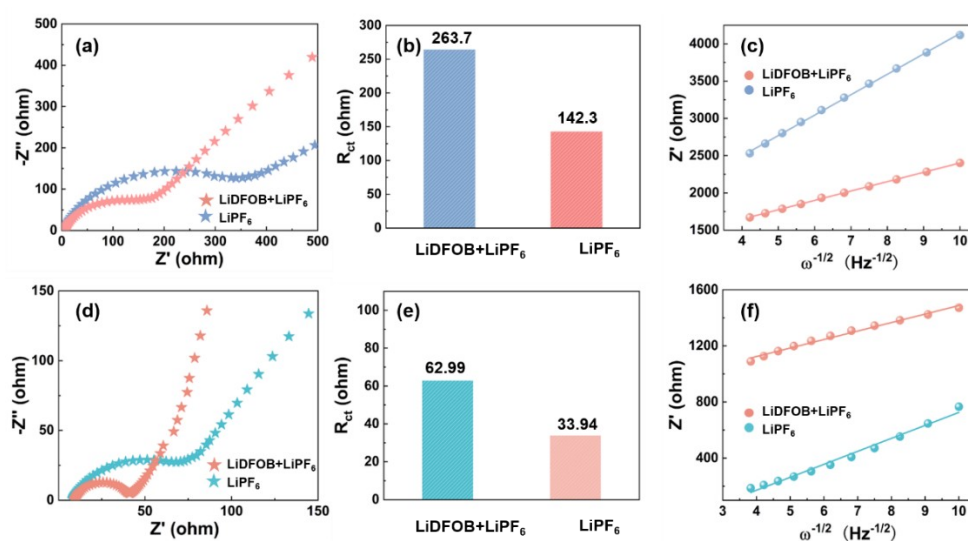


Figure S5 (a-c) The EIS spectra, fitted R_{ct} and complex impedance vs. $\omega^{-1/2}$ of LVO/NC NFs after 50 cycles in both electrolytes. (d-f) The EIS spectra, fitted R_{ct} and complex impedance vs. $\omega^{-1/2}$ of LVO/NC NFs after 200 cycles in both electrolytes.

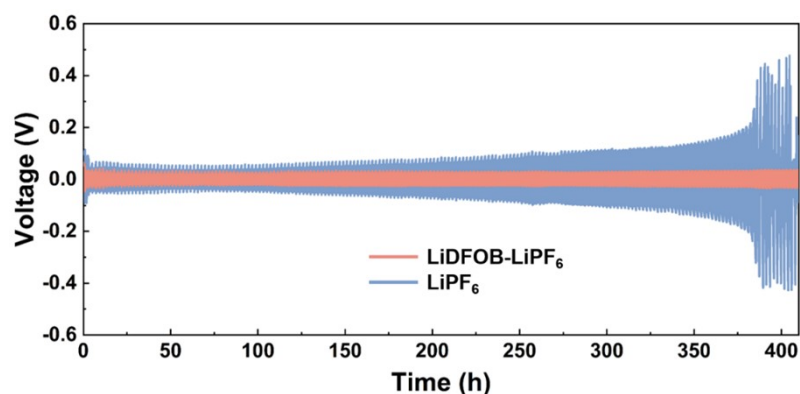


Figure S6 The cycling performance of Li||Li symmetric cells with LiDFOB- LiPF_6 and LiPF_6 at the current density of 0.5 mA cm^{-2} with a capacity of 0.5 mAh cm^{-2} (the cycle time is 400 hours).

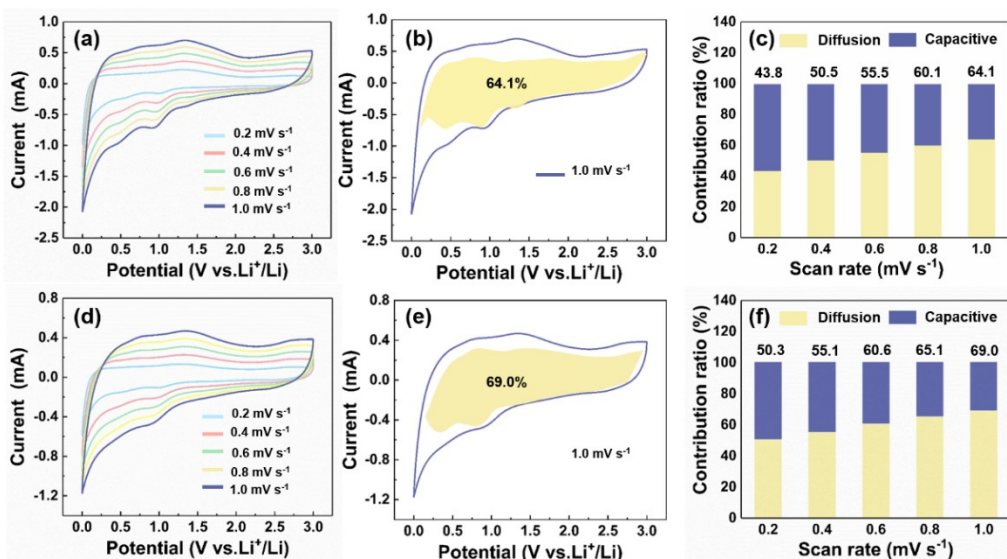


Figure S7 (a) CV curves of fresh LVO/NC NFs in LiPF₆ blank electrolytes at different scanning rates (b) Fitting diagram of pseudocapacitance contribution at scanning rate of 1.0 mV s⁻¹ (c) Ratio of pseudocapacitance contribution and diffusion contribution at different scanning speeds (d) LVO/NC CV curve of NFs electrode at different scanning rates after 200 cycles in LiPF₆ blank electrolyte (e) Fitting diagram of pseudocapacitance contribution at a scanning rate of 1.0 mV s⁻¹ (f) Contribution ratio of pseudocapacitance and diffusion contribution at different scanning speeds.

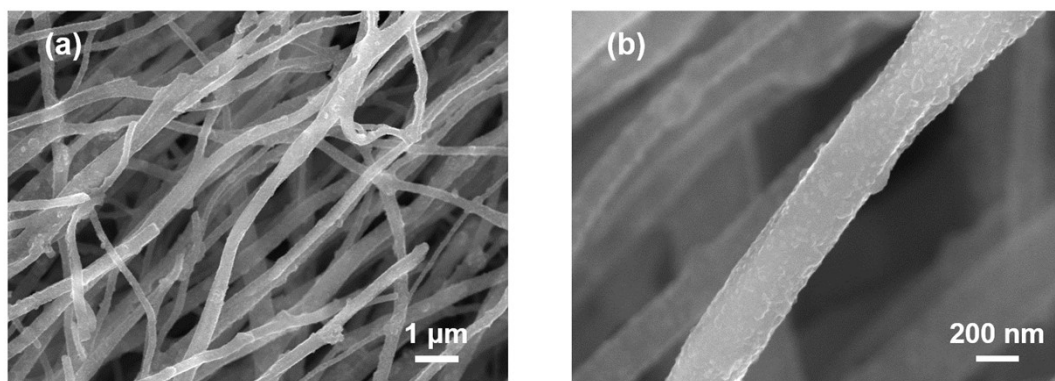


Figure S8 SEM images of LVO/NC NFs with different magnifications.

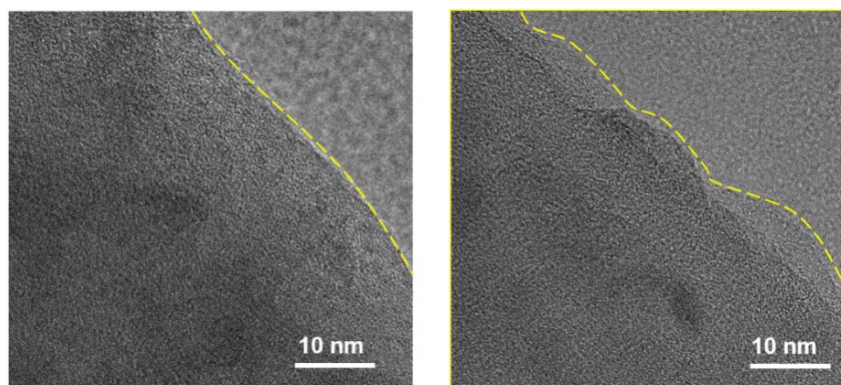


Figure S9 TEM images of LVO/NC NFs in (a) LiDFOB-LiPF₆ and (b) LiPF₆