Supporting Information

Resolving PC-Graphite Incompatibility via Steric-Hindrance-Directed Interfacial Regulation

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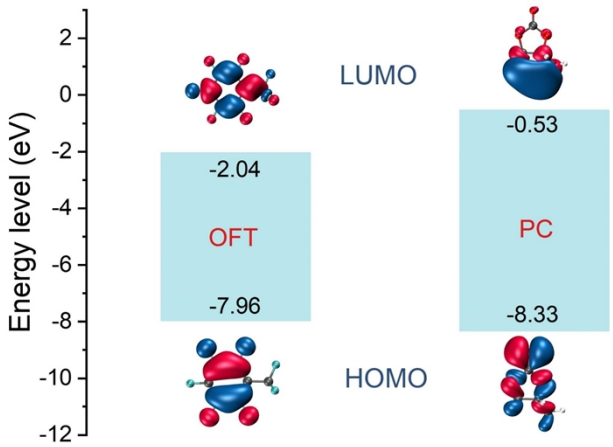

Figure S1. The highest occupied and lowest unoccupied molecular orbitals (HOMO and LUMO) of OFT and PC molecules.

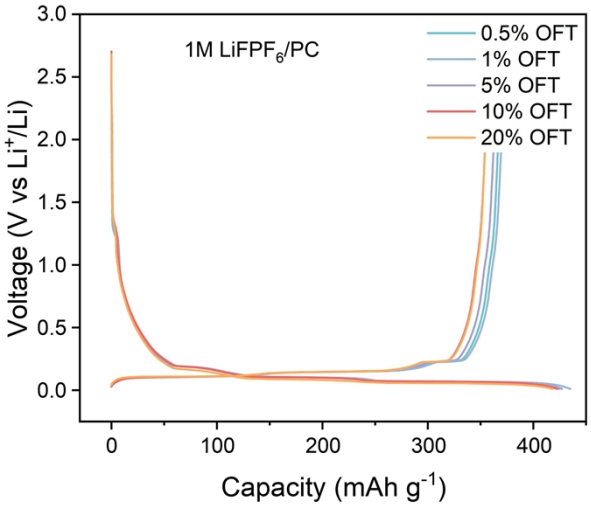

Figure S2. The initial discharge-charge curves of graphite electrode in 1 M $LiPF_6$/PC electrolytes containing different amounts of OFT.

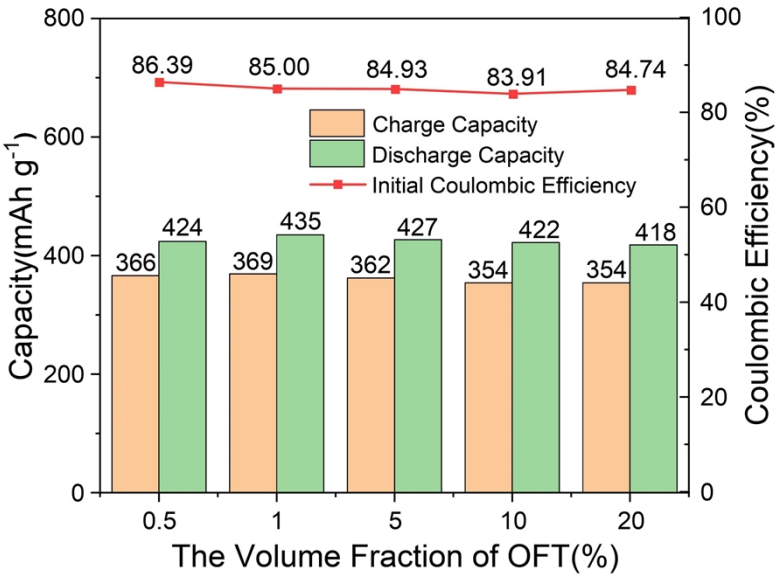

Figure S3. Comparison of initial Coulombic efficiency (ICE) and initial charge/discharge capacities of the graphite electrode in 1 M $LiPF_6$/PC electrolytes containing different amounts of OFT.

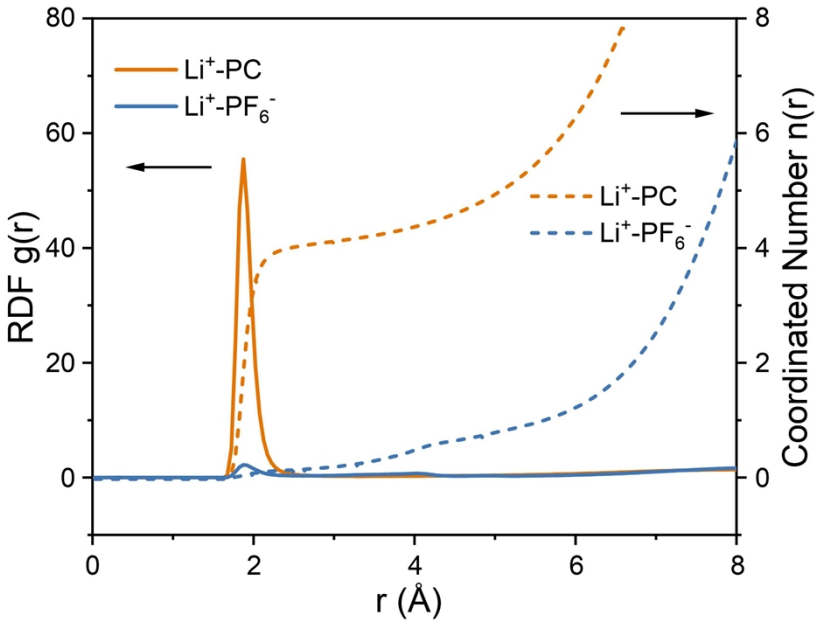

Figure S4. The radial distribution functions (RDFs) of solvent molecules at various distances from central Li^+ and coordination numbers (CNs) of Li^+ in 1 M $LiPF_6$/PC electrolytes.

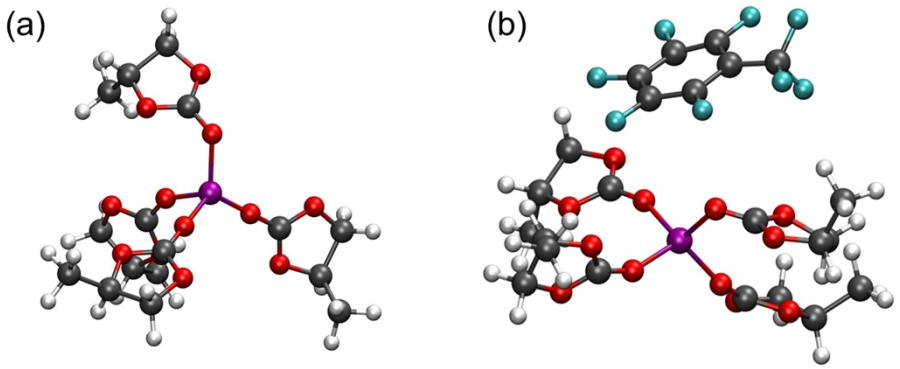

Figure S5. The optimized geometries of solvation structures of (a) $Li(PC)_4^+$ and (b) $Li(PC)_4^+$-OFT.

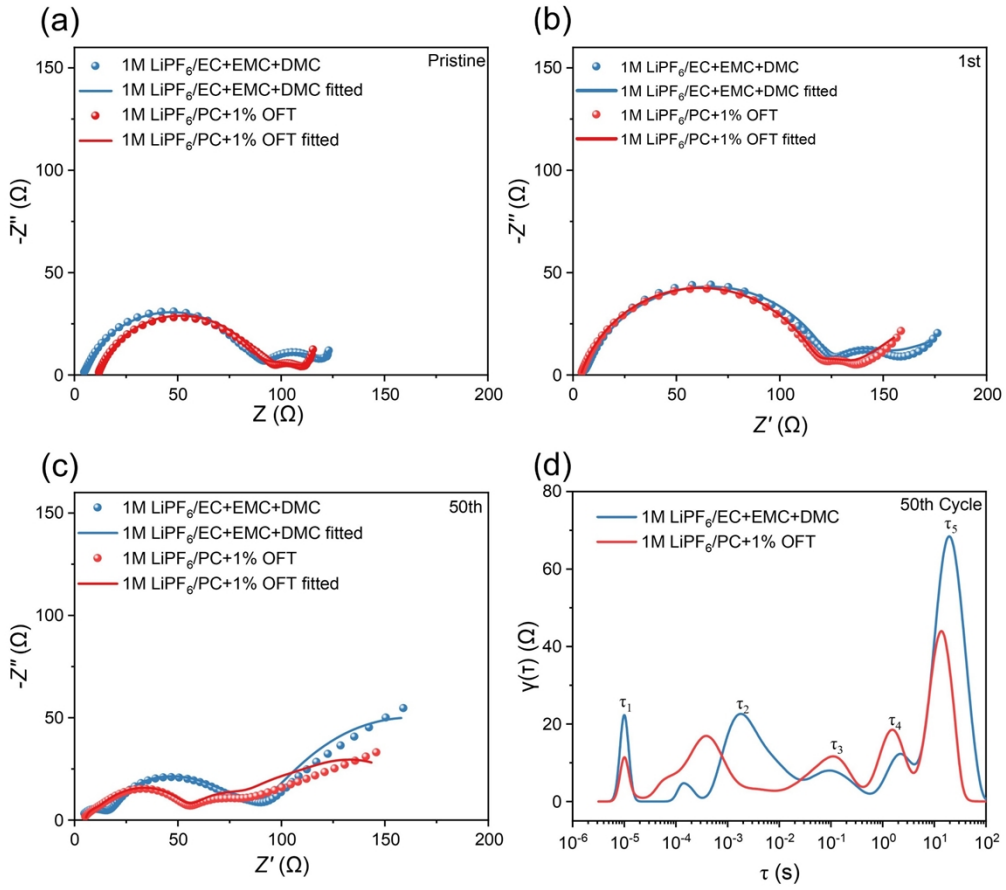

Figure S6. Electrochemical impedance spectra and their fitted curves for graphite electrode (a) before cycling, (b) after 1 cycle, (c) after 50 cycles and (d) DRT transformation for graphite electrode after 50 cycle.

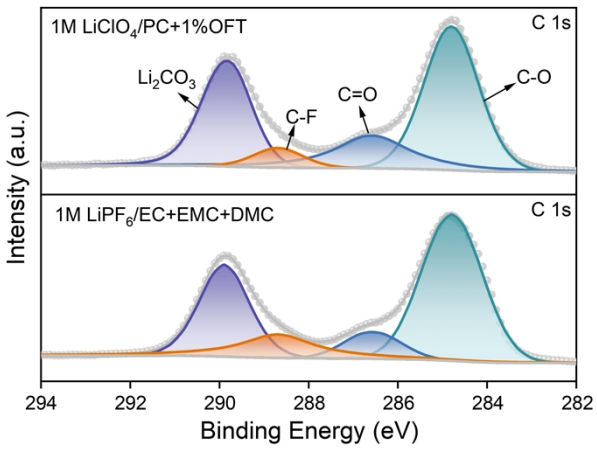

Figure S7. XPS C1s spectra of graphite electrode after cycling in 1 M $LiClO_4$/PC+1% OFT and 1 M $LiPF_6$/EC+EMC+DMC (1:1:1 by vol.) electrolyte.

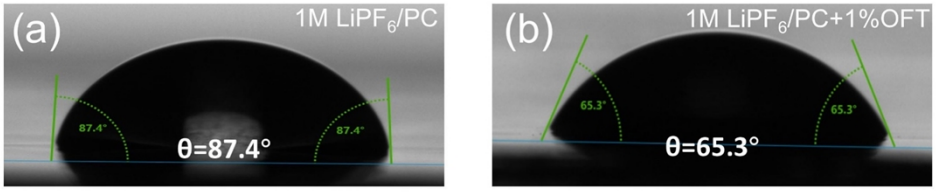

Figure S8. Electrolyte uptake of (a) 1M $LiPF_6$/PC and (b) 1M $LiPF_6$/PC+1% OFT electrolytes toward the PP separator.

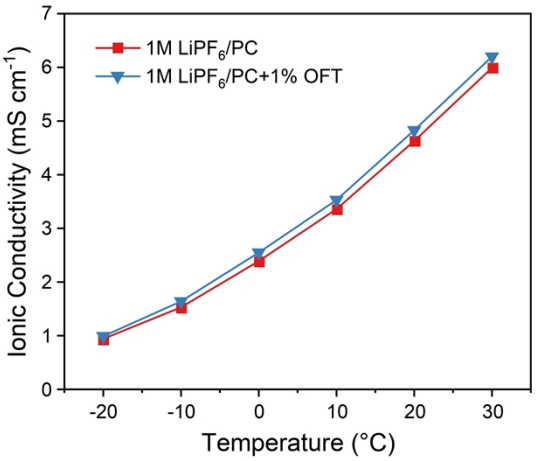

Figure S9. Conductivities of 1M $LiPF_6$/PC electrolytes with and without OFT at different temperatures.

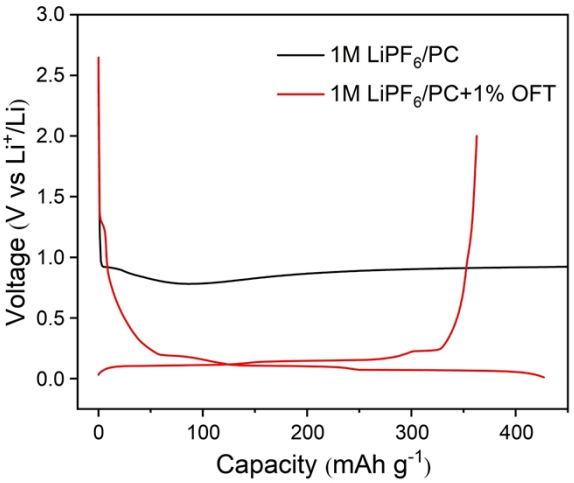

Figure S10. The initial discharge-charge curves of graphite electrode in 1 M $LiPF_6$/PC electrolytes with and without OFT.

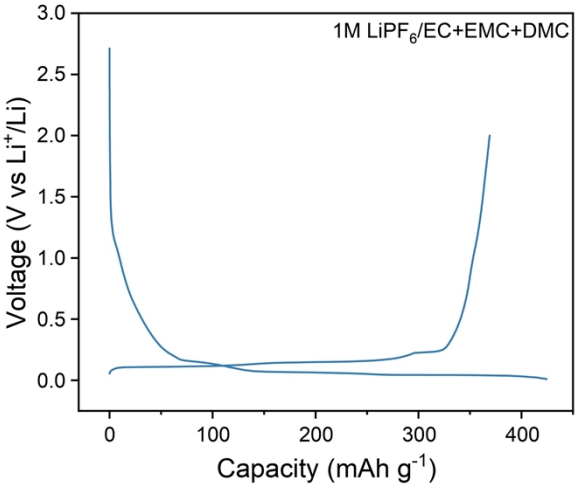

Figure S11. The initial discharge-charge curves of graphite electrode in 1 M $LiPF_6$/EC+EMC+DMC (1:1:1 by vol.) electrolyte.