Boron Trifluoride Anionic Side Groups in Polyphosphazene Based Polymer Electrolyte with Enhanced Interfacial Stability in Lithium Batteries

Sebastian Schmohl ǂ, Xuan He ǂ,* and Hans-Dieter Wiemhöfer

Institute of Inorganic and Analytical Chemistry, University of Münster, Corrensstraße 28/30, 48149 Münster, Germany

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ǂ These authors contributed equally to this work

* Correspondence: x_he0002@uni-muenster.de

Supplementry information:

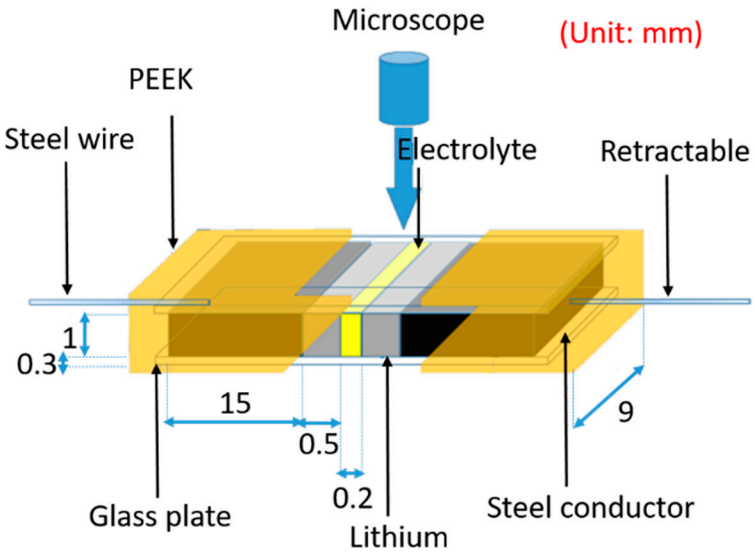

Figure S1: Configuration of visualization cell, reprinted from He et al[1].

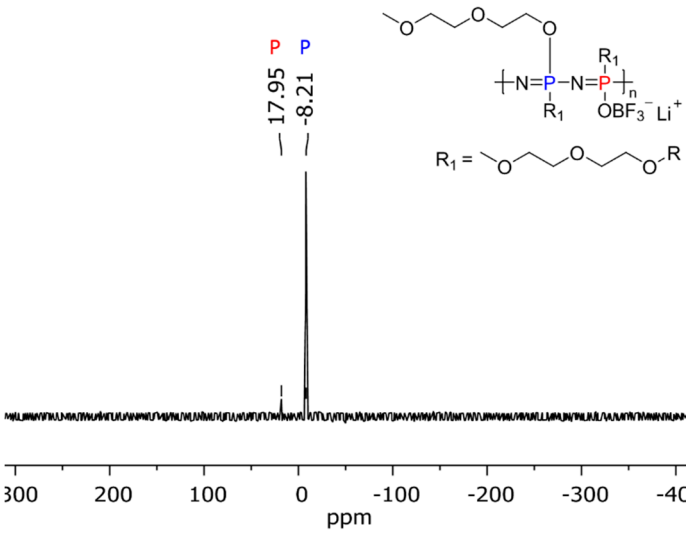

Figure S2:[31]P NMR (376 MHz, d[8]-THF, 300 K) of MEE-co-OBF3LiP, (polymer 4)

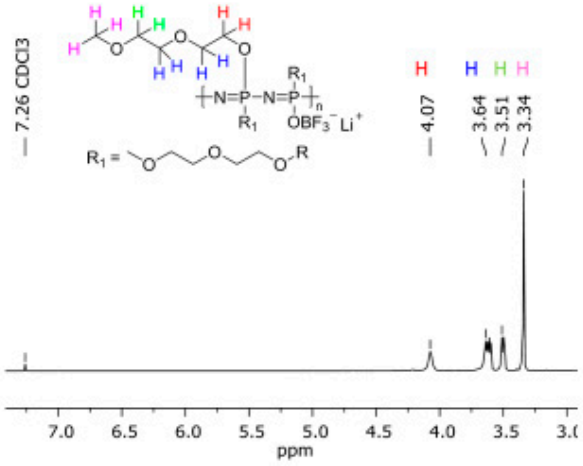

Figure S3:[1]H NMR (376 MHz, d8-THF, 300 K) of MEE-co-OBF₃LiP

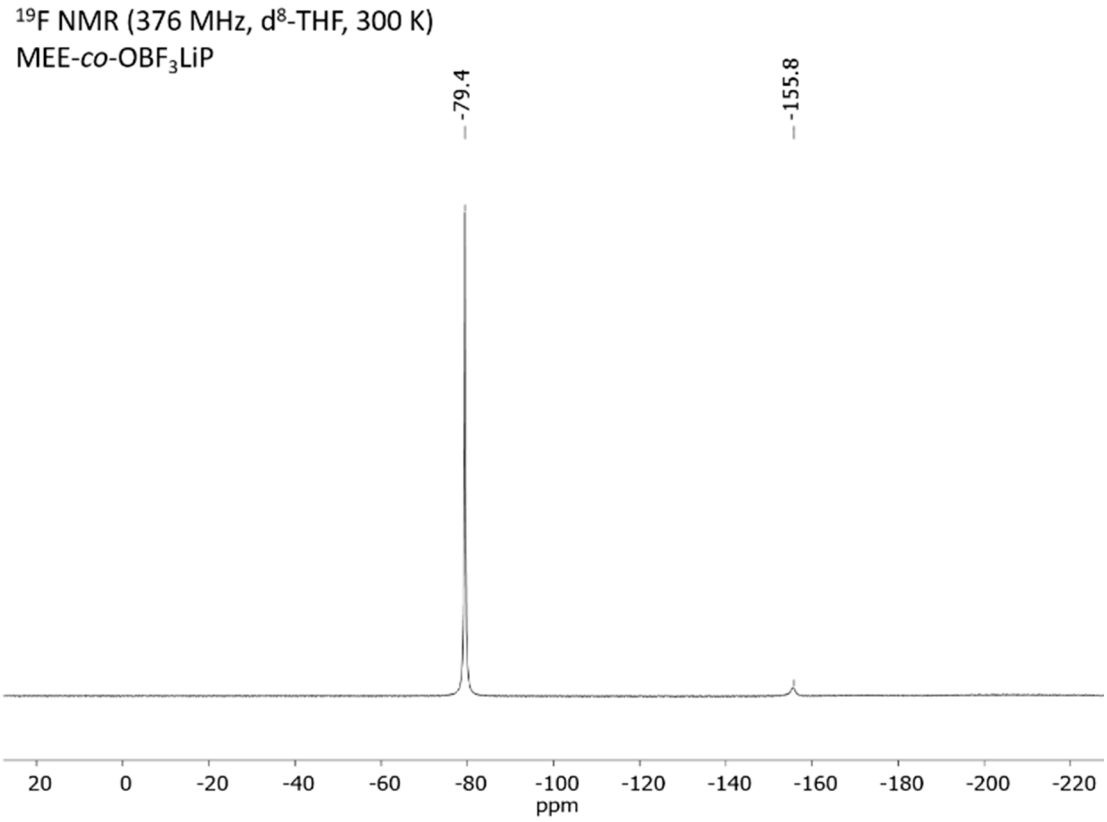

Figure S4:[19]F NMR (376 MHz, d⁸-THF, 300 K) of MEE-co-OBF₃LiP (polymer 4 with same molar LiTFSI as comparison).

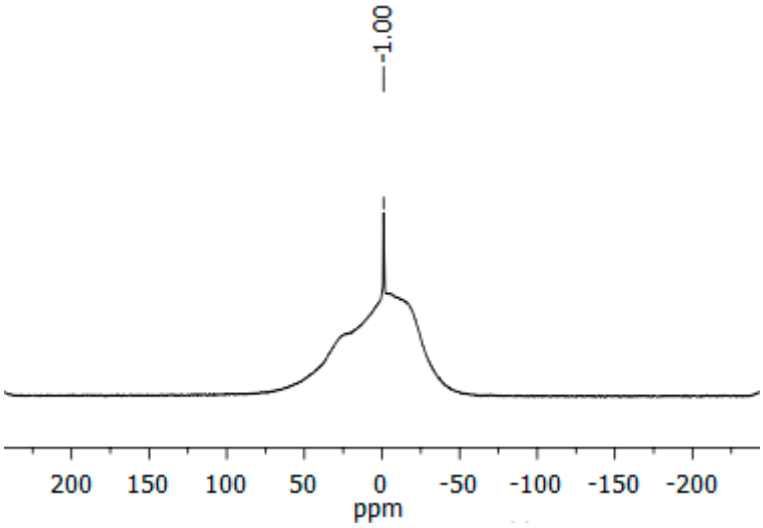

Figure S5: ^{11}B NMR (400 MHz, $CDCl_3$, 300 K) of MEE-co-OBF_3LiP.

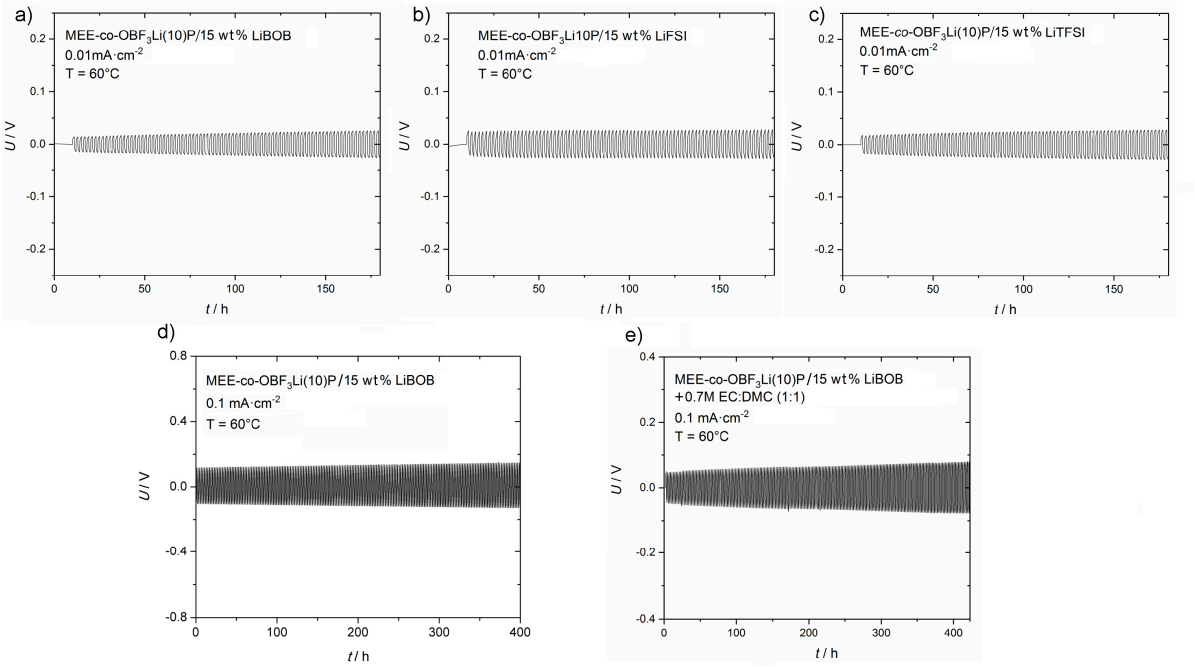

Figure S6: Plating/stripping experiments of (a) Li|MEE-co-OBF_3LiP/LiBOB|Li (b) Li|MEE-co-OBF_3LiP/ LiFSI|Li (c) Li|MEE-co-OBF_3LiP/ LiTFSI|Li at 0.01 mA cm^{-2} and (d) Li|MEE-co-OBF_3LiP/LiBOB|Li , (e) gel polymer Li|EC/DMC+MEE-co-OBF_3LiP/LiBOB|Li,at 0.1 mA cm^{-2}. 15 wt% corresponding salts were used in all polymer electrolytes.

Table S1: Composition of the prepared gel polymer electrolytes based on MEE- co-OBF_3LiP

	MEE-co-OBF_3LiP	**LiBOB**	**EC:DMC (1:1)**	**σ_{total} (30°C) / mS·cm^{-1}**
wt%	59.5	9.1	31.4	0.21

1. He, X.; Schmohl, S.; Wiemhöfer, H.-D. Direct observation and suppression effect of lithium dendrite growth for polyphosphazene based polymer electrolytes in lithium metal cells. *ChemElectroChem* **2018**, *Accepted*, doi:10.1002/celc.201801383R2.