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Supporting Information

Electrical Conductivity in Two Mixed-Valence Liquids

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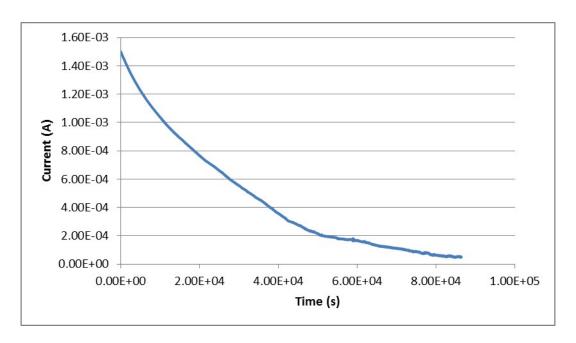


Figure 1. Current versus time plot 1 for first 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

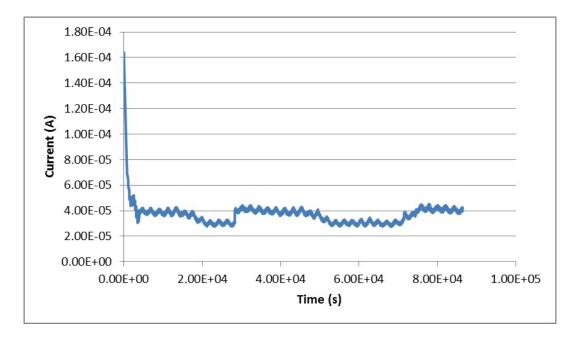


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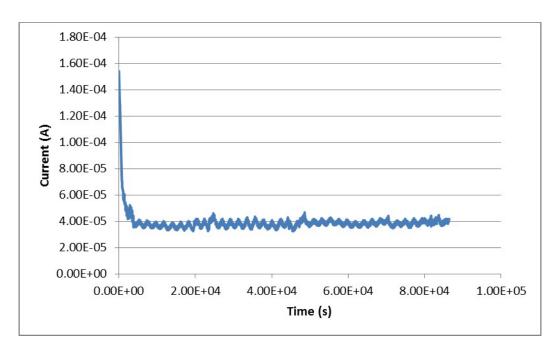


Figure 3. Current versus time plot 3 for first 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

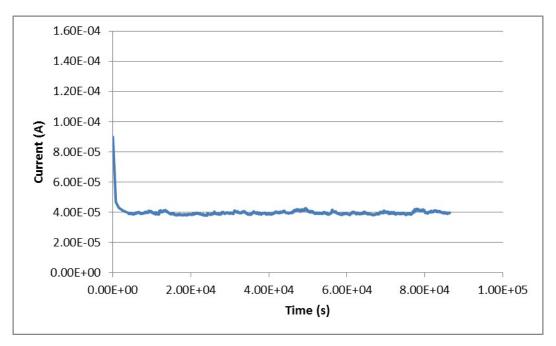


Figure 4. Current versus time plot 4 for first 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

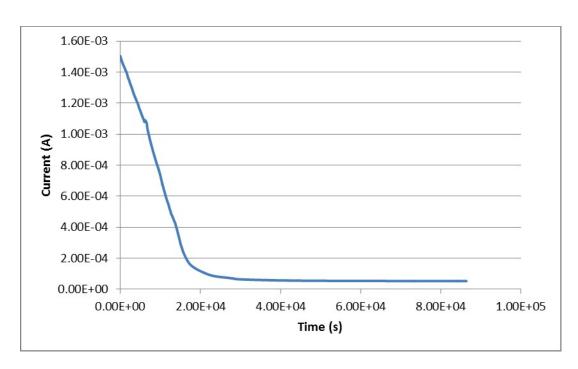


Figure 5. Current versus time plot 1 for second 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

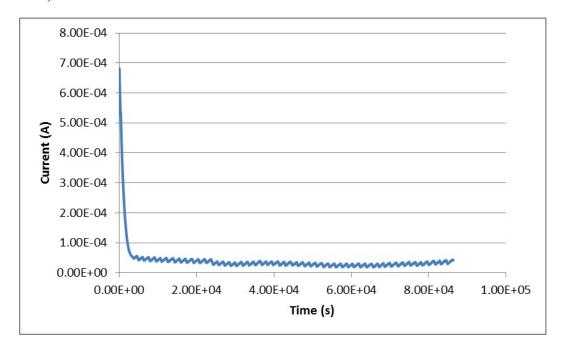


Figure 6. Current versus time plot 2 for second 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

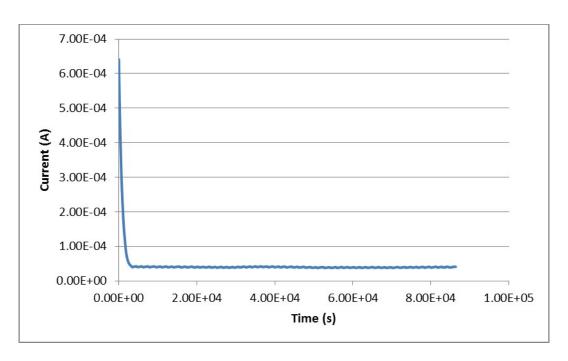


Figure 7. Current versus time plot 3 for second 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

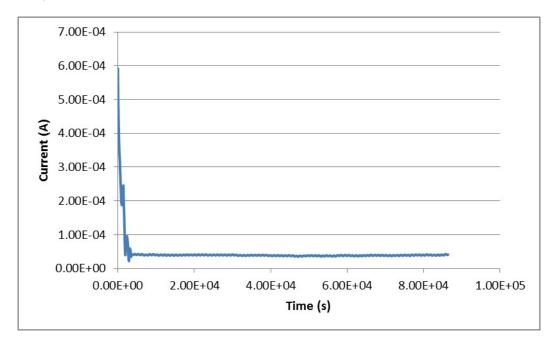


Figure 8. Current versus time plot 4 for second 0.15 g 1:1 BuFc/BuFc⁺NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at room temperature)

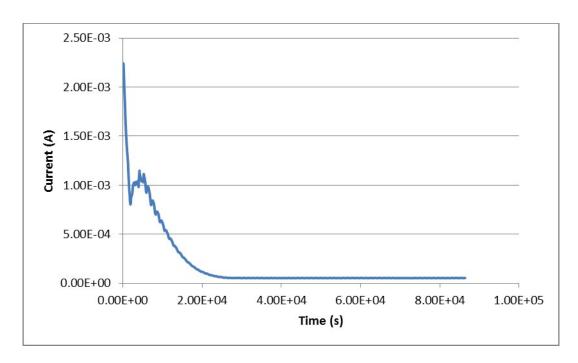


Figure 9. Current versus time plot 1 for first 0.158 g 1:1 TEMPO/TEMPO+NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at ~ $43^{\circ}C$)

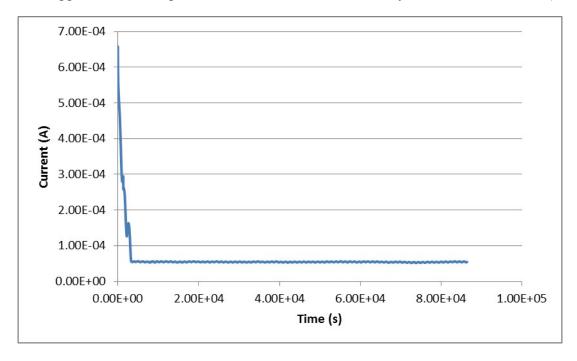


Figure 10. Current versus time plot 2 for first 0.158 g 1:1 TEMPO/TEMPO+NTf2- sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at \sim 43° $^{\mathcal{C}}$)

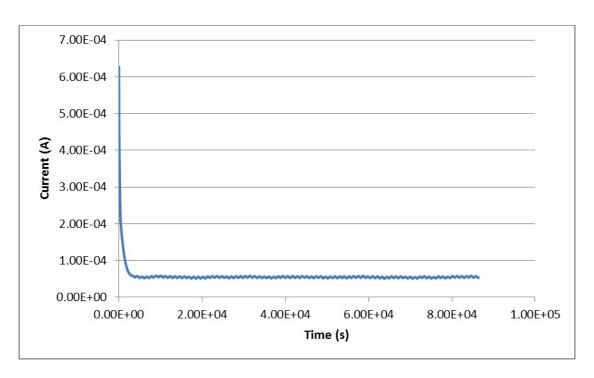


Figure 11. Current versus time plot 3 for first 0.158 g 1:1 TEMPO/TEMPO+NTf2- sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at \sim 43° \mathcal{C})

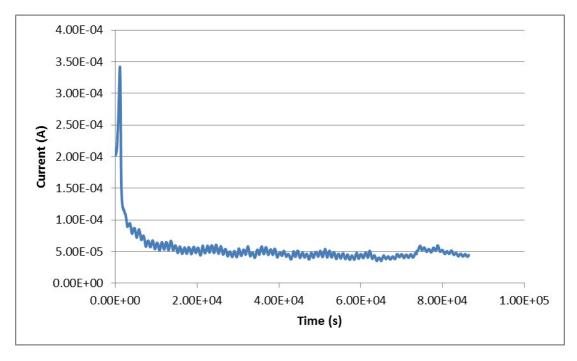


Figure 12. Current versus time plot 1 for second 0.134 g 1:1 TEMPO/TEMPO+NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at ~43° \mathcal{C})

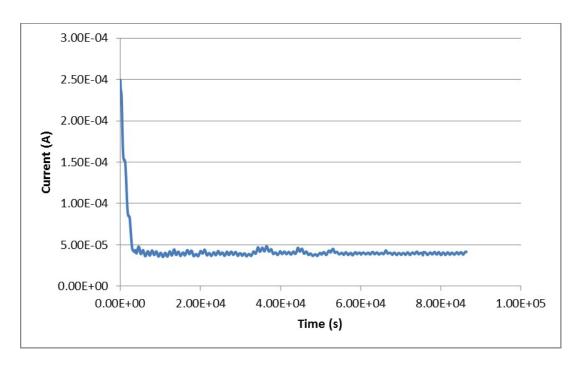


Figure 13. Current versus time plot 2 for second 0.134 g 1:1 TEMPO/TEMPO+NTf2⁻ sample (1.0 V potential is applied to the sample for 24 hours in anaerobic and dry environment at $\sim 43^{\circ}C$)

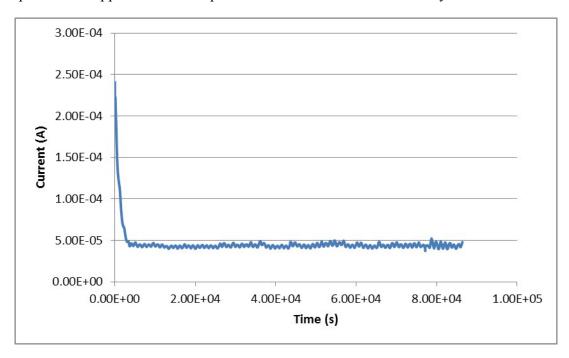


Figure 14. Current versus time plot 3 for second 0.134 g 1:1 TEMPO/TEMPO+NTf2- sample $(1.0 \text{ V potential is applied to the sample for 24 hours in anaerobic and dry environment at ~43°<math>^{\circ}$ C)

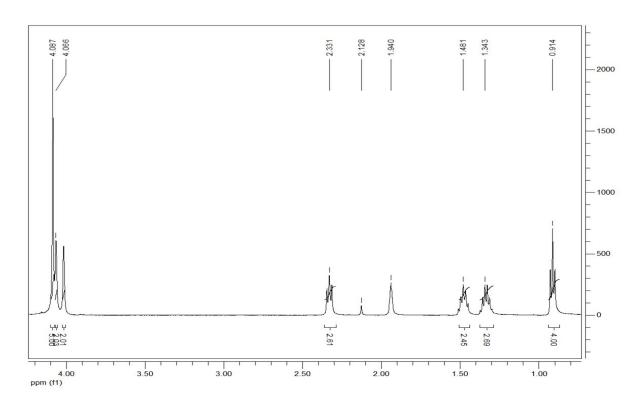


Figure 15. ¹H NMR for 1.0M BuFc in CH₃CN at 300.5 K

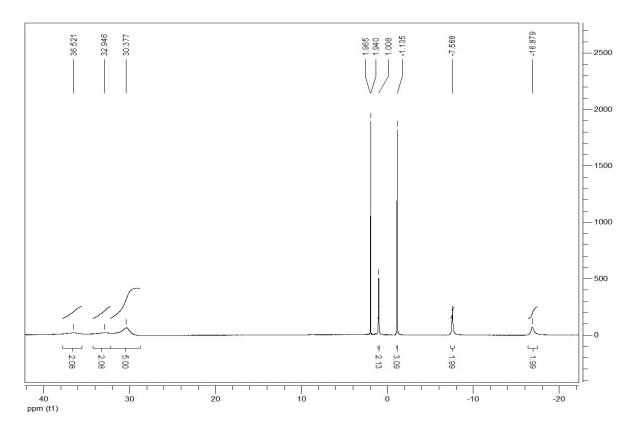


Figure 16. ¹H NMR for 1.0M BuFc⁺OTf in CH₃CN at 300.5 K

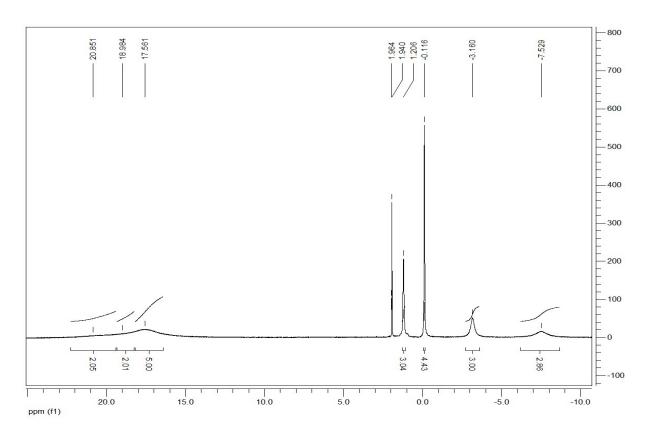


Figure 17. ¹H NMR for 1.0M 1:1 BuFc/BuFc⁺OTf in CH₃CN at 300.5 K

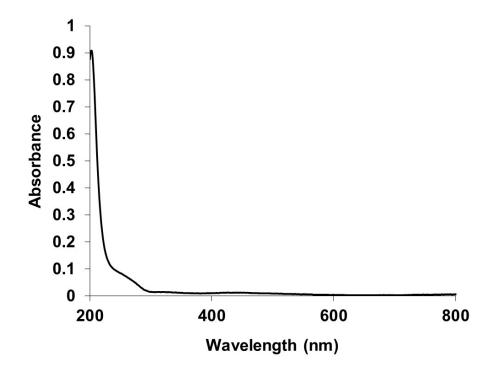


Figure 18. UV-vis spectrum for BuFc in CH₃CN at room temperature

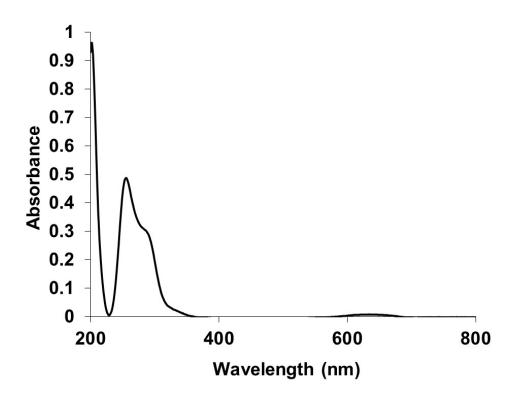


Figure 19. UV-vis spectrum for BuFc⁺NTf₂⁻ in CH₃CN at room temperature

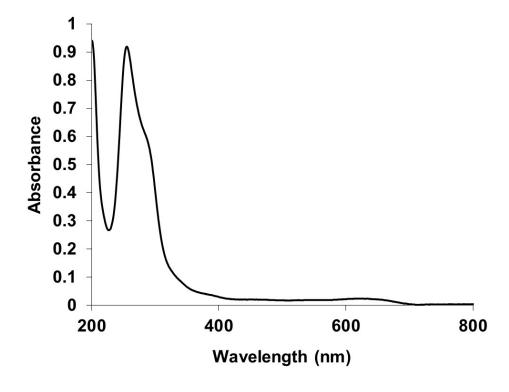


Figure 20. UV-vis spectrum for BuFc⁺OTf⁻ in CH₃CN at room temperature

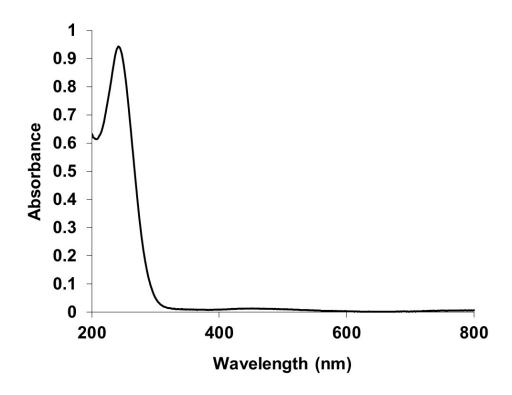


Figure 21. UV-vis spectrum for TEMPO in CH₃CN at room temperature

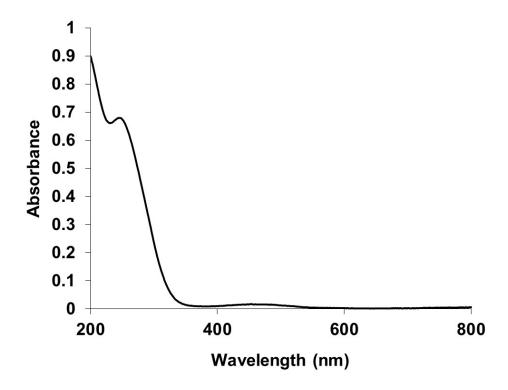


Figure 22. UV-vis spectrum for TEMPO+NTf₂- in CH₃CN at room temperature