**Electrochemical Measurement Project: Rough Proposal**

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Goals

Investigate the effect solvent dielectric and Lewis basicity on the transport and kinetics of reversible redox couples.

Approach

Determine , , as a function of composition in binary solvent mixtures of acetonitrile/acetone and acetonitrile/dichloromethane. Composition will be correlated to solvent dielectric and Lewis basicity as quantitatively as possible.

CVs must be corrected for uncompensated solution resistance, which will be measured before each via EIS.

Week 1 Experiments

* Verify solubility of TBAF, Fc in pure
* Measure diffusion constants via scan rate dependence of peak current
* Verify reproducibility of ECSA
* Verify EIS operating frequencies using the Kramers-Kronig Transform.

Required Materials

* Pure solvents: Acetonitrile, Acetone, and Dichloromethane.
* Analyte and supporting electrolyte: FeCp2, Bu4NPF6
* ~1mm diameter Glassy Carbon disk electrode
* Double junction Ag/AgCl/sat. KCl reference electrode

Optional Materials

* Commercial Potentiostat to eliminate myDAQ issues with sampling in AC methods and increase the range of operating frequencies.

Primary Reference