Term Paper 2012 (Due Date: April 13, 2012 or before)

I want you to prepare a 10-page term paper on an electrochemical topic of your choice. You should select a topic that has been published on in the literature so that you have resources available to craft the paper. The topic could be directly related to your dissertation research, or not. It is up to you. You should use a minimum of three peer-reviewed papers, as well as reference books, to prepare the paper. I want you to teach me about a topic.

The paper should be Arial 12 pt. font with 1.5 line spacing. Five figures would be appropriate. Embed these within the text (4 x 4 inches at least). Use page numbers and full text justification. Always use appropriate referencing when using published data or text. The paper should consist of the following sections: Introduction, Experimental, Results, Discussion and Citations.

The Introduction section should give a brief but clear discussion of what the chemical/biological/material science problem is, and why and how electrochemical methods are useful for understanding the problem. This section should also include some statement of why the problem is important to study.

The Experimental section should focus on the electrochemical method used in the work. In your own words, provide a brief but complete explanation of the method(s). This should include information about the perturbation signal, the measured signal and any relevant analytical equations. What insight (quantitative, qualitative, and kinetic) can be obtained using the method? I am particularly interested to see how well you understand and can explain an electrochemical method.

The Results section should include key data taken from the paper. You may reproduce figures and tables from the paper and embed them in the text. In this section simply present the key results. Again, five figures would be appropriate here. They can be simply scanned from the original paper and embedded into the text. The data selected for presentation should fully demonstrate the key findings from the work.

The Discussion section should include your explanation and interpretation of the results. If you excerpt text from the paper then you must provide appropriate referencing. I would like for this section to include your own interpretation of the data and the conclusions reached by the authors. Do not rewrite their discussion. What is the new science presented and how do the key findings advance the field?

Possible Topics: Electrochemistry of graphene, electrodes for photovoltaics and capacitors, a novel electrocatalyst, studies of neurotransmitter release, metal corrosion and inhibition, electrochemical chemo and biosensors, chemically modified electrodes, nanoparticle electrochemistry, etc.