

## Topics for Formal Write-up

The following topics have been assigned for the formal write-up.

- Energy in capacitors: Jackson problems 1.6 & 1.8 (p. 51, 52):  
**Penny/Nate conflict needs to be resolved**
- Green Function for the sphere; conducting sphere with  $\pm V$  (p. 64-67): \_\_\_\_\_
- Fields and Charge Densities in 2-D corners and along edges (p. 75-79): **Jason**
- Behavior of fields near conical hole or sharp point (p. 104-107): \_\_\_\_\_
- Boundary value problems with dielectrics: sphere (p. 157-159): \_\_\_\_\_
- $\vec{A}$  and  $\vec{B}$  for a circular current loop (p. 181-184, up to eq. 5.41): **Shriya**
- Boundary value problems: Uniformly magnetized sphere (p. 198-200): **Dan**
- Magnetized sphere in external field & magnetic shielding (p. 200-203): **Courtney**
- Thomas Precession (p. 548-553): \_\_\_\_\_
- Superconductivity (based on p. 603-605): **Sans**
- Synchrotron Radiation (based on Chapter 14): **Tim**
- Bremsstrahlung Radiation in Astronomy (based on p. 714-721): **Nycole**

You now have a little under three weeks to do your research, prepare your material, and write your paper, which is due Week 10 (see D2L Dropbox for date and time; [dropboxes will become visible near Week 10](#)). **Instructions for the paper are on the next page.**

## Instructions for the Paper

**Please submit your paper into the D2L Dropbox. No other mode of submission is permitted.**

The paper should be in journal format, details of which are given below (adapted from ApJ author guidelines). There must be a *minimum* of 3 pages of 1.5-spaced text in 12-pt (maximum) Times New Roman font (or equivalent) with 1-in margins on all sides. Do not count references as part of the 3-page minimum. Note that points will be deducted for any attempt to fill space (e.g., leaving wide margins between paragraphs, making figures too big, etc.). Note also that this is *only a minimum page limit; some of you may need more pages than the minimum*.

**Formatted example of paper begins below.**

### TITLE OF PAPER

(centered and all-caps, larger font)

### AUTHOR NAME

(centered and all-caps, smaller font than title)

### ABSTRACT

(centered and all-caps, same font as title)

Enter your abstract here. An abstract usually describes what you will be presenting in the paper, and lists the major result(s)/issues.

### 1. INTRODUCTION

(centered and all-caps, same font as title)

Enter your introduction here. The introduction usually consists of 1-2 paragraphs introducing the topic of the paper, and provides the reader with the broader context in which to place the paper.

### 2. DISCUSSION

(centered and all-caps, same font as title)

This will be the major part of your paper, in which you present your project.

### 3. CONCLUSIONS

(centered and all-caps, same font as title)

Contains 1-2 paragraphs stating your conclusions. **End count for 3 pages of text here.**

### REFERENCES

(centered and all-caps, same font as author name, smaller than title)

Format is Author name list, Year, Journal, vol., page number;  
e.g., Baan, W. A., Haschick, A., & Henkel, C. 1992, Journal/Textbook Name, vol. 103, p. 728

Include as many figures, if and as needed. All figures must have a figure number and (adequately descriptive) figure caption. Each figure must also be described in the body of the manuscript (this is most commonly done in the Discussion section), i.e., write 2-3 sentences describing each figure in the body of the paper.