

Topics for Formal Write-up

The following topics have been assigned for the formal write-up. Note that I've assigned 2 students to each topic, so you are welcome to discuss, but the paper must be an individual effort. The same rules for academic integrity apply, so discuss but please do not share work products with each other.

- (a) **Shriya, Courtney:** Discuss a **model of the ionosphere** as given in **Section 7.6** (*Jackson*, pages 316-319); in particular, you must decouple from equation (7.63) the transverse components to demonstrate explicitly the progression to equation (7.65) and equation (7.67), then discuss Figure 7.10 and Figure 7.11.
- (b) **Dan, Penny:** Write fields and match boundary conditions to solve **Problem 7.2** (*Jackson*, pages 340-341).
- (c) **Nycole, Nate:** Work with me to solve **Problem 7.15** (*Jackson*, pages 345-346), and then use it to discuss dispersion and rotation measures of pulsars.
- (d) **Sans, Tim:** By working through the equations of **Section 8.2** (*Jackson*, pages 356-359) on **waveguides**, be able to explain TM and TE waves, along with a TEM mode.

You now have **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 in early March](#)). **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.