

The purpose of this assignment is to become familiar with the world of refereed technical journals. This can be a somewhat intimidating world because your work is held up for detailed scrutiny by one or more experts in your field, the "referees". The referees are supposed to make an objective opinion on the scientific or technical validity and merit of your work, including the techniques used, the results, the interpretation of your results and if your work "advances the state of the art". If you continue your career on a research and development path in academia, industry or government, you will likely face the prospect of publishing some of your work in the "open literature" of a refereed journal.

The assignment:

1. Choose a paper from a refereed journal that is related to the subject area of the course. (This part has been done as Phase I; it was worth 35 points.)
2. Read the paper. You (nor I for that matter) are not likely to completely understand the entire content of the paper. This serves as your first lesson. In the "real world" you would read a paper because it relates to your work. However when you are starting out, you may have limited knowledge.
3. Write a 2-3 page synopsis (summary) on the paper that addresses the following:
 - A. Explain why the paper is about a "quantum device". Give specific reasons why quantum mechanics is important to understand how the device works. (10 pts.)
 - B. One quality of a well written paper is that it will give the reader some idea of the motivation for the work, how the work fits into the current state of affairs in the research field, and how the work presented in the paper advances the "state of the art". The paper should give some background references to help establish these things. As part of the assignment (10 points):
 - i. Identify the motivation of the authors. What work had been done previously by the authors or others that led up to the publication of the paper? The authors should state what contribution their paper makes to the field. What is this? In general, why did they write this paper?
 - ii. Look up the background references. Do you think that the references were appropriate? Did they indeed "set the stage" for the work in the paper? Explain why or why not. **Decide which paper(s) is (are) most important and turn in a copy (or at least an abstract). Give no more than two, so use your judgment on which two are most important. Make sure you defend your choices.**
 - C. The paper should also give the reader some idea how the results given in the paper advance the general knowledge in the field. Identify and summarize what this is for your paper (15 points).

D. Briefly summarize the main results of the paper and the main conclusions of the paper. Is this mainly an experimental paper (where real, physical measurements are the main results of the paper), or a theoretical paper (where the main results are from calculations or simulations), or is there some of both? (10 points)

E. Let me know what you think are the most important parts of the paper (see below for a discussion of the parts). What parts of the paper do you think all readers should read carefully and what parts you think most people read quickly or just skim through? Explain your answer. (10 points)

F. In your opinion, is the paper successful? Have you learned something from it? Briefly described what you liked best about the paper. Make sure you are convincing. (10 points)

Total points for Phase – II: 65 points.

Total points for the research assignment (Phase – I & Phase – II): 100 points

Generally, a paper will have the following parts:

1. Introductory part.
2. Description part (describes how stuff is made and/or how something is measured or calculated).
3. Results part (where the data is)
4. Discussion part (what does the data mean part).
5. Conclusions part.

You should find the information you need for your summary from these various parts of the paper.