

Term paper and presentation instructions

Atomic and Molecular Structure, Spring, 2022

Written report

Each student will prepare a written paper, describing an study involving atomic and molecular structure. You should choose one research paper that has a “materials and methods” section (or equivalent) giving details of how the modeling was done. You are encouraged to choose a paper relevant to your area of research that describes a non-trivial application of quantum mechanics. Provide a careful analysis that addresses the following points:

1. Give a brief but clear summary of what was done; it is appropriate to include figures or tables taken from the paper you chose. This should be about 4-6 paragraphs in length. The focus of this analysis should be on the modeling or methods that are used, but you should also describe the context or background involved (*e.g.* experimental results that are being interpreted.)
2. Describe (in your words this time, and a few paragraphs) what was learned, and how this analysis was useful to the overall paper.
3. Provide (again, in one or two paragraphs) a careful analysis of the strengths and weaknesses of the method as used in this example. Were alternatives available? How much effort went into doing the analysis?
4. Write for an audience of your fellow students, making a real effort provide clear explanations of what was done. If the paper you choose assumes an understanding beyond that covered in the course or textbook, you may need to consult earlier papers (and add relevant information to your report).

The total length of your report should be 4-6 pages, not including citations and figures. The paper is due on **May 5** (the first day of finals). Before you start writing, send an email to me, giving information about the paper you have chosen. I will approve of your choice or make suggestions. Please submit your paper to me via email, as a single pdf file named `lastname.ams.pdf`, substituting in your last name.