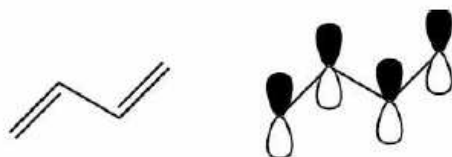


- What is the difference between an eigenvalue and an expectation value? When is it appropriate to use one or the other?
- What is the physical significance of the expression $\psi^*\psi$?
- Explain what is meant by quantum mechanical “tunneling,” and give an example of this phenomenon?
- Summarize what you learnt in this class, and tell me what your favorite topic and/or section was.



- Draw the PIB wave functions for the first 4 levels.
- Set up the Hückel secular determinant for the molecule and solve for the energies and eigenfunctions.
- Compare the first excitation energies for the PIB and the Hückel solutions. If they are to be equal, what can you say about the parameters α and β ? If α and β are known, what can you say about the bond lengths in the molecule?