

Chem 442: Homework for lecture L6

(only turn in **BOLD** assignment; due first lecture following week)

1. Turn in: An electron has mass $m_e \approx 9.1 \cdot 10^{-31}$ kg.

- Its velocity has a range of $\Delta v = 1$ m/s. What is the range of positions that will be measured?
- In a hydrogen atom, the range of velocities is closer to one million meters/second. (That electron is moving fast when it's squeezed into a small space!). What is the range of positions Δx that will be measured in meters? In Ångstroms? In nanometers?
- How does the length in b compare to what you know (remember freshman chem...) about the size of a 1s wavefunction?

2. Worked Problem 3.1 (Page 43). As a suggestion, try not reading the solution to the question immediately and see if you can work it out on your own. You might have to on the hour exam, and you will need to use the results in the following problem.

3. Problem 3.4 (Page 46)