

Oct. 22, 2007
Chem. 1410
Problem Set 7, due Oct. 29, 2007

Do the following problems; these are *not* to be handed in for grading; solutions will be distributed via .pdf.

Engel Chapter 9: P9.1, P9.6, P9.9, P9.10, P9.17

The following two problems are to be handing in for grading:

(1) **Angular momentum states of a hydrogenic atom.** For a hydrogenic atom, what is the magnitude of the orbital angular momentum and what are the possible values of L_z that can be measured for electrons in the $2p$ and $3d$ orbitals?

(2) **Average radial distance of the electron from the nucleus in an energy eigenstate of a hydrogenic atom.** What is the average distance of the electron from the nucleus for a $2s$ and a $3p$ electron in (a) H and (b) Li^{+2} ? [Hint: See Engel P9.24.]