Homework #7
Due Wednesday Oct 13

Write a general Saha Equation solver for Hydrogen only, assuming a 10 level hydrogen atom. For the partition function you may use either the values in Allen or direct summation.

Write the routine in a general way so that it may be expanded to include, e.g. helium. You may use any root finder. Possibilities are Bisection, Newton Raphson, and Brent's method (in Numerical Recipes).

Yes, for this assignment you know how to solve the resulting quadratic equation, but pretend that you don't.

Plot the ionization fraction of hydrogen as a function of temperature for $P_g = 10^5,\ 10^2,\ 10^0,\ 10^{-3},\ 10^{-6}, 10^{-9}$ erg cm^{-3}.

Compare your results with the solution to the quadratic given in class.