

## PHY 342 HW Ch.4b

Do problem 4.10, 4.11, 4.15 plus the following.

q4.4

(a) Plot the radial wave functions  $R_{20}$  and  $R_{21}$  using a computer. Omit the  $a^{-3/2}$  factor, and use Bohr radius as the units for  $r$ .

(b) Plot the radial probability distributions, i.e.,  $|R_{nl}|^2 r^2$ , for the two cases. Restrict  $0 \leq r/a \leq 10$ .

q4.5

Derive the most probable value of  $r$  for finding the electron in the states  $R_{20}$  and  $R_{21}$ . Note this is different than the highest probability density. Compare and discuss your answers with the graphs above.