

Worksheet # 14

Friday, March 8, 2024

Name**Question (5 pts):**

Consider a hydrogen atom in its ground state. If we apply electric field, how would the energy of this state change to the **first order**?

If you have time:

The hydrogen atom is in its excited $n=2$ state and, in the absence of the electric field, the frequency of the electric dipole-allowed z-polarized emission (e.g. the transition from $n=2$ to $n=1$, with the selection rules $\Delta l = \pm 1$, $\Delta m = 0$) is ν_0 (see Figure). How would this frequency change (if any) if we apply static electric field along z-axis?