Chapter 7: Lecture Examples, Part 2

1. How many photons are required to melt 5.0 g of ice at 0.0°C? Assume that sunlight has an average wavelength of 500.0 nm. (ΔH_{fus} = 6.02 kJ/mole).

2. An electron in a hydrogen atom relaxes to the n = 4 level emitting light of 1.14×10^{14} Hz. What is the value of n for the level in which the electron originated?

3. Calculate the wavelength (in pm) of hydrogen atom traveling 474 m/s.

4. What is the uncertainty in the position of they hydrogen atom in previous example if its velocity was measured with an uncertainty of ±5.0%?

5. How many orbitals are in the n = 2 level? Give a set of quantum numbers to define each of the orbitals in the n = 2 energy level.