

Bohr's Model: Matter Waves

1. Will a hydrogen atom expand or contract as it moves from ground state to an excited state?
2. Is energy emitted or absorbed when the following electronic transitions occur in hydrogen?
 - a) From $n = 4$ to $n = 3$
 - b) From an orbit with radius 2.12 \AA to one with 8.45 \AA
 - c) An electron is added to H^+ ion and ends up in $n = 4$ shell
3. What is the wavelength of hydrogen if the emission is from $n = 6$ to $n = 3$? Calculate the energy of this transition.
4. Calculate the wavelength, in nm, when $m = 2$ and $n = 6$. What is the energy, in kJ/mol, of this radiation?
5. What is the de Broglie wavelength, in m, of a fly with a mass of 1.85 mg flying at 1.58 m/s. Explain why we do not observe this wavelength.