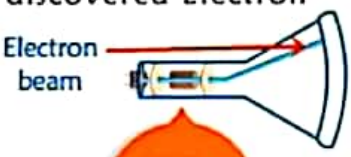
HISTORY OF ATOMIC MODEL

1885 Johann Balmer derived a formula for mathematically predicting hydrogen spectrum.

1897 J J Thomson discovered Electron



1904 J J Thomson proposed plum pudding model

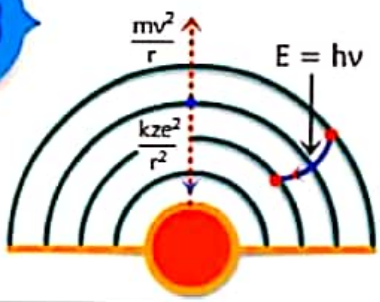
1911 Rutherford proposed a model where positive charge is at the center, and electron moves around in a spiral path and loses energy.

Bohr's Atomic Model

1913

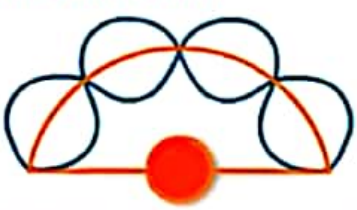
$$r = 0.529 \times \frac{n^2}{z} \text{ Å}$$

$$\frac{kze^2}{r^2} = \frac{mv^2}{r}$$



- Worked with J J Thomson and found flaws in his theory.
- He proposed electron revolves around nucleus in orbits.
- Electron is stabilized by centripetal and electrostatic forces.
- Electrons don't lose energy in an orbit.
- Electron loses or gains energy by moving across orbits.
- He proved Balmer was right by derving his formula theoretically.
- Only applicable for one electron systems.
- Failed to predict dual nature of electron.

1923 De Broglie introduced the concept of dual nature in electrons. He used Einstein's $E = mc^2$ and proposed any moving particle or object has an associated wave.



1925 Erwin Schrodinger developed electron cloud model using de Broglie and Bohr's atomic model. He and Heisenberg determined the regions in which electron would be likely found. He introduced one concept of orbitals.