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Frequently Asked Questions – FAQs on Bohr Atomic Model Theory

Q1

What is the limitation of Bohr Atomic Model Theory?

Bohr Atomic Model Theory fails to explain the effect of magnetic field on the spectra of atoms. It also failed to explain the Stark effect and Heisenberg Uncertainty Principle.

Q2

What is the significance of Bohr Atomic Model Theory?

Bohr was the foremost to find that electrons move around the nucleus in different orbits and we can determine an element's properties by the number of electrons in the valence shell.

Q3

How do electrons move in Bohr's model?

According to Bohr, electrons move around the central nucleus in a fixed circular orbit. These orbits of specific energies and are also referred to as energy shells or energy levels.

Q4

Who was the first scientist to discover electrons?

J. J. Thomson was the first to discover electrons while studying the properties of the cathode ray.

Q5

How many electrons are present in the L shell?

There are 8 electrons in the L shell.

The Sommerfeld atomic model, also known as Sommerfeld's atomic theory, is a model of the atom that describes how electrons move around the nucleus. It was developed by German physicist Arnold Sommerfeld and Danish physicist Niels Bohr.

Features of the Sommerfeld atomic model

- Electrons move in elliptical orbits around the nucleus
- The nucleus is located at one of the foci of the ellipse
- The angular momentum of the electron is quantized
- The model includes an azimuthal quantum number
- The model includes a relativistic correction term for the electron's energy

How the Sommerfeld atomic model was developed

- Sommerfeld's model was an extension of Bohr's model
- Sommerfeld's model was developed to explain the fine structure of spectral lines
- Sommerfeld's model combined quantum mechanics with classical physics

Significance of the Sommerfeld atomic model

Sommerfeld's model was a significant contribution to atomic

Thank you