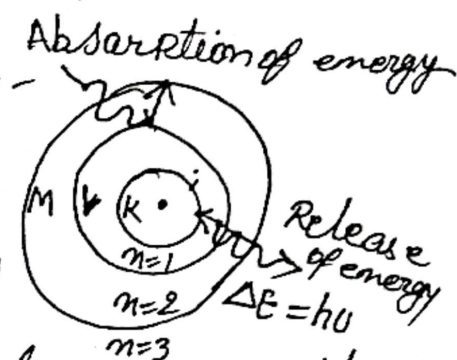


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Sem 5th unit III

BPhy

Bohr's-Sommerfeld atomic theory.

According to the Bohr's model revolving electron in an atom does not absorb or emit energy continuously. The energy of a revolving electron is quantized as it revolves only in orbit of fixed energy, called 'energy levels'. The Bohr's atomic model is shown in fig-



In Bohr's atomic the electron revolves around the nucleus

in stationary circular orbits. and Sommerfeld extension, the path of the electron's rotation is an ellipse with a major and a minor axes of $2a$ & $2b$ length. Bohr expressed the electron's energy with the principal quantum number n . but Sommerfeld explained that the electron's energy depend on both principal & azimuthal quantum numbers. In Bohr's atomic model. the electron's velocity is much less than the speed of the length. Hence, its motion is non relativistic. and the Sommerfeld model he assumed that the electron travels at nearly the speed of the light. Hence. its motion is relativistic. It didnot explain the fine structures of the hydrogen spectrum. It explained the fine structure of the hydrogen spectrum.