

## **Niels Henrik David** Bohr (1885-1962)

In 1913, Bohr proposed his shell model of the atom to explain how electrons can have stable orbits around the nucleus. To remedy the stability problem, Bohr modified the Rutherford model by requiring that the electrons move in orbits of fixed size and energy. The energy of an electron depends on the size of the orbit and is lower for smaller orbits. The atom will be completely stable in the state with the smallest orbit, since there is no orbit of lower energy into which the electron can jump.

$$n = 3$$

$$n = 2$$

$$n = 1$$

$$\bullet$$

$$AE = hv$$

## What is the Atomic Model

Electrons are in constant motion around the nucleus, protons and neutrons jiggle within the nucleus, and quarks jiggle within the protons and neutrons. If the atom was drawn to scale and protons and neutrons were a centimeter in diameter, then the electrons and guarks would be less than the diameter of a hair and the entire atom's diameter would be greater than the length of thirty football fields.



## **Beniamin Pearson**