

Brief History of Atomic Structure

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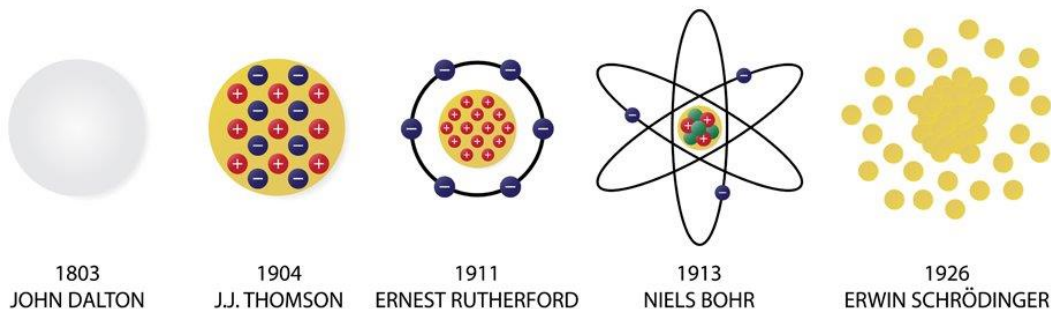
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The names of all scientists who helped to develop the structure of the Atom:

- Democritus (400BC)
- John Dalton (1803)
- Eugen Goldstein (1886)
- Sir William Crookes (1879)
- JJ Thomson (1904)
- Niels Bohr (1913)
- James Chadwick (1932)
- Ernest Rutherford (1911)
- Erwin Schrödinger (1926)

A model that shows the development in the structure of the atom

ATOMIC MODELS



The main points in Dalton's atomic model:

- 1- All matter is comprised of tiny, definite particles called atoms
- 2- Atoms are indivisible and indestructible.
- 3- All atoms of a particular element share identical properties, including weight.
- 4- Atoms of different elements contain different mass.
- 5- Atoms of different elements combine in fixed whole-number ratios when forming compounds

The change of the atomic structure by time

The first model of the atom was developed by JJ Thomson in 1904, who thought that atoms were composed purely of negatively charged electrons. This model was known as the 'plum pudding' model.

This theory was then disproved by Ernest Rutherford and the gold foil experiment in 1911, where Rutherford shot alpha particles at gold foil, and noticed that some went through and some bounced back, implying the existence of a positive nucleus.

In 1913, Niels Bohr proposed a model of the atom where the electrons were contained within quantized shells that orbited the nucleus. This was because it was impossible for the cloud of negative electrons proposed by Rutherford to exist, as the negative electrons would be drawn to the positive nucleus, and the atom would collapse in on itself.

In 1926, the Austrian physicist Erwin Schrödinger created a quantum mechanical model of the atom by combining the equations for the behavior of waves with the de Broglie equation to generate a mathematical model for the distribution of electrons in an atom.

However, the model used today is closest to the Bohr model of the atom, using the quantized shells to contain the electrons.

Timeline of the history of the Atomic Model

