Wolfgang Pauli

1900 - 1958

Awarded the Nobel Prize for Physics in 1945

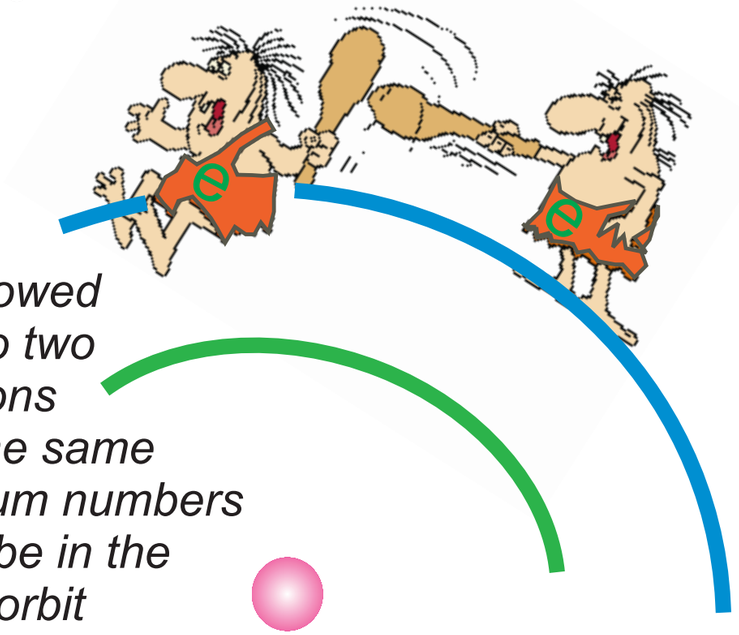
If you begin to study the structure of matter you will find out that it consists of atoms. Many years ago physicists argued that each atom must have a nucleus at its center and electrons moving in circular orbits about it. They found that only certain radii of orbits are allowed. The electrons in the atom want to occupy the orbit nearest the nucleus, but, in fact, not all the electrons fall into the lowest 'orbit'. The question is: Why ?

The original solution was found by Wolfgang Pauli, who invented an 'exclusion law', or as it was later called, ***'the Pauli principle'*** of atomic structure: The 'state' of each electron in an atom can be defined by giving a unique set of four 'quantum numbers', ***no two electrons in a single atom may have the same set of quantum numbers, or the same energy state.*** For the development of this remarkable 'guess` he was awarded the 1945 Nobel Prize for Physics.

Wolfgang Pauli was born in Vienna on April 25th, 1900. His father was Wolfgang Joseph Pauli, a medical doctor and biochemist, who later became a Professor at the University of Vienna. His mother was the former Bertha Schültz. His godfather was the well known physicist and philosopher Ernst Mach. His brilliant ability became clear even at school, in Vienna. There he very early became acquainted with the writings of Albert Einstein. He read Einstein's work secretly during his mostly dull classes.

In 1918, Pauli graduated from the high school in Vienna and entered the University of Münich. He was educated under Arnold Sommerfeld, one of the greatest teachers of theoretical physics.

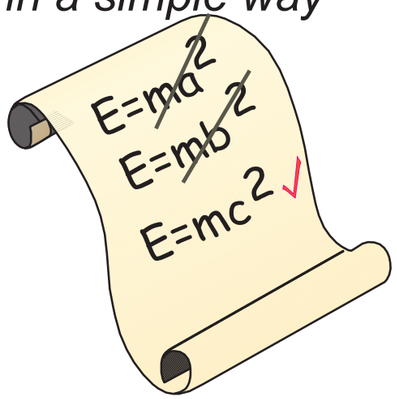
Pauli soon presented a 250 page article. It was really a monograph: a superior introduction to Einstein's theory of special and general relativity.



He showed that no two electrons with the same quantum numbers could be in the same orbit

He was born in Vienna

He explained Einstein's work in a simple way



After receiving his degree, Pauli was offered a job as an assistant at the University of Göttingen. At that time Pauli began to wonder why the electrons in atoms are distributed in various energy levels outside the nucleus. For the next three years Pauli worked on this question at Copenhagen University and later in Hamburg. His 'Principle' was announced in 1925.

Pauli is also known as a predictor of a chargeless, massless particle named the ***neutrino*** which was discovered in 1956.

In 1928 Pauli was appointed as a Professor at the Zürich Federal Institute of Technology. He was to remain at this post until his death.

Pauli was married twice, first to Kate Depner, then to Franciska Bertram. There were no children from either marriage.

Pauli was considered by his colleagues as a witty and critical minded person. They created a legend, the so called 'Pauli effect': the mysterious breakdown of apparatus caused by Pauli's mere presence in the laboratory.

Pauli's work was acknowledged by many medals and prizes. He died unexpectedly in Zürich on December 14th, in 1958.

S.E.