Atomic Physics Essay, Research Paper

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ATOMIC PHYSICS

Atomic Physics- is the study of atomic matter.

History of the atom

Dalton

John Dalton was a chemist who was famous for his atomic theory. He discovered that

air was a mixture, not a compound. He also discovered that the solubility of a gas

depends on the weight of its atoms. He published the law of partial pressures, known

as D

Thomson

Sir Joseph John Thomson was a British physicist who won the 1906 Nobel Prize for

physics for his research on the conduction of electricity by gases. He used a

discharge tube to identify an electron. He was the first to record this information. The

way he

Rutherford

Ernest Rutherford was a New Zealand scientist. Many of our current views of matter

come from him. He was the first to do the gold foil experiment. He also developed his

own structure of the atom in 1911. The nucleus was positive and the empty space

arou

Bohr

Niels Bohr picked up where he thought Rutherford left off. He used much of the

previously discovered information to develop some assumptions. The first was:

Electrons can only move in a certain number of energy levels. This would mean that

they had a lim

Current structure of the atom

It is now known that atoms have wave patterns. The Stanford Center discovered that

protons as well as neutrons are actually made up of quarks. Rutherford?s model was

found to be reasonably accurate.

Radio Activity

Alpha, beta and gamma rays are radio waves in small proportion, and they are used

in X-rays. The radiation produced sends off a very short wave length and are different

for each type of ray. X-rays were discovered by a man named Roentgen in 1895 by

con

Nuclear Reactions

Alpha, beta and gamma are used to describe the decay process involved with nuclear

reactions. This process was developed also by Ernist Rutherford and is used in

modern science today. The time taken for half of the original number of atoms to

decay is c

Fission and Fusion

Nuclear Fission

Nuclear fission is an action that releases energy. The energy from the fission

generates electric power, used to sustain our civilization. Atoms are split by using

neutron which collide with the atoms. The result are 2 to 3 fragments with a mass less

Nuclear Fusion

Nuclear fusion occurs when two lighter elements are combined to form a new, larger

element. During the combining process great amounts of energy are released. In the

cases where the elements nuclei contains a low atomic weight the separation of a

neutr he promise of such a clean and vast supply of energy are incentives for further

research. The energy released could produce enough power for many generations to

come.

General Applications

Radiation is used in many different areas within society, anywhere from medicine to

atom bombs.