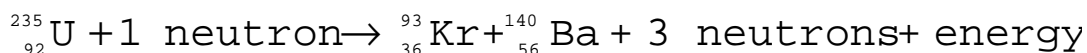


Radiation : Notes-35

Nuclear Fission

Fission is the splitting of a large nucleus into two smaller nuclei. In this process, a large amount of energy is released.

A uranium isotope, U-235, will split in two when it is hit by a neutron. The equation is given below.



The release of three neutrons for each neutron that causes a nuclear reaction means that there will be a chain reaction, so many uranium atoms will split and release energy. An explosion can occur.

This is the principle behind the **nuclear bomb**.

If the reaction is controlled so that not too many uranium atoms split, then the heat released can boil water to run an electric generator and produce electricity. This is a **nuclear reactor**.

Nuclear Fusion

Fusion is the joining of two or more nuclei to form a new nucleus. This also releases an enormous amount of energy. This is the process that occurs in the sun. Hydrogen nuclei fuse to form helium. This is how the sun's energy is created. This reaction also occurs in a hydrogen bomb.