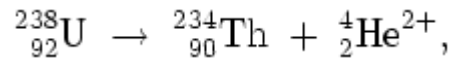


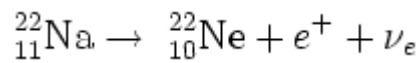
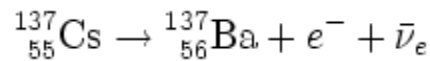
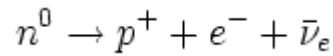
## Radioactivity Radiation

There are 3 types of radiation that arise from radioactive elements. They are:

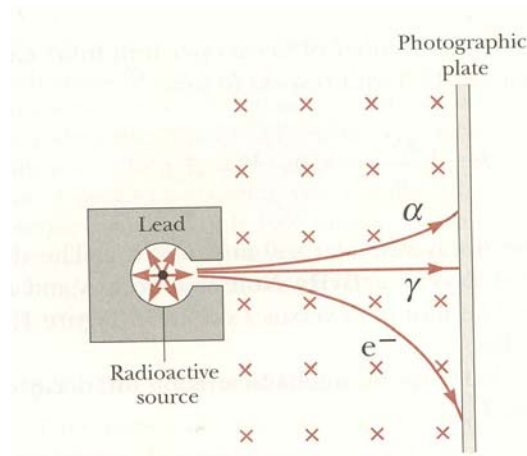
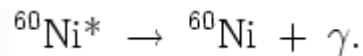
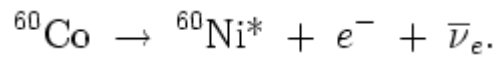
1. Alpha ( $\alpha$ ) Radiation – the emitted particles are  ${}^4\text{He}$  or  $\text{He}^{+2}$  nuclei ( 2 protons and 2 neutrons)



2. Beta ( $\beta$ ) Radiation – The emitted particles are either electrons or positrons.



3. Gamma ( $\gamma$ ) Radiation - The emitted radiation are high energy photons.



The 3 types of radiation have different penetrating power:

Alpha ( $\alpha$ ) particles – can barely penetrate a sheet of paper

Beta ( $\beta$ ) particles – can penetrate 2 mm of aluminum

Gamma ( $\gamma$ ) Rays – can penetrate several centimeters of lead

The distinction between X-rays and Gamma ( $\gamma$ ) Rays are not due to their energy but on their source of radiation. X-Rays are produced by accelerating electrons and gamma ( $\gamma$ ) Rays are produced by transitions within unstable (radioactive) atomic nuclei.