

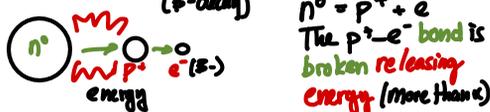
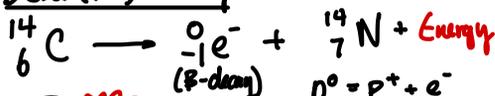
Gamma (γ) Radiation and Nuclear Energy

Nuclear Energy is the energy (heat, light) produced through the decay (breakup) of unstable isotope.

Alpha Decay

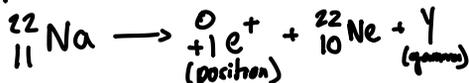


Beta (β^-) Decay



Gamma (γ) Decay

Gamma Radiation is produced during gamma decay as a part of other decay processes.



The gamma ray is a strong packet of energy (light, like x-rays) produced through extra energy absorbed by nucleus



An excited atom is an atom that has absorbed extra energy during nuclear decay.

Nuclear Radiation Energy

The energy of radiation is based on the mass and number of bonds broken. The penetration of radiation is based on the size of the decay particle.

Alpha Decay

$p^+ - n^0$ (x4) : High Energy
Lowest Penetration Large Mass (4 amu)
(Stopped by Paper) Large Size (4 particles)

Beta Decay

$n^0 \rightarrow p^+ e^-$: Lower Energy
Medium Penetration Much lower mass (1/2000 amu)
(stopped by Al foil) Smaller Size (1e-)

Gamma Decay : Lowest energy
Decay + γ ray No mass (light)
Highest Penetration Smallest Size
(passes through most matter including human body)

Dangers of Radiation

All radiation can damage atoms, and cells in body internally (inside body).

Alpha and Beta Decay can be stopped by protective clothing, like lead (Pb) shielding.
Gamma Decay can't be stopped except by getting away from decay source