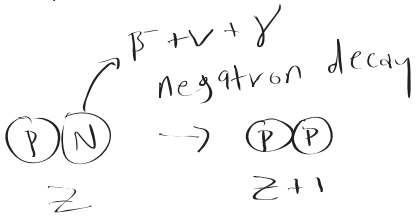
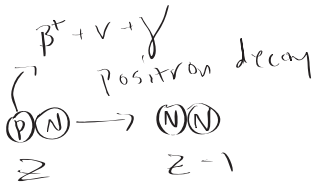
Isotopes: same number of protons, different number nuetrons
— some combinations are unstable and decay

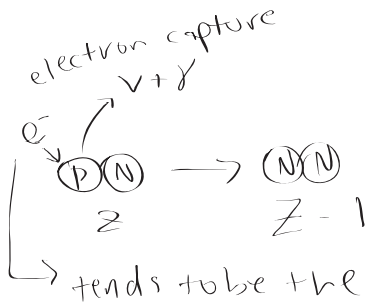
5 main mechanisms of decay
(most common)

β decay - changes Z but not A

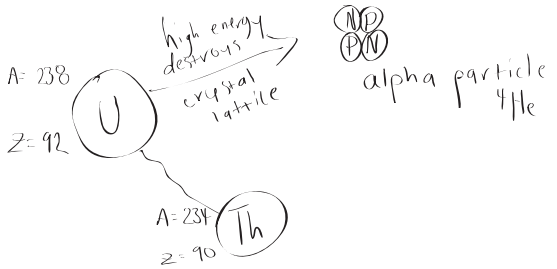
γ = gamma ray
ν = netrino
β^+ = positron
β^- = negatron



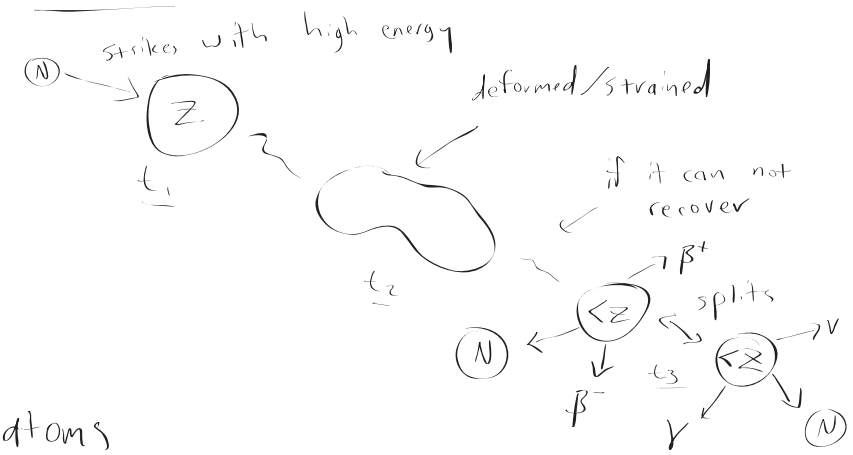




Alpha decay



Fission



Rate of decay ~ number of atoms

N = number of atoms

$$\frac{dN}{dt} \propto N$$

$$\frac{dN}{dt} = -\lambda N$$

λ ↑ decay constant

This vs Io
Phi vs Io
Magnetic fields

Usually measured as energy release. Many experiments to try to find variance.
↳ all fail

Every decay scheme
for every isotope
has its own λ
↳ does not depend on T, P, etc.