**Noteguide for Beta and Gamma Decay- Videos 30GH Name**

**Video 30G:**





Conservation of charge

Beta minus - electron

“As if” neutron -> proton + electron

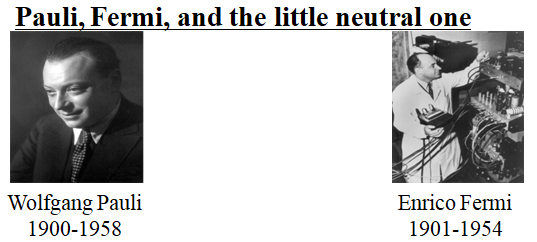
Beta plus - positron

“As if” proton -> neutron + positron

Particles are “of the nucleus” (not orbital)

* - Neutrino, (anti neutrino) – fudge

Energy is continuous (i.e. neutrino gets random share)



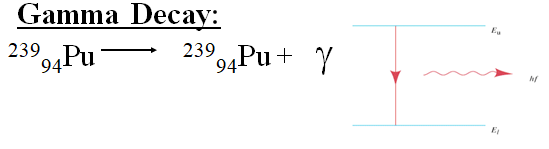
Beta decay products were missing energy

Pauli proposes a particle is carrying away energy

Fermi names it Neutrino - “Little neutral one” - It.

Neutrinos confirmed in 1956, no surprise

**Videos 30H:**

Nucleus has energy levels

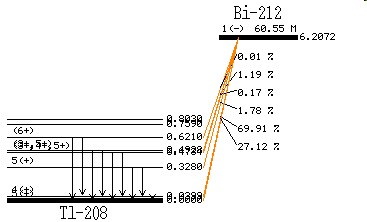
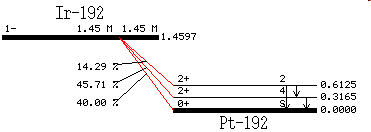
Energy of transition emitted as a high energy photon (λ ≈ 5 - .05 nm)

Usually after a beta or alpha decay

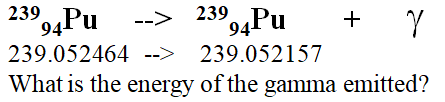
Many energies possible

Stopped by meters of lead

Used for food irradiation

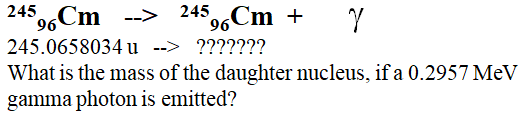
Gamma ray energies associated with alpha and beta decays – so Alpha and Gamma energies are discrete. (Like spectral lines we saw)



Whiteboards:

Tl-208 emits a 0.6210 MeV gamma and the neutral atom in the unexcited state has a mass of 207.9820047 u. What was the mass of the excited state before the gamma was emitted?

(207.9826714 u)

 (245.065486 u)