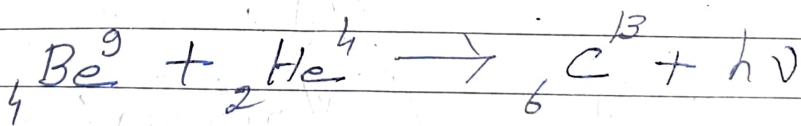


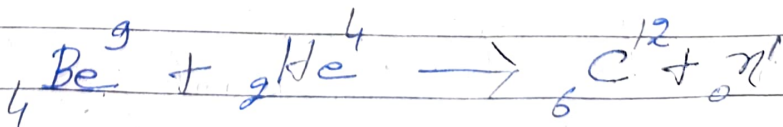
"Discovery of Neutron"

(Dr. Usha Kumari)

γ is one of the fundamental & neutral particle having a mass = 1.00898 atomic mass units nearly equal to that of the proton. In 1930, Bothe and Becker bombarded beryllium with α -particles and found that a very ~~penet~~ penetrating radiation was produced. As this radiation was found to be uncharged it was thought to be high energy γ -radiation was produced. As this radiation was found to be uncharged it was thought to be high energy γ -radiation produced according to the nuclear-reaction.



Having a mass almost equal to that of a proton was emitted in the above reaction as



This new particle was given the name neutron (${}_0\text{n}^1$).

By the principle of conservation of mass energy, the neutron would be emitted with an energy of 6 MeV and when it strikes against a proton in a head-on-collision, the neutron would come to rest & proton would be released with the energy of 6 MeV. Experimentally Chadwick confirmed his hypothesis.

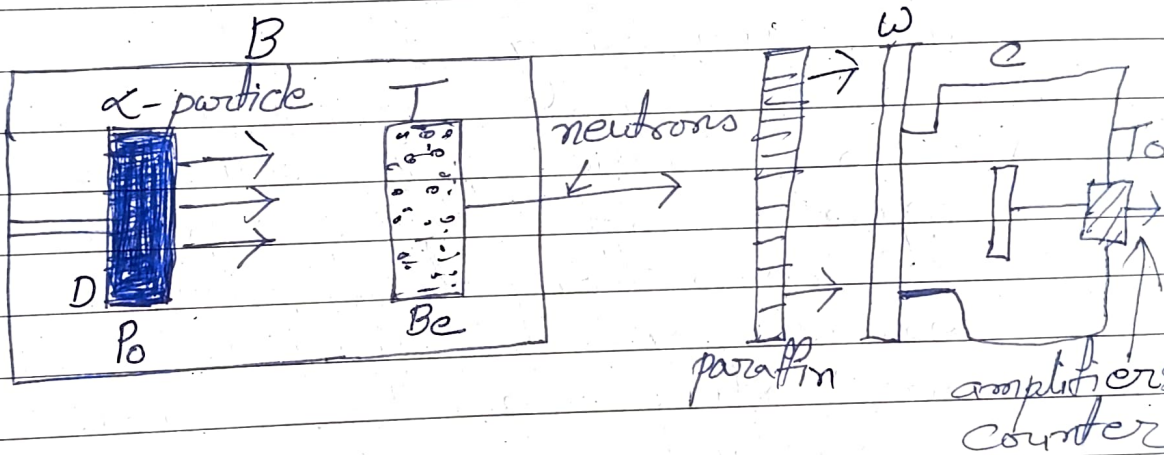
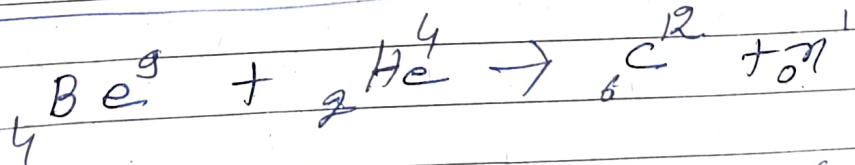
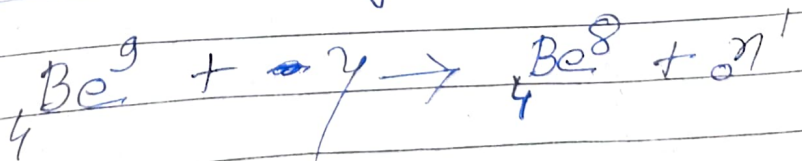


Fig.

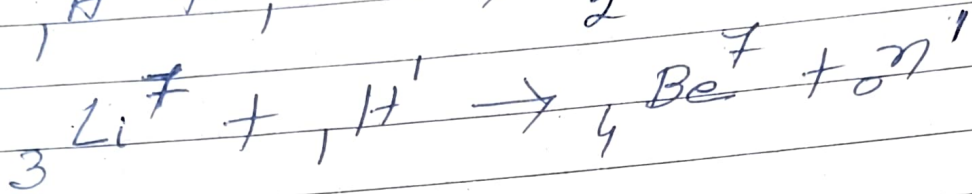
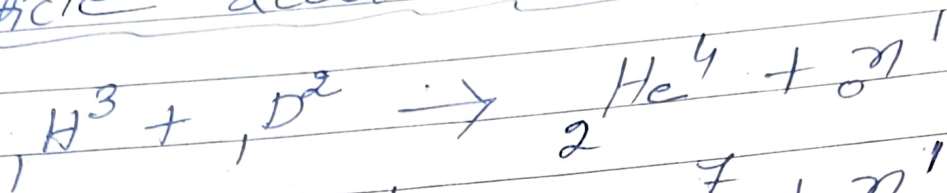
production of Neutrons -
 (i) Radium α - Beryllium source



(ii) photo dist disintegration source



particle accelerators :-



From atomic reactors :-

The best source of neutrons is an atomic reactor working on the principle of nuclear fission.

1) Stripping action :- Neutrons

may also be obtained when a high energy deuteron strikes a target and is stripped of its proton, leaving the neutron alone.

It can be detected by ionization chamber method, induce radioactivity method and elastic collision method also.

————— X ————— The end.