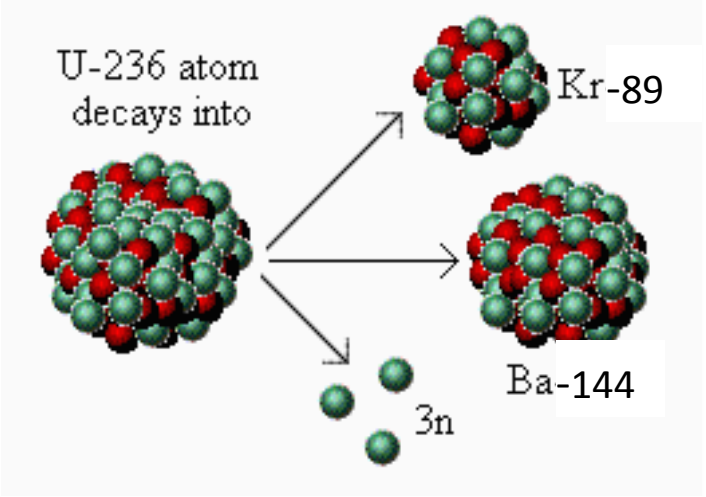
$$n + {}^{235}_{92}U \rightarrow {}^{236}_{92}U \rightarrow {}^{144}_{56}Ba + {}^{89}_{36}Kr + 3n$$



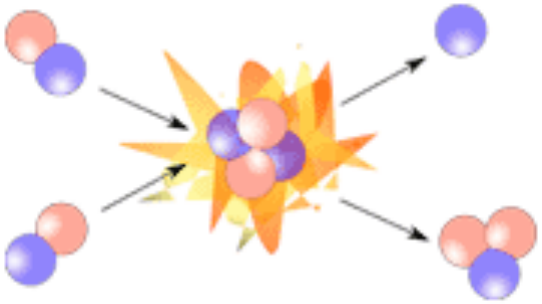
1. Look up (online) the mass of: a neutron, a Uranium-235 nucleus, a Krypton-89 nucleus, and a Barium-144 nucleus.

2. Find the amount of mass lost during one fission event.

3. Use $E = m c^2$ to find the amount of energy released in one event.

4. How much energy is released from complete fission of 1 kilogram of Uranium-235?

$$d + d \rightarrow t + p$$

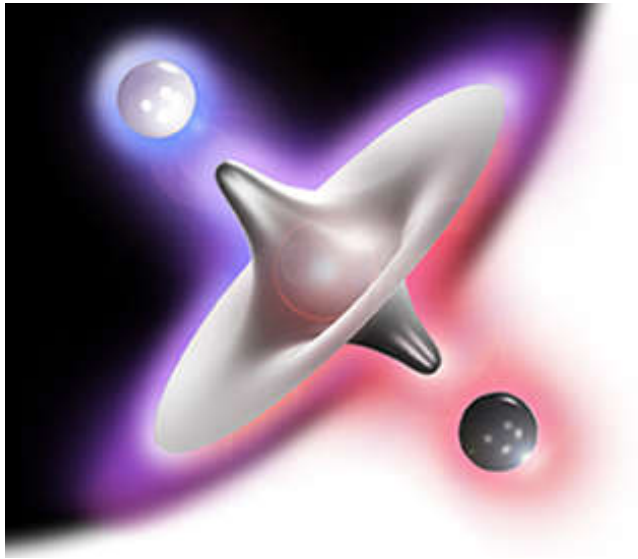


1. Look up (online) the mass of: a deuterium nucleus, a tritium nucleus, and a proton.

2. Find the amount of mass lost during one fusion event.

3. Use $E = m c^2$ to find the amount of energy released in one event.

4. How much energy is released from complete fusion of 1 kilogram of deuterium?



$$p + \overline{p} \rightarrow \gamma + \gamma$$

1. Look up (online) the mass of a proton. (The γ represents a photon, which has zero mass.)

~~2. Find the amount of mass lost during one annihilation event~~.

~~3. Use $E = m c^2$ to find the amount of energy released in one event.~~

4. How much energy is released from complete annihilation of 1 kilogram of matter?