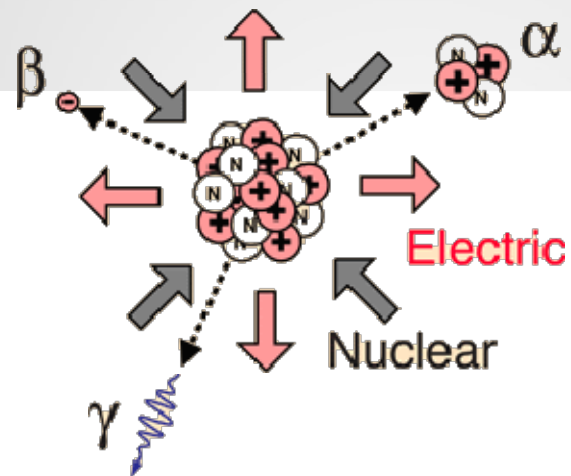


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Radioactivity
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RADIOACTIVITY



Radioactivity

- The nuclei of naturally occurring heavy elements like **U**, **Th**, **Ra** and **Po** are unstable and keep on emitting spontaneously invisible rays or radiations (α , β , γ -rays) and give more stable elements.

Radioactivity

- These heavy elements are called *radioactive elements*.
- The property of emitting these rays is called *radioactivity of the elements*.

Thus radioactivity can be defined as:-

The phenomenon in which the nucleus of the atom of an element undergoes **spontaneous and uncontrollable disintegration** (or decay) and emit α , β or γ -rays.

Radioactivity cont....

The emitted α , β or γ -rays from unstable nuclei are collectively *called ionizing radiations*.

Depending on how the nucleus loses this excess energy either a *lower energy atom of the same form will result*, or *a completely different nucleus and atom can be formed*.

Radioactivity cont....

Ionization

is the addition or removal of an electron to create an ion.

Ionizing radiation

is any type of particle (α , β) or electromagnetic wave (γ) that carries enough energy to ionize or remove electrons from an atom.

Radioactivity cont....

- These radiations are of such high energy that when they interact with materials, they can **remove electrons from the atoms in the material**. This effect is the reason why ionizing radiation is **hazardous to health**