

Radioactive Series.

If the isotope that results from a radioactive decay is itself radioactive then it will also decay and so on.

The sequence of decays is known as radioactive decay series. Most of the radio-nuclides found in nature are members of four radioactive series. These are as follows

Mass number	Series (Nature)	Parent	Stable and product	Integer n	Number of lost particles
4n	Thorium (natural)	${}_{90}\text{Th}^{232}$	${}_{82}\text{Pb}^{208}$	52	$\alpha = 6, \beta = 4$
4n + 1	Neptunium (Artificial)	${}_{93}\text{Np}^{237}$	${}_{83}\text{Bi}^{209}$	52	$\alpha = 8, \beta = 5$
4n + 2	Uranium (Natural)	${}_{92}\text{U}^{238}$	${}_{82}\text{Pb}^{206}$	51	$\alpha = 8, \beta = 6$
4n + 3	Actinium (Natural)	${}_{89}\text{Ac}^{227}$	${}_{82}\text{Pb}^{207}$	51	$\alpha = 7, \beta = 4$

Note: The 4n + 1 series starts from ${}_{94}\text{Pu}^{241}$ but commonly known as neptunium series because neptunium is the longest lived member of the series.

The 4n + 3 series actually starts from ${}_{92}\text{U}^{235}$.