

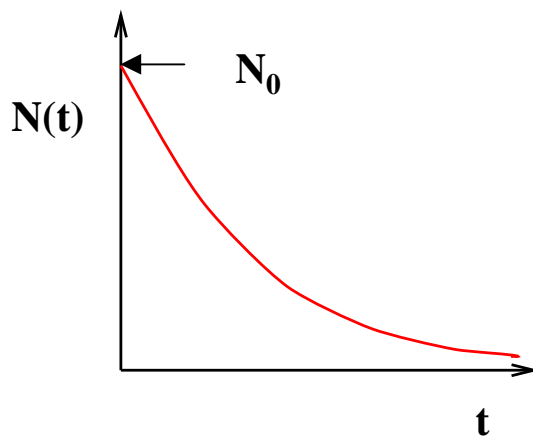
Physics 113 -Lecture 17

Nuclear Physics(Cont.)

Radioactive Decay

$$\Delta N = -\lambda N \Delta t \Rightarrow N(t) = N_0 e^{-\lambda t}$$

number of nuclei $t=0$



$$\text{activity } \frac{\Delta N}{\Delta t} = -\lambda N$$

1/2 Life Definition:

$$\frac{N}{N_0} = \left(\frac{1}{2}\right)^{\frac{t}{T_{1/2}}} \text{ where } T_{1/2} \lambda = \ln \frac{1}{2}$$

Decay Series

$a \rightarrow b \rightarrow c \rightarrow d$

Radioactive Dating