

FIGURE 2.1 Radioactive decay: activity and number of atoms versus the time in units of mean lives. Both activity and number of atoms are normalized to 1 at time t_0 . The x-axis is plotted in units of mean life ($t = \tau$). Also marked are 1, 2, 3, 4 and 5 half-lives on the same scale. The y-axis shows activity, where $\frac{1}{2}, \frac{1}{e}, \frac{1}{4}, \frac{1}{e^2}$ activity levels are indicated.

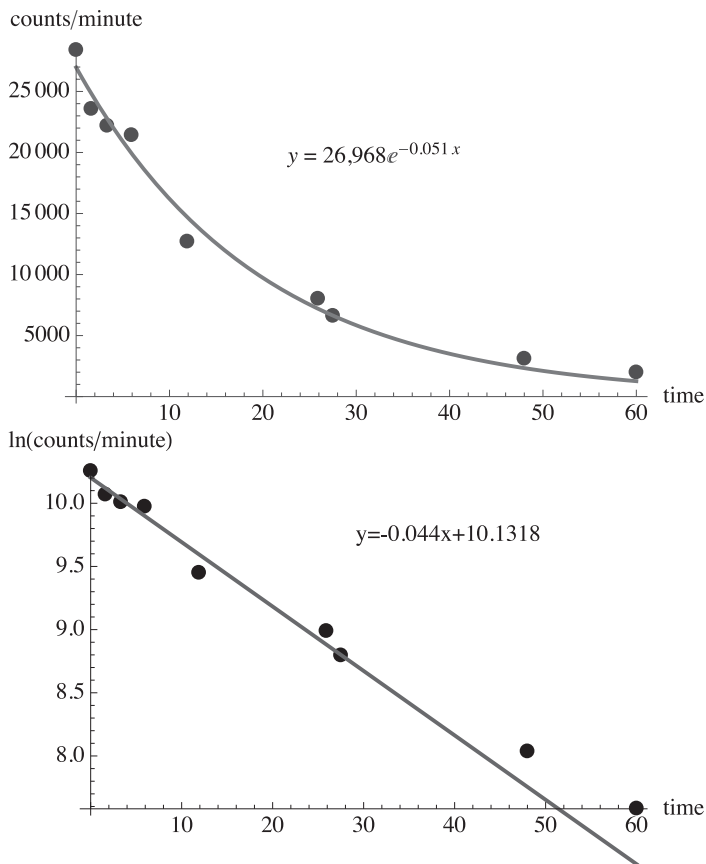


FIGURE 2.2 The decay of ^{24}Na . The table shows the time of measurements and the data. The graphs are counts/min and $\ln(\text{counts/min})$ against time from the starting measurement ($t = 0$). The curves are simple fits to data, resulting in disintegration constants 0.046/h and 0.044/h, respectively.

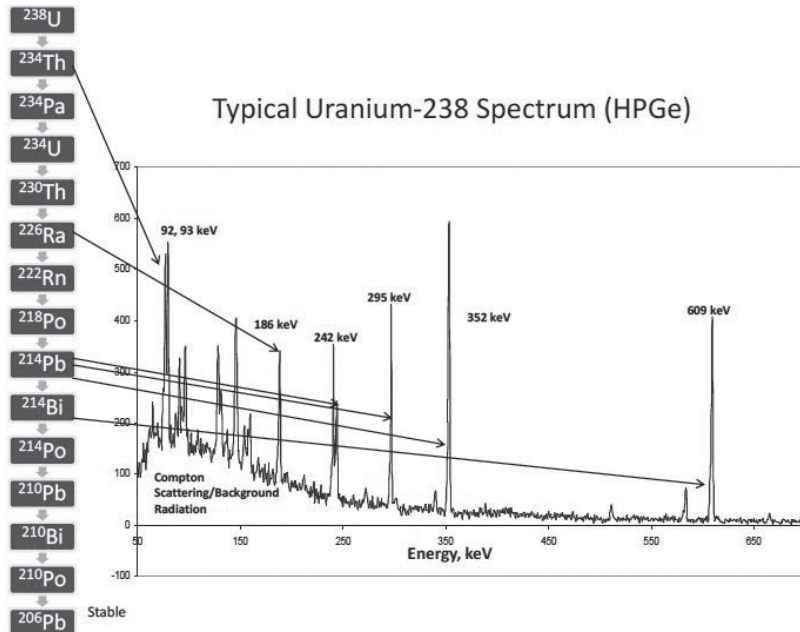


FIGURE 2.3 Typical hyper pure germanium (HPGe) detector spectrum of a natural uranium sample. Recorded gamma ray energies are used to identify the descendants of the $4n+2$ series with ^{238}U as the progenitor.

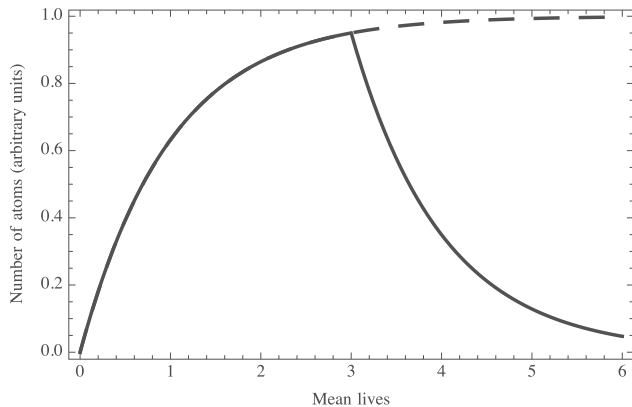


FIGURE 2.4 Plot of ratios of radioactivity and number of atoms to the saturation values plotted against time in units of mean lives.