Uranium decay

Natural uranium consists of:

Isotope	Half-life	Abundance
234	2.455×10^5 years	0.000054
238	4.468×10^9 years	0.992742
235	0.7038×10^9 years	0.007204

Number of disintegrations per second for one gram of natural uranium.

$$|dn| = n \times \log 2 \times \frac{1}{T} dt \qquad dt = \text{one second}$$

Contribution of isotope 238:

$$|dn_1| = \frac{0.992742 \times 6.023 \times 10^{23}}{238} \times 0.6931 \times \frac{1}{4.468 \times 10^9 \times 365 \times 24 \times 3600}$$

$$= 12358$$

Contribution of isotope 235:

$$|dn_2| = \frac{0.007204 \times 6.023 \times 10^{23}}{235} \times 0.6931 \times \frac{1}{0.7038 \times 10^9 \times 365 \times 24 \times 3600}$$

$$= 577$$

Contribution of isotope 234:

$$|dn_3| = \frac{0.000054 \times 6.023 \times 10^{23}}{234} \times 0.6931 \times \frac{1}{2.455 \times 10^5 \times 365 \times 24 \times 3600}$$

$$= 12443$$

Total: **25378** decays per second per gram of natural uranium.