Example and Test File for `nucleardata` Package

Commands applied to $^{40}$Ca

| symbol | Ca |
|---|---|
| Z | 20 |
| name | calcium |
| Name | Calcium |
| Spin/parity | 7/2- |
| mass excess | -35137.89 |
| atomic mass (u) | 40.962278 |
| atomic mass (u) | 40.96 |
| atomic mass (keV) | 38156443.807 |
| atomic mass (keV) | 38156443.81 |
| atomic mass (MeV) | 38156.443807 |
| atomic mass (MeV) | 38156.44381 |
| nuclear mass (u) | 40.951306 |
| nuclear mass (keV) | 38146223.8 |
| nuclear mass (MeV) | 38146.223807 |
| BE/A | 8.547 MeV |
| $Q_\alpha$ | -6.615146 MeV |
| $Q_{\beta^-}$ | -6.49548 MeV |
| $Q_{\beta^+}$ | -0.600347 MeV |
| $Q_\epsilon$ | 0.421653 MeV |
| random A | 38 |

Halflife Commands applied to $^{184}$Au

| Unit | Value |
|---|---|
| ns | 47 600 000 000.0 ns |
| us | 47 600 000.0 µs |
| ms | 47 600.0 ms |
| s | 47.6 s |
| min | 0.793 333 333 333 333 3 min |
| hr | 0.013 222 222 222 222 224 h |
| d | 0.000 550 925 925 925 926 d |
| y | $1.508\,352\,979\,947\,778 \times 10^{-6}$ yr |
| My | $1.508\,352\,979\,947\,778 \times 10^{-12}$ My |

Halflife Commands applied to $^{28}$F

| Unit | Value |
|---|---|
| default | 0.046 as |
| fs | $4.6 \times 10^{-5}$ fs |
| ps | $4.6 \times 10^{-8}$ ps |
| s | $4.6 \times 10^{-20}$ s |
| min | $7.666\,666\,666\,666\,667 \times 10^{-22}$ min |
| hr | $1.277\,777\,777\,777\,777\,8 \times 10^{-23}$ h |

Five randomly selected nuclides and their masses and halflives

| nuclide | mass (u) | halflife |
|---|---|---|
| $^{55}$Fe | 54.938291 | 2.744 yr |
| $^{119}$Cs | 118.922377 | 43.0 s |
| $^{175}$Ho | 174.95362 | 160 ns |
| $^{191}$Pb | 190.97828 | 1.33 min |
| $^{68}$Ga | 67.92798 | 67.71 min |