

${}^{60}\text{Ga}$   $\varepsilon$  decay (70 ms) 2001Ma96

| Type            | Author                | History | Citation             | Literature Cutoff Date |
|-----------------|-----------------------|---------|----------------------|------------------------|
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Parent:  ${}^{60}\text{Ga}$ :  $E=0$ ;  $J^\pi=(2^+)$ ;  $T_{1/2}=70$  ms 13;  $Q(\varepsilon)=14390$  SY;  $\% \varepsilon + \% \beta^+$  decay=100.0

${}^{60}\text{Ga}$ - $T_{1/2}$ : from 2002B117; other: 70 ms 15 (2001Ma96).

${}^{60}\text{Ga}$ - $Q(\varepsilon)$ : From 2012Wa38,  $\Delta Q(\text{g.s.}) = 196$  syst (2012Wa38).

${}^{60}\text{Ga}$ - $\% \varepsilon + \% \beta^+$  decay:  $\% \beta^+ p=1.6$  7,  $\% \beta^+ \alpha < 0.023$  20.

Source of  ${}^{60}\text{Ga}$  produced by  ${}^{28}\text{Si}({}^{36}\text{Ar}, \text{P3N})$  reaction at 4.71 MeV/nucleon followed by mass separation. Measured  $E_\gamma$ ,  $I_\gamma$ ,  $\gamma\gamma$ ,  $\beta\gamma\gamma$ ,  $\beta p$ ,  $\beta\alpha$ , half-life.

Measured  $\% \beta + p=1.6$  7,  $\% \beta + \alpha < 0.023$  20.

 ${}^{60}\text{Zn}$  Levels

| E(level)   | $J^\pi$ | Comments   |
|------------|---------|--|
| 0          | $0^+$   |  |
| 1003.72 20 | $2^+$   |  |
| 2558.8 5   | $(2^+)$ |  |
| 4852.1 7   | $(2^+)$ | E(level): interpreted As isobaric-analog state (T=1) of ${}^{60}\text{Ga}$ g.s.. |

 $\varepsilon, \beta^+$  radiations

| E(decay)   | E(level) | $I_{\beta^+}^\dagger$ | $I_\varepsilon^\dagger$ | Log $ft$ | $I(\varepsilon + \beta^+)^\dagger$ | Comments   |
|------------|----------|-----------------------|-------------------------|----------|------------------------------------|--|
| (9537 SY)  | 4852.1   | 60 12                 | 0.073 15                | 3.5 1    | 60 12                              | av $E\beta=3937$ 30; $\varepsilon K=0.001081$ 24; $\varepsilon L=0.000119$ 3;<br>$\varepsilon M+=2.11 \times 10^{-5}$ 5              |
| (11831 SY) | 2558.8   | 13 8                  | 0.008 5                 | 4.7      | 13 8                               | av $E\beta=5072$ 30; $\varepsilon K=0.000525$ 9; $\varepsilon L=5.78 \times 10^{-5}$ 10;<br>$\varepsilon M+=1.027 \times 10^{-5}$ 18 |
| (13386 SY) | 1003.72  | 27 19                 | 0.011 8                 | 4.7      | 27 19                              | av $E\beta=5845$ 30; $\varepsilon K=0.000350$ 6; $\varepsilon L=3.85 \times 10^{-5}$ 6;<br>$\varepsilon M+=6.85 \times 10^{-6}$ 11   |

$^\dagger$  Absolute intensity per 100 decays.

 $\gamma({}^{60}\text{Zn})$ 

$I_\gamma$  normalization:  $I_\gamma(1003.7\gamma) + I_\gamma(2559.0\gamma) = 98.4$ ;  $\% \beta^+ p=1.6$  7. No  $\varepsilon, \beta^+$  feeding is assumed to g.s..

| $E_\gamma$ | $I_\gamma^\dagger$ | $E_i(\text{level})$ | $J_i^\pi$ | $E_f$   | $J_f^\pi$ |
|------------|--------------------|---------------------|-----------|---------|-----------|
| 1003.7 2   | 100 17             | 1003.72             | $2^+$     | 0       | $0^+$     |
| 1554.9 6   | 12 5               | 2558.8              | $(2^+)$   | 1003.72 | $2^+$     |
| 2293.0 10  | 10 5               | 4852.1              | $(2^+)$   | 2558.8  | $(2^+)$   |
| 2559.0 8   | 13 5               | 2558.8              | $(2^+)$   | 0       | $0^+$     |
| 3848.3 7   | 57 13              | 4852.1              | $(2^+)$   | 1003.72 | $2^+$     |

$^\dagger$  For absolute intensity per 100 decays, multiply by 0.87 14.

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## Decay Scheme

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays