

$^{69}\text{Zn}$  IT decay (13.749 h) 1970Ra08

| Type            | Author         | History<br>Citation | Literature Cutoff Date |
|-----------------|----------------|---------------------|------------------------|
| Full Evaluation | C. D. Nesaraja | NDS 207,1 (2026)    | 1-Apr-2023             |

Parent:  $^{69}\text{Zn}$ :  $E=438.636$  17;  $J^\pi=9/2^+$ ;  $T_{1/2}=13.749$  h 14; %IT decay=99.967 3

$^{69}\text{Zn}$ -%IT decay: 99.967 3.  $I_\gamma(1+ce)(438.6) > 99.9\%$  in IT decay and  $I_\gamma(574.3) = 0.033\%$  3 in  $\beta^-$  decay, from  $I_\gamma(438.6)/I_\gamma(574.3)$ , theoretical  $\alpha$  values and decay scheme (1970Ra08).

1977He20:  $^{69\text{m}}\text{Zn}$  was produced by neutron irradiation on Zn target. The 439 keV  $\gamma$  radiation in the decay of  $^{69\text{m}}\text{Zn}$  was detected in two Ge(Li) detector at angles of 180° and 90°. Measured  $T_{1/2}$ .

1974Ro18: NaI(Tl) detector, measured  $T_{1/2}$ .

1970Ra08: ZnO targets, enriched with  $^{68}\text{Zn}$  were irradiated at the Oak Ridge Research Reactor. Gamma rays were detected using GeLi detector and NaI(Tl) detectors. Measured  $E_\gamma$ ,  $I_\gamma$ .

1968Sc08: measured  $\beta^-$  spectrum of  $^{69}\text{Zn}$  and conversion electrons.

1969Zo01: GeLi detector(FWHM)=2.8 keV at 1332 keV, measured  $E_\gamma$ ,  $I_\gamma$ ,  $T_{1/2}$ .

 $^{69}\text{Zn}$  Levels

| E(level) <sup>†</sup> | $J^\pi$ <sup>†</sup> | $T_{1/2}$   | Comments                                                                                                                                                                    |
|-----------------------|----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0                   | $1/2^-$              | 56.4 min 10 | $J^\pi, T_{1/2}$ : From Adopted Levels.                                                                                                                                     |
| 438.636 17            | $9/2^+$              | 13.749 h 14 | $T_{1/2}$ : From Adopted Levels. Note: 13.756 h 18 was measured by 1977He20 and is in excellent agreement with 13.76 h 3 measured by 1974Ro18 in the IT decay measurements. |

<sup>†</sup> From Adopted Levels.

 $\gamma(^{69}\text{Zn})$ 

| $E_\gamma$ | $I_\gamma$ <sup>‡</sup> | $E_i(\text{level})$ | $J_i^\pi$ | $E_f$ | $J_f^\pi$ | Mult. | $\alpha$ <sup>†</sup> | $I_{(\gamma+ce)}$ <sup>‡</sup> | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|-------------------------|---------------------|-----------|-------|-----------|-------|-----------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 438.634 18 | 94.88 7                 | 438.636             | $9/2^+$   | 0.0   | $1/2^-$   | M4    | 0.0540 8              | 100                            | ce(K)/( $\gamma+ce$ )=0.0452 6;<br>ce(L)/( $\gamma+ce$ )=0.00531 7;<br>ce(M)/( $\gamma+ce$ )=0.000766 11<br>ce(N)/( $\gamma+ce$ )= $2.80 \times 10^{-5}$ 4<br>$\alpha(K)=0.0476$ 7; $\alpha(L)=0.00560$ 8;<br>$\alpha(M)=0.000807$ 11<br>$\alpha(N)=2.95 \times 10^{-5}$ 4<br>$E_\gamma$ : From 1974HeYW.<br>$\alpha(\text{exp})$ : 0.054 3 (1968Sc08).<br>$I_\gamma$ : from $I_\gamma(1+ce)=100$ and M4 $\alpha$ .<br>Mult.: from $\alpha(\text{exp})$ (1968Sc08). |

<sup>†</sup> Additional information 1.

<sup>‡</sup> For absolute intensity per 100 decays, multiply by 0.99967 3.

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Decay Scheme

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays  
%IT=99.967 3

