

^{89}Zr IT decay (4.161 min) [1964Va03](#),[1969Ro02](#),[1971Ar18](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 114, 1 (2013)	20-Oct-2012

Parent: ^{89}Zr : E=587.8 *1*; $J^\pi=1/2^-$; $T_{1/2}=4.161$ min *10*; %IT decay=93.77 *12*

^{89}Zr -%IT decay: from $I_\gamma(1506\gamma)/I_\gamma(588\gamma)=0.0675$ *7*, $I_{\gamma\pm}/I_\gamma(588\gamma)=(\text{1964Va03})$, $\alpha(588\gamma)$, and $I_\varepsilon/I\beta^+(\text{theory})=0.145$ *2* (for g.s. in ^{89}Y), 3.48 *5* (for 1507 in ^{89}Y).

Others: [1992KaZM](#), [1968Dr02](#), [1963Ma44](#), [1953Sh48](#) (also [1951Sh89](#)), [1953Ka11](#), [1940Du05](#).

[Additional information 1](#).

%IT=93.77 *12*, % $\varepsilon+\beta^+$ =6.23 *12*.

Energy balance: total decay energy of 551.5 keV *15* deduced (using RADLIST code) from proposed decay scheme is in agreement with the expected value of 551.4 keV *9*, indicating that the decay scheme is complete.

 ^{89}Zr Levels

E(level)	$J^\pi^\dagger$	$T_{1/2}^\dagger$
0.0	$9/2^+$	78.41 h <i>12</i>
587.8 <i>1</i>	$1/2^-$	4.161 min <i>10</i>

[†] From Adopted Levels.

 $\gamma(^{89}\text{Zr})$

I_γ normalization: from $I_\gamma(1506\gamma)/I_\gamma(588\gamma)=0.0675$ *7*, $I_{\gamma\pm}/I_\gamma(588\gamma)=(\text{1964Va03})$, $\alpha(588\gamma)$, and $I_\varepsilon/I\beta^+(\text{theory})=0.145$ *2* (for g.s. in ^{89}Y), 3.48 *5* (for 1507 in ^{89}Y).

ε/β^+ (1507 level in ^{89}Y)=3.76 *19* ([1964Va03](#)).

E_γ	$I_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$\alpha^\ddagger$	Comments
587.8 <i>1</i>	100	587.8	$1/2^-$	0.0	$9/2^+$	(M4)	0.0467	$\alpha(\text{K})=0.0402$ <i>6</i> ; $\alpha(\text{L})=0.00545$ <i>8</i> ; $\alpha(\text{M})=0.000961$ <i>14</i> $\alpha(\text{N})=0.0001345$ <i>19</i> ; $\alpha(\text{O})=8.61\times 10^{-6}$ <i>12</i> E_γ : from 1969Ro02 . Others: 1971Ar18 , 1968Dr02 , 1964Va03 , 1953Sh48 . I_γ : $I_\gamma(\gamma^\pm)/I_\gamma(588\gamma)=0.0332$ <i>20</i> (1964Va03), 0.038 <i>4</i> (1953Sh48). $I_\gamma(1507\gamma)/I_\gamma(588\gamma)=0.072$ <i>8</i> (1969Ro02), 0.0675 <i>7</i> (1964Va03), 0.077 <i>18</i> (1953Sh48). Mult.: from $\alpha(\text{exp})=0.076$ <i>14</i> , $\text{K}/(\text{L}+\text{M}+..)=5.4$ <i>7</i> (1953Sh48).

[†] For absolute intensity per 100 decays, multiply by 0.8962 *17*.

[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

⁸⁹Zr IT decay (4.161 min) 1964Va03,1969Ro02,1971Ar18

Decay Scheme

Intensities: I_(γ+ce) per 100 parent decays
%IT=93.77 12

