

^{103}Ru IT decay (1.69 ms) 1975Ba60

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 2081 (2009)	1-Mar-2009

Parent: ^{103}Ru : E=238.2 7; $J^\pi=11/2^-$; $T_{1/2}=1.69$ ms 7; %IT decay=100.0

Others: 1964Br27, 1967Iv03, 1968Io01, 1968Ga17, 1970Uy01.

Isomeric activity produced by $^{104}\text{Ru}(\gamma,n)$ E=40 MeV max bremsstrahlung; semi $\gamma(t)$ spectra via 1.69-ms IT decay are compared with 54.2-s ^{103}Tc β^- decay.

 ^{103}Ru Levels

E(level)	J^π^\dagger	$T_{1/2}$	Comments
0.0	$3/2^+$	39.247 d 5	
2.7	$5/2^+$		
213.4	$7/2^+$		
238.2 7	$11/2^-$	1.69 ms 7	From $\gamma(t)$: $T_{1/2}=1.85$ ms 6 (1975Ba60) and 1.56 ms 5 (1970Uy01). %IT=100. E(level): From Adopted Levels.

† From Adopted Levels.

 $\gamma(^{103}\text{Ru})$

I_γ normalization: for $I(\gamma+ce)(210.7\gamma)+I(\gamma+ce)(213.4\gamma)=100$ per 100 IT decays. Uncertainty assigned by the evaluator.

E_γ	I_γ^\ddagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. †	$\alpha^\#$	Comments
(2.7)	0.339 CA	2.7	$5/2^+$	0.0	$3/2^+$	[M1]	306	$\alpha(M)= 267$ E_γ : not observed experimentally but required from the coincidence relationship.
≈ 24	0.124 CA	238.2	$11/2^-$	213.4	$7/2^+$	[M2]	807 12	I_γ : from $I(\gamma+ce)$ balance at 2.7 level. $\alpha(K)= 605$; $\alpha(L)= 181.4$; $\alpha(M)= 35.4$ E_γ : strong I(K x ray) observed ($T_{1/2}$ short) implies strongly converted transition of $E_\gamma > 22$ keV; photon peak obscured by K x ray lines + impurity. Not observed experimentally but required from the coincidence relationship. I_γ : required for $I(\gamma+ce)$ balance at 213 level.
210.7 3	100	213.4	$7/2^+$	2.7	$5/2^+$	[M1]	0.0408 6	
213.4 3	5.6	213.4	$7/2^+$	0.0	$3/2^+$	[E2]	0.0866 13	E_γ : from 1975Ba60 (^{103}Tc β^- decay).

† Suggested from intensities of short-lived K x-rays.

‡ For absolute intensity per 100 decays, multiply by 0.91 15.

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

^{103}Ru IT decay (1.69 ms) $^{1975}\text{Ba60}$ Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
 %IT=100.0

Legend

- ▶ $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- ▶ $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- ▶ $I_{\gamma} > 10\% \times I_{\gamma}^{max}$
- - - -▶ γ Decay (Uncertain)

