^{74}Ga IT decay (9.5 s) 1974Va08,1977Va01,1978Ta08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Mar-2017

Parent: ^{74}Ga: E=59.7 *2*; J^π=(0$^+$); $T_{1/2}$=9.5 s *10*; %IT decay=75 *25*

All studies are by the same group.

Isomeric activity produced by ^{74}Ge(n,p) reaction using 14-MeV neutrons (1974Va08). Authors report γ-ray, x-ray, β^-, $\beta\gamma$, $\gamma\gamma$, and sum peak measurements.

1977Va01 use delayed coincidence summing technique (1978Ta08) to measure $T_{1/2}$ of 56.5 level. A single activated germanium detector was used.

^{74}Ga Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	(3$^-$)		
56.5 *1*	(2$^-$)	31 ns *5*	$T_{1/2}$: from $\gamma\gamma$(t) (1977Va01,1978Ta08).
59.7 *2*	(0$^+$)	9.5 s *10*	E(level): from sum peak observed at 59.7 keV (1974Va08). $T_{1/2}$: from 1974Va08.

[†] From Adopted Levels.

γ(^{74}Ga)

I(γ+ce) normalization: No β^- branch observed (1974Va08). An upper limit is suggested as 50% (1974Va08).

No K x-rays observed with $T_{1/2}\approx$10 s.

From an attempt to observe β radiations from the isomer, 1974Va08 estimate I(β^-)<50%.

No $\beta\gamma$ and $\gamma\gamma$ coincidences observed with 56.5γ (1974Va08).

Sum peak at 59.7 observed in γ-ray spectrum from an activated germanium detector.

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[†]	$I_{(\gamma+ce)}$[‡]	Comments
(3.2 *2*)	3×10^{-4}	59.7	(0$^+$)	56.5	(2$^-$)	[M2]		2.9×10^5 *11*	100	E_γ: from difference of 59.7 *2* (sum peak) and 56.5γ (1974Va08) γ not observed directly.
56.5 *1*		56.5	(2$^-$)	0.0	(3$^-$)	(M1(+E2))	<0.17	0.42 *8*	100	Mult.,δ: from α(K)exp≤0.43 (1974Va08). The value of α(K)exp allows also E1(+M2) with δ<0.16. Also no K x-rays decaying with $T_{1/2}$=10 s observed (1974Va08).
59.7[#]		59.7	(0$^+$)	0.0	(3$^-$)	[E3]		71 *6*	<10	ce(K)/(γ+ce)=0.72 *3*; ce(L)/(γ+ce)=0.20 *3* $I_{(\gamma+ce)}$: from Iγ(59.7γ)<0.04(Iγ(56.5γ)) (1974Va08). This γ has not been observed; but sum peak observed by 1974Va08.

[†] Theoretical values from BrIcc code (2008Ki07) with Frozen-orbital approximation.

[‡] For absolute intensity per 100 decays, multiply by 0.75 *25*.

[#] Placement of transition in the level scheme is uncertain.

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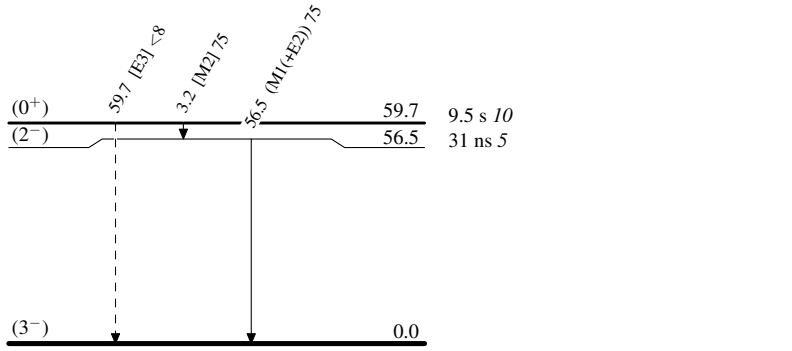
Legend

Decay Scheme

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

%IT=75 *25*



$^{74}_{31}Ga_{43}$