

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh		NDS 114, 841 (2013)	30-Jun-2013

Q(β^-)=3392.4 24; S(n)=8486 4; S(p)=9997 3; Q(α)=-8178.4 28 [2012Wa38](#)
 S(2n)=14907.9 29, S(2p)=24055 3 ([2012Wa38](#)).

⁷⁵Ga produced and identified by [1960Mo01](#) in bombardment of Ge with 25 MeV bremsstrahlung beam followed by chemical separation and measurement of half-life, β and γ radiation. Later studies of ⁷⁵Ga decay: [1960Yt01](#), [1974Ch22](#), [1974Gr29](#).
 Shell Model calculations: [2012Ve03](#), [2012Sr01](#).

⁷⁵Ga Levels

Cross Reference (XREF) Flags

- A ⁷⁵Zn β^- decay (10.2 s)
- B ⁷⁶Ge(d,³He),(pol d,³He)
- C ²³⁸U(⁷⁶Ge,X γ)

E(level) [†]	J π^{\ddagger}	T _{1/2}	XREF	Comments
0.0	3/2 ⁻	126 s 2	ABC	% β^- =100 μ =+1.836 4 (2010Ch16,2011StZZ) Q=-0.285 17 (2010Ch16,2011StZZ) J π^{\ddagger} : spin from hyperfine structure (2010Ch16) using collinear laser spectroscopy at ISOLDE, CERN; parity from analyzing powers in (pol d, ³ He). T _{1/2} : from 1974Gr29 . Others: 130 s 6 (1974Ch22), 120 s 12 (1960Mo01) 90 s 30 (1960Yt01). μ ,Q: hyperfine structure (2010Ch16) using collinear laser spectroscopy at ISOLDE, CERN. 2012Pr11 : charge radii of Ga isotopes measured relative to that ⁷¹ Ga; Collinear laser spectroscopy technique at ISOLDE-CERN facility.
22.39 5	(1/2 ⁻)		A C	
178.29 5	3/2 ⁻ #	<4 ns	ABC	
228.64 4	5/2 ⁻ #	<2 ns	ABC	
432.18 ^{&} 4	(5/2 ⁻)		ABC	
606.44 ^b 4	(7/2 ⁻)		ABC	
881.64 4	7/2 ⁻ #		ABC	
1167 7	5/2 ⁻ #		B	
1256 7	3/2 ⁻ #		B	
1273.93 ^{&} 6	(9/2 ⁻)		A C	
1392.80 23	(5/2,7/2,9/2 ⁻) [@]		A	
1505.65 ^b 21	(11/2 ⁻)		C	
1507.75 11			A	
1509.58 ^a 5	9/2 ⁺ #		ABC	
1544.98 5	7/2 ⁻ #		AB	
1621.85 19	7/2 ⁻ #		AB	
1655.27 14			A	
1865.24 13	(5/2,7/2,9/2) [@]		AB	
1935 7	1/2 ⁻ #		B	
1976 7			B	
2015.48 16	7/2 ⁻ #		AB	
2086.89 ^a 21	(13/2 ⁺)		BC	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{75}Ga Levels (continued)

E(level) [†]	J ^{π‡}	XREF	E(level) [†]	J ^{π‡}	XREF
2233.67 7	(5/2,7/2,9/2 ⁻) [@]	A	2738.86 15	(5/2,7/2,9/2) [@]	A
2257.57 6	(5/2,7/2,9/2 ⁻) [@]	AB	2812.3 3	(5/2,7/2 ⁻) [@]	A
2272.79 8	(5/2,7/2 ⁻) [@]	AB	2864.92 10	(5/2 ⁺ ,7/2 ⁺) [@]	A
2365.13 ^{&} 21	(13/2 ⁻)	C	2868.8 3	(5/2,7/2,9/2) [@]	A
2369.15 17	(5/2,7/2,9/2 ⁻) [@]	A	2877.40 25	(5/2,7/2,9/2 ⁻) [@]	A
2413.58 9	(5/2)	A	2913.76 19	(5/2,7/2,9/2 ⁻) [@]	A
2436.66 21	(5/2,7/2,9/2 ⁻) [@]	A	2945.6 ^a 3	(17/2 ⁺)	C
2505.6 4	(5/2,7/2,9/2) [@]	A	2955.09 25	(5/2,7/2,9/2 ⁻) [@]	A
2556.63 13		A	2998.83 12	(5/2,7/2,9/2 ⁺) [@]	A
2563.79 21	(5/2,7/2,9/2) [@]	A	3105.47 17	(5/2,7/2,9/2) [@]	A
2599.34 9	(5/2 ⁺ ,7/2 ⁺)	A	3194.96 8	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁺) [@]	A
2602.16 15	(5/2,7/2,9/2) [@]	A	3209.00 21	(5/2,7/2,9/2) [@]	A
2634.51 11	(5/2 ⁺)	A	3520.6 ^{&} 6	(17/2 ⁻)	C
2639.76 16		A	3747.7 6		C
2658.6 ^b 3	(15/2 ⁻)	C	3896.5 ^b 6	(19/2 ⁻)	C
2736.28 15	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁻) [@]	A	4147.9 ^a 4	(21/2 ⁺)	C

[†] From least-squares fit to E γ 's, not including 583 γ from 606 level due to its poor fit. Normalized $\chi^2=2.0$, somewhat larger than critical $\chi^2=1.5$.

[‡] From systematics or based on the band structure, unless otherwise specified.

From polarization asymmetry measurement (2008KaZT).

@ Based on the log ft value from beta decay of ^{75}Zn (1986Ek01).

& Band(A): γ cascade based on (5/2⁻).

^a Band(B): γ cascade based on (9/2⁺).

^b Band(C): γ cascade based on (7/2⁻).

Adopted Levels, Gammas (continued)

E _i (level)	J _i ^π	γ(⁷⁵ Ga)							α ^{&}	Comments
		E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult.	δ			
22.39	(1/2 ⁻)	22.5 5	100	0.0	3/2 ⁻	(M1+E2)	0.70	56 9	α(K)=38 6; α(L)=16 3; α(M)=2.2 4; α(N)=0.041 7 δ: from ce data (1986Ek01). α: the evaluators assign an uncertainty of 10% to the authors' quoted %E2 in order to estimate uncertainty in α. α(K)=0.1162 17; α(L)=0.01321 19; α(M)=0.00191 3; α(N)=8.99×10 ⁻⁵ 13	
178.29	3/2 ⁻	155.93 5	100 4	22.39	(1/2 ⁻)	(E2)		0.1314		
228.64	5/2 ⁻	178.28 7	3.4 9	0.0	3/2 ⁻					
432.18	(5/2 ⁻)	228.98 32	100	0.0	3/2 ⁻					
		253.95 36	7 2	178.29	3/2 ⁻					
		409.78 5	35 4	22.39	(1/2 ⁻)					
		432.29 5	100 3	0.0	3/2 ⁻					
606.44	(7/2 ⁻)	174.22 5	47 7	432.18	(5/2 ⁻)					
		377.84 5	71 8	228.64	5/2 ⁻					
		428.4 1	16 4	178.29	3/2 ⁻					
		583.38 ^{#a} 9	6 1	22.39	(1/2 ⁻)	[M3]				
		606.43 5	100	0.0	3/2 ⁻					
881.64	7/2 ⁻	275.26 9	9 6	606.44	(7/2 ⁻)					
		449.55 5	49 7	432.18	(5/2 ⁻)					
		652.92 5	100 2	228.64	5/2 ⁻					
		703.7 2	34 1	178.29	3/2 ⁻					
		881.59 5	82 2	0.0	3/2 ⁻					
1273.93	(9/2 ⁻)	841.79 5	100 4	432.18	(5/2 ⁻)					
		1045.1 3	6 2	228.64	5/2 ⁻					
1392.80	(5/2,7/2,9/2 ⁻)	1164.0 3	100	228.64	5/2 ⁻					
1505.65	(11/2 ⁻)	899.2 2	100	606.44	(7/2 ⁻)					
1507.75		901.3 1	100	606.44	(7/2 ⁻)					
1509.58	9/2 ⁺	627.97 5	100	881.64	7/2 ⁻					
1544.98	7/2 ⁻	1112.9 1	29.7 25	432.18	(5/2 ⁻)					
		1316.36 7	100 5	228.64	5/2 ⁻					
		1366.4 2	74.3 55	178.29	3/2 ⁻					
		1544.7 1	60.4 50	0.0	3/2 ⁻					
1621.85	7/2 ⁻	1189.7 2	100 8	432.18	(5/2 ⁻)					
		1443.4 [‡] 4	59 7	178.29	3/2 ⁻					
1655.27		1427.2 2	100	228.64	5/2 ⁻					
1865.24	(5/2,7/2,9/2)	1258.8 2	100 9	606.44	(7/2 ⁻)					
		1433.1 [‡] 3	43 6	432.18	(5/2 ⁻)					
		1636.9 4	43 6	228.64	5/2 ⁻					
2015.48	7/2 ⁻	1786.5 2	100	228.64	5/2 ⁻					
2086.89	(13/2 ⁺)	577.3 2	100	1509.58	9/2 ⁺					
2233.67	(5/2,7/2,9/2 ⁻)	688.70 7	40 4	1544.98	7/2 ⁻					
		724.0 1	66 4	1509.58	9/2 ⁺					
		1801.7 2	100 6	432.18	(5/2 ⁻)					

Adopted Levels, Gammas (continued)

$\gamma(^{75}\text{Ga})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
2257.57	(5/2,7/2,9/2 ⁻)	712.49 7	80 6	1544.98	7/2 ⁻
		747.96 8	87 6	1509.58	9/2 ⁺
		1651.3 2	48 4	606.44	(7/2 ⁻)
		1825.43 11	100 6	432.18	(5/2 ⁻)
2272.79	(5/2,7/2 ⁻)	1666.3 1	22 2	606.44	(7/2 ⁻)
		2044.4 2	16 2	228.64	5/2 ⁻
		2094.30 14	100 5	178.29	3/2 ⁻
2365.13	(13/2 ⁻)	1091.2 2	100	1273.93	(9/2 ⁻)
2369.15	(5/2,7/2,9/2 ⁻)	824.3 2	45 5	1544.98	7/2 ⁻
		1762.4 3	100 8	606.44	(7/2 ⁻)
2413.58	(5/2)	1139.8 1	37 3	1273.93	(9/2 ⁻)
		1981.27 13	100 6	432.18	(5/2 ⁻)
		2184.8 2	51 3	228.64	5/2 ⁻
		2390.6 [‡] 3	31 2	22.39	(1/2 ⁻)
2436.66	(5/2,7/2,9/2 ⁻)	1830.2 2	100	606.44	(7/2 ⁻)
2505.6	(5/2,7/2,9/2)	2276.9 4	100	228.64	5/2 ⁻
2556.63		901.5 1	59 15	1655.27	
		2123.8 [@] 2	85 6	432.18	(5/2 ⁻)
		2328.0 2	100 9	228.64	5/2 ⁻
		1054.2 2	100	1509.58	9/2 ⁺
2563.79	(5/2,7/2,9/2)	1717.6 1	74 4	881.64	7/2 ⁻
2599.34	(5/2 ⁺ ,7/2 ⁺)	1993.03 14	100 7	606.44	(7/2 ⁻)
		1094.4 1	100	1507.75	
2602.16	(5/2 ⁺)	1752.9 2	15 2	881.64	7/2 ⁻
		2028.3 2	17 2	606.44	(7/2 ⁻)
		2455.91 18	100 5	178.29	3/2 ⁻
		2634.5 3	18 2	0.0	3/2 ⁻
2639.76		624.2 1	73 5	2015.48	7/2 ⁻
		2033.6 2	100 8	606.44	(7/2 ⁻)
2658.6	(15/2 ⁻)	1152.9 2	100	1505.65	(11/2 ⁻)
2736.28	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁻)	502.4 7	95 13	2233.67	(5/2,7/2,9/2 ⁻)
		1226.8 2	100 13	1509.58	9/2 ⁺
		2129.7 [‡] 2	155 20	606.44	(7/2 ⁻)
2738.86	(5/2,7/2,9/2)	1231.1 1	100	1507.75	
2812.3	(5/2,7/2 ⁻)	2584.0 5	17 7	228.64	5/2 ⁻
		2812.1 3	100 5	0.0	3/2 ⁻
2864.92	(5/2 ⁺ ,7/2 ⁺)	999.8 2	41 5	1865.24	(5/2,7/2,9/2)
		1355.5 4	16 4	1509.58	9/2 ⁺
		2258.4 1	100 5	606.44	(7/2 ⁻)
2868.8	(5/2,7/2,9/2)	1359.2 5	26 7	1509.58	9/2 ⁺
		2640.1 3	100 7	228.64	5/2 ⁻
2877.40	(5/2,7/2,9/2 ⁻)	2270.7 4	92 12	606.44	(7/2 ⁻)
		2445.3 3	100 8	432.18	(5/2 ⁻)

Adopted Levels, Gammas (continued)

$\gamma(^{75}\text{Ga})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
2913.76	(5/2,7/2,9/2 ⁻)	1639.9 2	80 8	1273.93	(9/2 ⁻)	3105.47	(5/2,7/2,9/2)	2876.6 4	50 7	228.64	5/2 ⁻
		2481.2 4	100 8	432.18	(5/2 ⁻)	3194.96	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁺)	937.33 6	100 5	2257.57	(5/2,7/2,9/2 ⁻)
2945.6	(17/2 ⁺)	858.7 2	100	2086.89	(13/2 ⁺)			1685.9 2	44 3	1509.58	9/2 ⁺
2955.09	(5/2,7/2,9/2 ⁻)	1445.7 4	100 2	1509.58	9/2 ⁺	3209.00	(5/2,7/2,9/2)	1699.4 2	100	1509.58	9/2 ⁺
		2348.5 [‡] 3	111 17	606.44	(7/2 ⁻)	3520.6	(17/2 ⁻)	1155.5 5	100	2365.13	(13/2 ⁻)
2998.83	(5/2,7/2,9/2 ⁺)	726.0 1	100 11	2272.79	(5/2,7/2 ⁻)	3747.7		1089.1 5	100	2658.6	(15/2 ⁻)
		1489.6 3	72 11	1509.58	9/2 ⁺	3896.5	(19/2 ⁻)	1237.9 5	100	2658.6	(15/2 ⁻)
3105.47	(5/2,7/2,9/2)	1712.5 [‡] 3	43 7	1392.80	(5/2,7/2,9/2 ⁻)	4147.9	(21/2 ⁺)	1202.3 2	100	2945.6	(17/2 ⁺)
		2223.9 [‡] 2	100 7	881.64	7/2 ⁻						

[†] Weighted averages (using LWM) from the available datasets.

[‡] Placed by evaluators from unassigned γ rays based on energy sums.

Poor fit in the level scheme. Level-energy difference=584.05. This transition is considered questionable in view of M3 required from ΔJ^π .

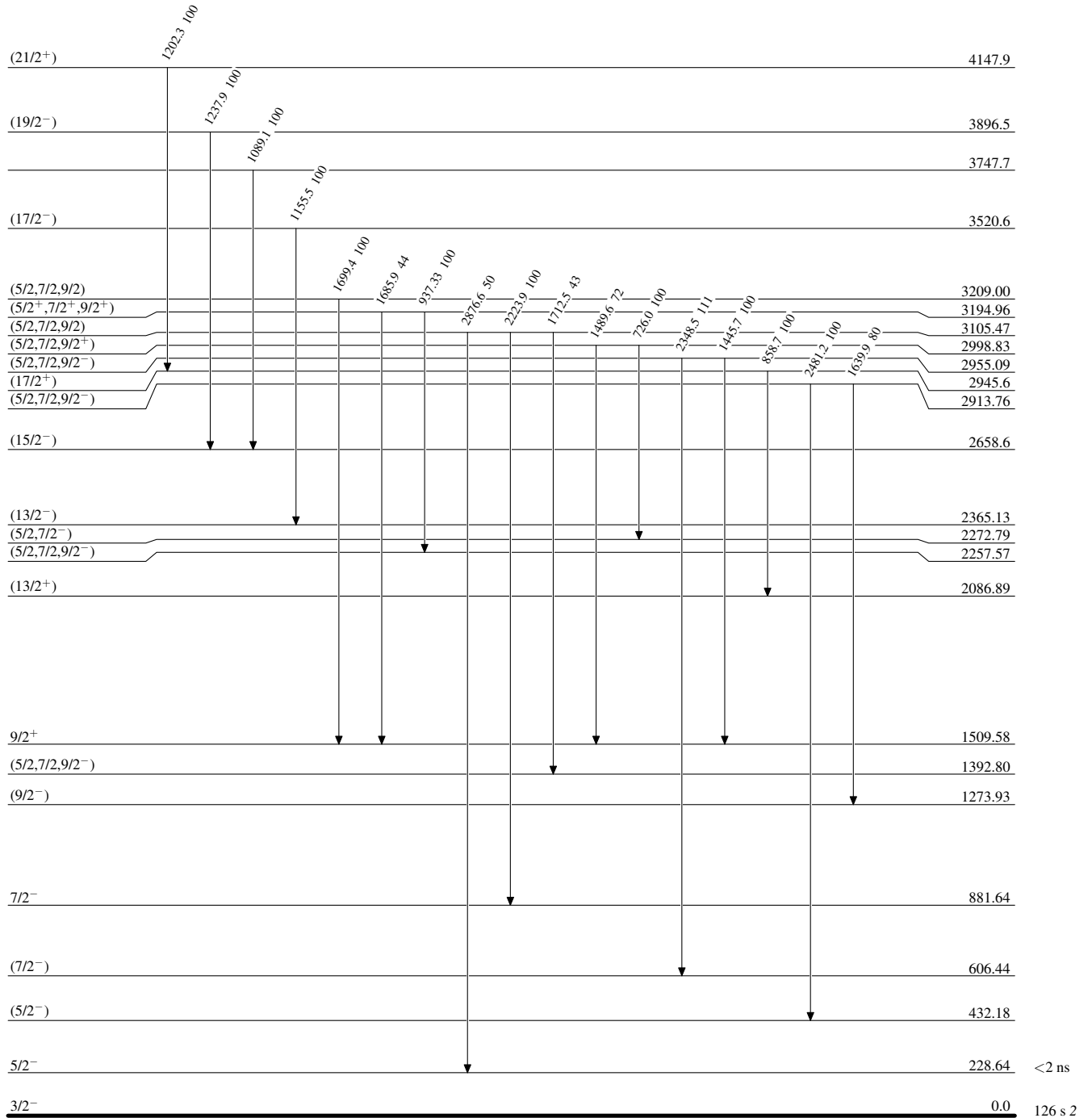
@ Level-energy difference=2124.4.

& [Additional information 1](#).

^a Placement of transition in the level scheme is uncertain.

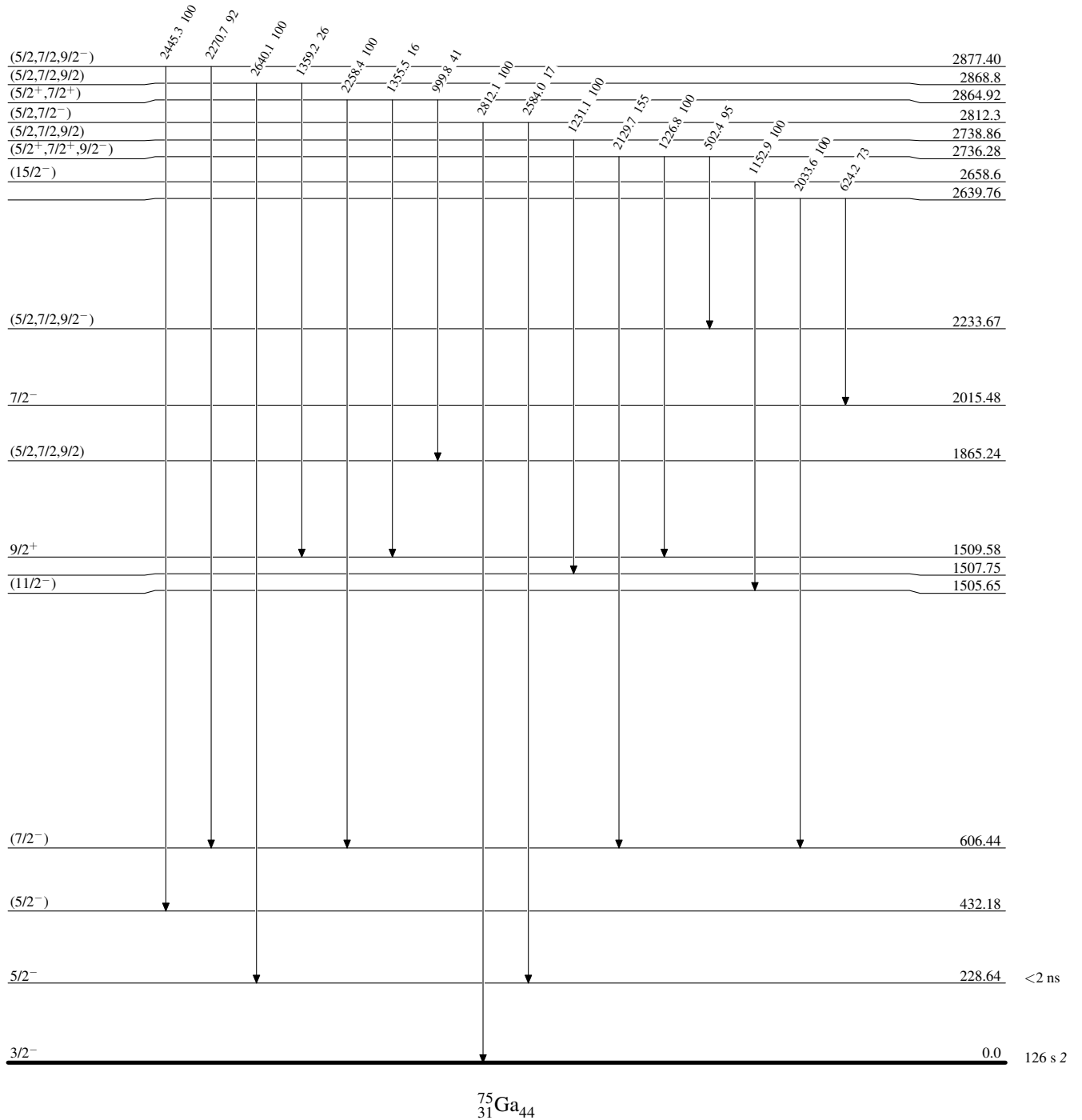
Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level

 $^{75}_{31}\text{Ga}_{44}$

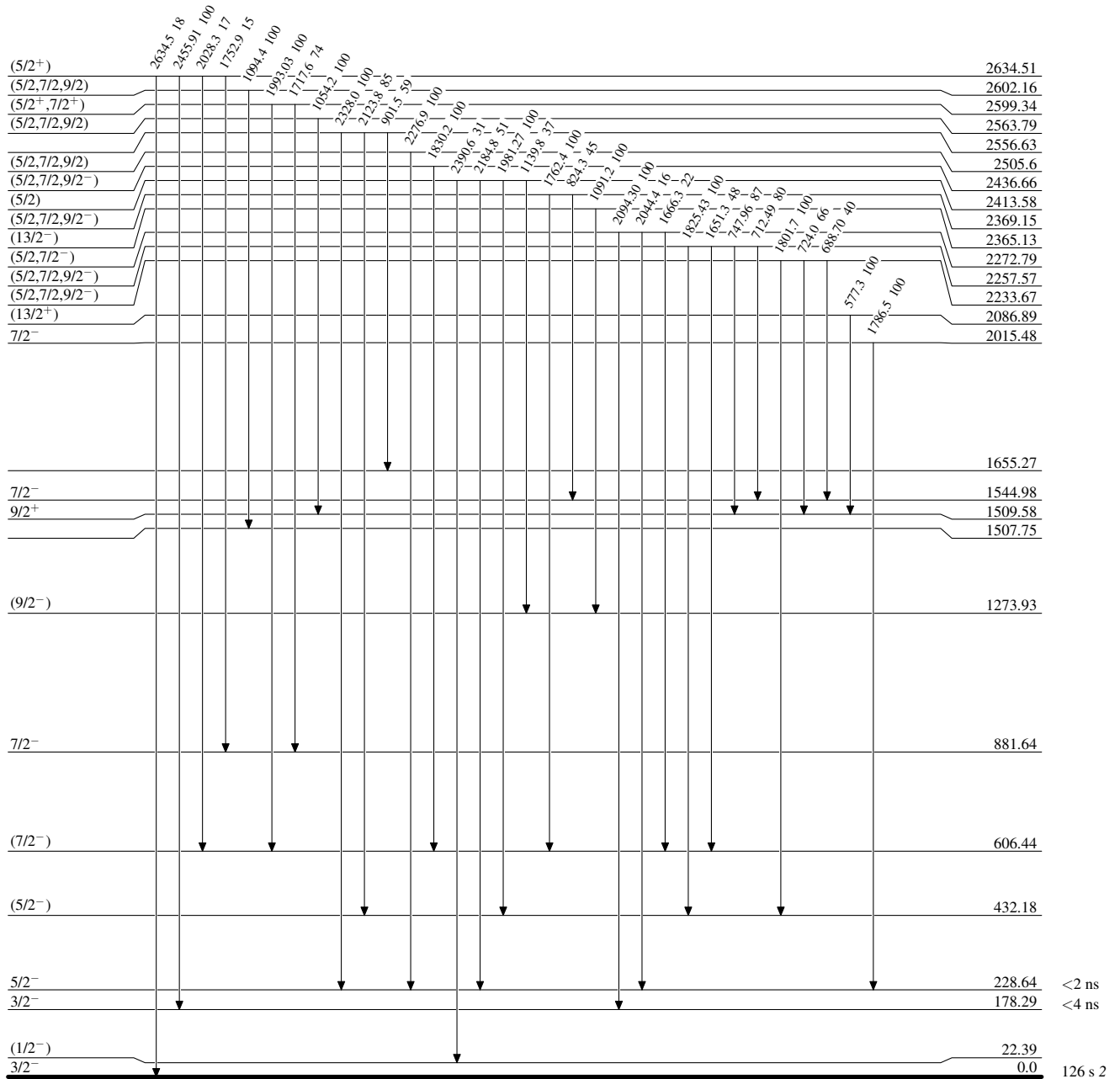
Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level

 $^{75}_{31}\text{Ga}_{44}$

Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level

 $^{75}_{31}\text{Ga}_{44}$

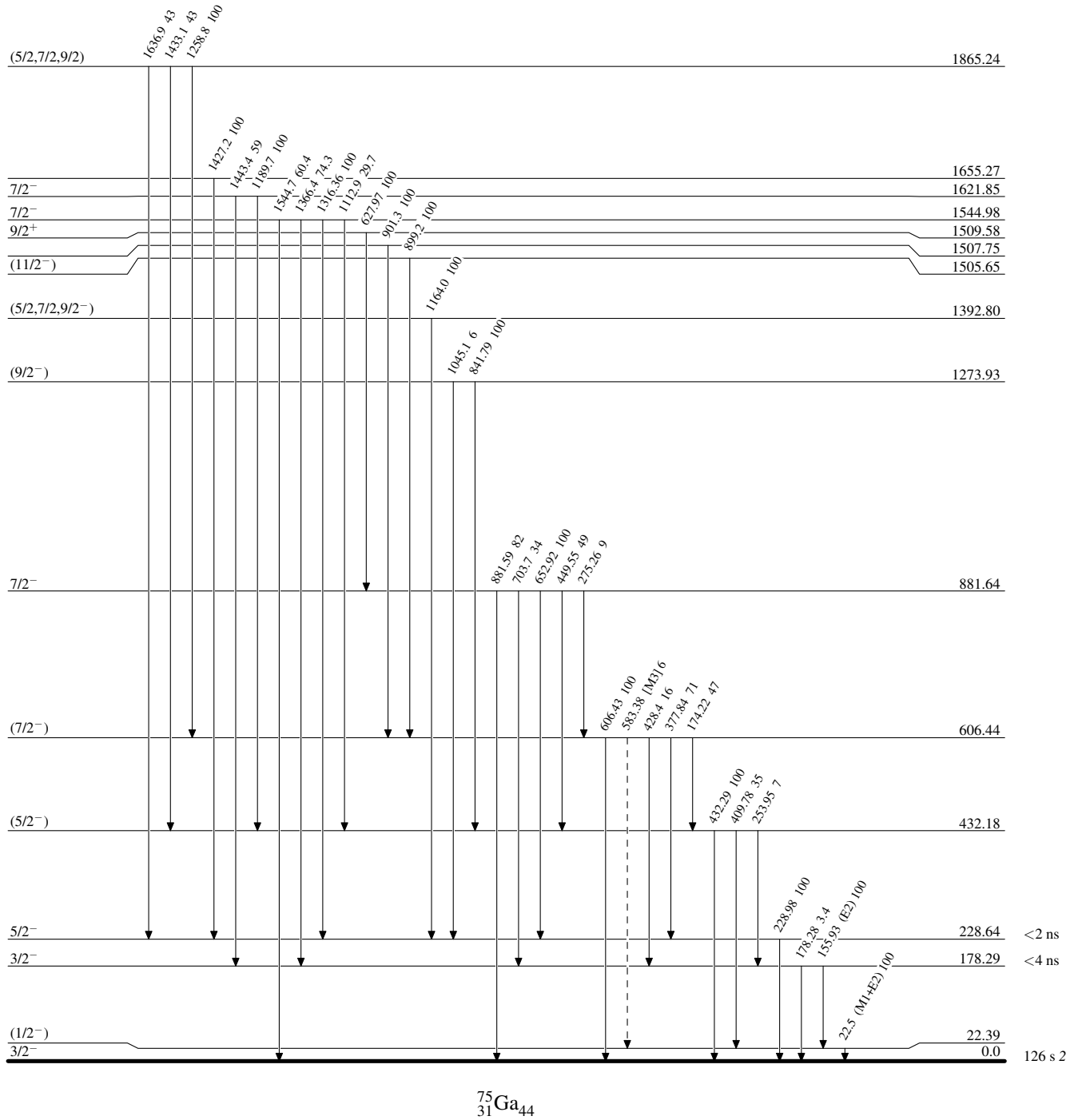
Adopted Levels, Gammas

Legend

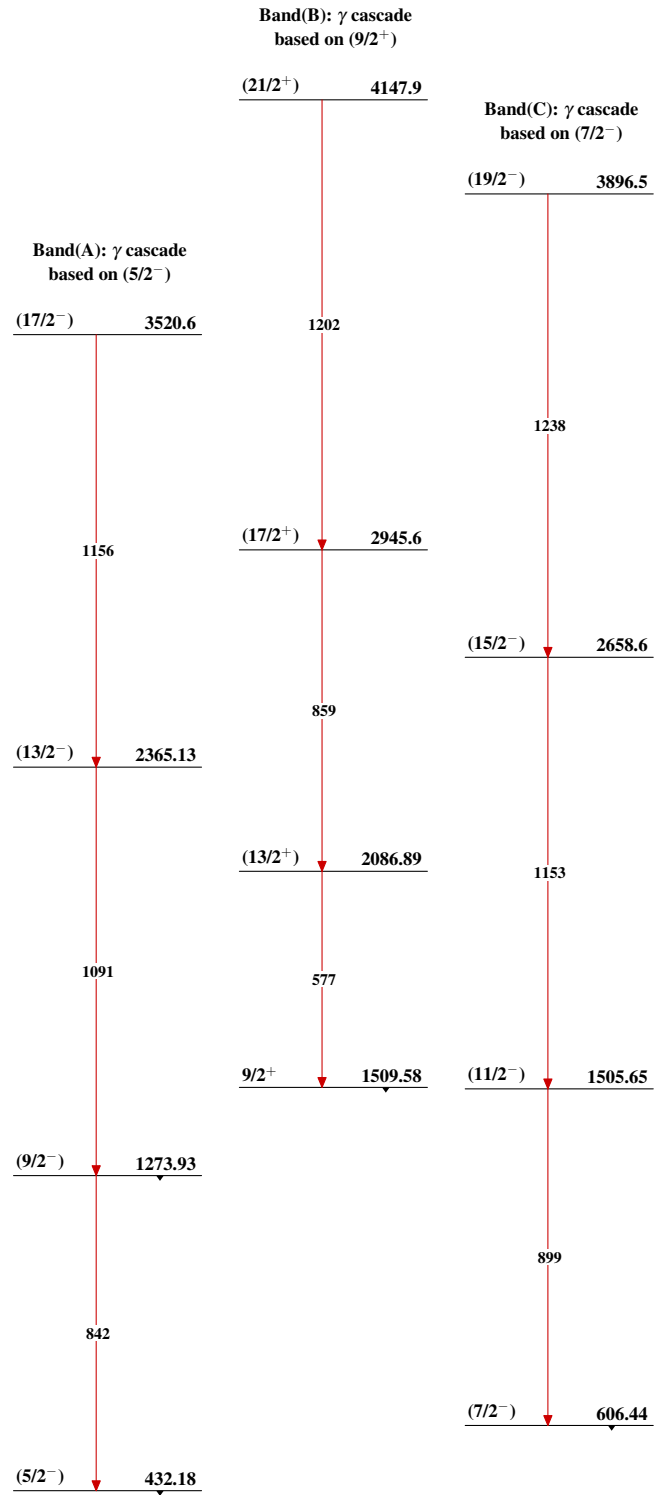
Level Scheme (continued)

Intensities: Relative photon branching from each level

-----> γ Decay (Uncertain)



$^{75}_{31}\text{Ga}_{44}$

Adopted Levels, Gammas $^{75}_{31}\text{Ga}_{44}$