

^{75}Zn β^- decay (10.2 s) 1986Ek01

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

Parent: ^{75}Zn : $E=0.0$; $J^\pi=(7/2^+)$; $T_{1/2}=10.2$ s 2; $Q(\beta^-)=5906$ 3; $\% \beta^-$ decay=100.0

^{75}Zn - $J^\pi, T_{1/2}$: From ^{75}Zn Adopted Levels.

^{75}Zn - $Q(\beta^-)$: From 2012Wa38.

1986Ek01 (also 1977A117,1974Gr29): Zn isotopes separated as fission fragments at the OSIRIS isol facility (Studsvik). Measured γ , $\gamma\gamma$, $\gamma(t)$, $\beta\gamma$ following the decay of ^{75}Zn . Planar HPGE, coaxial Ge, scintillator and Si detectors used to detect γ and β particles. The γ multiplicities were deduced from the measured α .

Others: 1985MaZW (measured γ , $\gamma\gamma$), 1974Ch22.

 ^{75}Ga Levels

E(level) [‡]	J^π [†]	$T_{1/2}$ [#]	Comments
0.0	$3/2^-$	126 s 2	$T_{1/2}$: from 1974Gr29. Others: 130 s 6 (1974Ch22), 120 s 12 (1960Mo01), 90 s 30 (1960Yt01).
22.50 5	$(1/2^-)$		
178.36 5	$3/2^-$	<4 ns	
228.63 4	$5/2^-$	<2 ns	
432.20 3	$(5/2^-)$		
606.41 3	$(7/2^-)$		
881.63 4	$7/2^-$		
1273.94 6	$(9/2^-)$		
1392.79 23	$(5/2, 7/2, 9/2^-)$		
1507.71 11			
1509.57 5	$9/2^+$		
1544.98 5	$7/2^-$		
1621.88 19	$7/2^-$		
1655.27 14			
1865.21 13	$(5/2, 7/2, 9/2)$		
2015.46 16	$7/2^-$		
2233.67 7	$(5/2, 7/2, 9/2^-)$		
2257.56 6	$(5/2, 7/2, 9/2^-)$		
2272.79 8	$(5/2, 7/2^-)$		
2369.14 17	$(5/2, 7/2, 9/2^-)$		
2413.60 8	$(5/2)$		
2436.63 21	$(5/2, 7/2, 9/2^-)$		
2505.6 4	$(5/2, 7/2, 9/2)$		
2556.63 13			
2563.77 21	$(5/2, 7/2, 9/2)$		
2599.32 9	$(5/2^+, 7/2^+)$		
2602.12 15	$(5/2, 7/2, 9/2)$		
2634.52 11	$(5/2^+)$		
2639.73 16			
2736.25 15	$(5/2^+, 7/2^+, 9/2^-)$		
2738.82 15	$(5/2, 7/2, 9/2)$		
2812.3 3	$(5/2, 7/2^-)$		
2864.89 10	$(5/2^+, 7/2^+)$		
2868.8 3	$(5/2, 7/2, 9/2)$		
2877.40 25	$(5/2, 7/2, 9/2^-)$		
2913.78 19	$(5/2, 7/2, 9/2^-)$		
2955.07 25	$(5/2, 7/2, 9/2^-)$		
2998.83 12	$(5/2, 7/2, 9/2^+)$		
3105.46 17	$(5/2, 7/2, 9/2)$		
3194.95 8	$(5/2^+, 7/2^+, 9/2^+)$		
3208.99 21	$(5/2, 7/2, 9/2)$		

Continued on next page (footnotes at end of table)

^{75}Zn β^- decay (10.2 s) **1986Ek01** (continued) ^{75}Ga Levels (continued)

† From Adopted Levels.

‡ From least-squares fit to E_γ data.# From $\gamma\gamma(t)$, for excited states. β^- radiations

E(decay)	E(level)	$I\beta^-$ †	Log ft	Comments
(2697 3)	3208.99	0.56 9	6.11 7	av $E\beta=1136.5$ 15
2.98×10^3 19	3194.95	2.5 3	5.47 6	av $E\beta=1143.2$ 15
(2801 3)	3105.46	1.60 21	5.73 6	av $E\beta=1185.7$ 15
(2907 3)	2998.83	0.92 13	6.04 7	av $E\beta=1236.4$ 15
(2951 3)	2955.07	1.13 15	5.98 6	av $E\beta=1257.3$ 15
(2992 3)	2913.78	1.34 17	5.93 6	av $E\beta=1277.0$ 15
(3029 3)	2877.40	1.43 19	5.92 6	av $E\beta=1294.3$ 15
(3037 3)	2868.8	1.01 14	6.08 6	av $E\beta=1298.4$ 15
(3041 3)	2864.89	2.6 3	5.67 5	av $E\beta=1300.3$ 15
3.14×10^3 20	2812.3	2.0 3	5.82 7	av $E\beta=1325.4$ 15
(3167 3)	2738.82	0.92 12	6.20 6	av $E\beta=1360.6$ 15
(3170 3)	2736.25	2.3 3	5.80 6	av $E\beta=1361.8$ 15
(3266 3)	2639.73	2.05 25	5.91 6	av $E\beta=1408.0$ 15
3.49×10^3 20	2634.52	6.9 8	5.39 6	av $E\beta=1410.5$ 15
(3304 3)	2602.12	1.13 15	6.19 6	av $E\beta=1426.0$ 15
3.70×10^3 12	2599.32	3.7 5	5.68 6	av $E\beta=1427.3$ 15
(3342 3)	2563.77	1.04 15	6.25 7	av $E\beta=1444.4$ 15
3.10×10^3 37	2556.63	2.5 4	5.87 7	av $E\beta=1447.8$ 15
(3400 3)	2505.6	0.39 8	6.71 9	av $E\beta=1472.3$ 15
(3469 3)	2436.63	0.80 11	6.43 6	av $E\beta=1505.4$ 15
(3492 3)	2413.60	6.7 8	5.52 6	av $E\beta=1516.5$ 15
(3537 3)	2369.14	1.72 22	6.14 6	av $E\beta=1537.8$ 15
3.64×10^3 13	2272.79	4.7 6	5.75 6	av $E\beta=1584.2$ 15
3.74×10^3 37	2257.56	3.3 4	5.91 6	av $E\beta=1591.5$ 15
(3672 3)	2233.67	2.3 3	6.08 6	av $E\beta=1603.0$ 15
(4041 3)	1865.21	1.25 20	6.53 7	av $E\beta=1780.6$ 15
(4251 3)	1655.27	<0.22	>7.4	av $E\beta=1882.0$ 15
(4284 3)	1621.88	1.84 23	6.48 6	av $E\beta=1898.2$ 15
(4361 3)	1544.98	5.6 7	6.03 6	av $E\beta=1935.4$ 15
(4396 3)	1509.57	0.9 5	6.84 25	av $E\beta=1952.5$ 15
(4513 3)	1392.79	0.33 10	7.32 14	av $E\beta=2009.0$ 15
(4632 3)	1273.94	2.5 4	6.50 7	av $E\beta=2066.6$ 15
(5024 3)	881.63	2.0 9	6.75 20	av $E\beta=2256.7$ 15
(5300 3)	606.41	7.5 14	6.28 9	av $E\beta=2390.3$ 15
(5474 3)	432.20	7.3 17	6.36 11	av $E\beta=2474.9$ 15
(5677 3)	228.63	7.2 16	6.43 10	av $E\beta=2573.8$ 15
(5728 3)	178.36	6.3 13	8.43 ^{1u} 9	av $E\beta=2598.7$ 15
(5906 [‡] 3)	0.0	<8	>8.4 ^{1u}	av $E\beta=2685.2$ 15

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

⁷⁵Zn β⁻ decay (10.2 s) 1986Ek01 (continued)

γ(⁷⁵Ga)

I_γ normalization: from I(γ+ce) to g.s.=96.4 based on I(β⁻)(g.s.)<8.

E _γ	I _γ ^a	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [†]	δ [†]	α ^{&}	I _(γ+ce) ^a	Comments
22.5 5	1.5 5	22.50	(1/2 ⁻)	0.0	3/2 ⁻	(M1+E2)	0.70	56.5	99 [@] 4	ce(K)/(γ+ce)=0.67 5; ce(L)/(γ+ce)=0.27 3; ce(M)/(γ+ce)=0.039 6; ce(N+)/(γ+ce)=0.00072 9 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. I _γ : 1.68 16 from I(γ+ce) and α. α(K)=0.1162 17; α(L)=0.01320 19; α(M)=0.00191 3; α(N)=8.99×10 ⁻⁵ 13
155.94 5	59.5 25	178.36	3/2 ⁻	22.50	(1/2 ⁻)	(E2)		0.1314		
174.22 5	16.5 15	606.41	(7/2 ⁻)	432.20	(5/2 ⁻)					
178.28 7	2.0 5	178.36	3/2 ⁻	0.0	3/2 ⁻					
228.67 5	100 4	228.63	5/2 ⁻	0.0	3/2 ⁻					
253.9 5	5 1	432.20	(5/2 ⁻)	178.36	3/2 ⁻					
275.25 9	2.3 5	881.63	7/2 ⁻	606.41	(7/2 ⁻)					
^x 352.1 1	2.7 5									
377.84 5	24 2	606.41	(7/2 ⁻)	228.63	5/2 ⁻					
409.78 5	25 2	432.20	(5/2 ⁻)	22.50	(1/2 ⁻)					
428.4 [#] 1	5 1	606.41	(7/2 ⁻)	178.36	3/2 ⁻					
432.29 5	70 4	432.20	(5/2 ⁻)	0.0	3/2 ⁻					
449.54 5	8.7 4	881.63	7/2 ⁻	432.20	(5/2 ⁻)					
502.4 7	2.1 2	2736.25	(5/2 ⁺ , 7/2 ⁺ , 9/2 ⁻)	2233.67	(5/2, 7/2, 9/2 ⁻)					
583.38 ^{#b} 9	1.9 2	606.41	(7/2 ⁻)	22.50	(1/2 ⁻)	[M3]				
606.43 5	31 2	606.41	(7/2 ⁻)	0.0	3/2 ⁻					
624.2 1	2.9 2	2639.73		2015.46	7/2 ⁻					
627.95 5	24.1 15	1509.57	9/2 ⁺	881.63	7/2 ⁻					
652.94 5	15.5 9	881.63	7/2 ⁻	228.63	5/2 ⁻					
^x 685.80 8	1.7 2									
688.70 7	1.9 2	2233.67	(5/2, 7/2, 9/2 ⁻)	1544.98	7/2 ⁻					
712.49 7	4.3 3	2257.56	(5/2, 7/2, 9/2 ⁻)	1544.98	7/2 ⁻					
724.0 1	3.1 2	2233.67	(5/2, 7/2, 9/2 ⁻)	1509.57	9/2 ⁺					
726.0 1	1.8 2	2998.83	(5/2, 7/2, 9/2 ⁺)	2272.79	(5/2, 7/2 ⁻)					
^x 739.6 2	1.4 2									
747.96 8	4.7 3	2257.56	(5/2, 7/2, 9/2 ⁻)	1509.57	9/2 ⁺					
824.3 2	1.8 2	2369.14	(5/2, 7/2, 9/2 ⁻)	1544.98	7/2 ⁻					
841.79 5	13.4 6	1273.94	(9/2 ⁻)	432.20	(5/2 ⁻)					
^x 846.8 2	1.7 2									
^x 863.7 2	1.0 2									
^x 868.4 2	1.4 2									

⁷⁵Zn β⁻ decay (10.2 s) 1986Ek01 (continued)

γ(⁷⁵Ga) (continued)

E _γ	I _γ ^a	E _i (level)	J _i ^π	E _f	J _f ^π	E _γ	I _γ ^a	E _i (level)	J _i ^π	E _f	J _f ^π
881.57 5	15 2	881.63	7/2 ⁻	0.0	3/2 ⁻	1699.4 2	1.9 2	3208.99	(5/2,7/2,9/2)	1509.57	9/2 ⁺
901.3 1	8 1	1507.71		606.41	(7/2 ⁻)	1712.5 [‡] 3	1.2 2	3105.46	(5/2,7/2,9/2)	1392.79	(5/2,7/2,9/2 ⁻)
901.5 1	2.0 5	2556.63		1655.27		1717.6 1	5.3 3	2599.32	(5/2 ⁺ ,7/2 ⁺)	881.63	7/2 ⁻
937.33 6	5.9 3	3194.95	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁺)	2257.56	(5/2,7/2,9/2 ⁻)	1752.9 2	2.4 2	2634.52	(5/2 ⁺)	881.63	7/2 ⁻
^x 968.9 2	1.6 2					1762.4 3	4.0 3	2369.14	(5/2,7/2,9/2 ⁻)	606.41	(7/2 ⁻)
^x 992.4 3	1.0 2					^x 1764.8 3	2.7 2				
999.8 2	2.3 2	2864.89	(5/2 ⁺ ,7/2 ⁺)	1865.21	(5/2,7/2,9/2)	^x 1779.1 2	3.2 2				
1045.1 3	0.8 2	1273.94	(9/2 ⁻)	228.63	5/2 ⁻	1786.5 2	2.3 2	2015.46	7/2 ⁻	228.63	5/2 ⁻
1054.2 2	3.5 3	2563.77	(5/2,7/2,9/2)	1509.57	9/2 ⁺	1801.7 2	4.7 3	2233.67	(5/2,7/2,9/2 ⁻)	432.20	(5/2 ⁻)
1094.4 1	3.8 3	2602.12	(5/2,7/2,9/2)	1507.71		1825.43 11	5.4 3	2257.56	(5/2,7/2,9/2 ⁻)	432.20	(5/2 ⁻)
1112.9 1	3.0 2	1544.98	7/2 ⁻	432.20	(5/2 ⁻)	1830.2 2	2.7 2	2436.63	(5/2,7/2,9/2 ⁻)	606.41	(7/2 ⁻)
^x 1119.8 2	1.6 2					1981.27 13	10.4 6	2413.60	(5/2)	432.20	(5/2 ⁻)
1139.8 1	3.8 3	2413.60	(5/2)	1273.94	(9/2 ⁻)	1993.03 14	7.2 5	2599.32	(5/2 ⁺ ,7/2 ⁺)	606.41	(7/2 ⁻)
1164.0 3	2.3 2	1392.79	(5/2,7/2,9/2 ⁻)	228.63	5/2 ⁻	2028.3 2	2.6 2	2634.52	(5/2 ⁺)	606.41	(7/2 ⁻)
1189.7 2	3.9 3	1621.88	7/2 ⁻	432.20	(5/2 ⁻)	2033.6 2	4.0 3	2639.73		606.41	(7/2 ⁻)
^x 1191.2 5	1.2 2					2044.4 2	2.1 2	2272.79	(5/2,7/2 ⁻)	228.63	5/2 ⁻
1226.8 2	2.2 2	2736.25	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁻)	1509.57	9/2 ⁺	2094.30 14	12.8 7	2272.79	(5/2,7/2 ⁻)	178.36	3/2 ⁻
1231.1 1	3.1 2	2738.82	(5/2,7/2,9/2)	1507.71		2123.8 [#] 2	2.9 2	2556.63		432.20	(5/2 ⁻)
^x 1238.2 4	1.4 2					2129.7 [‡] 2	3.4 3	2736.25	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁻)	606.41	(7/2 ⁻)
1258.8 2	3.5 3	1865.21	(5/2,7/2,9/2)	606.41	(7/2 ⁻)	2184.8 2	5.3 3	2413.60	(5/2)	228.63	5/2 ⁻
1316.36 7	10.1 5	1544.98	7/2 ⁻	228.63	5/2 ⁻	^x 2216.1 1	5.5 3				
1355.5 4	0.9 2	2864.89	(5/2 ⁺ ,7/2 ⁺)	1509.57	9/2 ⁺	2223.9 [‡] 2	2.8 2	3105.46	(5/2,7/2,9/2)	881.63	7/2 ⁻
1359.2 5	0.7 2	2868.8	(5/2,7/2,9/2)	1509.57	9/2 ⁺	2258.4 1	5.6 3	2864.89	(5/2 ⁺ ,7/2 ⁺)	606.41	(7/2 ⁻)
1366.4 2	7.5 4	1544.98	7/2 ⁻	178.36	3/2 ⁻	2270.7 4	2.3 3	2877.40	(5/2,7/2,9/2 ⁻)	606.41	(7/2 ⁻)
1427.2 2	2.2 2	1655.27		228.63	5/2 ⁻	2276.9 4	1.3 2	2505.6	(5/2,7/2,9/2)	228.63	5/2 ⁻
1433.1 [‡] 3	1.5 2	1865.21	(5/2,7/2,9/2)	432.20	(5/2 ⁻)	2328.0 2	3.4 3	2556.63		228.63	5/2 ⁻
1443.4 [‡] 4	2.3 2	1621.88	7/2 ⁻	178.36	3/2 ⁻	2348.5 [‡] 3	2.0 2	2955.07	(5/2,7/2,9/2 ⁻)	606.41	(7/2 ⁻)
1445.7 4	1.8 2	2955.07	(5/2,7/2,9/2 ⁻)	1509.57	9/2 ⁺	2390.6 [‡] 3	3.2 2	2413.60	(5/2)	22.50	(1/2 ⁻)
^x 1487.2 3	1.7 2					2445.3 3	2.5 2	2877.40	(5/2,7/2,9/2 ⁻)	432.20	(5/2 ⁻)
1489.6 3	1.3 2	2998.83	(5/2,7/2,9/2 ⁺)	1509.57	9/2 ⁺	2455.91 18	15.6 8	2634.52	(5/2 ⁺)	178.36	3/2 ⁻
1544.7 1	6.1 4	1544.98	7/2 ⁻	0.0	3/2 ⁻	2481.2 4	2.5 2	2913.78	(5/2,7/2,9/2 ⁻)	432.20	(5/2 ⁻)
1636.9 4	1.5 2	1865.21	(5/2,7/2,9/2)	228.63	5/2 ⁻	2584.0 5	1.0 4	2812.3	(5/2,7/2 ⁻)	228.63	5/2 ⁻
1639.9 2	2.0 2	2913.78	(5/2,7/2,9/2 ⁻)	1273.94	(9/2 ⁻)	2634.5 3	2.8 2	2634.52	(5/2 ⁺)	0.0	3/2 ⁻
1651.3 2	2.6 2	2257.56	(5/2,7/2,9/2 ⁻)	606.41	(7/2 ⁻)	2640.1 3	2.7 2	2868.8	(5/2,7/2,9/2)	228.63	5/2 ⁻
1666.3 1	2.8 2	2272.79	(5/2,7/2 ⁻)	606.41	(7/2 ⁻)	2812.1 3	5.9 3	2812.3	(5/2,7/2 ⁻)	0.0	3/2 ⁻
1685.9 2	2.6 2	3194.95	(5/2 ⁺ ,7/2 ⁺ ,9/2 ⁺)	1509.57	9/2 ⁺	2876.6 4	1.4 2	3105.46	(5/2,7/2,9/2)	228.63	5/2 ⁻

[†] From ce data (1986Ek01). However, details of such data are not available.

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

[#] Does not agree well in the least-squares fitting.

$^{75}\text{Zn} \beta^-$ decay (10.2 s) 1986Ek01 (continued)

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

@ From intensity balance at 22.5 level.

& [Additional information 1](#).

^a For absolute intensity per 100 decays, multiply by 0.289 14.

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

^x γ ray not placed in level scheme.

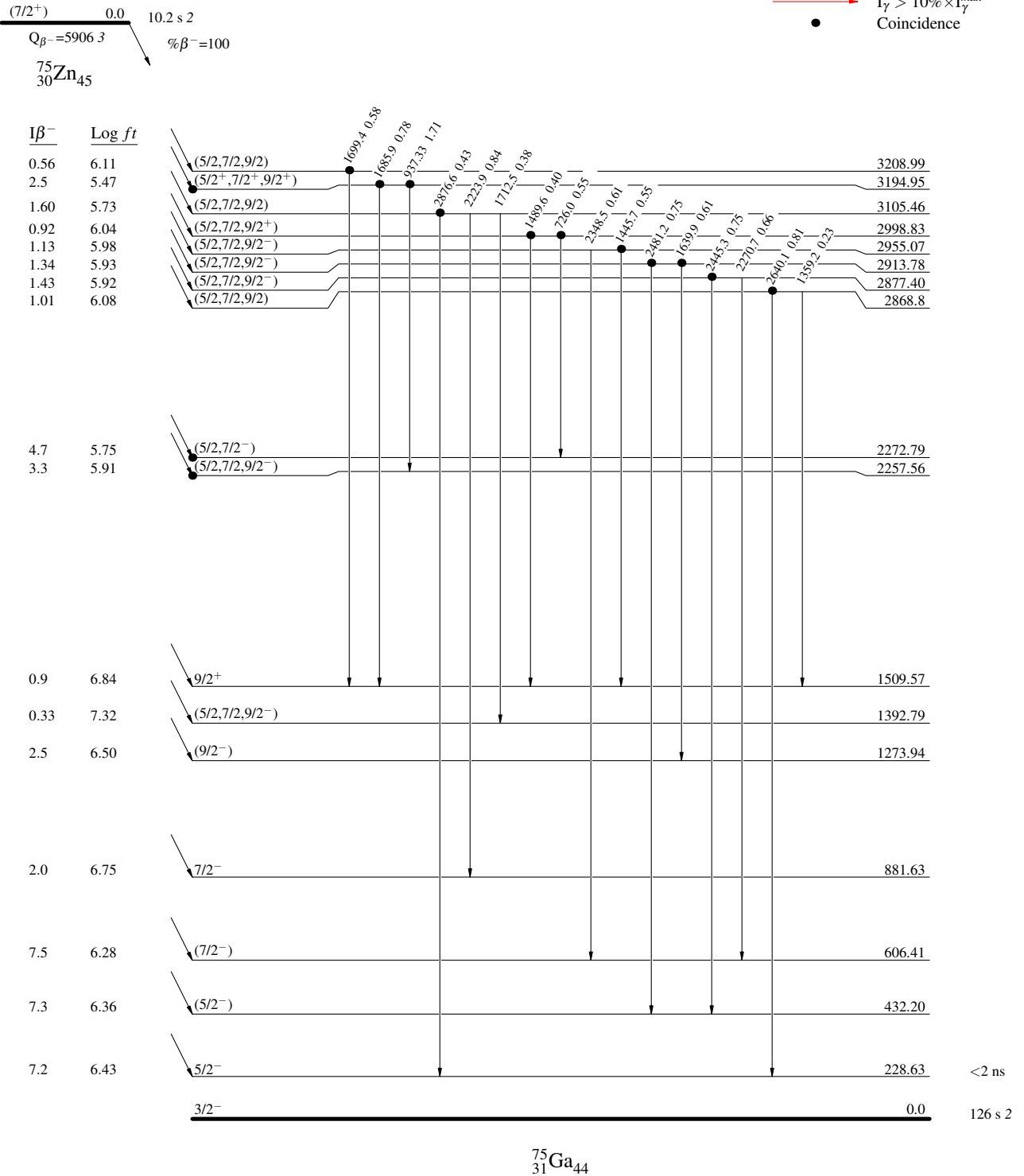
⁷⁵Zn β⁻ decay (10.2 s) 1986Ek01

Decay Scheme

Intensities: I_(γ+ce) per 100 parent decays

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- Coincidence



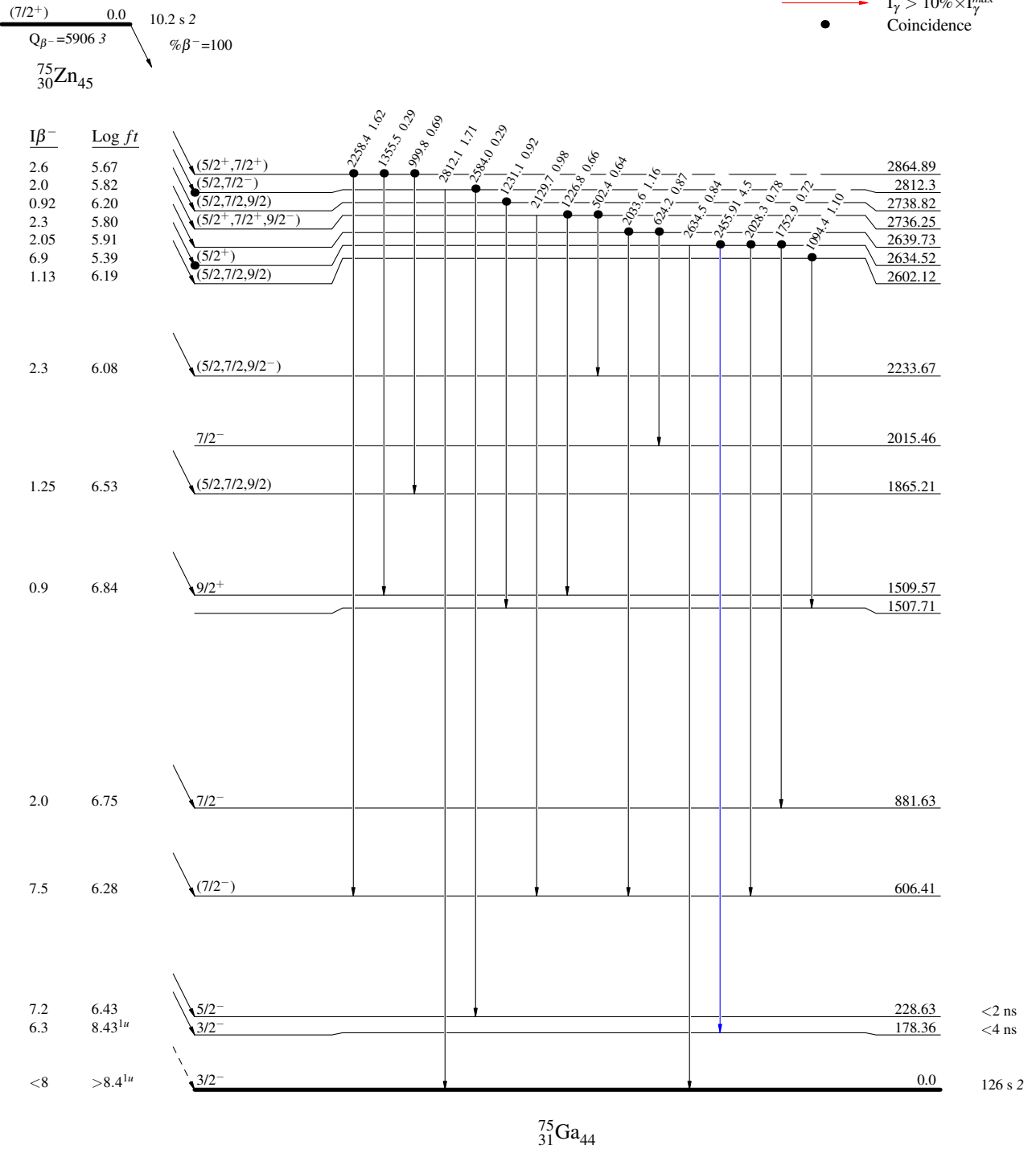
$^{75}\text{Zn} \beta^-$ decay (10.2 s) 1986Ek01

Decay Scheme (continued)

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

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence



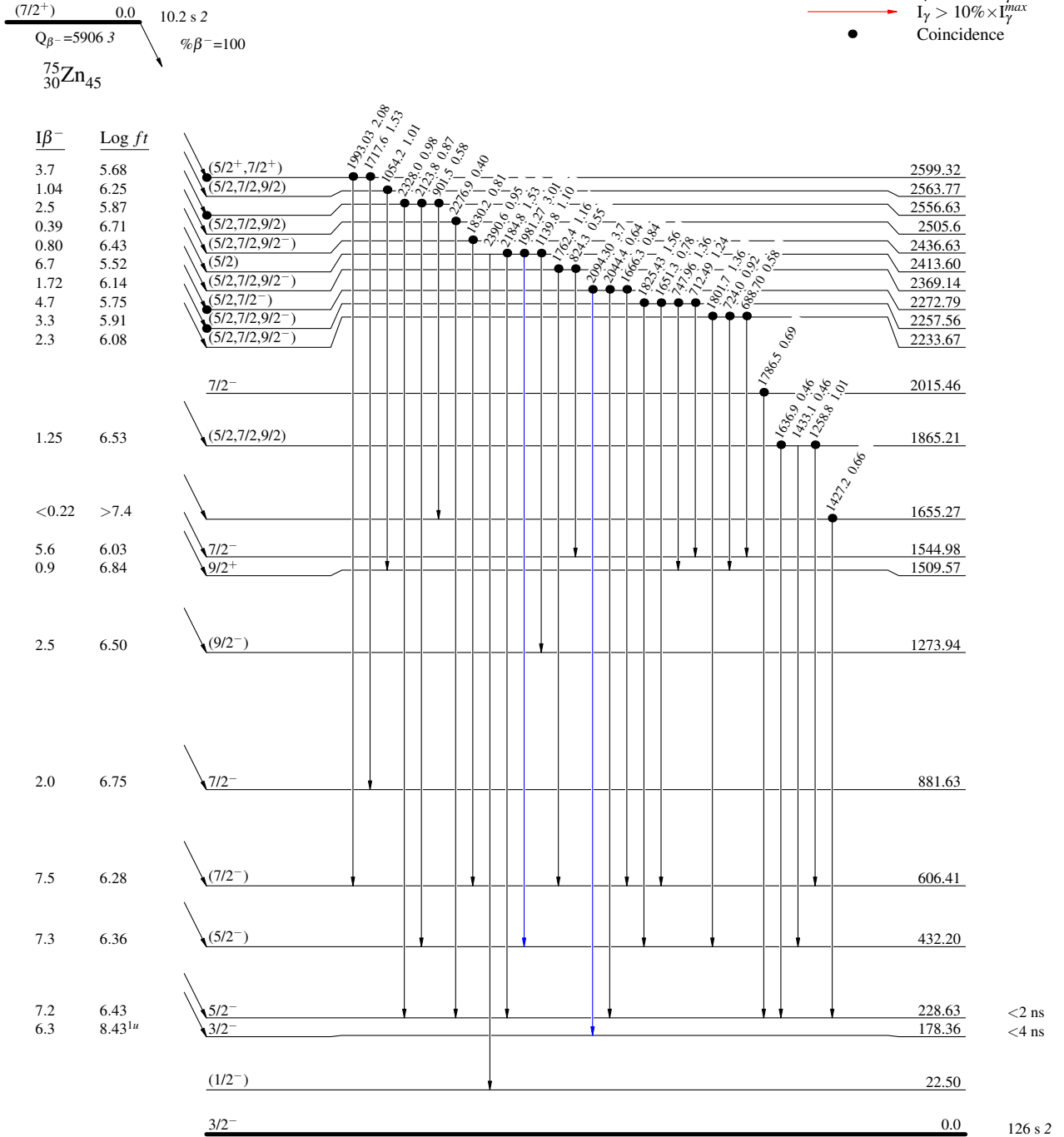
⁷⁵Zn β⁻ decay (10.2 s) 1986Ek01

Decay Scheme (continued)

Intensities: I_(γ+ce) per 100 parent decays

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- Coincidence



⁷⁵Ga₃₁

$^{75}\text{Zn} \beta^-$ decay (10.2 s) 1986Ek01

Decay Scheme (continued)

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

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)
- Coincidence

