^{76}Ga β^- decay (32.6 s) 1971Ca39

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 74,63 (1995)	22-Dec-1994

Parent: ^{76}Ga: E=0.0; J^π=(2$^+$,3$^+$); $T_{1/2}$=32.6 s *6*; Q(β^-)=7010 *90*; %β^- decay=100.0

Additional information 1.

Measured G. The level scheme is from Ritz-combination. No $\gamma\gamma$ are reported.

Other: 1972MaWL.

$T_{1/2}$ and source production: 1985Ta01, 1981Ru07, 1974Gr29, 1970OsZZ, 1966Se04, 1961Ta08.

$\gamma\beta^-$: 1977Al17.

β^-strength functions: 1975Al11. β^- systematics (1983Be56).

^{76}Ge Levels

E(level)‡	J$^\pi$†	E(level)‡	J$^\pi$†	E(level)‡	J$^\pi$†	E(level)‡	J$^\pi$†
0.0	0$^+$	2747.76 *8*	(1 to 4)	3477.65? *17*	(1 to 4)	4784.1? *3*	(1 to 4)
562.93 *3*	2$^+$	2768.76 *14*	2$^+$	3632.75 *10*	(2$^+$)	4812.5? *2*	(2$^+$,3,4$^+$)
1108.45 *4*	2$^+$	2841.57 *13*	2$^+$	3887.05 *19*	(3$^-$)	4814.8? *3*	(1 to 4)
1410.08 *5*	4$^+$	2919.79 *7*	(1,2$^+$)	3951.89 *7*	(1,2$^+$)	5122.48 *14*	(1 to 4)
1539.46 *6*	3$^{(+)}$	3141.51 *7*	2$^+$	4122.3? *4*	(1,2$^+$)	5522.6 *2*	(1 to 4)
1911.09 *12*	0$^+$	3182.21 *6*	(2$^+$)	4192.9? *2*	(2$^+$,3,4$^+$)	5663.37 *15*	(2$^+$)
2019.87 *10*	(4$^+$)	3231.8? *4*	4$^+$	4239.4? *2*	(1 to 4)	5749.9? *4*	(1 to 4)
2284.22 *24*	(3)$^-$	3312.33 *12*	3$^-$	4326.5? *2*	(1 to 4)	5883.0? *3*	(1 to 4)
2591.10 *16*	(1$^+$,2$^+$)	3322.85 *7*	(2$^+$,3,4$^+$)	4363.5? *2*	4$^+$	6021.1? *3*	(1 to 4)
2654.51 *21*		3334.7? *3*	(2$^+$)	4476.5? *2*		6065.2? *4*	(1 to 4)
2692.40 *8*	3$^-$	3409.19 *19*	(1 to 4)	4719.9 *2*	(2,3,4)		

† From Adopted Levels.

‡ From least-squares fit to Eγ's.

β^- radiations

All log *ft* values are considered as tentative since the level scheme is not considered as well established. These log *ft* values cannot be used for definitive J^π assignments for ^{76}Ge levels.

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(9.4×10^2‡ *9*)	6065.2?	0.44 *8*	4.4 *4*	av Eβ= 240 *60*
(9.9×10^2‡ *9*)	6021.1?	0.50 *8*	4.5 *4*	av Eβ= 260 *70*
(1.13×10^3‡ *9*)	5883.0?	0.41 *5*	4.8 *3*	av Eβ= 310 *70*
(1.26×10^3‡ *9*)	5749.9?	0.34 *5*	5.1 *3*	av Eβ= 370 *70*
(1.35×10^3 *9*)	5663.37	0.98 *11*	4.8 *3*	av Eβ= 410 *70*
(1.49×10^3 *9*)	5522.6	0.96 *10*	5.0 *3*	av Eβ= 470 *70*
(1.89×10^3 *9*)	5122.48	1.1 *1*	5.5 *2*	av Eβ= 650 *70*
(2.20×10^3‡ *9*)	4814.8?	1.0 *1*	5.8 *2*	av Eβ= 790 *70*
(2.20×10^3‡ *9*)	4812.5?	0.53 *4*	6.1 *2*	av Eβ= 790 *70*
(2.23×10^3‡ *9*)	4784.1?	0.78 *9*	5.9 *2*	av Eβ= 800 *70*
(2.29×10^3 *9*)	4719.9	1.0 *1*	5.9 *2*	av Eβ= 830 *70*
(2.53×10^3‡ *9*)	4476.5?	1.27 *13*	6.0 *2*	av Eβ= 940 *70*
(2.65×10^3‡ *9*)	4363.5?	1.58 *13*	6.0 *2*	av Eβ= 1000 *70*
(2.68×10^3‡ *9*)	4326.5?	1.50 *9*	6.0 *2*	av Eβ= 1020 *70*

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^{76}Ga β^- decay (32.6 s) 1971Ca39 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(2.77×10^3[‡] *9*)	4239.4?	0.85 *11*	6.3 *2*	av Eβ= 1060 *70*
(2.82×10^3[‡] *9*)	4192.9?	2.21 *13*	6.0 *2*	av Eβ= 1080 *80*
(2.89×10^3[‡] *9*)	4122.3?	0.84 *7*	6.4 *2*	av Eβ= 1110 *80*
(3.06×10^3 *9*)	3951.89	9.3 *5*	5.5 *1*	av Eβ= 1190 *80*
(3.12×10^3 *9*)	3887.05	1.56 *13*	6.3 *1*	av Eβ= 1220 *80*
(3.38×10^3 *9*)	3632.75	0.44 *19*	7.0 *2*	av Eβ= 1340 *80*
(3.53×10^3[‡] *9*)	3477.65?	5.0 *14*	6.1 *2*	av Eβ= 1420 *80*
(3.60×10^3[‡] *9*)	3409.19	0.46 *9*	7.1 *2*	av Eβ= 1450 *80*
(3.68×10^3[‡] *9*)	3334.7?	0.39 *5*	7.3 *2*	av Eβ= 1490 *80*
(3.69×10^3 *9*)	3322.85	3.60 *16*	6.3 *1*	av Eβ= 1490 *80*
(3.70×10^3[‡] *9*)	3312.33	<0.18	>7.6	av Eβ= 1500 *80*
(3.78×10^3[‡] *9*)	3231.8?	0.16 *4*	7.7 *2*	av Eβ= 1540 *80*
3.58×10^3 *15*	3182.21	6.20 *25*	6.13 *9*	av Eβ= 1560 *80* E(decay): from (2074γ)β^- (1977Al17).
(3.87×10^3[‡] *9*)	3141.51	<2	>6.6	av Eβ= 1580 *80*
(4.09×10^3 *9*)	2919.79	10.3 *5*	6.04 *8*	av Eβ= 1690 *80*
(4.17×10^3 *9*)	2841.57	0.48 *10*	7.4 *2*	av Eβ= 1720 *80*
(4.24×10^3 *9*)	2768.76	0.75 *10*	7.3 *1*	av Eβ= 1760 *80*
(4.26×10^3 *9*)	2747.76	6.8 *3*	6.31 *8*	av Eβ= 1770 *80*
(4.32×10^3 *9*)	2692.40	0.59 *18*	7.4 *2*	av Eβ= 1800 *80*
(4.36×10^3[‡] *9*)	2654.51	<0.2	>7.9	av Eβ= 1810 *80*
(4.42×10^3 *9*)	2591.10	1.23 *12*	7.12 *9*	av Eβ= 1850 *80*
(4.99×10^3 *9*)	2019.87	0.55 *9*	7.7 *1*	av Eβ= 2120 *80*
(5.10×10^3[‡] *9*)	1911.09	<0.2	>8.2	av Eβ= 2170 *80*
(5.47×10^3 *9*)	1539.46	10.5 *8*	6.63 *7*	av Eβ= 2350 *80*
(5.60×10^3[‡] *9*)	1410.08	<0.6	>7.9	av Eβ= 2420 *80*
(5.90×10^3 *9*)	1108.45	10.1 *6*	6.80 *6*	av Eβ= 2560 *80*
(6.45×10^3 *9*)	562.93	14.2 *15*	6.83 *7*	av Eβ= 2830 *80*

[†] Absolute intensity per 100 decays.
[‡] Existence of this branch is questionable.

γ(^{76}Ge)

Iγ normalization: assumed no β^- feeding to g.s. Of ^{76}Ge. Conversion- coefficients are negligible. Several γ-ray placements and levels, however, are still uncertain.

E$_\gamma$	I$_\gamma$[#]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	δ
335.9[&] *5*	8.0 *20*	3477.65?	(1 to 4)	3141.51	2$^+$		
431.0 *5*	14.0 *10*	1539.46	3$^{(+)}$	1108.45	2$^+$		
545.51 *3*	39.4 *20*	1108.45	2$^+$	562.93	2$^+$	E2+M1	+3.5 *15*
562.93 *3*	100	562.93	2$^+$	0.0	0$^+$	E2	
661.4[&] *2*	1.12 *10*	3409.19	(1 to 4)	2747.76	(1 to 4)		
843.8[&] *2*	1.73 *17*	4476.5?		3632.75	(2$^+$)		
847.15 *5*	5.3 *3*	1410.08	4$^+$	562.93	2$^+$	E2	
885.83[&] *10*	2.00 *15*	4363.5?	4$^+$	3477.65?	(1 to 4)		

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^{76}Ga β^- decay (32.6 s) 1971Ca39 (continued)

$\gamma(^{76}Ge)$ (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]
911.40 *10*	1.52 *10*	2019.87	(4^+)	1108.45	2^+	
927.05[&] *10*	1.40 *8*	4239.4?	(1 to 4)	3312.33	3^-	
976.50 *5*	7.0 *2*	1539.46	$3^{(+)}$	562.93	2^+	
1014.2[&] *2*	0.54 *8*	4326.5?	(1 to 4)	3312.33	3^-	
[x]1043.6 *4*	0.45 *4*					
1051.7 *2*	0.71 *10*	2591.10	$(1^+,2^+)$	1539.46	$3^{(+)}$	
1108.41 *8*	24.0 *5*	1108.45	2^+	0.0	0^+	E2
1175.7 *5*	0.71 *18*	2284.22	$(3)^-$	1108.45	2^+	
1182.1[&] *3*	0.77 *11*	4814.8?	(1 to 4)	3632.75	(2^+)	
1208.02 *13*	2.32 *17*	2747.76	(1 to 4)	1539.46	$3^{(+)}$	
[x]1249.1 *2*	0.97 *10*					
1259.9 *5*	0.45 *11*	3951.89	$(1,2^+)$	2692.40	3^-	
1273.05[&] *10*	1.82 *11*	4192.9?	$(2^+,3,4^+)$	2919.79	$(1,2^+)$	
1282.9[@] *4*	<0.43[@]	2692.40	3^-	1410.08	4^+	
1282.9[@&] *4*	<0.43[@]	5522.6	(1 to 4)	4239.4?	(1 to 4)	
1310.6[&] *3*	0.42 *7*	4719.9	(2,3,4)	3409.19	(1 to 4)	
1348.13 *13*	1.13 *8*	1911.09	0^+	562.93	2^+	
1358.9 *6*	0.28 *9*	2768.76	2^+	1410.08	4^+	
1443.9[&] *5*	0.39 *10*	4363.5?	4^+	2919.79	$(1,2^+)$	
1461.2[&] *3*	0.50 *10*	4784.1?	(1 to 4)	3322.85	$(2^+,3,4^+)$	
1482.5 *3*	0.75 *11*	2591.10	$(1^+,2^+)$	1108.45	2^+	
1489.6 *4*	0.35 *10*	5122.48	(1 to 4)	3632.75	(2^+)	
1502.3[&] *5*	0.74 *10*	4814.8?	(1 to 4)	3312.33	3^-	
1546.0 *4*	0.65 *13*	2654.51		1108.45	2^+	
1583.9 *5*	0.30 *10*	2692.40	3^-	1108.45	2^+	
1612.7 *3*	0.68 *9*	3632.75	(2^+)	2019.87	(4^+)	
1634.0[&] *2*	1.73 *8*	4326.5?	(1 to 4)	2692.40	3^-	
1639.30 *10*	8.40 *20*	2747.76	(1 to 4)	1108.45	2^+	
1642.80 *15*	1.41 *10*	3182.21	(2^+)	1539.46	$3^{(+)}$	
1660.30 *14*	1.17 *8*	2768.76	2^+	1108.45	2^+	
1721.9 *7*	0.22 *7*	3632.75	(2^+)	1911.09	0^+	
1732.70 *25*	1.10 *10*	2841.57	2^+	1108.45	2^+	
1811.10 *12*	1.27 *7*	2919.79	$(1,2^+)$	1108.45	2^+	
1878.3 *2*	0.55 *6*	4719.9	(2,3,4)	2841.57	2^+	
1892.7[&] *2*	0.61 *4*	4812.5?	$(2^+,3,4^+)$	2919.79	$(1,2^+)$	
1902.2 *2*	0.64 *5*	3312.33	3^-	1410.08	4^+	
1912.7 *1*	0.89 *5*	3322.85	$(2^+,3,4^+)$	1410.08	4^+	
1924.6[&] *3*	0.30 *4*	3334.7?	(2^+)	1410.08	4^+	
1940.30 *14*	1.04 *7*	5122.48	(1 to 4)	3182.21	(2^+)	
1980.4 *5*	0.33 *6*	5122.48	(1 to 4)	3141.51	2^+	
2040.70 *25*	0.50 *8*	3951.89	$(1,2^+)$	1911.09	0^+	
2073.75 *7*	6.43 *16*	3182.21	(2^+)	1108.45	2^+	
2091.9 *4*	0.27 *6*	2654.51		562.93	2^+	
2129.46 *8*	3.34 *10*	2692.40	3^-	562.93	2^+	
2185.20 *17*	0.75 *6*	2747.76	(1 to 4)	562.93	2^+	
2203.86 *16*	2.08 *15*	3312.33	3^-	1108.45	2^+	
2214.36 *8*	3.39 *10*	3322.85	$(2^+,3,4^+)$	1108.45	2^+	
2278.80 *17*	0.67 *5*	2841.57	2^+	562.93	2^+	
2347.40 *25*	0.66 *7*	3887.05	(3^-)	1539.46	$3^{(+)}$	
2356.88 *12*	3.74 *16*	2919.79	$(1,2^+)$	562.93	2^+	
2369.8[&] *6*	0.42 *14*	3477.65?	(1 to 4)	1108.45	2^+	
2435.6 *3*	0.56 *7*	4719.9	(2,3,4)	2284.22	$(3)^-$	

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^{76}Ga β^- decay (32.6 s) 1971Ca39 (continued)

$\gamma(^{76}Ge)$ (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Comments
2476.60 *40*	0.33 *7*	3887.05	(3^-)	1410.08	4^+	
2481.1 *4*	0.30 *6*	5663.37	(2^+)	3182.21	(2^+)	
x2489.6 *4*	0.30 *6*					
2524.0 *2*	1.21 *8*	3632.75	(2^+)	1108.45	2^+	
2578.55 *9*	3.40 *10*	3141.51	2^+	562.93	2^+	
2591.0 *4*	0.41 *7*	2591.10	$(1^+,2^+)$	0.0	0^+	
2619.20 *10*	3.41 *10*	3182.21	(2^+)	562.93	2^+	
2668.8‡& *4*	0.24 *5*	3231.8?	4^+	562.93	2^+	
2680.9 *3*	0.49 *5*	5522.6	(1 to 4)	2841.57	2^+	
2691.6 *4*	0.23 *6*	2692.40	3^-	0.0	0^+	I_γ: part of it could be sum line also as suggested by E3 reduced transition probabilities in (p,p′) and (α,α′) (evaluator).
2700.5& *4*	0.30 *5*	5883.0?	(1 to 4)	3182.21	(2^+)	
2759.95 *14*	1.67 *8*	3322.85	$(2^+,3,4^+)$	562.93	2^+	
2779.1 *4*	1.21 *12*	3887.05	(3^-)	1108.45	2^+	
2782.70& *40*	1.53 *12*	4192.9?	$(2^+,3,4^+)$	1410.08	4^+	
2843.50 *9*	2.42 *10*	3951.89	$(1,2^+)$	1108.45	2^+	
2868.1 *2*	0.53 *7*	5522.6	(1 to 4)	2654.51		
2882.9& *9*	0.21 *7*	6065.2?	(1 to 4)	3182.21	(2^+)	
2914.6& *2*	1.12 *9*	3477.65?	(1 to 4)	562.93	2^+	
2919.85 *10*	13.8 *5*	2919.79	$(1,2^+)$	0.0	0^+	
2970.90 *15*	0.60 *7*	5663.37	(2^+)	2692.40	3^-	
2981.2& *4*	0.31 *6*	5749.9?	(1 to 4)	2768.76	2^+	
x3034.6 *2*	0.79 *8*					
3069.90 *13*	1.40 *8*	3632.75	(2^+)	562.93	2^+	
3130.7& *6*	0.32 *6*	4239.4?	(1 to 4)	1108.45	2^+	
3141.40 *10*	6.42 *32*	3141.51	2^+	0.0	0^+	
3145.3& *4*	0.45 *9*	6065.2?	(1 to 4)	2919.79	$(1,2^+)$	
3190.6& *3*	0.32 *4*	5883.0?	(1 to 4)	2692.40	3^-	
x3275.9 *2*	0.88 *8*					
x3283.6 *5*	0.26 *6*					
3325.2 *12*	0.17 *9*	3887.05	(3^-)	562.93	2^+	
3328.7& *8*	0.30 *9*	6021.1?	(1 to 4)	2692.40	3^-	
3334.6& *5*	0.29 *6*	3334.7?	(2^+)	0.0	0^+	
3366.5& *3*	0.22 *3*	6021.1?	(1 to 4)	2654.51		
3388.75 *12*	4.29 *25*	3951.89	$(1,2^+)$	562.93	2^+	
3402.4& *3*	0.20 *3*	4812.5?	$(2^+,3,4^+)$	1410.08	4^+	
3465.5& *4*	0.21 *4*	5749.9?	(1 to 4)	2284.22	$(3)^-$	
x3496.7 *6*	0.16 *5*					
3559.5& *4*	0.89 *7*	4122.3?	$(1,2^+)$	562.93	2^+	
3675.60& *45*	0.68 *7*	4784.1?	(1 to 4)	1108.45	2^+	
3736.90& *45*	0.24 *6*	6021.1?	(1 to 4)	2284.22	$(3)^-$	
3752.10 *50*	0.25 *5*	5663.37	(2^+)	1911.09	0^+	
x3842.3 *4*	0.14 *3*					
3913.3& *5*	0.19 *4*	4476.5?		562.93	2^+	
x3925.2 *2*	0.51 *5*					
3951.70 *14*	6.43 *50*	3951.89	$(1,2^+)$	0.0	0^+	
x3994.3 *10*	0.34 *5*					
4121.8& *5*	0.38 *5*	4122.3?	$(1,2^+)$	0.0	0^+	
4253.3 *5*	0.34 *5*	5663.37	(2^+)	1410.08	4^+	

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^{76}Ga β^- decay (32.6 s) 1971Ca39 (continued)

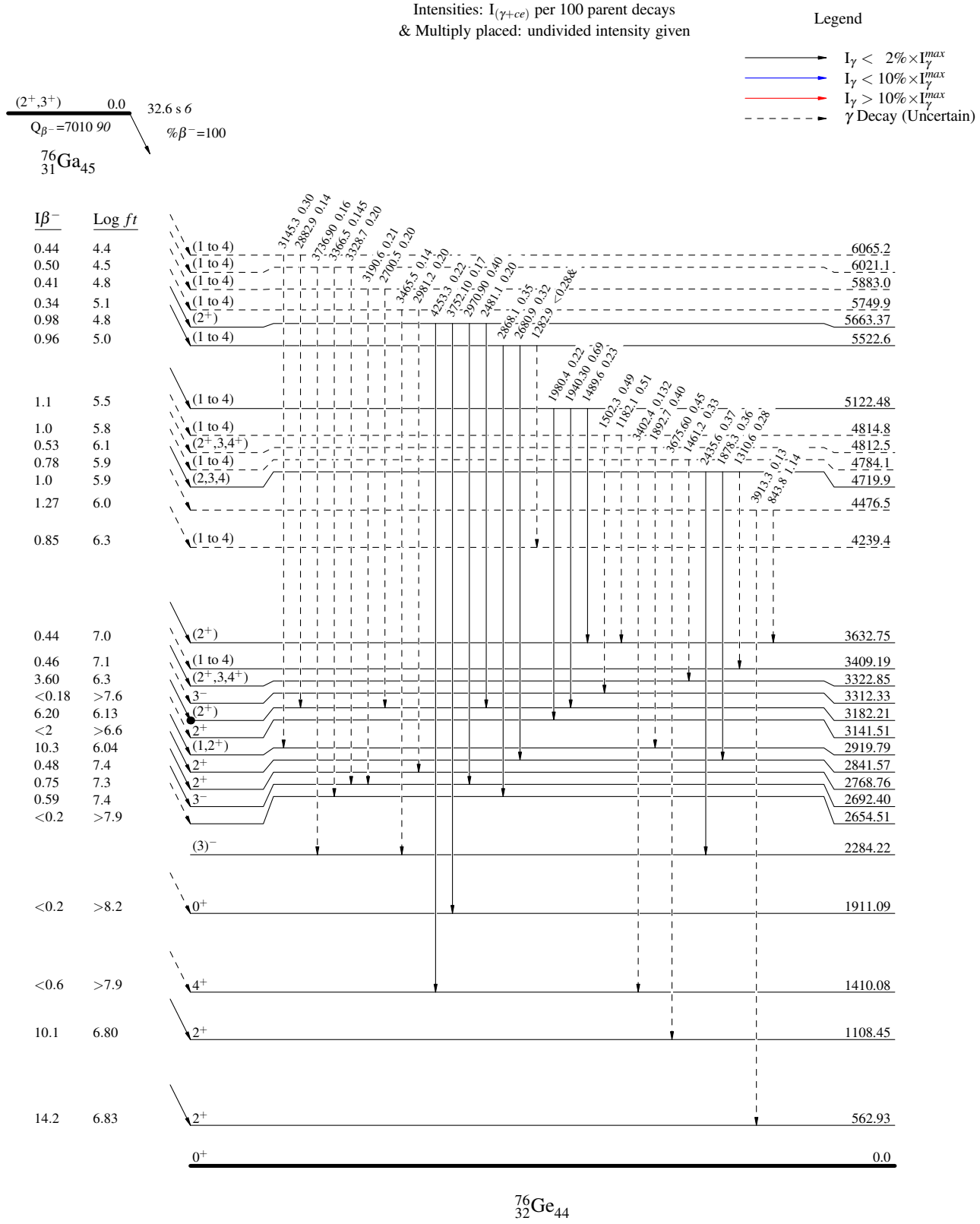
$\gamma(^{76}Ge)$ (continued)

† From adopted gammas.
‡ Placement suggested by the evaluator.
# For absolute intensity per 100 decays, multiply by 0.66 *3*.
@ Multiply placed with undivided intensity.
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{76}Ga β^- decay (32.6 s) 1971Ca39

Decay Scheme

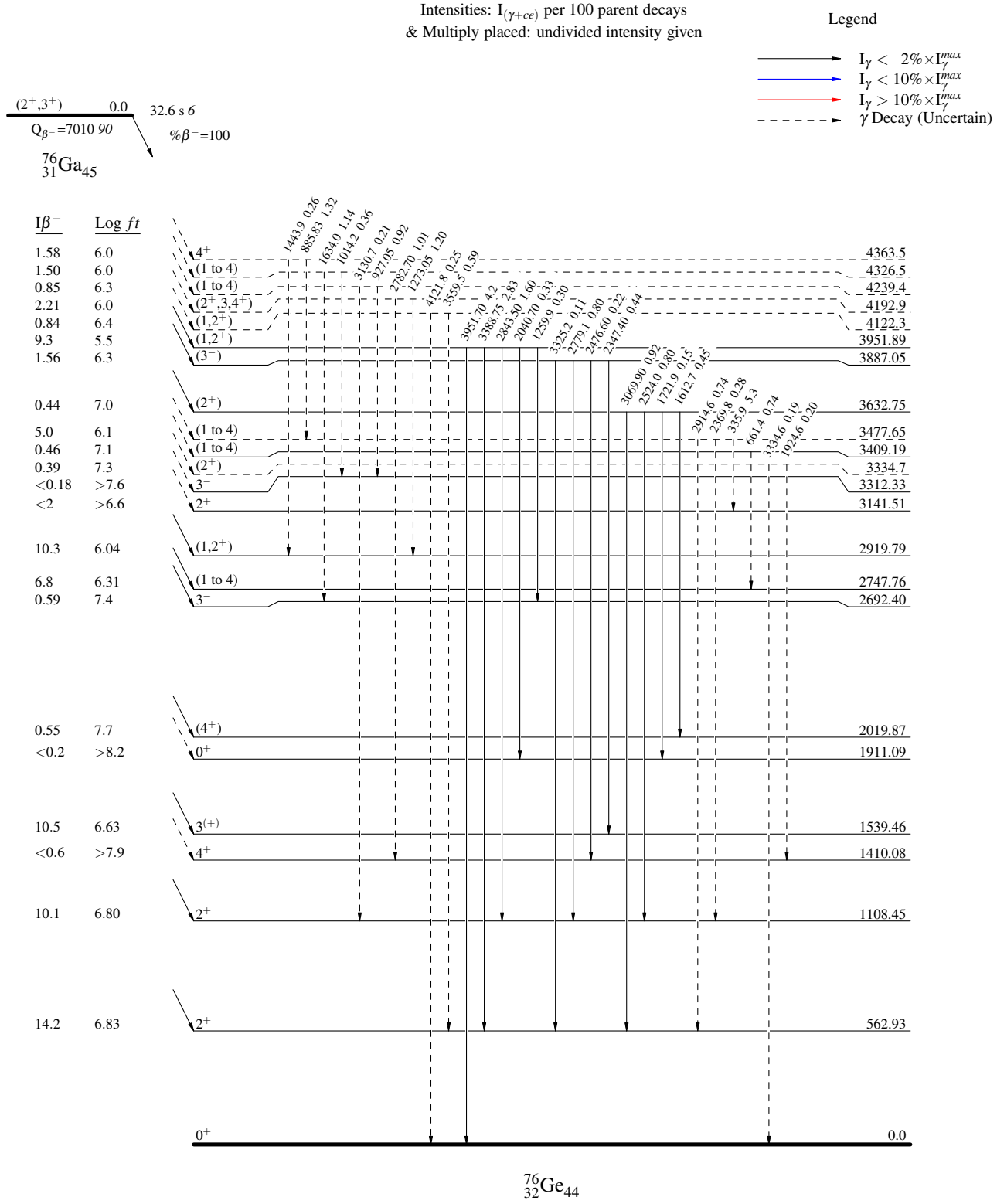
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{76}Ga β^- decay (32.6 s) 1971Ca39

Decay Scheme (continued)

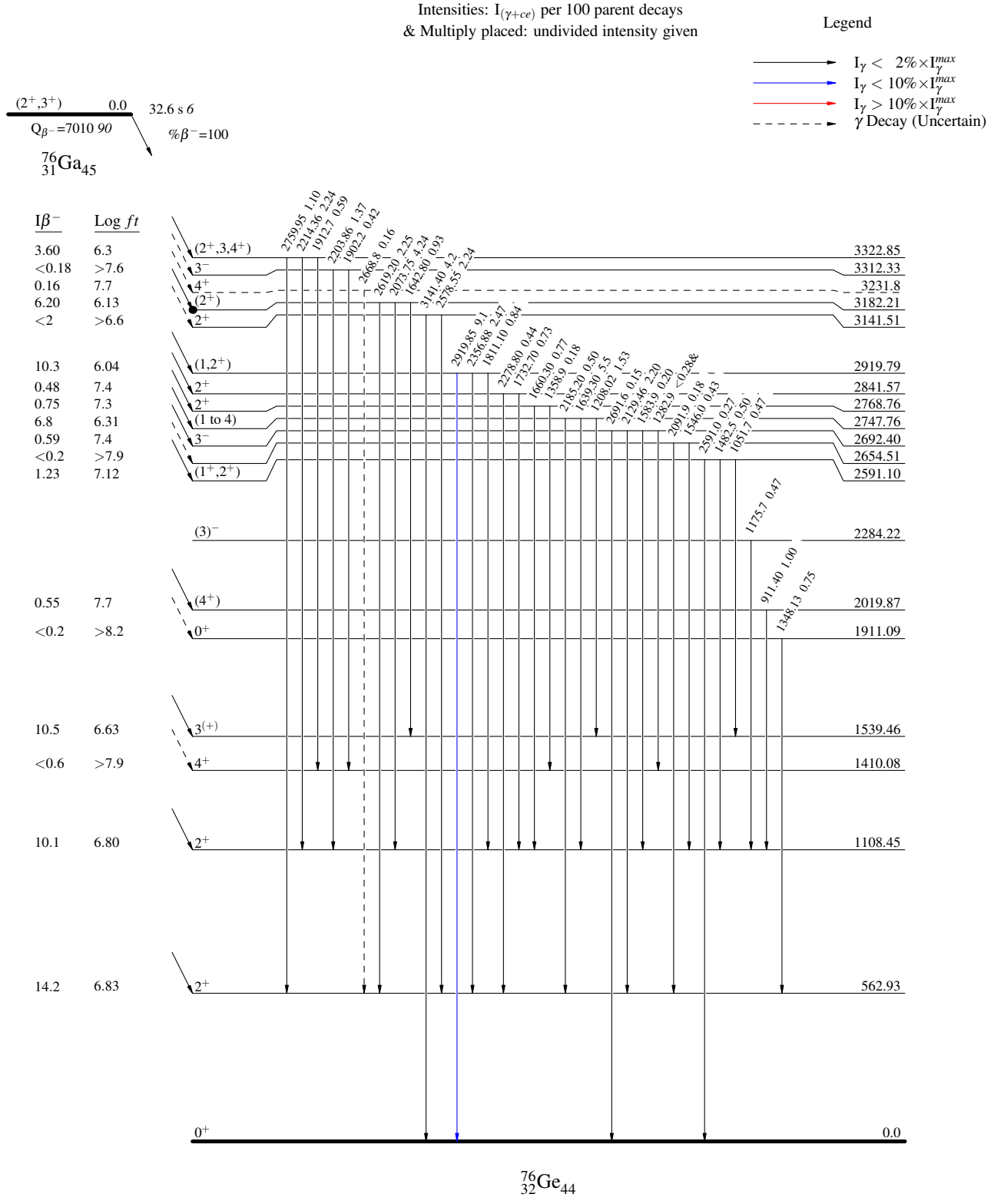
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{76}Ga β^- decay (32.6 s) 1971Ca39

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{76}Ga β^- decay (32.6 s) 1971Ca39

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given