^{149}Dy ε decay (4.2 min) 2019MeZX

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 185, 2 (2022)	23-Aug-2022

Parent: ^{149}Dy: E=0; $J^\pi=7/2^-$; $T_{1/2}$=4.2 min *2*; Q(ε)=3795 *9*; %ε+%β^+ decay=100.0

^{149}Dy-J^π,$T_{1/2}$: From ^{149}Dy Adopted Levels.

^{149}Dy-Q(ε): From 2021Wa16.

2019MeZX (also 1993MeZX,1992MeZX,1990MeZY): ^{149}Dy source was produced via Gd(^{3}He,xn) with E(^{3}He)=240 MeV and separated using Orsay ISOCELE II on-line mass separator. γ rays were detected with Ge detectors and conversion electrons were detected with a broad-range 2π-deflection magnetic electron selector combined with a Si(Li) spectrometer. Measured Eγ, Iγ, $\gamma\gamma$-coin, E(ce), I(ce). Deduced levels, J^π, conversion coefficients, γ-ray multipolarities, decay branching ratios, log *ft*. Comparisons with shell-model calculations.

Others:

1990Sa32: γ, $\gamma\gamma$, γ(t), Q(ε) (from $\beta^+\gamma$). 76 γ rays reported. Hahn-Meitner-Institut in Berlin.

1981ZuZZ: γ, $\gamma\gamma$. 52 γ rays reported. JINR.

1975To03: γ, $\gamma\gamma$. Only the most intense 11 γ rays reported. ORNL.

2003Li42: fully-ionized atoms of ^{149}Dy g.s. detected but no half-life measured. Predicted $T_{1/2}$=40 min, since %ε=0.

γ: 1978Ma19, 1974La28.

ce, γ ce(t): 1978Ma19.

β: 1985Al30, 1985Al13. β branches reported to the following levels: 300 (2%), 700 (1%), 900 (2.7%), 1100 (1.3%), 1840 (85%), 2500 (3.1%), 2800 (2.1%), 3000 (1.9%), 3300 (0.7%).

$\beta^+\gamma$ coin: 1984Ve16.

Q(ε): 1993Al03 (total γ absorption), 1991Ke11 (β^+ spectra), 1990Sa32, 1984Al36, 1985Al30, 1985Al13.

β-strength functions: 1985Al30 (also 1985Al13). Theory: 1984Al31.

$T_{1/2}$(^{149}Dy isotope): 1993Al03, 1975To03, 1974La28, 1973Bi06, 1959To27, 1958To27.

Total decay energy deposit of 3857 keV *67* calculated by RADLIST code is in general agreement with expected value of 3793 keV *9*, indicating the completeness of the decay scheme.

^{149}Tb Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]	Comments
0.0	$1/2^+$	4.12 h *3*	
35.75 *8*	$11/2^-$	4.17 min *5*	%ε+%β^+=99.978 *4*; %α=0.022 *4* Decay modes from the Adopted Levels.
100.75 *7*	$3/2^+$	0.45[#] ns *5*	
206.91 *7*	$5/2^+$	≤0.2[#] ns	
460.49 *8*	$7/2^+$		
689.32 *8*	$7/2^-$		
741.64 *7*	$5/2^+$		
754.92 *9*	$5/2^+$		
825.12 *9*	$9/2^-$		
837.16 *9*	$5/2^+$		
840.71 *11*	$13/2^-$		
844.16 *9*	$7/2^+$		
869.72 *10*	$5/2^+$		J^π: $(7/2^+)$ in Table I of 2019MeZX could be a typo.
872.46 *9*	$(11/2)^-$		
952.89 *8*	$3/2^-$		
970.45 *9*	$7/2^+$		
982.05 *9*	$(9/2)^+$		
1049.24 *14*	$(5/2^+)$		
1088.55 *10*	$5/2^-$		
1120.09 *12*	$(7/2)^+$		
1133.61 *15*	$(9/2,11/2)^+$		
1183.86 *10*	$9/2^-$		

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^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

^{149}Tb Levels (continued)

E(level)[†]	Jπ[‡]	Comments
1189.09 *10*	$(7/2)^-$	
1205.37 *12*	$(9/2)^+$	
1205.95 *14*	$(7/2,9/2)^-$	Jπ: $(9/2^-,11/2^-)$ from 2019MeZX.
1250.68 *10*	$5/2^-$	
1272.73 *10*	$(9/2)^+$	
1381.92 *9*	$7/2^-$	
1420.55 *11*	$(9/2)^-$	
1426.13 *9*	$9/2^-$	
1461.26 *9*	$(5/2,7/2)^-$	
1473.75 *9*	$(11/2)^-$	Jπ: $11/2^-$ from shell-model prediction in 2019MeZX.
1487.59 *15*	$(7/2,9/2)^+$	
1492.75 *12*	$(7/2,9/2,11/2)^+$	
1508.52 *10*	$(7/2)^-$	
1631.88 *20*	$(3/2,5/2)^-$	
1697.49 *11*	$9/2^-$	
1728.36 *8*	$5/2^-$	
1735.44 *11*	$(7/2)^-$	
1776.61 *10*	$7/2^-$	
1804.1 *3*	$(5/2^+,7/2^+,9/2^+)$	
1841.63 *8*	$9/2^-$	
1852.03 *14*	$(7/2)^-$	
1876.88 *7*	$5/2^-$	
1883.08 *8*	$(9/2)^-$	
1928.15 *17*	$(7/2^-,9/2^-)$	
1953.13 *9*	$9/2^-$	
1986.44 *20*	$(3/2^-,5/2,7/2^-)$	Jπ: $(3/2^-,5/2)$ in 2019MeZX.
2014.73 *14*	$(9/2)^-$	
2026.32 *10*	$(7/2)^-$	
2065.37 *7*	$7/2^-$	
2074.22 *9*	$7/2^-$	
2117.14 *20*	$(5/2^-,7/2^-)$	
2157.98 *14*	$(7/2)^-$	
2161.04 *14*	$(9/2)^-$	
2260.33 *19*	$(7/2^-,9/2)$	
2352.30 *19*	$(7/2^-,9/2)$	
2452.5 *3*	$(9/2^-)$	
2486.59 *25*	$(5/2,7/2,9/2^+)$	
2516.33 *24*	$(7/2^-)$	
2547.5 *3*	$(5/2,7/2^+)$	
2566.1 *3*	$(7/2^-,9/2)$	
2573.4 *3*	$(7/2^-,9/2)$	
2588.60 *13*	$(5/2,7/2)$	
2661.4 *3*	$(9/2^-)$	

[†] From a least-squares fit to γ-ray energies.
[‡] From the Adopted Levels. Values from this study are as noted or given under comments if different. The adopted assignments are from shell-model predictions by 2019MeZX if no other arguments are given in the Adopted Levels.
[#] Adopted values from (ce)γ(t) in 1978Ma19.

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

ε,β+ radiations

E(decay)	E(level)	Iβ+ #	Iε#	Log *ft*	I(ε+β+)†#	Comments
(1134 *9*)	2661.4		0.047 *9*	6.8 *1*	0.047 *9*	εK=0.8313 *1*; εL=0.13031 *7*; εM+=0.03835 *3*
(1206 *9*)	2588.60		0.02 *1*	7.2 *2*	0.02 *1*	εK=0.8320; εL=0.12978 *7*; εM+=0.03817 *3*
(1222 *9*)	2573.4		0.041 *12*	6.9 *1*	0.041 *12*	εK=0.8321; εL=0.12968 *6*; εM+=0.03813 *3*
(1229 *9*)	2566.1		0.041 *12*	6.9 *1*	0.041 *12*	εK=0.8322; εL=0.12963 *6*; εM+=0.03812 *2*
(1248 *9*)	2547.5		0.069 *15*	6.7 *1*	0.069 *15*	εK=0.8323; εL=0.12951 *6*; εM+=0.03808 *2*
(1279 *9*)	2516.33		0.089 *12*	6.6 *1*	0.089 *12*	εK=0.8325; εL=0.12931 *6*; εM+=0.03801 *2*
(1308 *9*)	2486.59		0.084 *23*	6.7 *1*	0.084 *23*	εK=0.8327; εL=0.12912 *6*; εM+=0.03794 *2*
(1343 *9*)	2452.5		0.053 *13*	6.9 *1*	0.053 *13*	εK=0.8328; εL=0.12891 *6*; εM+=0.03787 *2*
(1443 *9*)	2352.30	0.000169 *25*	0.130 *15*	6.56 *6*	0.130 *15*	av Eβ=204.7 *40*; εK=0.8327; εL=0.12830 *6*; εM+=0.03766 *2*
(1535 *9*)	2260.33	0.00099 *22*	0.34 *7*	6.2 *1*	0.34 *7*	av Eβ=245.2 *40*; εK=0.8319 *2*; εL=0.12770 *7*; εM+=0.03747 *2*
(1634 *9*)	2161.04	0.0063 *6*	1.07 *9*	5.76 *5*	1.08 *9*	av Eβ=289.1 *40*; εK=0.8300 *3*; εL=0.12695 *8*; εM+=0.03723 *3*
(1637 *9*)	2157.98	0.0041 *5*	0.69 *8*	5.95 *6*	0.69 *8*	av Eβ=290.4 *40*; εK=0.8300 *3*; εL=0.12692 *8*; εM+=0.03722 *3*
(1678 *9*)	2117.14	0.00116 *16*	0.153 *20*	6.63 *6*	0.154 *20*	av Eβ=308.4 *40*; εK=0.8288 *3*; εL=0.12657 *8*; εM+=0.03711 *3*
(1721 *9*)	2074.22	0.0166 *12*	1.72 *9*	5.60 *3*	1.74 *9*	av Eβ=327.2 *40*; εK=0.8273 *4*; εL=0.12618 *9*; εM+=0.03698 *3*
(1730 *9*)	2065.37	0.105 *6*	10.4 *3*	4.82 *3*	10.5 *3*	av Eβ=331.1 *40*; εK=0.8269 *4*; εL=0.12609 *9*; εM+=0.03696 *3*
(1769 *9*)	2026.32	0.0144 *14*	1.17 *10*	5.79 *5*	1.18 *10*	av Eβ=348.3 *40*; εK=0.8253 *5*; εL=0.1257 *1*; εM+=0.03683 *3*
(1780 *9*)	2014.73	0.0099 *11*	0.76 *8*	5.98 *5*	0.77 *8*	av Eβ=353.2 *40*; εK=0.8247 *5*; εL=0.1256 *1*; εM+=0.03680 *3*
(1809 *9*)	1986.44	0.0032 *8*	0.22 *5*	6.5 *1*	0.22 *5*	av Eβ=365.7 *40*; εK=0.8233 *5*; εL=0.1253 *1*; εM+=0.03670 *4*
(1842 *9*)	1953.13	0.068 *3*	3.92 *7*	5.30 *2*	3.99 *7*	av Eβ=380.4 *40*; εK=0.8214 *6*; εL=0.1249 *2*; εM+=0.03658 *4*
(1867 *9*)	1928.15	0.0086 *10*	0.44 *5*	6.26 *6*	0.45 *5*	av Eβ=391.3 *40*; εK=0.8199 *6*; εL=0.1245 *2*; εM+=0.03648 *4*
(1912 *9*)	1883.08	0.20 *1*	8.4 *3*	5.00 *3*	8.6 *3*	av Eβ=411.1 *40*; εK=0.8169 *7*; εL=0.12394 *13*; εM+=0.03630 *4*
(1918 *9*)	1876.88	0.431 *21*	18.0 *6*	4.68 *3*	18.4 *6*	av Eβ=413.8 *40*; εK=0.8164 *7*; εL=0.12386 *13*; εM+=0.03628 *4*
(1943 *9*)	1852.03	0.012 *1*	0.44 *4*	6.30 *5*	0.45 *4*	av Eβ=424.7 *40*; εK=0.8146 *7*; εL=0.12350 *14*; εM+=0.03617 *4*
(1953 *9*)	1841.63	0.415 *20*	15.1 *5*	4.77 *3*	15.5 *5*	av Eβ=429.2 *40*; εK=0.8138 *8*; εL=0.12335 *14*; εM+=0.03612 *4*
(1991 *9*)	1804.1	0.0037 *9*	0.12 *3*	6.9 *1*	0.12 *3*	av Eβ=445.8 *40*; εK=0.8106 *8*; εL=0.12276 *15*; εM+=0.03595 *5*
(2018 *9*)	1776.61	0.058 *3*	1.65 *7*	5.76 *3*	1.71 *7*	av Eβ=457.8 *40*; εK=0.8082 *9*; εL=0.12232 *16*; εM+=0.03581 *5*
(2060 *9*)	1735.44	0.090 *4*	2.23 *6*	5.65 *3*	2.32 *6*	av Eβ=476.2 *40*; εK=0.8041 *10*; εL=0.12159 *17*; εM+=0.03559 *5*
(2067 *9*)	1728.36	0.32 *2*	7.8 *4*	5.11 *3*	8.1 *4*	av Eβ=479.1 *40*; εK=0.8034 *10*; εL=0.12147 *17*; εM+=0.03556 *5*
(2098 *9*)	1697.49	0.074 *5*	1.62 *10*	5.80 *4*	1.69 *10*	av Eβ=492.6 *41*; εK=0.8002 *10*; εL=0.12090 *18*; εM+=0.03539 *6*
(2163 *9*)	1631.88	<0.003	<0.05	>7.4	<0.05	av Eβ=521.5 *40*; εK=0.7925 *12*; εL=0.11960 *19*; εM+=0.03500 *6*
(2286 *9*)	1508.52	0.068 *7*	0.86 *8*	6.15 *5*	0.93 *9*	av Eβ=576.0 *40*; εK=0.7758 *14*; εL=0.11681 *22*; εM+=0.03417 *7*
(2302 *9*)	1492.75	<0.004	<0.05	>7.4	<0.05	av Eβ=582.9 *40*; εK=0.7734 *14*; εL=0.11642 *23*; εM+=0.03406 *7*

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^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ #	Iε#	Log *ft*	I(ε+β+)†#	Comments
(2307 *9*)	1487.59	<0.002	<0.03	>7.7	<0.03	av Eβ=585.3 *40*; εK=0.7726 *14*; εL=0.11629 *23*; εM+=0.03402 *7*
(2321 *9*)	1473.75	<0.004	<0.05	>7.4	<0.05	av Eβ=591.3 *40*; εK=0.7705 *14*; εL=0.11595 *23*; εM+=0.03392 *7*
(2334 *9*)	1461.26	0.026 *7*	0.29 *8*	6.6 *1*	0.32 *9*	av Eβ=596.8 *40*; εK=0.7686 *15*; εL=0.11563 *24*; εM+=0.03382 *7*
(2369 *9*)	1426.13	0.185 *11*	1.90 *10*	5.84 *4*	2.08 *11*	av Eβ=612.4 *40*; εK=0.7629 *15*; εL=0.11471 *24*; εM+=0.03355 *8*
(2374 *9*)	1420.55	0.103 *8*	1.05 *8*	6.10 *4*	1.15 *9*	av Eβ=614.8 *40*; εK=0.7620 *15*; εL=0.11456 *25*; εM+=0.03351 *8*
(2413 *9*)	1381.92	0.170 *12*	1.57 *11*	5.94 *4*	1.74 *12*	av Eβ=631.9 *40*; εK=0.7554 *16*; εL=0.1135 *3*; εM+=0.03320 *8*
(2522 *9*)	1272.73	0.029 *9*	0.21 *6*	6.9 *1*	0.24 *7*	av Eβ=680.4 *40*; εK=0.7353 *18*; εL=0.1103 *3*; εM+=0.03226 *9*
(2544 *9*)	1250.68	0.080 *12*	0.55 *8*	6.4 *1*	0.63 *9*	av Eβ=690.2 *40*; εK=0.7310 *18*; εL=0.1096 *3*; εM+=0.03205 *9*
(2589 *9*)	1205.95	0.080 *21*	0.50 *13*	6.5 *1*	0.58 *15*	av Eβ=710.1 *40*; εK=0.7221 *19*; εL=0.1082 *3*; εM+=0.03164 *9*
(2590@ *9*)	1205.37	0.03 *3*	0.19 *16*	6.9 *4*	0.22 *19*	av Eβ=710.4 *40*; εK=0.7219 *19*; εL=0.1082 *3*; εM+=0.03163 *9*
(2606 *9*)	1189.09	0.067 *11*	0.40 *7*	6.6 *1*	0.47 *8*	av Eβ=717.7 *41*; εK=0.7186 *19*; εL=0.1077 *3*; εM+=0.03148 *9*
(2611 *9*)	1183.86	0.078 *12*	0.46 *7*	6.54 *7*	0.54 *8*	av Eβ=719.9 *41*; εK=0.7175 *19*; εL=0.1075 *3*; εM+=0.03143 *9*
(2661 *9*)	1133.61	<0.008	<0.04	>7.6	<0.05	av Eβ=742.5 *41*; εK=0.7068 *20*; εL=0.1058 *3*; εM+=0.03094 *9*
(2675@ *9*)	1120.09	<0.03	<0.2	>7.0	<0.2	av Eβ=748.4 *41*; εK=0.7039 *20*; εL=0.1054 *3*; εM+=0.03081 *9*
(2706 *9*)	1088.55	0.08 *3*	0.39 *14*	6.6 *2*	0.47 *17*	av Eβ=762.6 *41*; εK=0.6970 *20*; εL=0.1043 *4*; εM+=0.03049 *10*
(2746 *9*)	1049.24	0.02 *1*	0.07 *3*	7.4 *2*	0.09 *4*	av Eβ=780.1 *41*; εK=0.6882 *21*; εL=0.1029 *4*; εM+=0.03009 *10*
(2813 *9*)	982.05	<0.1	<0.5	>6.6	<0.6	av Eβ=810.1 *41*; εK=0.6727 *22*; εL=0.1006 *4*; εM+=0.02939 *10*
(2825 *9*)	970.45	0.1 *1*	0.6 *3*	6.5 *3*	0.7 *4*	av Eβ=815.4 *41*; εK=0.6700 *22*; εL=0.1001 *4*; εM+=0.02926 *10*
(2842@ *9*)	952.89	0.041 *19*	0.16 *7*	7.1‡ *2*	0.20 *9*	av Eβ=823.2 *41*; εK=0.6658 *22*; εL=0.0995 *4*; εM+=0.02907 *10*
(2923@ *9*)	872.46	0.08 *6*	0.26 *19*	6.9‡ *4*	0.34 *25*	av Eβ=859.3 *41*; εK=0.6465 *22*; εL=0.0965 *4*; εM+=0.02820 *10*
(2925 *9*)	869.72	0.096 *21*	0.32 *7*	6.8 *1*	0.42 *9*	av Eβ=860.5 *41*; εK=0.6458 *22*; εL=0.0964 *4*; εM+=0.02817 *10*
(2951 *9*)	844.16	0.13 *4*	0.40 *11*	6.71 *13*	0.53 *15*	av Eβ=872.0 *41*; εK=0.6396 *23*; εL=0.0955 *4*; εM+=0.02789 *10*
(2954@ *9*)	840.71	<0.02	<0.06	>7.5	<0.08	av Eβ=873.5 *41*; εK=0.6387 *23*; εL=0.0953 *4*; εM+=0.02785 *10*
(2958 *9*)	837.16	0.06 *4*	0.18 *14*	7.1 *4*	0.24 *18*	av Eβ=875.1 *41*; εK=0.6379 *23*; εL=0.0952 *4*; εM+=0.02781 *10*
(2970 *9*)	825.12	1.8 *1*	5.7 *4*	5.56 *4*	7.5 *5*	av Eβ=880.6 *41*; εK=0.6349 *23*; εL=0.0947 *4*; εM+=0.02768 *10*
(3040 *9*)	754.92	<0.032	<0.088	>7.4	<0.12	av Eβ=912.2 *41*; εK=0.6174 *23*; εL=0.0921 *4*; εM+=0.02689 *11*
(3053 *9*)	741.64	0.2 *1*	0.5 *3*	6.6 *3*	0.7 *4*	av Eβ=918.1 *41*; εK=0.6141 *23*; εL=0.0916 *4*; εM+=0.02675 *11*
(3106 *9*)	689.32	0.2 *1*	0.6 *4*	6.6 *3*	0.8 *5*	av Eβ=941.7 *41*; εK=0.6008 *23*; εL=0.0895 *4*; εM+=0.02616 *11*

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^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ #	Iε#	Log *ft*	I(ε+β+)†#	Comments
(3335 *9*)	460.49	<0.2	<0.4	>6.8	<0.6	av Eβ=1045.3 *41*; εK=0.5426 *23*; εL=0.0807 *4*; εM+=0.02357 *11*
(3694@ *9*)	100.75	<0.9	<3	>7.7[1u]	<4	av Eβ=1205.7 *40*; εK=0.6420 *17*; εL=0.0977 *3*; εM+=0.02862 *8*

† Deduced by evaluators from I(γ+ce) balance at each level.
‡ Too low for suggested J^{π} change. There may be other γ transitions feeding this level.
# Absolute intensity per 100 decays.
@ Existence of this branch is questionable.

γ(^{149}Tb)

Iγ normalization: Listed intensities of γ rays are per 100 decays.
Iγ(γ±)=9.0 *9* (1981ZuZZ). This gives a total β+ branch of ≈4.5% which is consistent with the present level scheme.
The ce data given under comments are from 2019MeZX, unless otherwise noted.

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
31.7 *3*	0.07 *3*	872.46	(11/2)$^-$	840.71	13/2$^-$			
100.7 *1*	15.3 *8*	100.75	3/2$^+$	0.0	1/2$^+$	M1	2.153 *31*	α(K)=1.815 *26*; α(L)=0.265 *4*; α(M)=0.0578 *8* α(N)=0.01336 *19*; α(O)=0.002057 *29*; α(P)=0.0001352 *19* E_γ,I_γ: others: 100.8 *2*, with Iγ=17.8 (1990Sa32); 100.8 *1*, with Iγ=14.9 (1975To03); 100.8 *4*, with Iγ=14.8 (1981ZuZZ). Mult.: α(K)exp=1.80 *20*, α(L)exp=0.28 *4* (2019MeZX); from α(K)exp/α(L)exp=5.5 *15*, δ(E2/M1)<0.98 (1978Ma19).
106.2 *1*	8.3 *2*	206.91	5/2$^+$	100.75	3/2$^+$	M1	1.849 *26*	α(K)=1.559 *22*; α(L)=0.2271 *32*; α(M)=0.0496 *7* α(N)=0.01147 *16*; α(O)=0.001766 *25*; α(P)=0.0001161 *17* E_γ,I_γ: others: 106.2 *2*, with Iγ=10.1 *7* (1990Sa32); 106.3 *1*, with Iγ=7.6 *4* (1975To03); 106.4 *4*, with Iγ=7.7 *7* (1981ZuZZ). Mult.: α(K)exp=1.54 *16*, α(L)exp=0.21 *5* (2019MeZX); from α(K)exp/α(L)exp=5 *2* (1978Ma19), δ(E2/M1)<1.4.
131.2 *2*	0.052 *9*	1381.92	7/2$^-$	1250.68	5/2$^-$	M1	1.013 *15*	α(K)=0.854 *13*; α(L)=0.1241 *18*; α(M)=0.0271 *4* α(N)=0.00627 *9*; α(O)=0.000965 *14*; α(P)=6.36×10^{-5} *9* Mult.: α(K)exp=1.0 *3*.
135.7 *1*	0.148 *10*	825.12	9/2$^-$	689.32	7/2$^-$	M1	0.921 *13*	α(K)=0.777 *11*; α(L)=0.1127 *16*; α(M)=0.02463 *35* α(N)=0.00569 *8*; α(O)=0.000877 *12*; α(P)=5.78×10^{-5} *8* E_γ,I_γ: other: 135.7 *5*, with Iγ=0.18 *5* (1990Sa32). Mult.: α(K)exp=1.05 *20*.
137.9 *1*	0.127 *10*	982.05	(9/2)$^+$	844.16	7/2$^+$	M1	0.880 *12*	α(K)=0.742 *11*; α(L)=0.1077 *15*; α(M)=0.02353 *33* α(N)=0.00544 *8*; α(O)=0.000838 *12*; α(P)=5.52×10^{-5} *8* Mult.: α(K)exp=1.1 *3*.
148.4 *2*	0.178 *12*	1876.88	5/2$^-$	1728.36	5/2$^-$			
188.5 *1*	0.183 *18*	2065.37	7/2$^-$	1876.88	5/2$^-$	M1	0.367 *5*	α(K)=0.310 *4*; α(L)=0.0448 *6*; α(M)=0.00977 *14* α(N)=0.002259 *32*; α(O)=0.000348 *5*; α(P)=2.301×10^{-5} *32* E_γ,I_γ: other: 188.3 *5*, with Iγ=0.11 *7* (1990Sa32). Mult.: α(K)exp=0.38 *8*.
197.2 *3*	0.035 *22*	2074.22	7/2$^-$	1876.88	5/2$^-$			
219.9 *3*	0.046 *15*	1492.75	(7/2,9/2,11/2)$^+$	1272.73	(9/2)$^+$			
223.3 *2*	0.20 *4*	1205.37	(9/2)$^+$	982.05	(9/2)$^+$	(M1)[a]	0.2305 *33*	α(K)=0.1948 *28*; α(L)=0.0280 *4*; α(M)=0.00611 *9* α(N)=0.001413 *20*; α(O)=0.0002179 *31*; α(P)=1.442×10^{-5} *21* E_γ: other: 223.7 *5*, with Iγ=0.29 *7*, placed from 2065 level in 1990Sa32. Mult.: α(K)exp≈0.193 *20*.
223.6 *2*	0.12 *3*	1697.49	9/2$^-$	1473.75	(11/2)$^-$	(M1)[a]	0.2297 *33*	α(K)=0.1941 *28*; α(L)=0.0279 *4*; α(M)=0.00609 *9*

$^{149}_{65}Tb_{84}$-6

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
									α(N)=0.001408 *20*; α(O)=0.0002171 *31*; α(P)=1.437×10^{-5} *20* Mult.: α(K)exp≈0.193 *20*.
245.1 *3*	0.12 *3*	1876.88	5/2$^-$	1631.88	(3/2,5/2)$^-$	M1		0.1789 *26*	α(K)=0.1512 *22*; α(L)=0.02169 *31*; α(M)=0.00473 *7* α(N)=0.001094 *16*; α(O)=0.0001688 *24*; α(P)=1.118×10^{-5} *16* Mult.: α(K)exp=0.20 *5*.
253.6 *1*	6.78 *20*	460.49	7/2$^+$	206.91	5/2$^+$	M1+E2	0.5 *+3−4*	0.152 *11*	α(N)=0.001027 *32*; α(O)=0.0001547 *24*; α(P)=9.1×10^{-6} *11* α(K)=0.126 *12*; α(L)=0.0202 *5*; α(M)=0.00446 *16* E_γ,I_γ: others: 253.6 *2*, with Iγ=8.1 *6* (1990Sa32); 253.4 *1*, with Iγ=7.4 *8* (1975To03); 253.3 *4*, with Iγ=7.2 *7* (1981ZuZZ). Mult.: α(K)exp=0.125 *12*, α(L)exp=0.020 *2*.
267.7 *2*	0.087 *14*	1473.75	(11/2)$^-$	1205.95	(7/2,9/2)$^-$	M1,E2		0.115 *26*	α(K)=0.093 *27*; α(L)=0.0175 *5*; α(M)=0.00392 *20* α(N)=0.00090 *4*; α(O)=0.0001311 *24*; α(P)=6.4×10^{-6} *24* Mult.: α(K)exp=0.08 *4*.
293.4 *2*	0.079 *14*	1381.92	7/2$^-$	1088.55	5/2$^-$	(M1)		0.1103 *16*	α(K)=0.0933 *13*; α(L)=0.01331 *19*; α(M)=0.00290 *4* α(N)=0.000671 *9*; α(O)=0.0001036 *15*; α(P)=6.88×10^{-6} *10* Mult.: α(K)exp=0.10 *5*.
297.7 *3*	0.22 *4*	1250.68	5/2$^-$	952.89	3/2$^-$				
337.1 *2*	0.11 *3*	2065.37	7/2$^-$	1728.36	5/2$^-$				
346.3 *2*	0.15 *3*	1728.36	5/2$^-$	1381.92	7/2$^-$	M1		0.0710 *10*	α(K)=0.0601 *8*; α(L)=0.00854 *12*; α(M)=0.001861 *26* α(N)=0.000430 *6*; α(O)=6.64×10^{-5} *9*; α(P)=4.42×10^{-6} *6* Mult.: α(K)exp=0.09 *3*.
348.9 *1*	0.252 *14*	1841.63	9/2$^-$	1492.75	(7/2,9/2,11/2)$^+$	E1		0.01141 *16*	α(N)=6.70×10^{-5} *9*; α(O)=1.013×10^{-5} *14*; α(P)=6.21×10^{-7} *9* α(K)=0.00970 *14*; α(L)=0.001345 *19*; α(M)=0.000292 *4* Mult.: α(K)exp<0.014.
353.9 *3*	0.10 *3*	1841.63	9/2$^-$	1487.59	(7/2,9/2)$^+$	(E1)		0.01102 *16*	α(K)=0.00937 *13*; α(L)=0.001299 *18*; α(M)=0.000282 *4* α(N)=6.47×10^{-5} *9*; α(O)=9.79×10^{-6} *14*; α(P)=6.00×10^{-7} *8* Mult.: α(K)exp<0.020.
358.6 *3*	0.15 *3*	1183.86	9/2$^-$	825.12	9/2$^-$				E_γ,I_γ: other: 358.9 *5*, with Iγ=0.29 *7* (1990Sa32).
359.3 *3*	0.09 *4*	1492.75	(7/2,9/2,11/2)$^+$	1133.61	(9/2,11/2)$^+$	(M1)[&]		0.0645	α(K)=0.0546 *8*; α(L)=0.00774 *11*; α(M)=0.001687

$^{149}_{65}Tb_{84}$-7

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								24 α(N)=0.000390 *6*; α(O)=6.02×10^{-5} *9*; α(P)=4.01×10^{-6} *6*
359.6 *2*	0.65 *8*	460.49	7/2$^+$	100.75	3/2$^+$	E2[@]	0.0362 *5*	α(N)=0.000321 *5*; α(O)=4.57×10^{-5} *6*; α(P)=1.815×10^{-6} *26* α(K)=0.0282 *4*; α(L)=0.00622 *9*; α(M)=0.001409 *20* E_γ,I_γ: others: 359.8 *5*, with Iγ=0.45 *9* (1990Sa32); 359.4 *4*, with Iγ=0.59 *6* (1981ZuZZ, unplaced). Mult.: α(K)exp≈0.033 *3*.
361.2 *3*	0.07 *3*	1205.37	(9/2)$^+$	844.16	7/2$^+$			
367.8 *1*	0.64 *2*	1841.63	9/2$^-$	1473.75	(11/2)$^-$	M1	0.0606 *9*	α(K)=0.0514 *7*; α(L)=0.00728 *10*; α(M)=0.001586 *22* α(N)=0.000367 *5*; α(O)=5.66×10^{-5} *8*; α(P)=3.77×10^{-6} *5* Mult.: α(K)exp=0.056 *6*.
372.6 *2*	0.047 *16*	1461.26	(5/2,7/2)$^-$	1088.55	5/2$^-$			
376.6 *2*	0.081 *14*	837.16	5/2$^+$	460.49	7/2$^+$	M1	0.0570 *8*	α(N)=0.000344 *5*; α(O)=5.32×10^{-5} *7*; α(P)=3.55×10^{-6} *5* α(K)=0.0483 *7*; α(L)=0.00684 *10*; α(M)=0.001489 *21* Mult.: α(K)exp=0.08 *4*.
380.8 *2*	0.313 *16*	1205.95	(7/2,9/2)$^-$	825.12	9/2$^-$	M1	0.0554 *8*	α(K)=0.0469 *7*; α(L)=0.00664 *9*; α(M)=0.001446 *20* α(N)=0.000334 *5*; α(O)=5.16×10^{-5} *7*; α(P)=3.44×10^{-6} *5* E_γ,I_γ: other: 381.4 *5*, with Iγ=0.32 *9* (1990Sa32). Mult.: α(K)exp=0.057 *8*.
399.4 *2*	0.117 *14*	1088.55	5/2$^-$	689.32	7/2$^-$			
409.4 *1*	0.139 *23*	1883.08	(9/2)$^-$	1473.75	(11/2)$^-$			
415.5 *1*	0.365 *21*	1876.88	5/2$^-$	1461.26	(5/2,7/2)$^-$	M1	0.0441 *6*	α(K)=0.0374 *5*; α(L)=0.00528 *7*; α(M)=0.001149 *16* α(N)=0.000266 *4*; α(O)=4.11×10^{-5} *6*; α(P)=2.74×10^{-6} *4* Mult.: α(K)exp=0.035 *6*.
421.0 *3*	0.093 *23*	1841.63	9/2$^-$	1420.55	(9/2)$^-$			
422.0 *4*	0.046 *23*	1883.08	(9/2)$^-$	1461.26	(5/2,7/2)$^-$			
457.0 *1*	0.159 *17*	1883.08	(9/2)$^-$	1426.13	9/2$^-$	M1	0.0345 *5*	α(K)=0.0293 *4*; α(L)=0.00412 *6*; α(M)=0.000896 *13* α(N)=0.0002072 *29*; α(O)=3.20×10^{-5} *4*; α(P)=2.141×10^{-6} *30* Mult.: α(K)exp=0.046 *20*.
477.8 *2*	0.24 *3*	1728.36	5/2$^-$	1250.68	5/2$^-$	M1[@]	0.0308 *4*	α(K)=0.0261 *4*; α(L)=0.00367 *5*; α(M)=0.000798 *11* α(N)=0.0001846 *26*; α(O)=2.85×10^{-5} *4*; α(P)=1.909×10^{-6} *27* Mult.: α(K)exp≈0.030 *6*.
479.5 *4*	0.035 *12*	1953.13	9/2$^-$	1473.75	(11/2)$^-$			
491.6 *2*	0.06 *3*	1473.75	(11/2)$^-$	982.05	(9/2)$^+$			
494.6 *1*	1.07 *3*	1183.86	9/2$^-$	689.32	7/2$^-$	M1[@]	0.0282 *4*	α(K)=0.02391 *33*; α(L)=0.00335 *5*; α(M)=0.000730 *10* α(N)=0.0001688 *24*; α(O)=2.61×10^{-5} *4*; α(P)=1.747×10^{-6} *24* E_γ,I_γ: others: 494.6 *5*, with Iγ=1.0 *3* (1990Sa32); 494.6 *4*, with Iγ=0.89 *9* (1981ZuZZ, unplaced). Mult.: α(K)exp=0.025 *3*.
495.0 *3*	0.05 *3*	1876.88	5/2$^-$	1381.92	7/2$^-$			
499.9 *3*	0.058 *12*	1189.09	(7/2)$^-$	689.32	7/2$^-$			
501.1 *2*	0.208 *23*	1883.08	(9/2)$^-$	1381.92	7/2$^-$	M1[@]	0.0273 *4*	α(K)=0.02313 *32*; α(L)=0.00324 *5*; α(M)=0.000706 *10*

$^{149}_{65}Tb_{84}$-8

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
									α(N)=0.0001632 *23*; α(O)=2.522×10^{-5} *35*; α(P)=1.689×10^{-6} *24* Mult.: α(K)exp≈0.028 *8*.
501.8 *3*	0.056 *20*	1928.15	(7/2$^-$,9/2$^-$)	1426.13	9/2$^-$				
505.5 *3*	0.139 *21*	1487.59	(7/2,9/2)$^+$	982.05	(9/2)$^+$	M1		0.0267 *4*	α(K)=0.02262 *32*; α(L)=0.00317 *4*; α(M)=0.000690 *10* α(N)=0.0001596 *22*; α(O)=2.466×10^{-5} *35*; α(P)=1.652×10^{-6} *23* Mult.: α(K)exp=0.037 *18*.
508.5 *2*	0.17 *4*	1461.26	(5/2,7/2)$^-$	952.89	3/2$^-$				
509.9 *2*	0.70 *17*	970.45	7/2$^+$	460.49	7/2$^+$	M1[@]		0.0261 *4*	α(K)=0.02212 *31*; α(L)=0.00310 *4*; α(M)=0.000675 *9* α(N)=0.0001560 *22*; α(O)=2.411×10^{-5} *34*; α(P)=1.615×10^{-6} *23* Mult.: α(K)exp≈0.028 *10*.
511.1 *5*	0.10 *3*	1492.75	(7/2,9/2,11/2)$^+$	982.05	(9/2)$^+$				
517.1 *3*	0.09 *4*	1487.59	(7/2,9/2)$^+$	970.45	7/2$^+$	(M1)[a]		0.02517 *35*	α(K)=0.02135 *30*; α(L)=0.00299 *4*; α(M)=0.000651 *9* α(N)=0.0001505 *21*; α(O)=2.326×10^{-5} *33*; α(P)=1.559×10^{-6} *22* Mult.: α(K)exp≈0.033 *15*.
517.4 *3*	0.09 *4*	2026.32	(7/2)$^-$	1508.52	(7/2)$^-$	(M1)[a]		0.02513 *35*	α(K)=0.02132 *30*; α(L)=0.00299 *4*; α(M)=0.000650 *9* α(N)=0.0001503 *21*; α(O)=2.322×10^{-5} *33*; α(P)=1.556×10^{-6} *22* Mult.: α(K)exp≈0.033 *15*.
521.6 *1*	0.24 *2*	982.05	(9/2)$^+$	460.49	7/2$^+$	M1		0.02462 *34*	α(K)=0.02089 *29*; α(L)=0.00292 *4*; α(M)=0.000636 *9* α(N)=0.0001472 *21*; α(O)=2.274×10^{-5} *32*; α(P)=1.524×10^{-6} *21* E_γ,I_γ: other: 521.8 *5*, with Iγ=0.30 *9* (1990Sa32). Mult.: α(K)exp=0.028 *10*.
526.6 *3*	0.069 *14*	1508.52	(7/2)$^-$	982.05	(9/2)$^+$				
534.7 *1*	1.0 *2*	741.64	5/2$^+$	206.91	5/2$^+$	M1(+E2)	0.4 *4*	0.0216 *28*	α(K)=0.0183 *25*; α(L)=0.00261 *25*; α(M)=0.00057 *5* α(N)=0.000132 *12*; α(O)=2.02×10^{-5} *20*; α(P)=1.33×10^{-6} *19* E_γ,I_γ: others: 534.8 *5*, with Iγ=1.14 *18* (1990Sa32); 534.7 *4*, with Iγ=0.74 *7* (1981ZuZZ). Mult.,δ: α(K)exp=0.018 *2*.
537.8 *2*	0.085 *19*	1508.52	(7/2)$^-$	970.45	7/2$^+$				
544.6 *3*	0.068 *16*	1728.36	5/2$^-$	1183.86	9/2$^-$				
548.1 *1*	0.468 *19*	1420.55	(9/2)$^-$	872.46	(11/2)$^-$	M1		0.02171 *30*	α(K)=0.01842 *26*; α(L)=0.00258 *4*; α(M)=0.000560 *8* α(N)=0.0001296 *18*; α(O)=2.003×10^{-5} *28*; α(P)=1.344×10^{-6} *19* E_γ,I_γ: other: 548.2 *5*, with Iγ=0.75 *7* (1990Sa32). Mult.: α(K)exp=0.018 *4*.
553.6 *3*	0.07 *3*	2014.73	(9/2)$^-$	1461.26	(5/2,7/2)$^-$				

$^{149}_{65}Tb_{84}$-9

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
553.9 *3*	0.07 *3*	1426.13	9/2$^-$	872.46	(11/2)$^-$				
556.7 *2*	0.28 *4*	1381.92	7/2$^-$	825.12	9/2$^-$	(M1)[a]		0.02087 *29*	α(K)=0.01772 *25*; α(L)=0.002475 *35*; α(M)=0.000538 *8* α(N)=0.0001245 *17*; α(O)=1.925×10^{-5} *27*; α(P)=1.291×10^{-6} *18* E_γ,I_γ: others: 556.9 *5*, with Iγ=0.43 *11* (1990Sa32); 556.8 *4*, with Iγ=1.33 *13* (1981ZuZZ, unplaced). Mult.: α(K)exp≈0.019 *5*.
556.8 *2*	0.21 *4*	2065.37	7/2$^-$	1508.52	(7/2)$^-$	(M1)[a]		0.02086 *29*	α(K)=0.01771 *25*; α(L)=0.002474 *35*; α(M)=0.000538 *8* α(N)=0.0001244 *17*; α(O)=1.924×10^{-5} *27*; α(P)=1.291×10^{-6} *18* Mult.: α(K)exp≈0.019 *5*.
561.4 *1*	0.289 *21*	1250.68	5/2$^-$	689.32	7/2$^-$	M1		0.02043 *29*	α(K)=0.01734 *24*; α(L)=0.002422 *34*; α(M)=0.000527 *7* α(N)=0.0001219 *17*; α(O)=1.884×10^{-5} *26*; α(P)=1.264×10^{-6} *18* Mult.: α(K)exp=0.021 *7*.
565.3 *2*	0.091 *23*	2026.32	(7/2)$^-$	1461.26	(5/2,7/2)$^-$				
568.9 *1*	0.284 *19*	1841.63	9/2$^-$	1272.73	(9/2)$^+$	E1		0.00370 *5*	α(K)=0.00316 *4*; α(L)=0.000427 *6*; α(M)=9.24×10^{-5} *13* α(N)=2.128×10^{-5} *30*; α(O)=3.25×10^{-6} *5*; α(P)=2.080×10^{-7} *29* Mult.: α(K)exp<0.007.
576.4 *2*	0.255 *18*	1420.55	(9/2)$^-$	844.16	7/2$^+$	E1		0.00360 *5*	α(K)=0.00307 *4*; α(L)=0.000415 *6*; α(M)=8.98×10^{-5} *13* α(N)=2.067×10^{-5} *29*; α(O)=3.16×10^{-6} *4*; α(P)=2.023×10^{-7} *28* Mult.: α(K)exp<0.005.
577.8 *2*	0.162 *19*	2065.37	7/2$^-$	1487.59	(7/2,9/2)$^+$	(E1)		0.00358 *5*	α(K)=0.00306 *4*; α(L)=0.000413 *6*; α(M)=8.93×10^{-5} *13* α(N)=2.056×10^{-5} *29*; α(O)=3.14×10^{-6} *4*; α(P)=2.013×10^{-7} *28* Mult.: α(K)exp<0.013 gives (E1,E2); E1 from level scheme.
588.6 *4*	0.06 *3*	2014.73	(9/2)$^-$	1426.13	9/2$^-$				
600.2 *2*	0.11 *4*	2026.32	(7/2)$^-$	1426.13	9/2$^-$	(M1)[a]		0.01727 *24*	α(K)=0.01466 *21*; α(L)=0.002043 *29*; α(M)=0.000444 *6* α(N)=0.0001028 *14*; α(O)=1.589×10^{-5} *22*; α(P)=1.067×10^{-6} *15* Mult.: α(K)exp≈0.020 *5*.
601.2 *3*	0.15 *4*	1426.13	9/2$^-$	825.12	9/2$^-$	(M1)[a]		0.01720 *24*	α(K)=0.01460 *21*; α(L)=0.002034 *29*; α(M)=0.000442 *6* α(N)=0.0001023 *14*; α(O)=1.582×10^{-5} *22*; α(P)=1.063×10^{-6} *15* Mult.: α(K)exp≈0.020 *5*.
601.2 *3*	0.17 *4*	1473.75	(11/2)$^-$	872.46	(11/2)$^-$	(M1)[a]		0.01720 *24*	α(K)=0.01460 *21*; α(L)=0.002034 *29*; α(M)=0.000442 *6* α(N)=0.0001023 *14*; α(O)=1.582×10^{-5} *22*; α(P)=1.063×10^{-6} *15* Mult.: α(K)exp≈0.020 *5*.
633.2 *3*	0.09 *3*	1473.75	(11/2)$^-$	840.71	13/2$^-$				
635.6 *3*	0.31 *4*	1841.63	9/2$^-$	1205.95	(7/2,9/2)$^-$				Mult.: see comment for 636.3γ.
636.3 *3*	0.37 *6*	1841.63	9/2$^-$	1205.37	(9/2)$^+$	[E1]		0.00292 *4*	α(K)=0.002490 *35*; α(L)=0.000335 *5*; α(M)=7.24×10^{-5} *10* α(N)=1.667×10^{-5} *23*; α(O)=2.55×10^{-6} *4*; α(P)=1.646×10^{-7} *23* Mult.: α(K)exp=0.0104 *10* gives M1 or E2, but inconsistent with level scheme. However, it would be consistent with the level scheme if the α(K)exp was for the 635.6γ.
637.3 *1*	2.94 *11*	844.16	7/2$^+$	206.91	5/2$^+$	M1+E2[@]	≈0.8	≈0.0122	α(K)≈0.0102; α(L)≈0.0015; α(M)≈0.00033 α(N)≈7.5×10^{-5}; α(O)≈1.15×10^{-5}; α(P)≈7.3×10^{-7}

$^{149}_{65}Tb_{84}$-10

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
									E_γ,I_γ: others: 637.3 *3*, with Iγ=3.7 *5* (1990Sa32); 637.2 *4*, with Iγ=3.0 *3* (1981ZuZZ). Mult.: α(K)exp≈0.0104 *10*.
640.8 *1*	0.73 *2*	741.64	5/2$^+$	100.75	3/2$^+$	M1+E2	1.1 *+4−3*	0.0109 *11*	α(K)=0.0092 *10*; α(L)=0.00137 *11*; α(M)=0.000300 *22* α(N)=6.9×10^{-5} *5*; α(O)=1.05×10^{-5} *9*; α(P)=6.5×10^{-7} *7* E_γ,I_γ: other: 641.0 *5*, with Iγ=0.55 *13* (1990Sa32). Mult.,δ: α(K)exp=0.0091 *8*.
648.0 *4*	0.035 *10*	2074.22	7/2$^-$	1426.13	9/2$^-$				
648.7 *2*	0.16 *3*	1473.75	(11/2)$^-$	825.12	9/2$^-$	M1		0.01422 *20*	α(K)=0.01208 *17*; α(L)=0.001678 *24*; α(M)=0.000365 *5* α(N)=8.44×10^{-5} *12*; α(O)=1.305×10^{-5} *18*; α(P)=8.78×10^{-7} *12* Mult.: α(K)exp=0.014 *3*.
653.6 *1*	9.1 *4*	689.32	7/2$^-$	35.75	11/2$^-$	E2[@]		0.00745 *10*	α(K)=0.00615 *9*; α(L)=0.001014 *14*; α(M)=0.0002244 *31* α(N)=5.15×10^{-5} *7*; α(O)=7.67×10^{-6} *11*; α(P)=4.19×10^{-7} *6* E_γ,I_γ: others: 653.7 *4*, with Iγ=9.5 *8* (1990Sa32); 653.6 *1*, with Iγ=8.9 *9* (1975To03); 653.2 *4*, with Iγ=8.9 *9* (1981ZuZZ) for a composite line. Parent level not proposed in 1981ZuZZ; 653.2γ placed from 755 level. Mult.: α(K)exp≈0.0068 *5*.
654.1 *2*	0.81 *12*	754.92	5/2$^+$	100.75	3/2$^+$	(M1)[&]		0.01393 *20*	α(K)=0.01183 *17*; α(L)=0.001644 *23*; α(M)=0.000357 *5* α(N)=8.26×10^{-5} *12*; α(O)=1.278×10^{-5} *18*; α(P)=8.60×10^{-7} *12* E_γ,I_γ: other: 653.7 *4*, with Iγ=1.62 *22* (1990Sa32); 653.2 *4*, with Iγ=8.9 *9* (1981ZuZZ) for a composite line. See also 653.6γ from 689 level. Mult.: α(K)exp≈0.0068 *5* gives (M1,E2); M1 preferred by level scheme.
657.8 *2*	0.089 *16*	1841.63	9/2$^-$	1183.86	9/2$^-$				
662.8 *1*	0.531 *16*	869.72	5/2$^+$	206.91	5/2$^+$	M1+E2	0.65 *25*	0.0116 *10*	α(K)=0.0098 *9*; α(L)=0.00141 *10*; α(M)=0.000307 *21* α(N)=7.1×10^{-5} *5*; α(O)=1.09×10^{-5} *8*; α(P)=7.1×10^{-7} *7* E_γ,I_γ: other: 662.9 *5*, with Iγ=0.50 *13* (1990Sa32). Mult.,δ: α(K)exp=0.0098 *8*.
683.3 *3*	0.16 *4*	1508.52	(7/2)$^-$	825.12	9/2$^-$	(M1)[a]		0.01249 *18*	α(K)=0.01062 *15*; α(L)=0.001473 *21*; α(M)=0.000320 *4* α(N)=7.40×10^{-5} *10*; α(O)=1.145×10^{-5} *16*; α(P)=7.71×10^{-7} *11* Mult.: α(K)exp≈0.013 *2*.
683.7 *3*	0.13 *4*	2065.37	7/2$^-$	1381.92	7/2$^-$	(M1)[a]		0.01248 *18*	α(K)=0.01060 *15*; α(L)=0.001470 *21*; α(M)=0.000320 *4* α(N)=7.39×10^{-5} *10*; α(O)=1.143×10^{-5} *16*; α(P)=7.70×10^{-7} *11* Mult.: α(K)exp≈0.013 *2*.
692.7 *1*	0.822 *14*	1381.92	7/2$^-$	689.32	7/2$^-$	M1+E2[@]	≈0.7	≈0.0102	α(K)≈0.0087; α(L)≈0.00124; α(M)≈0.00027 α(N)≈6.3×10^{-5}; α(O)≈9.6×10^{-6}; α(P)≈6.2×10^{-7} E_γ,I_γ: others: 692.6 *5*, with Iγ=0.46 *16* (1990Sa32); 692.9 *4*, with Iγ=0.74 *7* (1981ZuZZ, unplaced). Mult.,δ: α(K)exp≈0.0087 *8*.
693.0 *3*	0.035 *12*	1876.88	5/2$^-$	1183.86	9/2$^-$				

$^{149}_{65}Tb_{84}$-11

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
697.0 *5*	0.05 *3*	2157.98	(7/2)$^-$	1461.26	(5/2,7/2)$^-$				
699.3 *2*	0.127 *14*	1883.08	(9/2)$^-$	1183.86	9/2$^-$				
706.4 *3*	0.071 *14*	1461.26	(5/2,7/2)$^-$	754.92	5/2$^+$				
708.0 *3*	0.086 *14*	1841.63	9/2$^-$	1133.61	(9/2,11/2)$^+$				
721.5 *1*	0.257 *16*	1841.63	9/2$^-$	1120.09	(7/2)$^+$	E1		2.25×10^{-3} *3*	α(K)=0.001922 *27*; α(L)=0.000257 *4*; α(M)=5.55×10^{-5} *8* α(N)=1.279×10^{-5} *18*; α(O)=1.959×10^{-6} *27*; α(P)=1.276×10^{-7} *18* Mult.: α(K)exp<0.0037.
728.6 *1*	0.331 *16*	1189.09	(7/2)$^-$	460.49	7/2$^+$	E1		2.20×10^{-3} *3*	α(K)=0.001884 *26*; α(L)=0.0002516 *35*; α(M)=5.44×10^{-5} *8* α(N)=1.253×10^{-5} *18*; α(O)=1.920×10^{-6} *27*; α(P)=1.251×10^{-7} *18* Mult.: α(K)exp<0.0035.
731.6 *2*	0.197 *16*	2157.98	(7/2)$^-$	1426.13	9/2$^-$	M1		0.01055 *15*	α(K)=0.00897 *13*; α(L)=0.001241 *17*; α(M)=0.000270 *4* α(N)=6.24×10^{-5} *9*; α(O)=9.65×10^{-6} *14*; α(P)=6.50×10^{-7} *9* Mult.: α(K)exp=0.010 *2*.
736.4 *1*	2.40 *7*	837.16	5/2$^+$	100.75	3/2$^+$	M1[@]		0.01038 *15*	α(K)=0.00882 *12*; α(L)=0.001221 *17*; α(M)=0.000265 *4* α(N)=6.14×10^{-5} *9*; α(O)=9.49×10^{-6} *13*; α(P)=6.40×10^{-7} *9* E_γ,I_γ: others: 736.4 *3*, with Iγ=2.6 *3* (1990Sa32); 736.5 *1*, with Iγ=2.9 *5* (1975To03) for a composite line; 736.6 *4*, with Iγ=2.8 *3* (1981ZuZZ). Mult.: α(K)exp≈0.0089 *7*.
736.8 *2*	0.48 *6*	1426.13	9/2$^-$	689.32	7/2$^-$				
741.7 *1*	2.40 *20*	741.64	5/2$^+$	0.0	1/2$^+$	E2		0.00555 *8*	α(K)=0.00461 *6*; α(L)=0.000730 *10*; α(M)=0.0001609 *23* α(N)=3.70×10^{-5} *5*; α(O)=5.54×10^{-6} *8*; α(P)=3.16×10^{-7} *4* E_γ,I_γ: others: 741.8 *3*, with Iγ=2.53 *18* (1990Sa32); 741.7 *1*, Iγ=2.6 *4* (1975To03); 741.9 *4*, with Iγ=2.3 *3* (1981ZuZZ). Mult.: α(K)exp=0.0050 *5*.
745.0 *2*	0.26 *3*	1205.37	(9/2)$^+$	460.49	7/2$^+$	M1+E2	1.3 *+41−7*	0.0072 *17*	α(K)=0.0061 *15*; α(L)=0.00089 *17*; α(M)=0.00020 *4* α(N)=4.5×10^{-5} *8*; α(O)=6.9×10^{-6} *14*; α(P)=4.3×10^{-7} *11* Mult.,δ: α(K)exp=0.0060 *13*.
753.2 *2*	0.28 *3*	1841.63	9/2$^-$	1088.55	5/2$^-$	(E2)		0.00536 *8*	α(K)=0.00446 *6*; α(L)=0.000702 *10*;

$^{149}_{65}Tb_{84}$-12

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
									α(M)=0.0001547 *22* α(N)=3.55×10^{-5} *5*; α(O)=5.33×10^{-6} *7*; α(P)=3.06×10^{-7} *4* Mult.: α(K)exp=0.0029 *15* gives E1,E2; E2 from level scheme.
754.8 *2*	0.55 *3*	754.92	5/2$^+$	0.0	1/2$^+$	E2		0.00533 *7*	α(K)=0.00444 *6*; α(L)=0.000698 *10*; α(M)=0.0001538 *22* α(N)=3.54×10^{-5} *5*; α(O)=5.31×10^{-6} *7*; α(P)=3.05×10^{-7} *4* E$_\gamma$,I$_\gamma$: others: 754.5 *5*, with Iγ=1.19 *9* (1990Sa32, probably doublet); 754.8 *4*, with Iγ=0.59 *6* (1981ZuZZ). Mult.: α(K)exp=0.0052 *9*.
763.6 *1*	0.48 *2*	970.45	7/2$^+$	206.91	5/2$^+$	M1		0.00950 *13*	α(K)=0.00807 *11*; α(L)=0.001115 *16*; α(M)=0.0002424 *34* α(N)=5.60×10^{-5} *8*; α(O)=8.67×10^{-6} *12*; α(P)=5.85×10^{-7} *8* E$_\gamma$,I$_\gamma$: other: 763.4 *5*, with Iγ=0.37 *11* (1990Sa32). Mult.: α(K)exp=0.0080 *5*.
769.0 *3*	0.64 *4*	869.72	5/2$^+$	100.75	3/2$^+$	M1[@]		0.00933 *13*	α(K)=0.00793 *11*; α(L)=0.001096 *15*; α(M)=0.0002381 *33* α(N)=5.51×10^{-5} *8*; α(O)=8.52×10^{-6} *12*; α(P)=5.75×10^{-7} *8* Mult.: α(K)exp≈0.0079 *6*.
769.3 *2*	0.10 *3*	1953.13	9/2$^-$	1183.86	9/2$^-$	(M1)[&]		0.00932 *13*	α(K)=0.00793 *11*; α(L)=0.001095 *15*; α(M)=0.0002379 *33* α(N)=5.50×10^{-5} *8*; α(O)=8.51×10^{-6} *12*; α(P)=5.74×10^{-7} *8*
771.8 *3*	0.16 *4*	1461.26	(5/2,7/2)$^-$	689.32	7/2$^-$				
775.1 *2*	2.7 *3*	982.05	(9/2)$^+$	206.91	5/2$^+$	E2		0.00502 *7*	α(K)=0.00419 *6*; α(L)=0.000654 *9*; α(M)=0.0001438 *20* α(N)=3.31×10^{-5} *5*; α(O)=4.97×10^{-6} *7*; α(P)=2.87×10^{-7} *4* E$_\gamma$,I$_\gamma$: other: 775.4 *3*, with Iγ=6.4 *5* (1990Sa32); 775.3 *1*, with Iγ=5.2 *5* (1975To03); 775.4 *4*, with Iγ=5.2 *6* (1981ZuZZ); all the three intensities seem too high. Mult.: α(K)exp=0.0047 *7*.
784.0 *5*	0.035 *12*	1473.75	(11/2)$^-$	689.32	7/2$^-$				
788.3 *3*	0.14 *4*	1876.88	5/2$^-$	1088.55	5/2$^-$				
789.4 *1*	11.58 *40*	825.12	9/2$^-$	35.75	11/2$^-$	M1[@]		0.00875 *12*	α(K)=0.00744 *10*; α(L)=0.001027 *14*; α(M)=0.0002231 *31* α(N)=5.16×10^{-5} *7*; α(O)=7.98×10^{-6} *11*; α(P)=5.39×10^{-7} *8* E$_\gamma$,I$_\gamma$: others: 789.4 *2*, with Iγ=13.9 *10* (1990Sa32); 789.4 *1*, Iγ=9.7 *10* (1975To03); 789.5 *4*, with Iγ=9.6 *10* (1981ZuZZ, unplaced). Mult.: α(K)exp≈0.0079 *5*.
794.5 *3*	0.21 *5*	1883.08	(9/2)$^-$	1088.55	5/2$^-$				
805.0 *1*	0.54 *3*	840.71	13/2$^-$	35.75	11/2$^-$	M1+E2	0.8 *+4−3*	0.0069 *8*	α(K)=0.0058 *7*; α(L)=0.00083 *8*; α(M)=0.000181 *17* α(N)=4.2×10^{-5} *4*; α(O)=6.4×10^{-6} *6*; α(P)=4.2×10^{-7} *5* Mult.,δ: α(K)exp=0.0059 *6*.
812.2 *1*	0.248 *21*	1272.73	(9/2)$^+$	460.49	7/2$^+$	M1		0.00816 *11*	α(K)=0.00694 *10*; α(L)=0.000957 *13*; α(M)=0.0002079 *29* α(N)=4.81×10^{-5} *7*; α(O)=7.44×10^{-6} *10*; α(P)=5.02×10^{-7} *7* Mult.: α(K)exp=0.0067 *8*.
819.3 *3*	0.15 *4*	1508.52	(7/2)$^-$	689.32	7/2$^-$	(M1)[a]		0.00799 *11*	α(K)=0.00679 *10*; α(L)=0.000937 *13*; α(M)=0.0002035 *29* α(N)=4.71×10^{-5} *7*; α(O)=7.28×10^{-6} *10*; α(P)=4.92×10^{-7} *7* Mult.: α(K)exp=0.0063 *25* for 819.3+819.6 doublet gives M1(+E2),δ<1.5.

$^{149}_{65}Tb_{84}$-13

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
819.6 *3*	0.08 *3*	1953.13	9/2$^-$	1133.61	(9/2,11/2)$^+$	[E1][a]		1.74×10^{-3} *2*	α(K)=0.001491 *21*; α(L)=0.0001980 *28*; α(M)=4.28×10^{-5} *6* α(N)=9.86×10^{-6} *14*; α(O)=1.513×10^{-6} *21*; α(P)=9.93×10^{-8} *14* Mult.: α(K)exp=0.0063 *25* for 819.3+819.6 doublet gives M1(+E2), δ<1.5, but E1 required from level scheme.
823.6 *4*	0.10 *4*	1776.61	7/2$^-$	952.89	3/2$^-$				
825.4 *5*	0.02 *1*	1697.49	9/2$^-$	872.46	(11/2)$^-$				
827.6 *2*	0.135 *19*	1876.88	5/2$^-$	1049.24	(5/2$^+$)				
836.7 *1*	4.84 *7*	872.46	(11/2)$^-$	35.75	11/2$^-$	M1+E2[@]	≈1.1	≈0.0058	α(K)≈0.0049; α(L)≈0.00070; α(M)≈0.000153 α(N)≈3.5×10^{-5}; α(O)≈5.4×10^{-6}; α(P)≈3.5×10^{-7} E_γ,I_γ: other: 836.7 *3*, with Iγ=5.3 *4* (1990Sa32). Mult.: α(K)exp≈0.0048 *4*.
837.1 *3*	0.30 *6*	837.16	5/2$^+$	0.0	1/2$^+$				E_γ,I_γ: other: 836.8 *4*, with Iγ=3.7 *4* (1981ZuZZ).
842.3 *3*	0.09 *2*	1049.24	(5/2$^+$)	206.91	5/2$^+$				
852.2 *3*	0.15 *5*	952.89	3/2$^-$	100.75	3/2$^+$	E1		1.62×10^{-3} *2*	α(K)=0.001382 *19*; α(L)=0.0001831 *26*; α(M)=3.96×10^{-5} *6* α(N)=9.12×10^{-6} *13*; α(O)=1.400×10^{-6} *20*; α(P)=9.21×10^{-8} *13* Mult.: α(K)exp<0.002.
857.0 *3*	0.08 *3*	1697.49	9/2$^-$	840.71	13/2$^-$				
859.6 *4*	0.08 *3*	2065.37	7/2$^-$	1205.95	(7/2,9/2)$^-$				
859.7 *2*	1.04 *12*	1841.63	9/2$^-$	982.05	(9/2)$^+$	(E1)[a]		1.59×10^{-3} *2*	α(K)=0.001359 *19*; α(L)=0.0001800 *25*; α(M)=3.89×10^{-5} *5* α(N)=8.96×10^{-6} *13*; α(O)=1.376×10^{-6} *19*; α(P)=9.06×10^{-8} *13* E_γ,I_γ: others: 859.5 *5*, with Iγ=1.07 *18* (1990Sa32); 860.4 *4*, with Iγ=1.77 *19* (1981ZuZZ); for a composite line. Mult.: α(K)exp≈0.0016 *2*.
860.1 *2*	0.75 *13*	2065.37	7/2$^-$	1205.37	(9/2)$^+$	(E1)[a]		1.59×10^{-3} *2*	α(K)=0.001357 *19*; α(L)=0.0001798 *25*; α(M)=3.88×10^{-5} *5* α(N)=8.95×10^{-6} *13*; α(O)=1.375×10^{-6} *19*; α(P)=9.05×10^{-8} *13* Mult.: α(K)exp≈0.0016 *2*. E_γ,I_γ: 1990Sa32 and 1981ZuZZ report composite line at 859.5 and 860.4, respectively.
863.5 *4*	0.05 *2*	1735.44	(7/2)$^-$	872.46	(11/2)$^-$				
869.7 *2*	3.13 *7*	970.45	7/2$^+$	100.75	3/2$^+$	E2[@]		0.00389 *5*	α(K)=0.00326 *5*; α(L)=0.000494 *7*; α(M)=0.0001084 *15* α(N)=2.494×10^{-5} *35*; α(O)=3.77×10^{-6} *5*; α(P)=2.248×10^{-7} *31* E_γ,I_γ: others: 869.6 *3*, with Iγ=2.7 *3* (1990Sa32); 870.4 *4*, with Iγ=3.1 *3* (1981ZuZZ) for a composite line. Mult.: α(K)exp=0.0038 *7*.
870.0 *4*	0.17 *4*	869.72	5/2$^+$	0.0	1/2$^+$				
871.2 *2*	2.08 *21*	1841.63	9/2$^-$	970.45	7/2$^+$	E1[@]		1.55×10^{-3} *2*	α(K)=0.001324 *19*; α(L)=0.0001753 *25*; α(M)=3.79×10^{-5} *5*

$^{149}_{65}Tb_{84}$-14

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
									α(N)=8.73×10^{-6} *12*; α(O)=1.341×10^{-6} *19*; α(P)=8.83×10^{-8} *12* E_γ,I_γ: other: 871.5 *3*, with Iγ=3.2 *4* (1990Sa32). Mult.: α(K)exp≈0.0019 *4*. I_γ: Iγ=2.8 *3* (1990Sa32), 3.2 (1981ZuZZ) for a composite line.
872.4 *3*	0.35 *6*	1697.49	9/2$^-$	825.12	9/2$^-$	&			
876.2 *3*	0.21 *4*	2065.37	7/2$^-$	1189.09	(7/2)$^-$				
877.1 *4*	0.035 *12*	1631.88	(3/2,5/2)$^-$	754.92	5/2$^+$				
881.4 *2*	0.35 *3*	2065.37	7/2$^-$	1183.86	9/2$^-$	M1		0.00669	α(K)=0.00569 *8*; α(L)=0.000782 *11*; α(M)=0.0001699 *24* α(N)=3.93×10^{-5} *6*; α(O)=6.08×10^{-6} *9*; α(P)=4.11×10^{-7} *6* Mult.: α(K)exp=0.0074 *16*.
901.0 *1*	0.313 *19*	1883.08	(9/2)$^-$	982.05	(9/2)$^+$	(E1)		1.45×10^{-3} *2*	α(K)=0.001241 *17*; α(L)=0.0001641 *23*; α(M)=3.54×10^{-5} *5* α(N)=8.17×10^{-6} *11*; α(O)=1.255×10^{-6} *18*; α(P)=8.29×10^{-8} *12* E_γ,I_γ: other: 900.9 *5*, with Iγ=0.23 *9* (1990Sa32). Mult.: α(K)exp<0.0023.
906.7 *2*	0.20 *4*	1876.88	5/2$^-$	970.45	7/2$^+$	(E1)		1.43×10^{-3} *2*	α(K)=0.001227 *17*; α(L)=0.0001621 *23*; α(M)=3.50×10^{-5} *5* α(N)=8.07×10^{-6} *11*; α(O)=1.240×10^{-6} *17*; α(P)=8.19×10^{-8} *11* E_γ,I_γ: others: 906.9 *5*, with Iγ=0.41 *11* (1990Sa32); 906.2 *4*, with Iγ=0.30 *3* (1981ZuZZ). Mult.: α(K)exp<0.003.
910.3 *4*	0.08 *3*	1735.44	(7/2)$^-$	825.12	9/2$^-$				
912.8 *3*	0.86 *16*	1883.08	(9/2)$^-$	970.45	7/2$^+$	[E1][a]		1.41×10^{-3} *2*	α(K)=0.001211 *17*; α(L)=0.0001600 *22*; α(M)=3.46×10^{-5} *5* α(N)=7.97×10^{-6} *11*; α(O)=1.224×10^{-6} *17*; α(P)=8.09×10^{-8} *11* E_γ,I_γ: other: 912.9 *5*, with Iγ=0.68 *13* (1990Sa32). Mult.: α(K)exp≈0.0033 *6* for 912.8+913.2 doublet gives E2(+M1), δ>1.2, but E1 required by level scheme.
913.2 *3*	0.53 *16*	1120.09	(7/2)$^+$	206.91	5/2$^+$	(E2(+M1))[a]	>1.2	0.0040 *5*	α(K)=0.0034 *5*; α(L)=0.00050 *6*; α(M)=0.000109 *12* α(N)=2.50×10^{-5} *28*; α(O)=3.8×10^{-6} *5*; α(P)=2.4×10^{-7} *4* E_γ,I_γ: others: 913.1 *5*, with Iγ=0.95 *16* (1990Sa32); 913.1 *4*, with Iγ=0.59 *6* (1981ZuZZ). Mult.: α(K)exp≈0.0033 *6* for 913.2+912.8 doublet gives E2(+M1), δ>1.2;
921.0 *5*	<0.1	1381.92	7/2$^-$	460.49	7/2$^+$				
924.0 *1*	0.406 *19*	1876.88	5/2$^-$	952.89	3/2$^-$	M1		0.00596 *8*	α(K)=0.00507 *7*; α(L)=0.000697 *10*; α(M)=0.0001513 *21* α(N)=3.50×10^{-5} *5*; α(O)=5.42×10^{-6} *8*; α(P)=3.66×10^{-7} *5* Mult.: α(K)exp=0.0053 *6*.
937.8 *2*	0.087 *21*	2026.32	(7/2)$^-$	1088.55	5/2$^-$	(M1)		0.00575 *8*	α(K)=0.00490 *7*; α(L)=0.000672 *9*; α(M)=0.0001459 *20*

$^{149}_{65}Tb_{84}$-15

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								α(N)=3.37×10^{-5} *5*; α(O)=5.22×10^{-6} *7*; α(P)=3.54×10^{-7} *5* Mult.: α(K)exp=0.0049 *24*.
945.4 *2*	0.233 *21*	2065.37	7/2$^-$	1120.09	(7/2)$^+$	E1	1.32×10^{-3} *2*	α(N)=7.44×10^{-6} *10*; α(O)=1.144×10^{-6} *16*; α(P)=7.57×10^{-8} *11* α(K)=0.001133 *16*; α(L)=0.0001495 *21*; α(M)=3.23×10^{-5} *5* E_γ,I_γ: other: 945.5 *5*, with Iγ=0.23 *7* (1990Sa32). Mult.: α(K)exp=0.0013 *5*.
952.9 *1*	0.97 *2*	952.89	3/2$^-$	0.0	1/2$^+$	E1	1.30×10^{-3} *2*	α(K)=0.001116 *16*; α(L)=0.0001472 *21*; α(M)=3.18×10^{-5} *4* α(N)=7.33×10^{-6} *10*; α(O)=1.127×10^{-6} *16*; α(P)=7.46×10^{-8} *10* Mult.: α(K)exp=0.0015 *2*.
960.0 *3*	0.12 *4*	1420.55	(9/2)$^-$	460.49	7/2$^+$	E1	1.29×10^{-3} *2*	α(K)=0.001101 *15*; α(L)=0.0001451 *20*; α(M)=3.13×10^{-5} *4* α(N)=7.22×10^{-6} *10*; α(O)=1.111×10^{-6} *16*; α(P)=7.36×10^{-8} *10* E_γ,I_γ: other: 960.2 *5*, with Iγ=0.16 *5* (1990Sa32). Mult.: α(K)exp<0.0011.
969.4 *3*	0.06 *2*	1841.63	9/2$^-$	872.46	(11/2)$^-$			
972.2 *3*	0.22 *5*	2161.04	(9/2)$^-$	1189.09	(7/2)$^-$	(E2)[a]	0.00307 *4*	α(K)=0.00258 *4*; α(L)=0.000381 *5*; α(M)=8.34×10^{-5} *12* α(N)=1.921×10^{-5} *27*; α(O)=2.92×10^{-6} *4*; α(P)=1.783×10^{-7} *25* Mult.: α(K)exp=0.0020 *4* for 972.2+973.4974.5 triplet gives E2 or E1, the latter within 2σ uncertainty.
973.4 *2*	0.39 *6*	1728.36	5/2$^-$	754.92	5/2$^+$	(E1)[a]	1.25×10^{-3} *2*	α(K)=0.001073 *15*; α(L)=0.0001413 *20*; α(M)=3.05×10^{-5} *4* α(N)=7.03×10^{-6} *10*; α(O)=1.082×10^{-6} *15*; α(P)=7.17×10^{-8} *10* E_γ,I_γ: other: 973.5 *5*, with Iγ=0.48 *13* (1990Sa32). Mult.: α(K)exp=0.0020 *4* for 973.4+972.2+974.5 triplet gives E2 or E1, the latter within 2σ uncertainty; E1 required from level scheme.
974.5 *4*	0.08 *3*	2157.98	(7/2)$^-$	1183.86	9/2$^-$	(E2)[&]	0.00306 *4*	α(K)=0.00257 *4*; α(L)=0.000379 *5*; α(M)=8.30×10^{-5} *12* α(N)=1.910×10^{-5} *27*; α(O)=2.90×10^{-6} *4*; α(P)=1.775×10^{-7} *25* Mult.: α(K)exp=0.0020 *4* for 973.4+972.2+974.5 triplet gives E2 or E1, the latter within 2σ uncertainty.
982.2 *2*	0.12 *2*	1189.09	(7/2)$^-$	206.91	5/2$^+$	[E1]	1.23×10^{-3} *2*	α(K)=0.001055 *15*; α(L)=0.0001389 *19*; α(M)=3.00×10^{-5} *4* α(N)=6.91×10^{-6} *10*; α(O)=1.063×10^{-6} *15*; α(P)=7.05×10^{-8} *10* Mult.: α(K)exp=0.0028 *14* gives D or E2; E1 preferred by level scheme. (E2) given in Table 1 of 2019MeZX could be a typo.
986.0 *4*	0.08 *3*	2074.22	7/2$^-$	1088.55	5/2$^-$			
986.8 *2*	0.65 *6*	1728.36	5/2$^-$	741.64	5/2$^+$	E1	1.22×10^{-3} *2*	α(K)=0.001045 *15*; α(L)=0.0001377 *19*; α(M)=2.97×10^{-5} *4* α(N)=6.85×10^{-6} *10*; α(O)=1.054×10^{-6} *15*; α(P)=6.99×10^{-8} *10* E_γ,I_γ: other: 986.2 *5*, with Iγ=0.73 *14* (1990Sa32). Mult.: α(K)exp=1.0E−3 *3*.
987.8 *2*	1.30 *14*	1088.55	5/2$^-$	100.75	3/2$^+$	E1	1.22×10^{-3} *2*	α(K)=0.001043 *15*; α(L)=0.0001374 *19*; α(M)=2.97×10^{-5} *4* α(N)=6.84×10^{-6} *10*; α(O)=1.052×10^{-6} *15*; α(P)=6.98×10^{-8} *10* Mult.: α(K)exp=0.0012 *3*.
997.5 *1*	1.16 *8*	1841.63	9/2$^-$	844.16	7/2$^+$	E1[@]	1.20×10^{-3} *2*	α(K)=0.001025 *14*; α(L)=0.0001349 *19*; α(M)=2.91×10^{-5} *4* α(N)=6.71×10^{-6} *9*; α(O)=1.033×10^{-6} *14*; α(P)=6.85×10^{-8} *10*

$^{149}_{65}Tb_{84}$-16

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								E_γ,I_γ: others: 997.6 *3*, with Iγ=1.71 *25* (1990Sa32); 997.3 *4*, with Iγ=0.74 *7* (1981ZuZZ). Mult.: α(K)exp=0.0012 *2*.
998.6 *3*	0.19 *3*	1205.37	$(9/2)^+$	206.91	$5/2^+$			
1000.8 *4*	0.023 *12*	1461.26	$(5/2,7/2)^-$	460.49	$7/2^+$			
1001.2 *4*	0.035 *12*	1841.63	$9/2^-$	840.71	$13/2^-$			
1008.3 *3*	0.22 *4*	1697.49	$9/2^-$	689.32	$7/2^-$			
1010.6 *1*	2.30 *21*	1883.08	$(9/2)^-$	872.46	$(11/2)^-$	M1[@]	0.00481 *7*	α(N)=2.81×10^{-5} *4*; α(O)=4.35×10^{-6} *6*; α(P)=2.95×10^{-7} *4* α(K)=0.00409 *6*; α(L)=0.000560 *8*; α(M)=0.0001215 *17* E_γ,I_γ: others: 1010.7 *3*, with Iγ=2.69 *20* (1990Sa32); 1010.3 *4*, with Iγ=2.21 *22* (1981ZuZZ, unplaced). Mult.: α(K)exp≈0.0042 *3*.
1016.5 *4*	0.11 *3*	1841.63	$9/2^-$	825.12	$9/2^-$			
1027.1 *3*	0.08 *3*	2161.04	$(9/2)^-$	1133.61	$(9/2,11/2)^+$			
1032.6 *3*	0.07 *2*	2014.73	$(9/2)^-$	982.05	$(9/2)^+$			
1033.2 *4*	0.023 *12*	1986.44	$(3/2^-,5/2,7/2^-)$	952.89	$3/2^-$			
1034.9 *3*	0.093 *22*	1776.61	$7/2^-$	741.64	$5/2^+$			
1039.1 *2*	0.89 *7*	1728.36	$5/2^-$	689.32	$7/2^-$	(E2)[a]	0.00267 *4*	α(K)=0.002254 *32*; α(L)=0.000328 *5*; α(M)=7.17×10^{-5} *10* α(N)=1.652×10^{-5} *23*; α(O)=2.513×10^{-6} *35*; α(P)=1.557×10^{-7} *22* Mult.: α(K)exp≈0.00215 *20* for 1039.1+1039.8 doublet suggests dominant E2.
1039.8 *2*	1.63 *12*	1876.88	$5/2^-$	837.16	$5/2^+$	[E1][a]	1.11×10^{-3} *2*	E_γ,I_γ: line is unresolved in 1990Sa32 and 1981ZuZZ. α(K)=0.000949 *13*; α(L)=0.0001247 *17*; α(M)=2.69×10^{-5} *4* α(N)=6.20×10^{-6} *9*; α(O)=9.55×10^{-7} *13*; α(P)=6.35×10^{-8} *9* E_γ,I_γ: others: Eγ=1040.1 *3*, Iγ=3.05 *23* (1990Sa32); Eγ=1039.4 *4*, Iγ=2.5 *3* (1981ZuZZ) for a composite line. Mult.: α(K)exp≈0.00215 *20* for 1039.1+1039.8 doublet suggests dominant E2, but level scheme requires E1.
1042.1 *4*	0.035 *12*	1883.08	$(9/2)^-$	840.71	$13/2^-$			
1043.7 *2*	0.35 *6*	1250.68	$5/2^-$	206.91	$5/2^+$	(E1)[@]	1.10×10^{-3} *2*	α(K)=0.000942 *13*; α(L)=0.0001238 *17*; α(M)=2.67×10^{-5} *4* α(N)=6.16×10^{-6} *9*; α(O)=9.48×10^{-7} *13*; α(P)=6.31×10^{-8} *9* Mult.: α(K)exp≈0.0020 *7* suggests E2 or E1 (within 1.5σ); E1 from level scheme.
1044.3 *3*	0.06 *3*	2026.32	$(7/2)^-$	982.05	$(9/2)^+$			
1046.2 *3*	0.086 *12*	1735.44	$(7/2)^-$	689.32	$7/2^-$			
1049.2 *2*	0.13 *2*	1049.24	$(5/2^+)$	0.0	$1/2^+$			
1056 *1*	0.023 *12*	2026.32	$(7/2)^-$	970.45	$7/2^+$			
1057.9 *1*	1.89 *3*	1883.08	$(9/2)^-$	825.12	$9/2^-$	M1	0.00431 *6*	α(K)=0.00367 *5*; α(L)=0.000501 *7*; α(M)=0.0001088 *15* α(N)=2.515×10^{-5} *35*; α(O)=3.89×10^{-6} *5*; α(P)=2.64×10^{-7} *4* E_γ,I_γ: others: 1058.0 *5*, with Iγ=1.91 *14* (1990Sa32); 1057.7 *4*, with Iγ=1.62 *16* (1981ZuZZ, unplaced). Mult.: α(K)exp=0.0041 *4*.
1080.6 *1*	0.975 *19*	1953.13	$9/2^-$	872.46	$(11/2)^-$	M1	0.00409 *6*	α(K)=0.00349 *5*; α(L)=0.000476 *7*; α(M)=0.0001033 *14*

$^{149}_{65}Tb_{84}$-17

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								α(N)=2.389×10^{-5} *33*; α(O)=3.70×10^{-6} *5*; α(P)=2.510×10^{-7} *35* E_γ,I_γ: others: 1080.4 *5*, with Iγ=1.02 *9* (1990Sa32); 1078.9 *4*, with Iγ=1.18 *12* (1981ZuZZ). Mult.: α(K)exp=0.0038 *4*.
1083.4‡ *2*	0.72‡ *2*	2065.37	7/2$^-$	982.05	(9/2)$^+$	(E1)	1.03×10^{-3} *1*	α(K)=0.000880 *12*; α(L)=0.0001154 *16*; α(M)=2.491×10^{-5} *35* α(N)=5.74×10^{-6} *8*; α(O)=8.84×10^{-7} *12*; α(P)=5.89×10^{-8} *8* E_γ,I_γ: other: 1083.2 *5*, with Iγ=0.71 *13* (1990Sa32). Mult.: α(K)exp=0.0015 *5*.
1084 *1*	<0.02	1928.15	(7/2$^-$,9/2$^-$)	844.16	7/2$^+$			
1087.3 *2*	0.420 *19*	1776.61	7/2$^-$	689.32	7/2$^-$	M1	0.00403 *6*	α(K)=0.00343 *5*; α(L)=0.000469 *7*; α(M)=0.0001018 *14* α(N)=2.353×10^{-5} *33*; α(O)=3.65×10^{-6} *5*; α(P)=2.473×10^{-7} *35* E_γ,I_γ: other: 1087.3 *5*, with Iγ=0.50 *13* (1990Sa32). Mult.: α(K)exp=0.0039 *4*.
1092.3 *5*	0.05 *3*	2074.22	7/2$^-$	982.05	(9/2)$^+$			
1095.0 *2*	0.317 *16*	2065.37	7/2$^-$	970.45	7/2$^+$	E1	1.01×10^{-3} *1*	α(K)=0.000863 *12*; α(L)=0.0001132 *16*; α(M)=2.441×10^{-5} *34* α(N)=5.63×10^{-6} *8*; α(O)=8.67×10^{-7} *12*; α(P)=5.78×10^{-8} *8* E_γ,I_γ: other: 1095.2 *5*, with Iγ=0.30 *7* (1990Sa32). Mult.: α(K)exp<0.0013.
1097.8 *2*	0.32 *2*	1133.61	(9/2,11/2)$^+$	35.75	11/2$^-$	E1	1.00×10^{-3} *1*	α(K)=0.000859 *12*; α(L)=0.0001126 *16*; α(M)=2.430×10^{-5} *34* α(N)=5.60×10^{-6} *8*; α(O)=8.63×10^{-7} *12*; α(P)=5.75×10^{-8} *8* Mult.: α(K)exp<0.0013.
1103.2 *3*	0.170 *20*	1928.15	(7/2$^-$,9/2$^-$)	825.12	9/2$^-$			
1109.2 *3*	0.162 *18*	1953.13	9/2$^-$	844.16	7/2$^+$			
1110.4 *4*	0.045 *13*	1852.03	(7/2)$^-$	741.64	5/2$^+$			
1121.9 *1*	0.819 *21*	1876.88	5/2$^-$	754.92	5/2$^+$	E1	0.000967 *14*	α=0.000967 *14*; α(K)=0.000826 *12*; α(L)=0.0001082 *15*; α(M)=2.334×10^{-5} *33* α(N)=5.38×10^{-6} *8*; α(O)=8.29×10^{-7} *12*; α(P)=5.53×10^{-8} *8*; α(IPF)=3.74×10^{-6} *5* E_γ,I_γ: other: 1121.5 *4*, with Iγ=0.44 *5* (1981ZuZZ), unplaced. Mult.: α(K)exp=0.0011 *3*.
1128.0 *3*	0.085 *16*	1953.13	9/2$^-$	825.12	9/2$^-$			
1135.2 *1*	1.60 *9*	1876.88	5/2$^-$	741.64	5/2$^+$	E1	0.000949 *13*	α=0.000949 *13*; α(K)=0.000808 *11*; α(L)=0.0001059 *15*; α(M)=2.284×10^{-5} *32* α(N)=5.27×10^{-6} *7*; α(O)=8.11×10^{-7} *11*; α(P)=5.42×10^{-8} *8*; α(IPF)=5.59×10^{-6} *8* E_γ,I_γ: others: 1135.5 *5*, with Iγ=0.52 *13* (1990Sa32) is in severe disagreement; 1134.7 *4* (1981ZuZZ). Mult.: α(K)exp=1.0E−3 *3*.
1142.2 *3*	0.162 *17*	2014.73	(9/2)$^-$	872.46	(11/2)$^-$	M1	0.00359 *5*	α(K)=0.00306 *4*; α(L)=0.000417 *6*; α(M)=9.04×10^{-5} *13* α(N)=2.090×10^{-5} *29*; α(O)=3.24×10^{-6} *5*; α(P)=2.198×10^{-7} *31*; α(IPF)=1.450×10^{-6} *24* E_γ,I_γ: other: 1142.6 *5*, with Iγ=0.18 *5* (1990Sa32). Mult.: α(K)exp=0.0037 *9*.

$^{149}_{65}Tb_{84}$-18

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
1148.2 *3*	0.14 *2*	1183.86	9/2$^-$	35.75	11/2$^-$	M1	0.00354 *5*	α(K)=0.00302 *4*; α(L)=0.000411 *6*; α(M)=8.92×10^{-5} *13* α(N)=2.063×10^{-5} *29*; α(O)=3.20×10^{-6} *4*; α(P)=2.171×10^{-7} *30*; α(IPF)=1.738×10^{-6} *29* Mult.: α(K)exp=0.0034 *11*.
1150.0 *3*	0.113 *13*	1250.68	5/2$^-$	100.75	3/2$^+$	E1	0.000930 *13*	α=0.000930 *13*; α(K)=0.000790 *11*; α(L)=0.0001034 *14*; α(M)=2.230×10^{-5} *31* α(N)=5.14×10^{-6} *7*; α(O)=7.92×10^{-7} *11*; α(P)=5.29×10^{-8} *7*; α(IPF)=8.38×10^{-6} *13* Mult.: α(K)exp<0.0011.
1152.3 *2*	0.37 *3*	1841.63	9/2$^-$	689.32	7/2$^-$	(M1)[a]	0.00351 *5*	α(K)=0.00299 *4*; α(L)=0.000408 *6*; α(M)=8.85×10^{-5} *12* α(N)=2.046×10^{-5} *29*; α(O)=3.17×10^{-6} *4*; α(P)=2.153×10^{-7} *30*; α(IPF)=1.959×10^{-6} *30* E_γ,I_γ: others: 1152.3 *5*, with Iγ=0.43 *16* (1990Sa32); 1252.3 *4*, with Iγ=0.74 *7* (1981ZuZZ, unplaced) for a composite line. Mult.: α(K)exp≈0.0023 *3*.
1153.3 *2*	0.39 *3*	1189.09	(7/2)$^-$	35.75	11/2$^-$	(E2)[a]	2.16×10^{-3} *3*	α(K)=0.001828 *26*; α(L)=0.000261 *4*; α(M)=5.69×10^{-5} *8* α(N)=1.312×10^{-5} *18*; α(O)=2.003×10^{-6} *28*; α(P)=1.264×10^{-7} *18*; α(IPF)=1.776×10^{-6} *27* E_γ,I_γ: other: 1152.3 *4*, with Iγ=0.74 *7* (1981ZuZZ) for a composite line, unplaced. Mult.: α(K)exp≈0.0023 *3*.
1162.6 *2*	0.075 *18*	1852.03	(7/2)$^-$	689.32	7/2$^-$	M1	0.00344 *5*	α(K)=0.00293 *4*; α(L)=0.000399 *6*; α(M)=8.66×10^{-5} *12* α(N)=2.002×10^{-5} *28*; α(O)=3.10×10^{-6} *4*; α(P)=2.107×10^{-7} *30*; α(IPF)=2.60×10^{-6} *4* Mult.: α(K)exp=0.0050 *25*.
1169.5 *3*	0.57 *9*	1205.37	(9/2)$^+$	35.75	11/2$^-$	[E1][a]	0.000907 *13*	α=0.000907 *13*; α(K)=0.000766 *11*; α(L)=0.0001002 *14*; α(M)=2.162×10^{-5} *30* α(N)=4.99×10^{-6} *7*; α(O)=7.68×10^{-7} *11*; α(P)=5.14×10^{-8} *7*; α(IPF)=1.338×10^{-5} *21* Mult.: α(K)exp≈0.0017 *3* for 1169.5+1170.1 doublet suggests M1,E2, but level scheme requires E1.
1170.1 *3*	0.73 *13*	1205.95	(7/2,9/2)$^-$	35.75	11/2$^-$	(M1,E2)[a]	0.0027 *6*	α(N)=1.62×10^{-5} *35*; α(O)=2.5×10^{-6} *6*; α(P)=1.7×10^{-7} *4*; α(IPF)=2.98×10^{-6} *19* α(K)=0.0023 *6*; α(L)=0.00032 *7*; α(M)=7.0×10^{-5} *15* Mult.: α(K)exp≈0.0017 *3* for 1169.5+1170.1 doublet suggests M1,E2, consistent with that expected from level scheme. Iγ=0.04 *3* for a 1170.9γ (1990Sa32).
1173.9 *4*	0.14 *4*	2014.73	(9/2)$^-$	840.71	13/2$^-$			E_γ: other: 1170.9 *5* with Iγ=0.05 *4* from 1990Sa32.
1174.9 *1*	0.87 *7*	1381.92	7/2$^-$	206.91	5/2$^+$	E1[@]	0.000902 *13*	α=0.000902 *13*; α(K)=0.000760 *11*; α(L)=9.94×10^{-5} *14*; α(M)=2.144×10^{-5} *30* α(N)=4.94×10^{-6} *7*; α(O)=7.62×10^{-7} *11*; α(P)=5.10×10^{-8} *7*;

$^{149}_{65}Tb_{84}$-19

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								α(IPF)=1.504×10^{-5} *21* E_γ,I_γ: others: 1175.2 *5*, with Iγ=0.98 *18* (1990Sa32); 1174.3 *4*, with Iγ=1.18 *12* (1981ZuZZ). Mult.: α(K)exp≈1.0E−3 *3*.
1187.5 *2*	0.382 *23*	1876.88	5/2$^-$	689.32	7/2$^-$	M1	0.00328 *5*	α(K)=0.00279 *4*; α(L)=0.000379 *5*; α(M)=8.23×10^{-5} *12* α(N)=1.903×10^{-5} *27*; α(O)=2.95×10^{-6} *4*; α(P)=2.003×10^{-7} *28*; α(IPF)=4.75×10^{-6} *7* E_γ,I_γ: others: 1187.7 *5*, with Iγ=0.46 *18* (1990Sa32); 1189.0 *4*, with Iγ=0.89 *9* (1981ZuZZ) for a composite line. Mult.: α(K)exp=0.0029 *4*.
1188.9 *3*	0.243 *24*	2026.32	(7/2)$^-$	837.16	5/2$^+$	(E1)[a]	0.000888 *12*	α=0.000888 *12*; α(K)=0.000744 *10*; α(L)=9.73×10^{-5} *14*; α(M)=2.098×10^{-5} *29* α(N)=4.84×10^{-6} *7*; α(O)=7.46×10^{-7} *10*; α(P)=4.99×10^{-8} *7*; α(IPF)=1.987×10^{-5} *30* Mult.: α(K)exp≈0.0013 *4* suggests E1 or E2; E1 from level scheme.
1189.6 *3*	0.150 *23*	2014.73	(9/2)$^-$	825.12	9/2$^-$	(M1+E2)[a]	0.0026 *6*	α(K)=0.0022 *5*; α(L)=0.00031 *7*; α(M)=6.8×10^{-5} *14* α(N)=1.56×10^{-5} *33*; α(O)=2.4×10^{-6} *5*; α(P)=1.6×10^{-7} *4*; α(IPF)=4.68×10^{-6} *30* E_γ,I_γ: others: 1189.9 *5*, with Iγ=0.30 *13* (1990Sa32); 1189.0 *4*, with Iγ=0.89 *9* (1981ZuZZ) for a composite line. Mult.: α(K)exp≈0.0013 *4*.
1193.7 *2*	0.234 *17*	1883.08	(9/2)$^-$	689.32	7/2$^-$	M1	0.00324 *5*	α(K)=0.00275 *4*; α(L)=0.000375 *5*; α(M)=8.13×10^{-5} *11* α(N)=1.879×10^{-5} *26*; α(O)=2.91×10^{-6} *4*; α(P)=1.979×10^{-7} *28*; α(IPF)=5.41×10^{-6} *8* E_γ,I_γ: others: 1193.7 *5*, with Iγ=0.23 *11* (1990Sa32); 1194.2 *4*, with Iγ=1.03 *10* (1981ZuZZ) for a composite line. Mult.: α(K)exp=0.0036 *12*.
1195.6 *2*	0.68 *2*	2065.37	7/2$^-$	869.72	5/2$^+$	E1	0.000882 *12*	α=0.000882 *12*; α(K)=0.000737 *10*; α(L)=9.63×10^{-5} *13*; α(M)=2.076×10^{-5} *29* α(N)=4.79×10^{-6} *7*; α(O)=7.38×10^{-7} *10*; α(P)=4.94×10^{-8} *7*; α(IPF)=2.242×10^{-5} *32* E_γ,I_γ: others: 1195.7 *5*, with Iγ=0.68 *16* (1990Sa32); 1194.2 *4*, with Iγ=1.03 *10* (1981ZuZZ, unplaced) for a composite line. Mult.: α(K)exp=7.0×10^{-4} *20*.
1201.3[d] *3*	0.06[d] *2*	2026.32	(7/2)$^-$	825.12	9/2$^-$	(M1)	0.00319 *4*	α(K)=0.00271 *4*; α(L)=0.000369 *5*; α(M)=8.00×10^{-5} *11* α(N)=1.851×10^{-5} *26*; α(O)=2.87×10^{-6} *4*; α(P)=1.949×10^{-7} *27*; α(IPF)=6.29×10^{-6} *10* Mult.: α(K)exp=0.0029 *9*.
1201.8[d] *3*	0.06[d] *2*	2074.22	7/2$^-$	872.46	(11/2)$^-$	(E2)[a]	2.00×10^{-3} *3*	α(K)=0.001685 *24*; α(L)=0.0002391 *34*; α(M)=5.21×10^{-5} *7* α(N)=1.201×10^{-5} *17*; α(O)=1.835×10^{-6} *26*; α(P)=1.165×10^{-7} *16*; α(IPF)=5.61×10^{-6} *8* Mult.: α(K)exp≈0.0029 *9* gives (M1,E2); E2 from level scheme.

$^{149}_{65}Tb_{84}$-20

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								Mult.: (M1) given in Table I of 2019MeZX could be a typo, since the final J^π=9/2$^-$ for 872 level is incorrect, which should be 11/2$^-$ instead, as given earlier in Table I for that level.
1204.5 *2*	0.134 *19*	2074.22	7/2$^-$	869.72	5/2$^+$	(E1)	0.000874 *12*	α=0.000874 *12*; α(K)=0.000727 *10*; α(L)=9.50×10^{-5} *13*; α(M)=2.048×10^{-5} *29* α(N)=4.73×10^{-6} *7*; α(O)=7.28×10^{-7} *10*; α(P)=4.88×10^{-8} *7*; α(IPF)=2.60×10^{-5} *4* Mult.: α(K)exp=0.0012 *7*.
1221.2 *1*	0.552 *21*	2065.37	7/2$^-$	844.16	7/2$^+$	E1	0.000861 *12*	α=0.000861 *12*; α(K)=0.000709 *10*; α(L)=9.26×10^{-5} *13*; α(M)=1.998×10^{-5} *28* α(N)=4.61×10^{-6} *6*; α(O)=7.10×10^{-7} *10*; α(P)=4.76×10^{-8} *7*; α(IPF)=3.32×10^{-5} *5* E_γ,I_γ: others: 1221.3 *5*, with Iγ=0.75 *16* (1990Sa32); 1220.0 *4*, with Iγ=0.89 *9* (1981ZuZZ, unplaced). Mult.: α(K)exp=7.0×10^{-4} *20*.
1228.2 *1*	0.472 *20*	2065.37	7/2$^-$	837.16	5/2$^+$	E1	0.000855 *12*	α=0.000855 *12*; α(K)=0.000702 *10*; α(L)=9.17×10^{-5} *13*; α(M)=1.977×10^{-5} *28* α(N)=4.56×10^{-6} *6*; α(O)=7.03×10^{-7} *10*; α(P)=4.71×10^{-8} *7*; α(IPF)=3.63×10^{-5} *5* E_γ,I_γ: others: 1228.4 *5*, with Iγ=0.59 *14* (1990Sa32); 1227.5 *4*, with Iγ=0.74 *7* (1981ZuZZ). Mult.: α(K)exp=1.0E−3 *3*.
1231.5 *3*	0.085 *20*	1986.44	(3/2$^-$,5/2,7/2$^-$)	754.92	5/2$^+$			
1236.9 *2*	0.22 *5*	2074.22	7/2$^-$	837.16	5/2$^+$	(E1)[a]	0.000849 *12*	α=0.000849 *12*; α(K)=0.000694 *10*; α(L)=9.05×10^{-5} *13*; α(M)=1.952×10^{-5} *27* α(N)=4.50×10^{-6} *6*; α(O)=6.94×10^{-7} *10*; α(P)=4.65×10^{-8} *7*; α(IPF)=4.03×10^{-5} *6* E_γ,I_γ: other: 1237.3 *5*, with Iγ=0.23 *9* (1990Sa32); 1235.9 *4*, with Iγ=0.59 *6* (1981ZuZZ, unplaced) for a composite line. Mult.: α(K)exp≈1.0E−3 *4*.
1237.1 *2*	0.32 *6*	1272.73	(9/2)$^+$	35.75	11/2$^-$	(E1)[a]	0.000849 *12*	α=0.000849 *12*; α(K)=0.000693 *10*; α(L)=9.05×10^{-5} *13*; α(M)=1.952×10^{-5} *27* α(N)=4.50×10^{-6} *6*; α(O)=6.94×10^{-7} *10*; α(P)=4.65×10^{-8} *7*; α(IPF)=4.04×10^{-5} *6* Mult.: α(K)exp≈1.0E−3 *4*. E_γ,I_γ: other: 1235.9 *4*, with Iγ=0.59 *6* (1981ZuZZ) for a composite line, unplaced.
1239.0 *4*	0.05 *2*	1928.15	(7/2$^-$,9/2$^-$)	689.32	7/2$^-$	(M1)[&]	0.00297 *4*	α(K)=0.002521 *35*; α(L)=0.000343 *5*; α(M)=7.43×10^{-5} *10* α(N)=1.719×10^{-5} *24*; α(O)=2.66×10^{-6} *4*; α(P)=1.811×10^{-7} *25*; α(IPF)=1.153×10^{-5} *17* Mult.: α(K)exp≈0.0035 *12*.
1240.1 *3*	0.13 *3*	2065.37	7/2$^-$	825.12	9/2$^-$	M1[@]	0.00296 *4*	α(K)=0.002515 *35*; α(L)=0.000342 *5*; α(M)=7.42×10^{-5} *10*

$^{149}_{65}$Tb$_{84}$-21

γ(^{149}Tb) (continued)

E_γ[†]	I_γ[†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								α(N)=1.715×10^{-5} *24*; α(O)=2.66×10^{-6} *4*; α(P)=1.807×10^{-7} *25*; α(IPF)=1.170×10^{-5} *17* Mult.: α(K)exp≈0.0035 *12*.
[x]1246.8 *4*	0.30 *7*							E$_\gamma$,I$_\gamma$: from 1981ZuZZ only.
1248.9 *3*	0.035 *12*	2074.22	7/2$^-$	825.12	9/2$^-$			
1254.3[‡] *2*	0.49[‡] *3*	1461.26	(5/2,7/2)$^-$	206.91	5/2$^+$	E1	0.000838 *12*	α=0.000838 *12*; α(K)=0.000677 *9*; α(L)=8.83×10^{-5} *12*; α(M)=1.903×10^{-5} *27* α(N)=4.39×10^{-6} *6*; α(O)=6.77×10^{-7} *9*; α(P)=4.54×10^{-8} *6*; α(IPF)=4.85×10^{-5} *7* E$_\gamma$,I$_\gamma$: others: 1254.5 *5*, with Iγ=0.75 *14* (1990Sa32); 1253.5 *4*, with Iγ=0.89 *9* (1981ZuZZ). Mult.: α(K)exp=6.0×10^{-4} *20*.
1263.8 *1*	0.85 *3*	1953.13	9/2$^-$	689.32	7/2$^-$	M1	0.00284 *4*	α(K)=0.002406 *34*; α(L)=0.000327 *5*; α(M)=7.09×10^{-5} *10* α(N)=1.639×10^{-5} *23*; α(O)=2.54×10^{-6} *4*; α(P)=1.728×10^{-7} *24*; α(IPF)=1.560×10^{-5} *22* E$_\gamma$,I$_\gamma$: others: 1263.4 *5*, with Iγ=0.64 *7* (1990Sa32); 1263.8 *4*, with Iγ=1.03 *10* (1981ZuZZ, unplaced). Mult.: α(K)exp=0.0025 *3*.
1274.9[‡] *1*	2.00[‡] *3*	1735.44	(7/2)$^-$	460.49	7/2$^+$	E1	0.000825 *12*	α=0.000825 *12*; α(K)=0.000658 *9*; α(L)=8.57×10^{-5} *12*; α(M)=1.848×10^{-5} *26* α(N)=4.26×10^{-6} *6*; α(O)=6.58×10^{-7} *9*; α(P)=4.41×10^{-8} *6*; α(IPF)=5.84×10^{-5} *8* E$_\gamma$,I$_\gamma$: other: 1274.7 *5*, with Iγ=2.6 *4* (1990Sa32); 1274.4 *3*, Iγ=2.7 *6* (1975To03); 1274.5 *4*, with Iγ=2.7 *3* (1981ZuZZ). Mult.: α(K)exp=8.0×10^{-4} *10*.
1278.5 *3*	0.13 *4*	2260.33	(7/2$^-$,9/2)	982.05	(9/2)$^+$			
1284.7 *3*	0.06 *2*	2026.32	(7/2)$^-$	741.64	5/2$^+$			
1288.5[d] *3*	0.12[d] *4*	2157.98	(7/2)$^-$	869.72	5/2$^+$	[E1][a]	0.000818 *11*	α=0.000818 *11*; α(K)=0.000645 *9*; α(L)=8.41×10^{-5} *12*; α(M)=1.814×10^{-5} *25* α(N)=4.18×10^{-6} *6*; α(O)=6.45×10^{-7} *9*; α(P)=4.33×10^{-8} *6*; α(IPF)=6.51×10^{-5} *9* Mult.: α(K)exp≈0.0020 *5*.
1288.5[d] *3*	0.12[d] *4*	2161.04	(9/2)$^-$	872.46	(11/2)$^-$	(M1)[a]	0.00272 *4*	α(K)=0.002299 *32*; α(L)=0.000312 *4*; α(M)=6.77×10^{-5} *9* α(N)=1.565×10^{-5} *22*; α(O)=2.425×10^{-6} *34*; α(P)=1.650×10^{-7} *23*; α(IPF)=2.011×10^{-5} *29* Mult.: α(K)exp≈0.0020 *5*.
1297.2 *4*	0.046 *19*	1986.44	(3/2$^-$,5/2,7/2$^-$)	689.32	7/2$^-$			
1301.6 *1*	0.75 *3*	1508.52	(7/2)$^-$	206.91	5/2$^+$	E1	0.000811 *11*	α=0.000811 *11*; α(K)=0.000634 *9*; α(L)=8.26×10^{-5} *12*; α(M)=1.781×10^{-5} *25* α(N)=4.11×10^{-6} *6*; α(O)=6.34×10^{-7} *9*; α(P)=4.26×10^{-8} *6*; α(IPF)=7.18×10^{-5} *10*

$^{149}_{65}$Tb$_{84}$-22

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								E_γ,I_γ: others: 1301.8 *5*, with Iγ=0.98 *20* (1990Sa32); 1301.2 *4*, with Iγ=0.59 *6* (1981ZuZZ). Mult.: α(K)exp=7.1×10^{-4} *15*.
1316.1 *1*	0.73 *3*	1776.61	7/2$^-$	460.49	7/2$^+$	E1	0.000805 *11*	α=0.000805 *11*; α(K)=0.000622 *9*; α(L)=8.10×10^{-5} *11*; α(M)=1.746×10^{-5} *24* α(N)=4.03×10^{-6} *6*; α(O)=6.21×10^{-7} *9*; α(P)=4.18×10^{-8} *6*; α(IPF)=7.97×10^{-5} *11* E_γ,I_γ: others: 1316.3 *5*, with Iγ=0.62 *14* (1990Sa32); 1314.6 *4*, with Iγ=0.74 *6* (1981ZuZZ). Mult.: α(K)exp=8.5×10^{-4} *25*.
1320.4 *4*	0.093 *16*	2161.04	(9/2)$^-$	840.71	13/2$^-$			
1323.7 *1*	1.07 *6*	2065.37	7/2$^-$	741.64	5/2$^+$	E1[@]	0.000802 *11*	α=0.000802 *11*; α(K)=0.000616 *9*; α(L)=8.02×10^{-5} *11*; α(M)=1.728×10^{-5} *24* α(N)=3.99×10^{-6} *6*; α(O)=6.15×10^{-7} *9*; α(P)=4.13×10^{-8} *6*; α(IPF)=8.40×10^{-5} *12* E_γ,I_γ: other: 1323.8 *5*, with Iγ=1.28 *5* (1990Sa32). Mult.: α(K)exp≈7.7×10^{-4} *15*.
1325.0 *4*	0.07 *2*	2014.73	(9/2)$^-$	689.32	7/2$^-$			
1332.9 *4*	0.05 *2*	2157.98	(7/2)$^-$	825.12	9/2$^-$			
1343.6 *3*	0.069 *17*	1804.1	(5/2$^+$,7/2$^+$,9/2$^+$)	460.49	7/2$^+$	(M1,E2)	0.0021 *4*	α(N)=1.18×10^{-5} *23*; α(O)=1.8×10^{-6} *4*; α(P)=1.22×10^{-7} *28*; α(IPF)=3.07×10^{-5} *20* α(K)=0.0017 *4*; α(L)=0.00024 *5*; α(M)=5.1×10^{-5} *10* Mult.: α(K)exp=0.002 *1*.
1346.3 *3*	0.069 *17*	1381.92	7/2$^-$	35.75	11/2$^-$	(E2)	1.62×10^{-3} *2*	α(K)=0.001351 *19*; α(L)=0.0001885 *26*; α(M)=4.10×10^{-5} *6* α(N)=9.45×10^{-6} *13*; α(O)=1.449×10^{-6} *20*; α(P)=9.34×10^{-8} *13*; α(IPF)=2.93×10^{-5} *4* Mult.: (M1,E2) from α(K)exp=0.002 *1*; E3 is possible but less likely, and pure M3 is ruled out; E2 from level scheme.
1376.0 *1*	0.647 *21*	2065.37	7/2$^-$	689.32	7/2$^-$	M1	2.35×10^{-3} *3*	α(K)=0.001971 *28*; α(L)=0.000267 *4*; α(M)=5.79×10^{-5} *8* α(N)=1.339×10^{-5} *19*; α(O)=2.075×10^{-6} *29*; α(P)=1.413×10^{-7} *20*; α(IPF)=4.17×10^{-5} *6* E_γ,I_γ: others: 1376.0 *5*, with Iγ=0.68 *23* (1990Sa32); 1375.8 *4*, with Iγ=0.89 *9* (1981ZuZZ, unplaced). Mult.: α(K)exp=0.0025 *5*.
1381.3 *3*	0.14 *3*	1841.63	9/2$^-$	460.49	7/2$^+$			
1384.7[e] *3*	0.39[e] *7*	1420.55	(9/2)$^-$	35.75	11/2$^-$	(M1)[a]	2.32×10^{-3} *3*	α(K)=0.001942 *27*; α(L)=0.000263 *4*; α(M)=5.70×10^{-5} *8* α(N)=1.319×10^{-5} *18*; α(O)=2.044×10^{-6} *29*; α(P)=1.393×10^{-7} *20*; α(IPF)=4.43×10^{-5} *6* E_γ,I_γ: other: 1385.0 *4*, with Iγ=0.89 *9* (1981ZuZZ) for a composite line, unplaced. Mult.: α(K)exp≈0.0020 *3*.

$^{149}_{65}Tb_{84}$-23

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
1384.7[e f] *3*	0.19[e] *5*	2074.22	7/2⁻	689.32	7/2⁻	(M1)[a]	2.32×10⁻³ *3*	α(K)=0.001942 *27*; α(L)=0.000263 *4*; α(M)=5.70×10⁻⁵ *8* α(N)=1.319×10⁻⁵ *18*; α(O)=2.044×10⁻⁶ *29*; α(P)=1.393×10⁻⁷ *20*; α(IPF)=4.43×10⁻⁵ *6* E_γ,I_γ: others: 1384.9 *5*, with Iγ=0.23 *11* (1990Sa32); 1385.0 *4*, with Iγ=0.89 *9* (1981ZuZZ, unplaced) for a composite line. Mult.: α(K)exp≈0.0020 *3*.
1387.9 *3*	0.08 *4*	2260.33	(7/2⁻,9/2)	872.46	(11/2)⁻			
1390.3 *1*	2.00 *3*	1426.13	9/2⁻	35.75	11/2⁻	M1	2.30×10⁻³ *3*	α(K)=0.001924 *27*; α(L)=0.000261 *4*; α(M)=5.65×10⁻⁵ *8* α(N)=1.307×10⁻⁵ *18*; α(O)=2.025×10⁻⁶ *28*; α(P)=1.379×10⁻⁷ *19*; α(IPF)=4.60×10⁻⁵ *6* E_γ,I_γ: other: 1389.6 *4*, with Iγ=2.21 *22* (1981ZuZZ). Mult.: α(K)exp=0.0020 *2*.
1391.9 *4*	0.05 *2*	1852.03	(7/2)⁻	460.49	7/2⁺			
1416.4 *2*	0.267 *21*	1876.88	5/2⁻	460.49	7/2⁺	E1	0.000782 *11*	α=0.000782 *11*; α(K)=0.000548 *8*; α(L)=7.12×10⁻⁵ *10*; α(M)=1.534×10⁻⁵ *21* α(N)=3.54×10⁻⁶ *5*; α(O)=5.46×10⁻⁷ *8*; α(P)=3.68×10⁻⁸ *5*; α(IPF)=0.0001437 *20* Mult.: α(K)exp<6.0×10⁻⁴.
1422.6 *1*	1.89 *3*	1883.08	(9/2)⁻	460.49	7/2⁺	E1	0.000782 *11*	α=0.000782 *11*; α(K)=0.000544 *8*; α(L)=7.06×10⁻⁵ *10*; α(M)=1.522×10⁻⁵ *21* α(N)=3.51×10⁻⁶ *5*; α(O)=5.42×10⁻⁷ *8*; α(P)=3.65×10⁻⁸ *5*; α(IPF)=0.0001480 *21* E_γ,I_γ: others: 1422.7 *5*, with Iγ=2.7 *4* (1990Sa32); 1422.1 *4*, with Iγ=3.1 *3* (1981ZuZZ). Mult.: α(K)exp=6.0×10⁻⁴ *10*.
1425.1 *4*	0.06 *2*	1631.88	(3/2,5/2)⁻	206.91	5/2⁺			
1427.9 *5*	0.023 *12*	2117.14	(5/2⁻,7/2⁻)	689.32	7/2⁻			
1428.0 *5*	0.017 *9*	2516.33	(7/2⁻)	1088.55	5/2⁻			
1438.0 *2*	0.34 *3*	1473.75	(11/2)⁻	35.75	11/2⁻	M1	2.15×10⁻³ *3*	α(K)=0.001778 *25*; α(L)=0.0002407 *34*; α(M)=5.22×10⁻⁵ *7* α(N)=1.207×10⁻⁵ *17*; α(O)=1.870×10⁻⁶ *26*; α(P)=1.275×10⁻⁷ *18*; α(IPF)=6.17×10⁻⁵ *9* Mult.: α(K)exp=0.0022 *4*.
1467.6 *3*	0.14 *3*	1928.15	(7/2⁻,9/2⁻)	460.49	7/2⁺	(E1)[a]	0.000780 *11*	α=0.000780 *11*; α(K)=0.000516 *7*; α(L)=6.69×10⁻⁵ *9*; α(M)=1.442×10⁻⁵ *20* α(N)=3.33×10⁻⁶ *5*; α(O)=5.14×10⁻⁷ *7*; α(P)=3.47×10⁻⁸ *5*; α(IPF)=0.0001794 *25* Mult.: α(K)exp≈9×10⁻⁴ *4* for 1467.6+1468.7 doublet suggests D or E2; E1 from level scheme.
1468.7 *3*	0.13 *3*	2157.98	(7/2)⁻	689.32	7/2⁻	(M1+E2)[a]	0.00173 *33*	α(K)=0.00142 *28*; α(L)=0.00019 *4*; α(M)=4.2×10⁻⁵ *8*

$^{149}_{65}Tb_{84}$-24

^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [c]	Comments
								α(N)=9.7×10^{-6} *18*; α(O)=1.50×10^{-6} *28*; α(P)=1.00×10^{-7} *21*; α(IPF)=6.8×10^{-5} *5* Mult.: α(K)exp≈9×10^{-4} *4* for 1467.6+1468.7 doublet suggests D or E2; M1+E2 from level scheme.
1471.7 *2*	0.34 *3*	2161.04	(9/2)$^-$	689.32	7/2$^-$	M1	2.05×10^{-3} *3*	α(K)=0.001685 *24*; α(L)=0.0002280 *32*; α(M)=4.94×10^{-5} *7* α(N)=1.143×10^{-5} *16*; α(O)=1.771×10^{-6} *25*; α(P)=1.207×10^{-7} *17*; α(IPF)=7.38×10^{-5} *10* Mult.: α(K)exp≈0.0021 *4*.
1472.7 *4*	0.023 *11*	1508.52	(7/2)$^-$	35.75	11/2$^-$			
1492.7 *3*	0.058 *20*	1953.13	9/2$^-$	460.49	7/2$^+$			
1521.4 *1*	3.90 *30*	1728.36	5/2$^-$	206.91	5/2$^+$	E1	0.000784 *11*	α(N)=3.13×10^{-6} *4*; α(O)=4.83×10^{-7} *7*; α(P)=3.26×10^{-8} *5*; α(IPF)=0.0002181 *31* α=0.000784 *11*; α(K)=0.000485 *7*; α(L)=6.29×10^{-5} *9*; α(M)=1.355×10^{-5} *19* E_γ,I_γ: others: 1521.0 *5*, with Iγ=3.9 *5* (1990Sa32); 1520.9 *4*, with Iγ=5.6 *6* (1981ZuZZ). Mult.: α(K)exp=5.0×10^{-4} *5*.
1527.3 *3*	0.044 *10*	2352.30	(7/2$^-$,9/2)	825.12	9/2$^-$			
1528.6 *4*	0.031 *9*	1735.44	(7/2)$^-$	206.91	5/2$^+$			
1531.0 *4*	0.051 *10*	1631.88	(3/2,5/2)$^-$	100.75	3/2$^+$			
1565.8 *2*	0.148 *19*	2026.32	(7/2)$^-$	460.49	7/2$^+$	E1	0.000790 *11*	α=0.000790 *11*; α(K)=0.000462 *6*; α(L)=5.99×10^{-5} *8*; α(M)=1.290×10^{-5} *18* α(N)=2.98×10^{-6} *4*; α(O)=4.60×10^{-7} *6*; α(P)=3.11×10^{-8} *4*; α(IPF)=0.0002511 *35* Mult.: α(K)exp<8.0×10^{-4}.
1569.8 *2*	0.28 *2*	1776.61	7/2$^-$	206.91	5/2$^+$	E1	0.000790 *11*	α=0.000790 *11*; α(K)=0.000460 *6*; α(L)=5.96×10^{-5} *8*; α(M)=1.284×10^{-5} *18* α(N)=2.96×10^{-6} *4*; α(O)=4.58×10^{-7} *6*; α(P)=3.10×10^{-8} *4*; α(IPF)=0.000254 *4* E_γ,I_γ: other: 1569.9 *5*, with Iγ=0.37 *13* (1990Sa32). Mult.: α(K)exp=4.5×10^{-4} *15*.
1597 *1*	0.05 *2*	1804.1	(5/2$^+$,7/2$^+$,9/2$^+$)	206.91	5/2$^+$			
1604.8 *3*	0.051 *21*	2065.37	7/2$^-$	460.49	7/2$^+$			
1613.8 *2*	0.160 *16*	2074.22	7/2$^-$	460.49	7/2$^+$	E1	0.000799 *11*	α=0.000799 *11*; α(K)=0.000440 *6*; α(L)=5.69×10^{-5} *8*; α(M)=1.225×10^{-5} *17* α(N)=2.83×10^{-6} *4*; α(O)=4.37×10^{-7} *6*; α(P)=2.96×10^{-8} *4*; α(IPF)=0.000287 *4* Mult.: α(K)exp<5.0×10^{-4}.
1627.5 *4*	0.017 *10*	2452.5	(9/2$^-$)	825.12	9/2$^-$			
1627.6 *1*	2.07 *3*	1728.36	5/2$^-$	100.75	3/2$^+$	E1	0.000802 *11*	α=0.000802 *11*; α(K)=0.000434 *6*; α(L)=5.61×10^{-5} *8*; α(M)=1.208×10^{-5} *17* α(N)=2.79×10^{-6} *4*; α(O)=4.31×10^{-7} *6*; α(P)=2.92×10^{-8} *4*;

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^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[c]	Comments
									α(IPF)=0.000297 *4* Mult.: α(K)exp=4.5×10^{-4} *4*.
1645.1 *2*	0.233 *14*	1852.03	(7/2)$^-$	206.91	5/2$^+$	E1		0.000806 *11*	α=0.000806 *11*; α(K)=0.000426 *6*; α(L)=5.51×10^{-5} *8*; α(M)=1.186×10^{-5} *17* α(N)=2.74×10^{-6} *4*; α(O)=4.23×10^{-7} *6*; α(P)=2.86×10^{-8} *4*; α(IPF)=0.000310 *4* Mult.: α(K)exp=4.0×10^{-4} *20*.
1661.7 *1*	0.87 *3*	1697.49	9/2$^-$	35.75	11/2$^-$	M1+E2	0.8 *4*	0.00147 *11*	α(K)=0.00113 *9*; α(L)=0.000153 *12*; α(M)=3.31×10^{-5} *27* α(N)=7.7×10^{-6} *6*; α(O)=1.18×10^{-6} *10*; α(P)=8.0×10^{-8} *7*; α(IPF)=0.000147 *6* E$_\gamma$,I$_\gamma$: other: 1661.5 *4*, with Iγ=0.74 *7* (1981ZuZZ). Mult.,δ: α(K)exp=0.00114 *8*.
1670.0 *1*	0.63 *3*	1876.88	5/2$^-$	206.91	5/2$^+$	E1		0.000813 *11*	α=0.000813 *11*; α(K)=0.000415 *6*; α(L)=5.37×10^{-5} *8*; α(M)=1.156×10^{-5} *16* α(N)=2.67×10^{-6} *4*; α(O)=4.12×10^{-7} *6*; α(P)=2.79×10^{-8} *4*; α(IPF)=0.000329 *5* E$_\gamma$,I$_\gamma$: others: 1670.3 *5*, with Iγ=0.70 *16* (1990Sa32); 1671.0 *4*, with Iγ=0.59 *6* (1981ZuZZ). Mult.: α(K)exp=4.5×10^{-4} *8*.
1697.4 *3*	0.058 *13*	2157.98	(7/2)$^-$	460.49	7/2$^+$				
1699.6 *4*	0.07 *2*	1735.44	(7/2)$^-$	35.75	11/2$^-$				
1700.7 *4*	0.06 *2*	2161.04	(9/2)$^-$	460.49	7/2$^+$				
1740.9 *3*	0.088 *15*	1776.61	7/2$^-$	35.75	11/2$^-$	[E2]		1.14×10^{-3} *2*	α(K)=0.000833 *12*; α(L)=0.0001129 *16*; α(M)=2.445×10^{-5} *34* α(N)=5.64×10^{-6} *8*; α(O)=8.69×10^{-7} *12*; α(P)=5.76×10^{-8} *8*; α(IPF)=0.0001676 *24* Mult.: α(K)exp=1.0E−3 *6* gives M1, E2 or E3; E2 from level scheme.
1776.2 *1*	11.66 *50*	1876.88	5/2$^-$	100.75	3/2$^+$	E1		0.000845 *12*	α=0.000845 *12*; α(K)=0.000375 *5*; α(L)=4.84×10^{-5} *7*; α(M)=1.043×10^{-5} *15* α(N)=2.406×10^{-6} *34*; α(O)=3.72×10^{-7} *5*; α(P)=2.525×10^{-8} *35*; α(IPF)=0.000408 *6* E$_\gamma$,I$_\gamma$: others: 1776.5 *5*, with Iγ=11.7 *8* (1990Sa32); 1776.5 *2*, Iγ=11.7 *18* (1975To03); 1776.2 *4*, with Iγ=11.7 *12* (1981ZuZZ). Mult.: α(K)exp=3.8×10^{-4} *3*.
1779.8 *4*	0.07 *3*	1986.44	(3/2$^-$,5/2,7/2$^-$)	206.91	5/2$^+$				
1789.0 *4*	0.032 *7*	2661.4	(9/2$^-$)	872.46	(11/2)$^-$				
1805.8 *1*	7.69 *40*	1841.63	9/2$^-$	35.75	11/2$^-$	M1+E2	1.1 *+8−5*	0.00127 *10*	α(K)=0.00090 *8*; α(L)=0.000122 *10*;

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γ(^{149}Tb) (continued)

E_γ †	I_γ †b	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	α c	Comments
									α(M)=2.63×10^{-5} *23* α(N)=6.1×10^{-6} *5*; α(O)=9.4×10^{-7} *8*; α(P)=6.3×10^{-8} *6*; α(IPF)=0.000211 *9* E_γ,I_γ: others: 1806.0 *5*, with Iγ=7.6 *6* (1990Sa32); 1806.2 *3*, Iγ=9.5 *14* (1975To03); 1806.2 *4*, with Iγ=9.4 *10* (1981ZuZZ, unplaced). Mult.,δ: α(K)exp=9.0×10^{-4} *6*.
1816.4 *4*	0.05 *2*	1852.03	(7/2)$^-$	35.75	11/2$^-$				
1819.3 *3*	0.20 *4*	2026.32	(7/2)$^-$	206.91	5/2$^+$				
1847.3 *2*	0.19 *2*	1883.08	(9/2)$^-$	35.75	11/2$^-$				
1858.4 *1*	0.80 *2*	2065.37	7/2$^-$	206.91	5/2$^+$	E1		0.000875 *12*	α=0.000875 *12*; α(K)=0.000349 *5*; α(L)=4.49×10^{-5} *6*; α(M)=9.67×10^{-6} *14* α(N)=2.232×10^{-6} *31*; α(O)=3.45×10^{-7} *5*; α(P)=2.346×10^{-8} *33*; α(IPF)=0.000469 *7* E_γ,I_γ: other: 1858.6 *5*, with Iγ=1.18 *22* (1990Sa32). Mult.: α(K)exp=4.4×10^{-4} *12*.
1867.3 *1*	0.68 *2*	2074.22	7/2$^-$	206.91	5/2$^+$	E1		0.000878 *12*	α=0.000878 *12*; α(K)=0.000346 *5*; α(L)=4.46×10^{-5} *6*; α(M)=9.60×10^{-6} *13* α(N)=2.215×10^{-6} *31*; α(O)=3.42×10^{-7} *5*; α(P)=2.328×10^{-8} *33*; α(IPF)=0.000476 *7* E_γ,I_γ: other: 1867.5 *5*, with Iγ=0.57 *14* (1990Sa32). Mult.: α(K)exp=2.9×10^{-4} *8*.
1891.8 *3*	0.043 *6*	2352.30	(7/2$^-$,9/2)	460.49	7/2$^+$				
1892.4 *4*	0.038 *6*	1928.15	(7/2$^-$,9/2$^-$)	35.75	11/2$^-$				
1910.2 *2*	0.131 *15*	2117.14	(5/2$^-$,7/2$^-$)	206.91	5/2$^+$	(E1)		0.000895 *13*	α(N)=2.134×10^{-6} *30*; α(O)=3.30×10^{-7} *5*; α(P)=2.245×10^{-8} *31*; α(IPF)=0.000507 *7* α=0.000895 *13*; α(K)=0.000334 *5*; α(L)=4.29×10^{-5} *6*; α(M)=9.24×10^{-6} *13* Mult.: α(K)exp=4.0×10^{-4} *20*.
1917.4 *1*	1.64 *2*	1953.13	9/2$^-$	35.75	11/2$^-$	E2(+M1)	>1.3	0.00112 *6*	α(K)=0.00074 *4*; α(L)=9.9×10^{-5} *6*; α(M)=2.15×10^{-5} *12* α(N)=4.96×10^{-6} *29*; α(O)=7.7×10^{-7} *5*; α(P)=5.14×10^{-8} *33*; α(IPF)=0.000255 *8* E_γ,I_γ: others: 1917.1 *5*, with Iγ=1.57 *13* (1990Sa32); 1917.6 *4*, with Iγ=1.62 *16* (1981ZuZZ, unplaced). Mult.,δ: from α(K)exp=7.2×10^{-4} *5*; E2 given in Table 1 of 2019MeZX.
1979.5 *4*	0.046 *11*	2014.73	(9/2)$^-$	35.75	11/2$^-$				
2026.2 *4*	0.05 *2*	2486.59	(5/2,7/2,9/2$^+$)	460.49	7/2$^+$				
2029.6 *1*	2.58 *20*	2065.37	7/2$^-$	35.75	11/2$^-$	E2		1.04×10^{-3} *1*	α(K)=0.000628 *9*; α(L)=8.41×10^{-5} *12*; α(M)=1.819×10^{-5} *25* α(N)=4.20×10^{-6} *6*; α(O)=6.48×10^{-7} *9*;

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^{149}Dy ε decay (4.2 min) 2019MeZX (continued)

γ(^{149}Tb) (continued)

E_γ [†]	I_γ [†b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[c]	Comments
								α(P)=4.34×10^{-8} *6*; α(IPF)=0.000300 *4* Mult.: α(K)exp=6.1×10^{-4} *5*.
2038.5 *2*	0.252 *12*	2074.22	7/2$^-$	35.75	11/2$^-$	E2	1.03×10^{-3} *1*	E$_\gamma$,I$_\gamma$: other: 2030.3 *4*, with Iγ=2.36 *24* (1981ZuZZ), unplaced. α(K)=0.000623 *9*; α(L)=8.34×10^{-5} *12*; α(M)=1.804×10^{-5} *25* α(N)=4.17×10^{-6} *6*; α(O)=6.43×10^{-7} *9*; α(P)=4.31×10^{-8} *6*; α(IPF)=0.000304 *4* Mult.: α(K)exp=6.6×10^{-4} *13*.
2087.3 *5*	0.012 *6*	2547.5	(5/2,7/2$^+$)	460.49	7/2$^+$			
2105.4 *4*	0.029 *10*	2566.1	(7/2$^-$,9/2)	460.49	7/2$^+$			
2113.0 *4*	0.029 *10*	2573.4	(7/2$^-$,9/2)	460.49	7/2$^+$			
2125.3 *3*	0.17 *3*	2161.04	(9/2)$^-$	35.75	11/2$^-$	D,E2		Mult.: α(K)exp=4.0×10^{-4} *20*.
2128.1 *1*	0.02 *1*	2588.60	(5/2,7/2)	460.49	7/2$^+$			
2224.3 *3*	0.13 *3*	2260.33	(7/2$^-$,9/2)	35.75	11/2$^-$			
2279.6 *3*	0.034 *10*	2486.59	(5/2,7/2,9/2$^+$)	206.91	5/2$^+$			
2309.3 *3*	0.058 *6*	2516.33	(7/2$^-$)	206.91	5/2$^+$			
2316.4 *3*	0.043 *9*	2352.30	(7/2$^-$,9/2)	35.75	11/2$^-$			
2340.5 *5*	0.030 *12*	2547.5	(5/2,7/2$^+$)	206.91	5/2$^+$			
2416.7 *3*	0.036 *7*	2452.5	(9/2$^-$)	35.75	11/2$^-$			
2446.5 *4*	0.027 *6*	2547.5	(5/2,7/2$^+$)	100.75	3/2$^+$			
2480.6 *5*	0.014 *4*	2516.33	(7/2$^-$)	35.75	11/2$^-$			
2530.5 *4*	0.012 *5*	2566.1	(7/2$^-$,9/2)	35.75	11/2$^-$			
2537.6 *4*	0.012 *5*	2573.4	(7/2$^-$,9/2)	35.75	11/2$^-$			
2625.6 *4*	0.015 *5*	2661.4	(9/2$^-$)	35.75	11/2$^-$			

[†] All values are taken from the most complete study by 2019MeZX for internal consistency, unless otherwise noted. Values are also available from 1990Sa32 for 76 transitions, but are much less complete than those in 2019MeZX; they are given under comments where available, with intensities being renormalized by the evaluators relative to Iγ(1776.2γ)=11.66 in 2019MeZX from original values relative to Iγ(100.7γ)=100. The Iγ(100.7γ) is not chosen as the normalization reference due to the poorly-known efficiency curve within the low energy range. Values from 1981ZuZZ are considered as preliminary and are not listed.

[‡] Transition observed only in coincidence spectra (2019MeZX).

[#] From the Adopted Gammas. Assignments are from or supported by ce data in 2019MeZX, which are given under comments where available. For Mult=M1+E2 only available from ^{149}Dy ε decay (4.2 m), adopted δ is deduced by the evaluators from α(K)exp and/or α(L)exp using the BrIccMixing code.

[@] ce data for strongest component of a complex Tb line (2019MeZX).

[&] ce data for weak component of a complex Tb line (2019MeZX).

[a] ce data for component of a complex Tb line (2019MeZX).

[b] Absolute intensity per 100 decays.

[c] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[d] Multiply placed with undivided intensity.

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γ(^{149}Tb) (continued)

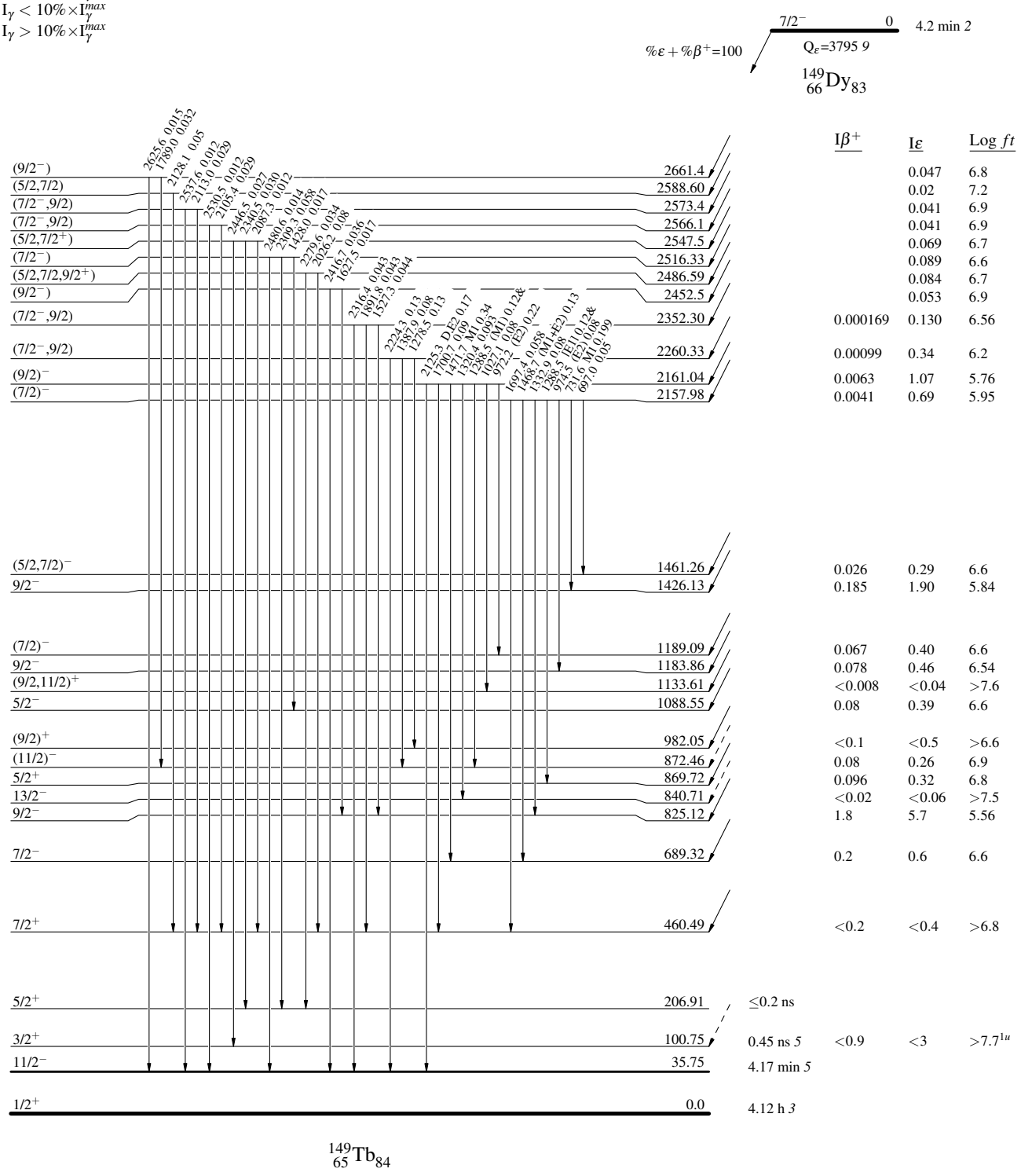
[e] Multiply placed with intensity suitably divided.
[f] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme

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

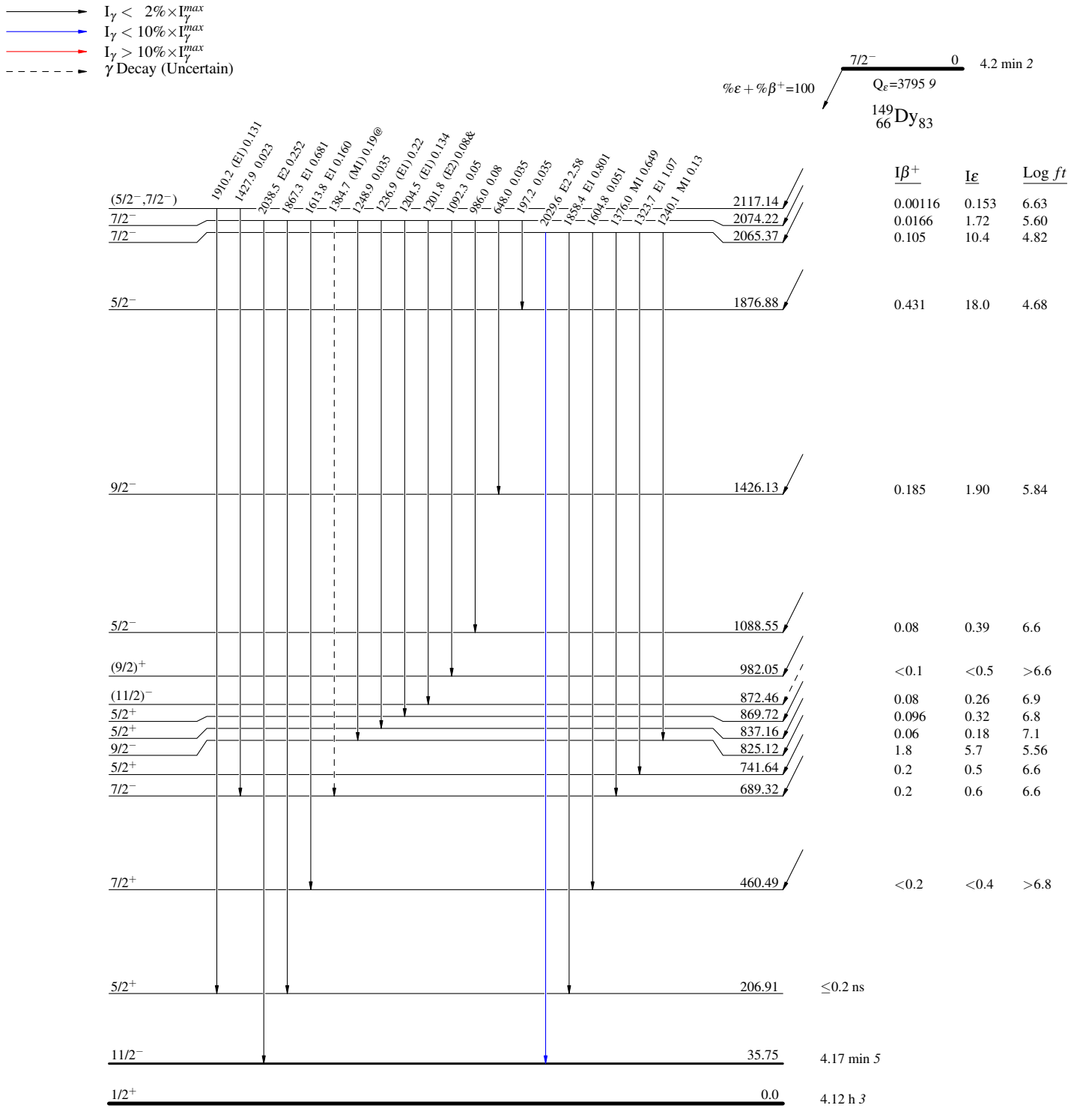
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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

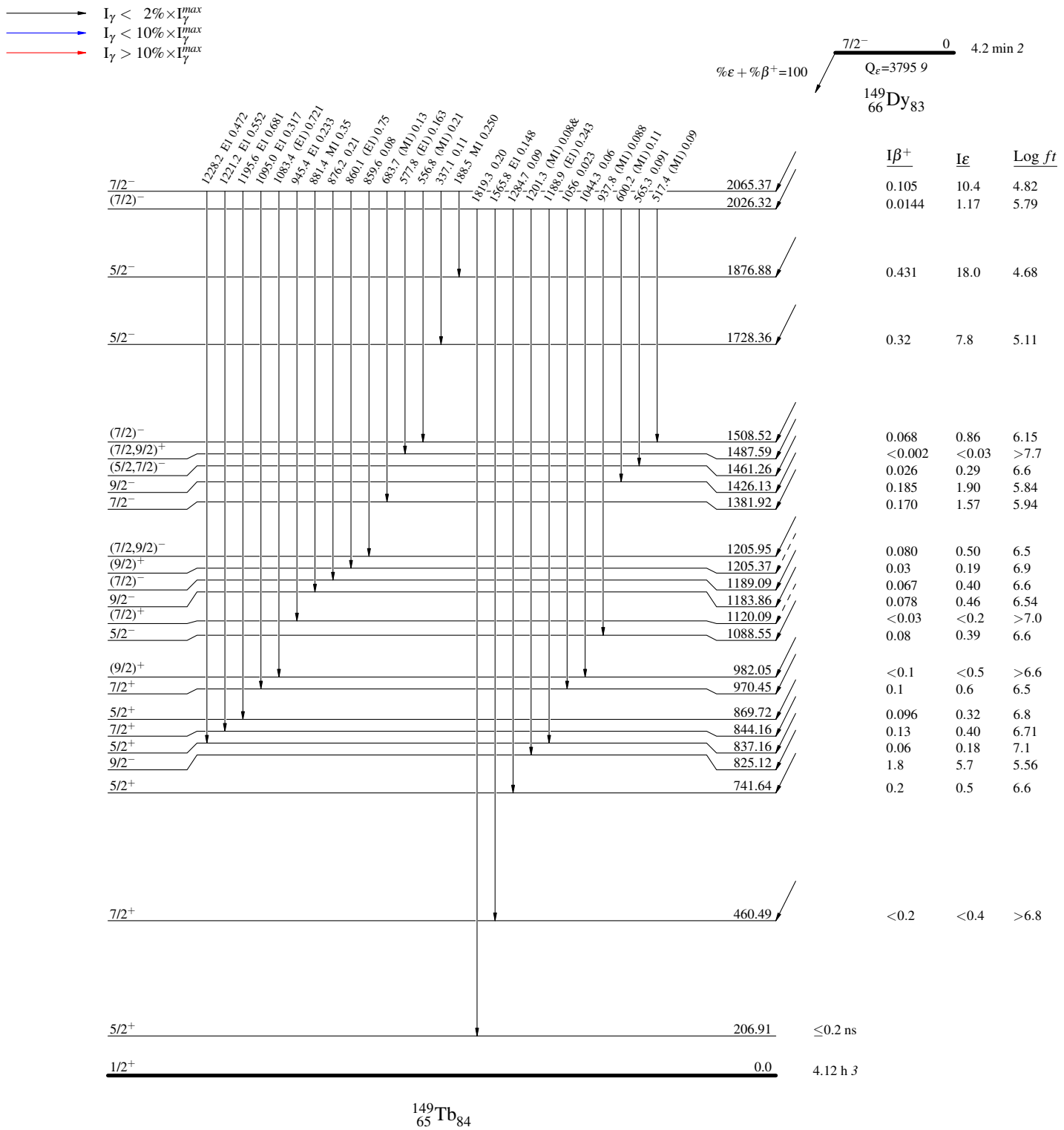


	Iβ⁺	Iε	Log *ft*
2117.14	0.00116	0.153	6.63
2074.22	0.0166	1.72	5.60
2065.37	0.105	10.4	4.82
1876.88	0.431	18.0	4.68
1426.13	0.185	1.90	5.84
1088.55	0.08	0.39	6.6
982.05	<0.1	<0.5	>6.6
872.46	0.08	0.26	6.9
869.72	0.096	0.32	6.8
837.16	0.06	0.18	7.1
825.12	1.8	5.7	5.56
741.64	0.2	0.5	6.6
689.32	0.2	0.6	6.6
460.49	<0.2	<0.4	>6.8

^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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

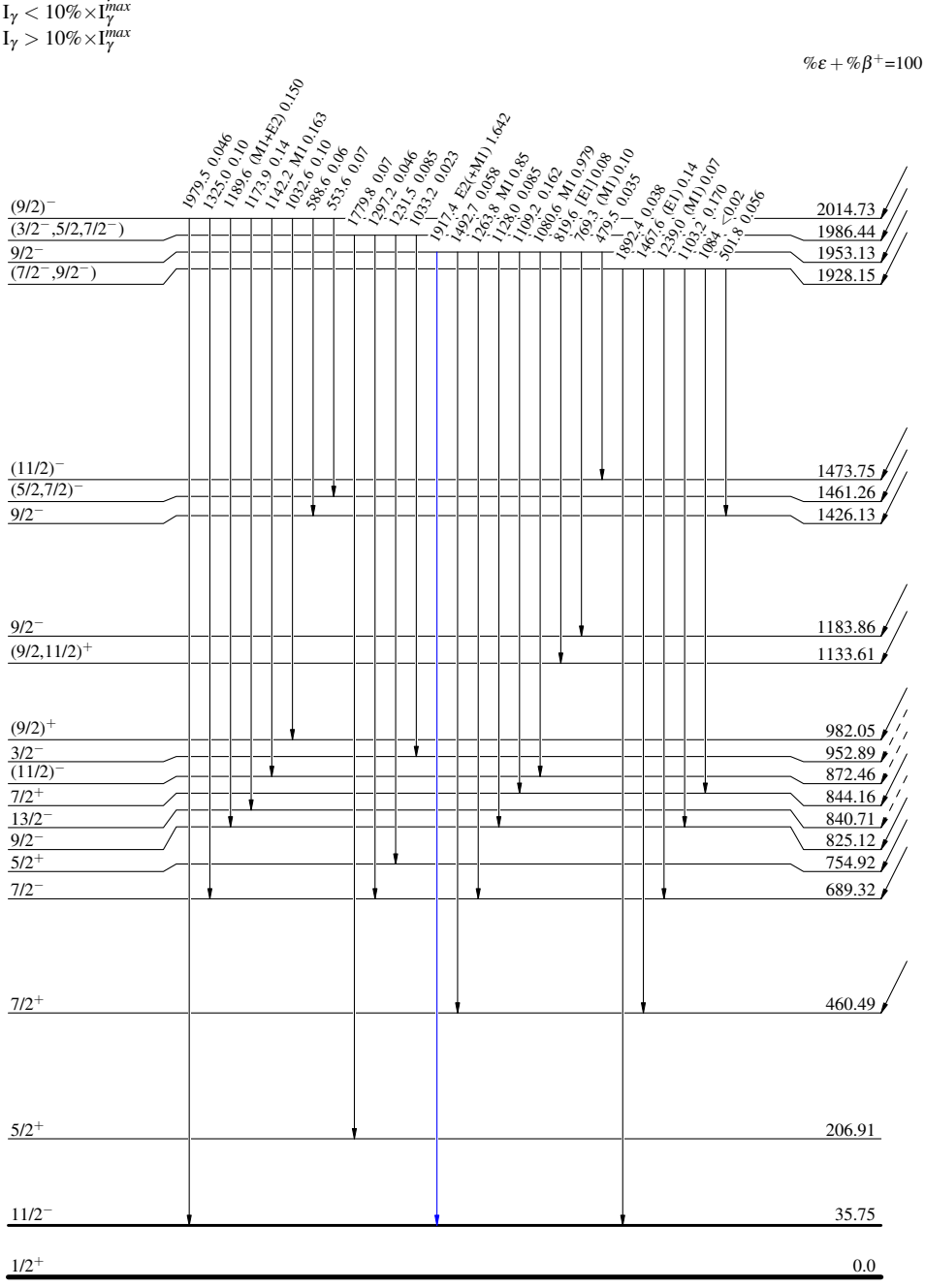


^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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

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



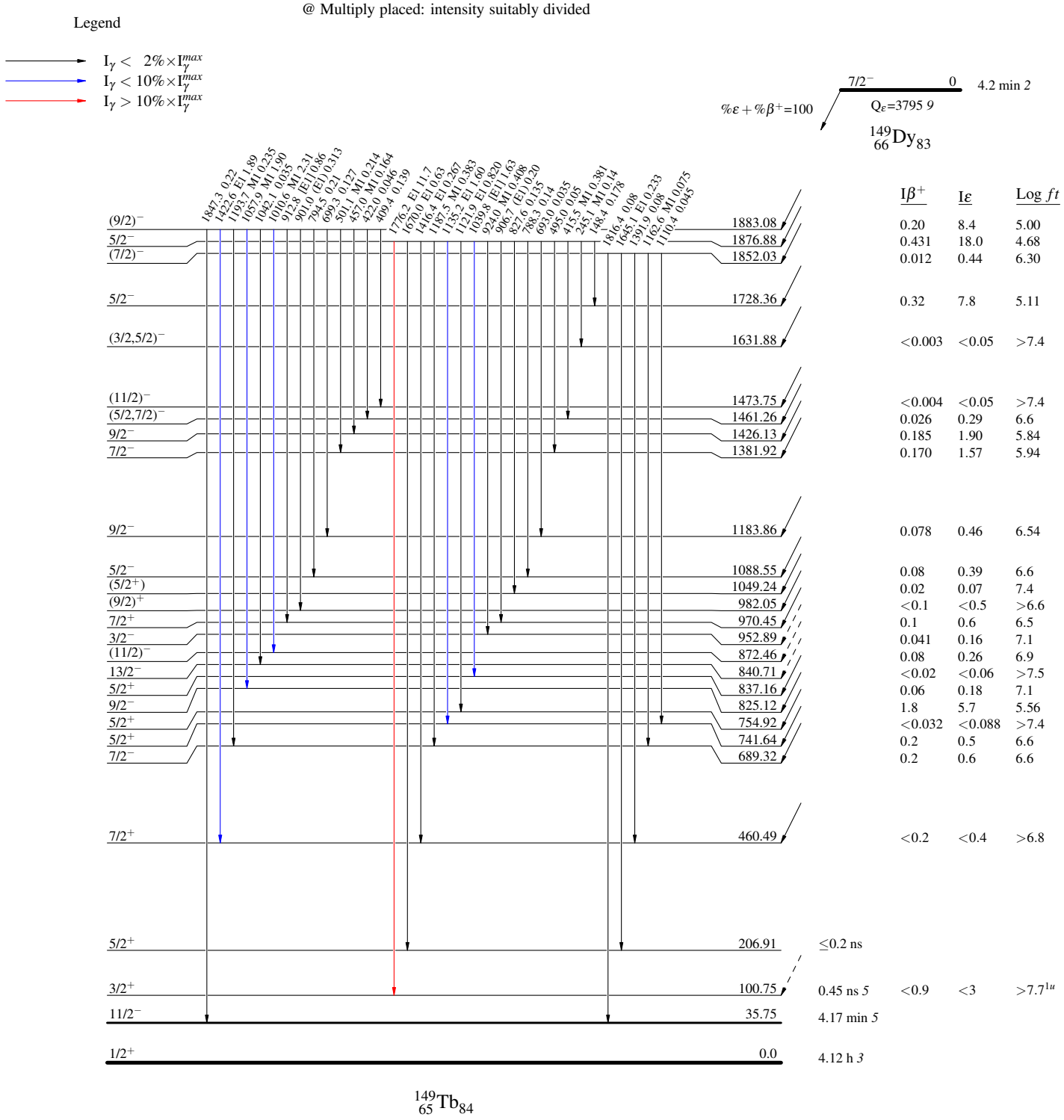
	Iβ+	Iε	Log ft
2014.73	0.0099	0.76	5.98
1986.44	0.0032	0.22	6.5
1953.13	0.068	3.92	5.30
1928.15	0.0086	0.44	6.26
1473.75	<0.004	<0.05	>7.4
1461.26	0.026	0.29	6.6
1426.13	0.185	1.90	5.84
1183.86	0.078	0.46	6.54
1133.61	<0.008	<0.04	>7.6
982.05	<0.1	<0.5	>6.6
952.89	0.041	0.16	7.1
872.46	0.08	0.26	6.9
844.16	0.13	0.40	6.71
840.71	<0.02	<0.06	>7.5
825.12	1.8	5.7	5.56
754.92	<0.032	<0.088	>7.4
689.32	0.2	0.6	6.6
460.49	<0.2	<0.4	>6.8

$^{149}_{65}Tb_{84}$

^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

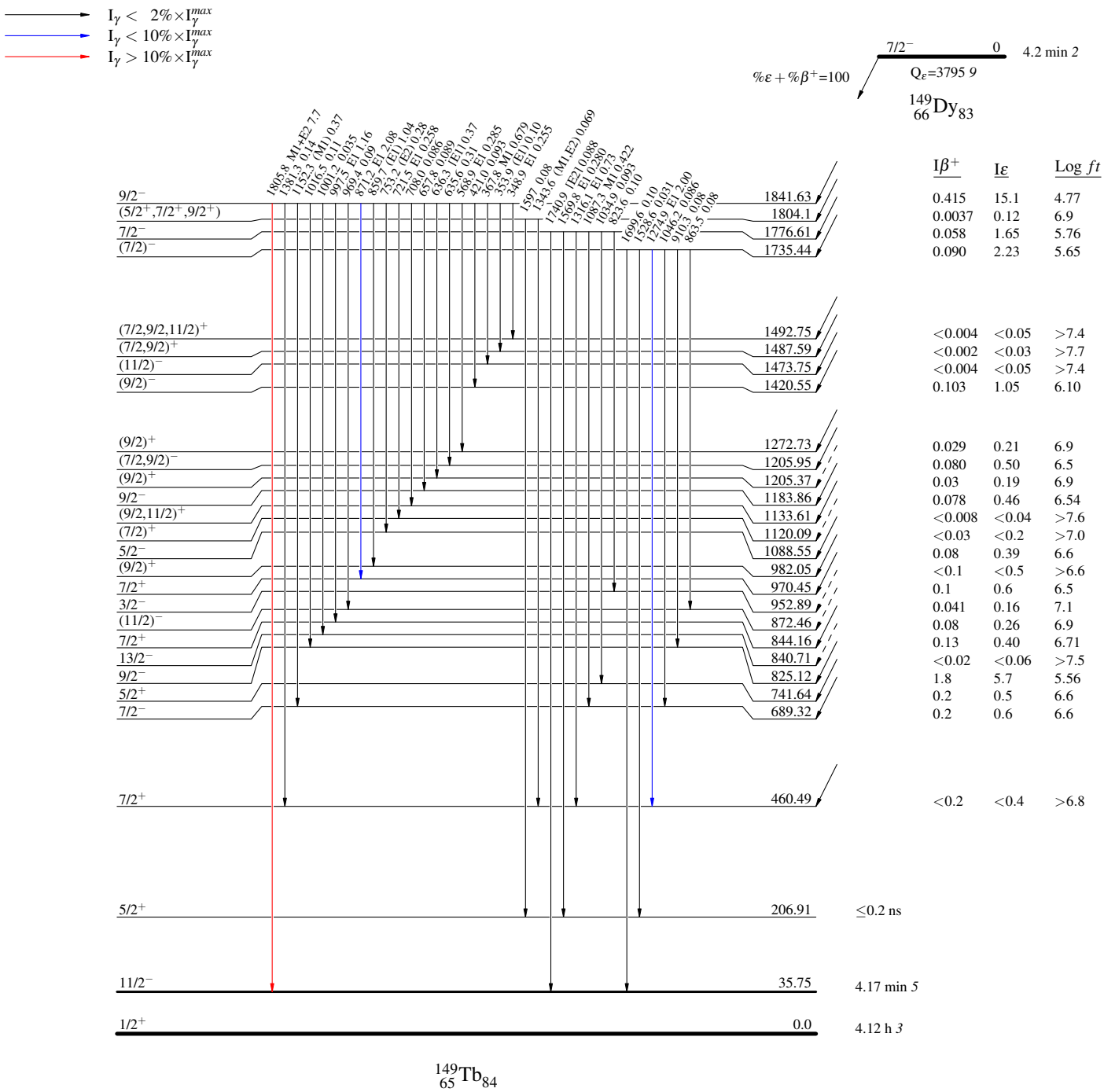
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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

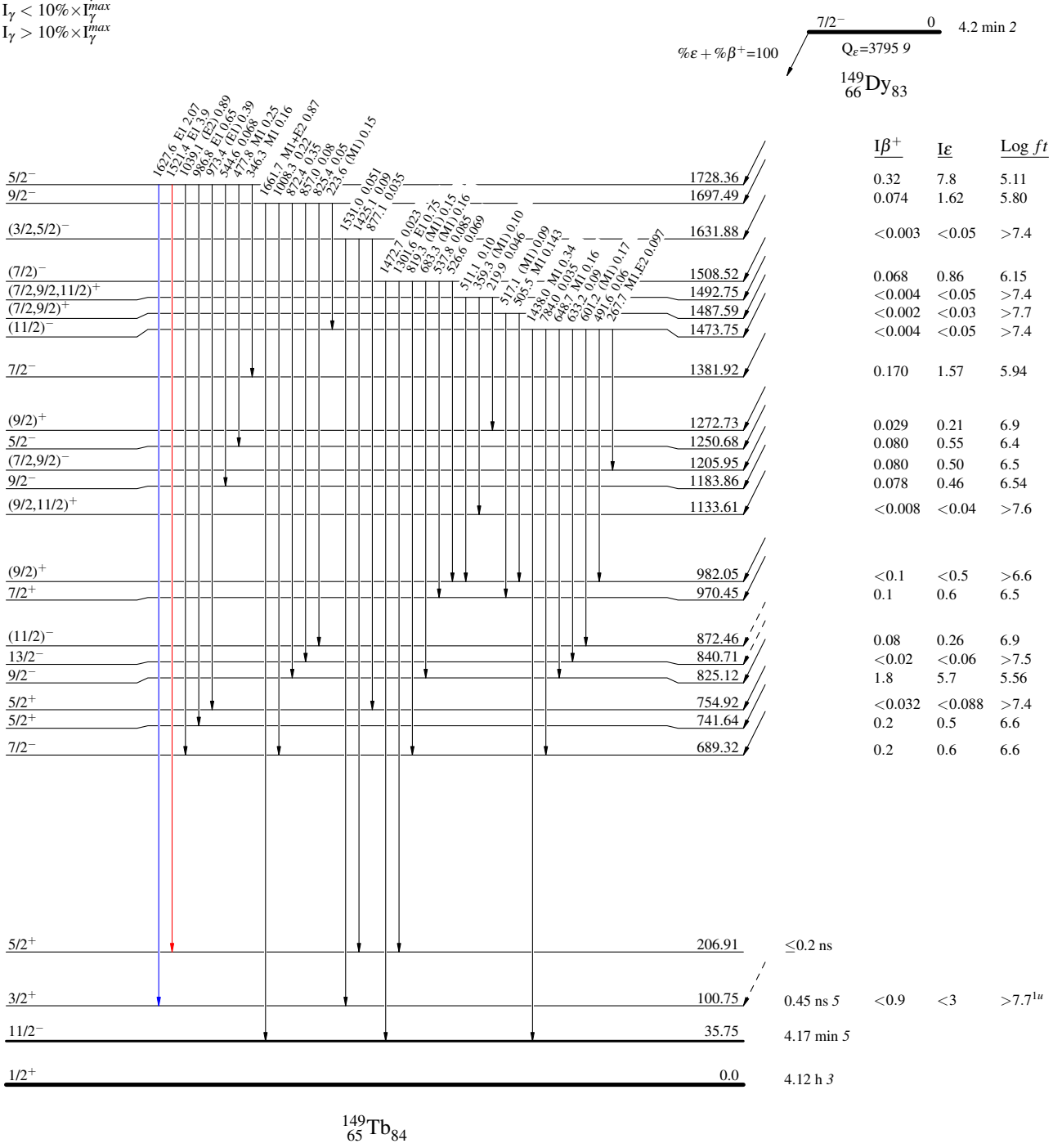


^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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

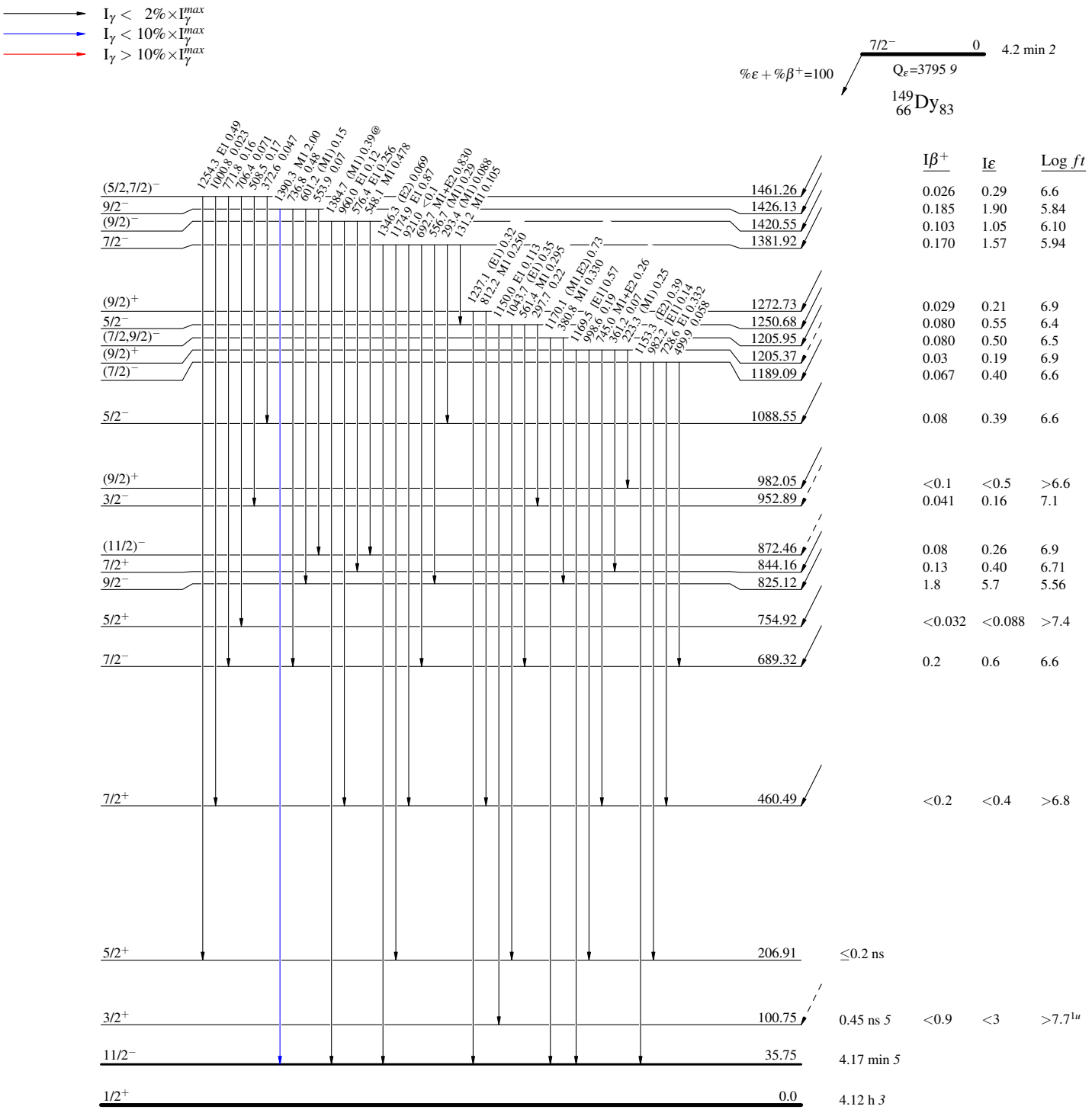
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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



^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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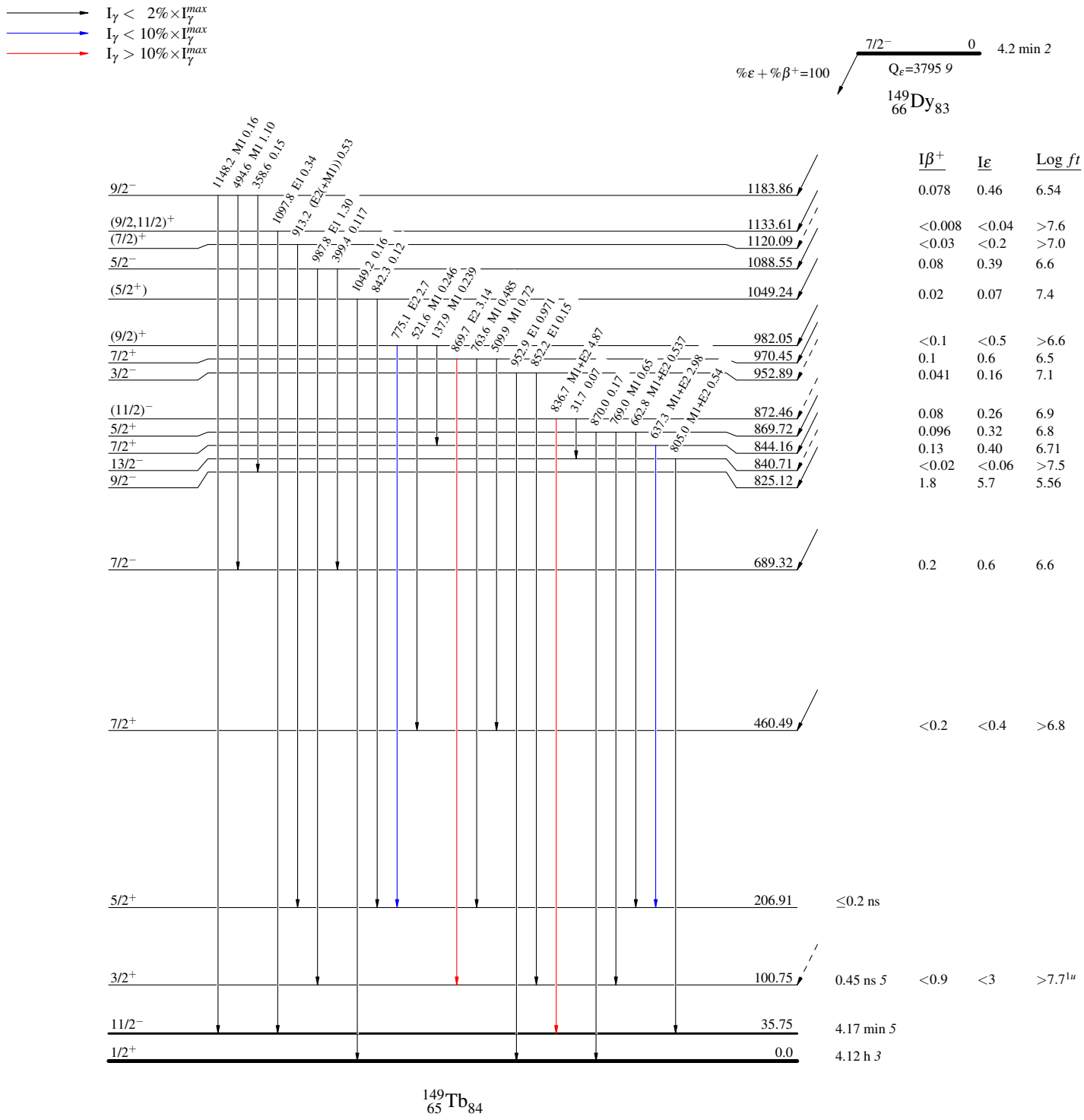

^{149}Dy ε decay (4.2 min) 2019MeZX

Decay Scheme (continued)

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